INSERVICE INSPECTION REPORT

INTERVAL - 2

PERIOD - 2

for the

H. B. ROBINSON - UNIT 2

NUCLEAR GENERATING PLANT

for

CAROLINA POWER AND LIGHT COMPANY

Box 790

Hartsville, South Carolina 29550

REPORT DATE: April 1987

COMMERCIAL SERVICE DATE: March 1971

OPERATING CAPACITY: 700 MWe

Performed by:

WESTINGHOUSE ELECTRIC CORPORATION
Nuclear Services Integration Division
Inspection Services
P.O. Box 3377
Pittsburgh, Pennsylvania 15230

I N D E X

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 & SC 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 3-07-71 6. National Board Number for Unit N/A

7. Components Inspected

Component or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reactor Vessel	Westinghouse	CPLRCPSRV1	N/A	NB-20772
Regen. Ht. Exch.	Sentry Equipment Co.	CPLCHAHRG	N/A	N/A
Pressurizer Spray Piping	Ebasco Svcs. Inc.	N/A	N/A	N/A
Loop "B" Seal Inj Piping	Ebasco Svcs. Inc.	N/A	N/A	N/A
RTD Piping	Ebasco Svcs. Inc.	N/A	N/A	N/A
Pressurizer Safety Piping	Ebasco Svcs. Inc.	N/A	N/A	N/A
Charging Line Piping	Ebasco Svcs. Inc.	N/A	N/A	N/A
RC Pump "C" Seal House Bolts	Westinghouse	CPLRCPCPC3	N/A	N/A
Boron Inj. Tank	Southern Fabricators	0049	N/A	368
Volume Cont. Tank	Westinghouse	CPLCHATVC1	N/A	N/A
RHR H.X. "A"	Westinghouse	CPLACAHRS1	N/A	731
Steam Generator "A"	Westinghouse	93732	N/A	N/A
Steam Generator "B"	Westinghouse	93733	N/A	N/A
Steam Generator "C"	Westinghouse	93734	N/A	N/A
R.C. Filter	Westinghouse	CPLCHFLRC	N/A	N/A
S.W. Inj. Filter	Westinghouse	CPLCHFLSI1	N/A	929

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.

8. Examination Dates 4/1/87 to 4/30/87 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 1987 ISI Report.

11. Abstract of Conditions Noted See Tabs B, C, and E of 1987 ISI Report.
NOTE: Exceptions or Limitations are shown on the limitation report forms.

12. Abstract of Corrective Measures Recommended and Taken See Tab D.

See Tab F of 1987 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 8-31 19 87 Signed CP&L Owner By 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 4/1/87 to 4/30/87, 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 requirements of 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
National Board, State, Province, and Endorsements

Date 8-31-19 87

(12/82)

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. 15 & SC 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 3-07-71 6. National Board Number for Unit N/A

7. Components Inspected

Component or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
S.W. Ret. Filter	Westinghouse	CPLCHFLSW	N/A	N/A
S.W. Ht. Exgr.	Westinghouse	CPLCHAHSW	N/A	669
Letdown H.X.	Westinghouse	CPLCHAHNR	N/A	685
Suct. Stabilizer "A"	Johnson Controls	M-0393	N/A	N/A
Puls. Dampener "A"	Johnson Controls	M-0391	N/A	N/A
Main Steam Pipe	Ebasco Svcs. Inc.	N/A	N/A	N/A
Feedwater Pipe	Ebasco Svcs. Inc.	N/A	N/A	N/A
RHR Piping	Ebasco Svcs. Inc.	N/A	N/A	N/A
SIS Piping	Ebasco Svcs. Inc.	N/A	N/A	N/A
RHR Pump "A"	Ingersoll-Rand	0967-70	N/A	N/A
RHR Pump "B"	Ingersoll-Rand	0967-71	N/A	N/A
Cont. Spray Pipe	Ebasco Svcs. Inc.	N/A	N/A	N/A
Acc. Disch. Pipe	Ebasco Svcs. 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.

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 9/24/86
   411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
   Hartsville, SC 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) (Name) SP-692 and MOD-881 and MOD-747 (Repair Organization P.O. No., Job No., etc.)
   Same as Item 1 (Address)
4. Identification of System Steam Generator Blowdown welds 1942, 3326 and 3327
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.	Mfr. 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	1986	Replacement	N/A

7. Description of Work Blowdown elbow replacement
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1700 psi Test Temp. ____ °F
9. Remarks SP-692 and MOD-881 Turnover Packages and NCR-85-146 (Applicable Manufacturer's Data Reports to be attached)
   Ref. also MOD-747 for complete blowdown system mod.

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) 9/30 (Date), 19 86

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 10-23-, 19 86 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 10-23-86 (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 6 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 9/18/86
   411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 1 of 2
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
   Hartsville, SC 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) SP-673 (Repair Organization P.O. No., Job No., etc.) Class 2
   Same as Item 1 (Address)
4. Identification of System Service Water, Safety Injection, and Instrument Air.
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	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
S-5, P-55	Ebasco	N/A	N/A	N/A	Bellows	1971	Replaced	N/A
S-5, P-55	RPC	N/A	N/A	N/A	Bellows	1986	Replacement	N/A
S-12, P-33	Ebasco	N/A	N/A	N/A	Bellows	1971	Replaced	N/A
S-12, P-33	RPC	N/A	N/A	N/A	Bellows	1986	Replacement	N/A
S-2, P-43	Ebasco	N/A	N/A	N/A	Bellows	1971	Replaced	N/A
S-2, P-43	RPC	N/A	N/A	N/A	Bellows	1986	Replacement	N/A

7. Description of Work Replaced Bellows at Penetrations P-33, 43, & 55 and Piping.
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☒ Nominal Operating Pressure ☒ Other ☐
   Pressure * psi Test Temp. * °F *See Page 2 of 2
9. Remarks SP-673, 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) 9/22 (Date), 19 86

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 10-23-, 1986 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 10-23-86 (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 6 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 Date 9/18/86
   411 Fayetteville St., Raleigh, NC 27602 Sheet 2 of 2
2. Plant H. B. Robinson, Hwy 151 & SC 23 Unit HBR-2
   Hartsville, SC 29550
3. Work Performed by Robinson Project Const. SP-673 Class 2
   Same as Item 1 Repair Organization P.O. No., Job No., etc.
4. Identification of System Service Water, Safety Injection, and Instrument Air.

Hydrostatic Tests Performed (Piping)

PSIG	Medium
105	Water
2250	Water

Pneumatic Tests Performed (Bellows)

PSIG	Medium
52	Air

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 10/31/86
   411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR - 2
   Hartsville, S. C. 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) (Name) SP-695 Class 2
   Same as Item 1 (Address) (Repair Organization P.O. No., Job No., etc.)
4. Identification of System Main Steam and Feedwater Restraint Tower Pipe Supports
5. (a) Applicable Construction Code AISC 19 63 & 78 Edition 6th & 8th Addenda, Code Cases N/A
   (b) Applicable Edition of Section XI Utilized for Repairs or Replacements – 19 77 , S78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

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

7. Description of Work Repair of Pipe Restraint Tower Structural Steel @ F.W. Stop Checks
8. Tests Conducted N/A Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure N/A psi Test Temp. N/A °F
9. Remarks Special Procedure SP-695 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 Repair (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 11/5 (Date) , 19 86

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 11-21-, 19 86 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 11-21-86 (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 9/17/86
411 Fayetteville St., Raleigh, N. C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
Hartsville, S. C. 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) (Name) MOD-812 Class 2 (Repair Organization P.O. No., Job No., etc.)
Same as Item 1 (Address)
4. Identification of System CVCS Letdown
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.	Mfr. 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		1971	Replaced	N/A
Piping	NELD	N/A	N/A	N/A		1986	Replacement	N/A
Valves	Ebasco	N/A	N/A	N/A	200A, B&C	1971	Replaced	N/A
Valves	NELD	See Item 7	N/A	N/A	200 A, B&C	1986	Replacement	N/A

7. Description of Work Replaced valves at 200A, B, & C with 7310-95287-215-1, 7310-95285-215-1, & 7310-95287-215-2
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure 650 psi Test Temp. 40 °F and 3120 psi at 40°F min.
9. Remarks MOD-812 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) 9/22 (Date), 19 86

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 10-30-, 1986 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 10-30-86 (Signed) 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) 411 Fayetteville St., Raleigh, NC 27602 (Address) Date 9/18/86 Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Hartsville, SC 29550 (Address) Unit HBR-2
3. Work Performed by Robinson Project Maintenance (Name) Same as Item 2 (Address) 2060-AXH-86 & SP-714 (Repair Organization P.O. No., Job No., etc.)
4. Identification of System CVCS Charging
5. (a) Applicable Construction Code B31.1 19 67 & 80 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.	Mfr. 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	2"	1971	Replaced	N/A
Piping	Maint.	N/A	N/A	N/A	2"	1986	Replacement	N/A
Valve	Ebasco	N/A	N/A	N/A	CVC 277A	1971	Replaced	N/A
Valve	Maint.	B8913	N/A	N/A	CVC 277A	1986	Replacement	N/A

7. Description of Work Replaced CVC-277A Valve with new Valve S/N B8913
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 3490 psi Test Temp. — °F and 99 PSI
9. Remarks WR 2060-AXH-86 & SP-714 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) 9/22 (Date), 19 86

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 10-30-, 19 86 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 10-30-86 (Inspector) Commissions NB 8095, 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 12/10/86
411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Address) Unit HBR2
Hartsville, SC 29550 (Name)
3. Work Performed by Robinson Project Maintenance (Name) H12-Z33-53056 DBN-86 Class 2
Same as Item 2 (Address) Repair Organization P.O. No., Job No., etc. Dwg. G190196 1 of 4
4. Identification of System Main Steam & Extraction Steam System
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.	Mfr. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Valve MS-263B	Ebasco	N/A	N/A	N/A	2"	1971	Repaired	N/A

7. Description of Work Grind out and weld repair steam cutting in valve bonnet
8. Tests Conducted N/A Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure ---- psi Test Temp: ---- °F
9. Remarks H12-Z33-53056 DBN-86 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 repair (repair or replacement) conforms to Section XI of the ASME Code

Signed Richard B. Weber 12/10/86 (Owner or Owner's Designee) Sr. Specialist (Title) 12/10 (Date), 19 86

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 3-4-, 1987 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 3-4-87 (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 12/30/86
   411 Fayetteville St., Raleigh NC 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson (Name) - Unit HBR-2
   Hwy. 151 & SC 23, Hartsville, SC 29550 (Address)
3. Work Performed by Robinson Plant Const. (NELD) (Name) TRP 84-8 and MOD-862; Dwg. G-190197, Sh. 1 (Repair Organization P.O. No., Job No., etc.)
   Same as Item 1 (Address)
4. Identification of System Condensate Storage Tank Auxiliary Feedwater
5. (a) Applicable Construction Code AWWA, D100-67 Edition Sec. 12.3 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 *And ANSI B31.1, 1967

Name of Component	Name of Mfr.	Mfr. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
C.S. Tank	C.B.&I	9-9502	N/A	N/A	Horton Tank	1968	Repaired	No
Piping	Ebasco	N/A	N/A	N/A	N/A	1968	Repaired	No
Support	Ebasco	N/A	N/A	N/A	N/A	1968	Repaired	No

7. Description of Work Repaired top of CST and associated piping and supports.
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒
   Pressure static psi Test Temp. N/A °F
9. Remarks TRP 84-8 and MOD-862 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) 12/31/86 (Date). 19 87 RBW 12/31/86

3-4-87

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 3-4-, 19 87 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 3-4-87 (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 6 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 6/3/87
411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 &-SC 23 (Name) Unit HBR-2
Hartsville, SC 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) WR/JO 86-ANRT1 (Repair Organization P.O. No., Job No., etc.)
Same as Item 2 (Address) Class 2
4. Identification of System Chemical and Volume Control
5. (a) Applicable Construction Code ANSIB31-19 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.	Mfr. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Valve CVC-277C	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
Valve CVC-277C	RPC	N/A	N/A	N/A	N/A	1987	Replacement	N/A

7. Description of Work Replaced Valve CVC-277C
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure 3500 psi Test Temp. — °F and 100 PSI
9. Remarks WR/JO 86-ANRT1 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) 6/3 (Date), 19 87

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 6-23-, 19 87 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 6-23-87 (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 6 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 6/11/87
411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 1 of 2
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
Hartsville, South Carolina 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) MOD-767 (Repair Organization P.O No., Job No., etc.)
Same as Item 1 (Name)
(Address)
4. Identification of System Auxiliary Feedwater System
5. (a) Applicable Construction Code B.31.1 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-416
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfr. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Check Valves	Ebasco	N/A	N/A	N/A	Disch.	1971	Replaced	No
Throttling Valves	Ebasco	N/A	N/A	N/A	Flow Control	1984	Replacement	No
Piping	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	No
Piping	RPC	N/A	N/A	N/A	N/A	1984	Replacement	No

7. Description of Work Replaced Check Valves, Added Throttling Valves, Provided Auto Flow Control to AFWS.
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☒ Other ☐
Pressure – psi Test Temp. – °F See Page 2 of 2.
9. Remarks MOD-767 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) 6/11 (Date), 19 87

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 6-23-, 19 87 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 6-23-87 (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

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 6/11/87
   411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 2 of 2
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
   Hartsville, South Carolina 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) MOD-767
   Same as Item 1 (Name) Repair Organization P.O No., Job No., etc.
   (Address)
4. Identification of System Auxiliary Feedwater System

Hydrostatic Tests Performed

Pressure	Temperature
2300 PSIG	>40°F
1400 PSIG	-
1440 PSIG	-
1500 PSIG	-

Nominal Operating Pressure Tests Performed (Code Case N-416)

Pressure	Temperature
1330 PSIG	>40F

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 6/10/87
   411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 1 of 2
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
   Hartsville, South Carolina 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) SP-587 Dwg. FSM-SP587-1237 Rev. 3 (Repair Organization P.O. No., Job No., etc.)
   Same as Item 2 (Address)
4. Identification of System PPS, AFW, CCW to HVH Units and SIS
5. (a) Applicable Construction Code B.31.1 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-416
6. Identification of Components Repaired or Replaced, and Replacement Components

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

7. Description of Work PPS, AFW, CCW, and SIS Bellows removed and replaced.
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☒ Other ☐
   Pressure — psi Test Temp. — °F See page 2 of 2
9. Remarks SP-587 Turnover Package (Applicable Manufacturer's Data Reports to be attached)
   See Page 2 of 2 for additional comments and tests performed.

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) 6/10 (Date), 19 87

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 6-22-, 19 87 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 6-22-87 Signed [signature] (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 6 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.

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 6/10/87
411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 2 of 2
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
Hartsville, South Carolina 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) SP-587 Dwg. FSM-SP587-1237 Rev. 3
Same as Item 2 (Address) Repair Organization P.O No., Job No., etc.
4. Identification of System PPS, AFW, CCW to HVH Units and SIS

Hydrostatic Tests Performed

Pressure	Temperature
2200 PSIG	>45°F
72 PSIG	>35°f
73 PSIG	>35°F

Nominal Operating Pressure Test Performed (Code Case N-416)

Pressure	Temperature
1330 PSIG	>32°F

Pneumatic Tests Performed

Pressure	Temperature
54 PSIG	>32°F
55 PSIG	>32°F

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 6/29/87
411 Fayetteville St., Raleigh, NC 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
Hartsville, South Carolina 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) (Name) MOD-912 & Dwg. 1D99137 (Repair Organization P.O. No., Job No., etc.)
Same as Item 2 (Address)
4. Identification of System Reactor Coolant System
5. (a) Applicable Construction Code ANSIB31.1 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 RC-535	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
Valve RC-536	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
Valve RC-535	W	N/A	N/A	N/A	N/A	1987	Replacement	N/A
Valve RC-536	W	N/A	N/A	N/A	N/A	1987	Replacement	N/A

7. Description of Work replaced existing pressurizer PORV block valves RC-535 and 536 with new valves.
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure 2338 psi Test Temp. > 500°F
9. Remarks MOD-912 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. Wiebe (Owner or Owner's Designee) Sr. Specialist (Title) 7/1 (Date), 19 87

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 7-14-, 1987 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 7-14-87 (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 6/24/87
   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 Westinghouse EMD (Name) MOD-815 (Repair Organization P.O. No., Job No., etc.)
   Cheswick, Pennsylvania (Address) Class I
4. Identification of System Reactor Vessel Control Rod Drive Mechanism Housings
5. (a) Applicable Construction Code Section III '68 '77 Edition W/78 Addenda, Code Cases N/A
   (b) Applicable Edition of Section XI Utilized for Repair 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)
Reactor Vessel	C.E.	66109	20772	N/A	K-6CRDM	1971	Replaced	N/A
Reactor Vessel	W	RCPCRV1	20772	N/A	K-6 Cap	1987	Replacement	N/A

7. Description of Work Replaced part length CRDM with a welded cap atop the RV Head at core Location K-6
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 2338 psi Test Temp. 535 °F
9. Remarks MOD-815 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) 6/24 (Date), 19 87

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 Lumbermen Mutual Casualty Company of Long Grove IL have inspected the replacement (Repair(s) or Replacement(s)) described in this Report on 7-14-, 19 87 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 7-14-87 (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 7-13-87
   411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy. 151 & S.C. 23 (Name) Unit HBR-2
   Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) 85-AJXI1
   Same as Item 2 (Address) Repair Organization P.O. No., Job No., etc.
4. Identification of System Main Steam Class 2
5. (a) Applicable Construction Code B31.1 19 67 & 80 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	PT-475	1971	Replaced	N/A
Piping	RPC	N/A	N/A	- N/A	PT-475	1987	Replacement	N/A

7. Description of Work Replaced 'A' MS line cond. Pot for PT-475 & Isol. Vlv. MS-16
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1390 psi Test Temp. ≥ 50 °F
9. Remarks 85-AJXI1 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) 7/16 (Date), 19 87

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 8-11-, 19 87 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 8-11-87 (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) 411 Fayetteville St., Raleigh, N.C. 27602 (Address) Date 7-14-87 Sheet 1 of 1
2. Plant H.B. Robinson, Hwy 151 & S.C. 23 (Name) Hartsville, S.C. 29550 (Address) Unit HBR-2
3. Work Performed by Robinson Project Const. (Name) Same as Item 2 (Address) 85-AJXC-1 Repair Organization P.O. No., Job No., etc.
4. Identification of System Main Steam Class 2
5. (a) Applicable Construction Code B31.1 1967 & 80 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	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Piping	Ebasco	N/A	N/A	N/A	PT-486	1971	Replaced	N/A
Piping	RPC	N/A	N/A	N/A	PT-486	1987	Replacement	N/A

7. Description of Work Replaced 'B' MS line Condenser Pot for PT-486 and Isol. Valve MS-26
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1380 psi Test Temp. ≥50 °F
9. Remarks 85-AJXC-1 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) 7/16 (Date), 19 87

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 8-12-, 1987 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 8-12-87 (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) 411 Fayetteville St. (Address) Raleigh, N.C. 27602 (Name) Date 7-13-87 Sheet 1 of 1
2. Plant H.B. Robinson, Hwy 151 & S.C. 23 (Address) Hartsville, S.C. 29550 (Name) Unit HBR-2
3. Work Performed by Robinson Project Const. (Address) Same as Item 2 (Name) 85-AJXH-1 Repair Organization P.O. No., Job No., etc.
4. Identification of System Main Steam Class 2
5. (a) Applicable Construction Code B31.1 1967 & 80 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.	Mfr. 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	PT-476	1971	Replaced	N/A
Piping	RPC	N/A	N/A	N/A	PT-476	1987	Replacement	N/A

7. Description of Work Replaced 'A' MS line cond. Pot for PT-476 and Iso. Valve MS-17
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1390 psi Test Temp. ≥ 50 °F
9. Remarks 85-AJXH-1 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) 7/6 (Date), 19 87

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 8-12-, 19 87 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 loss of any kind arising from or connected with this inspection.

Date 8-12-87 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) 411 Fayetteville St., Raleigh, N.C. 27602 (Address) — Date 7-13-87 — Sheet 1 of 1
2. Plant H.B. Robinson, Hwy 151 & S.C. 23 (Name) Hartsville, S.C. 29550 (Address) — Unit HBR-2
3. Work Performed by Robinson Project Const. (Name) Same as Item 2 (Address) — 85-AJXG-1 (Repair Organization P.O. No., Job No., etc.)
4. Identification of System Main Steam Class 2
5. (a) Applicable Construction Code B31.1 19 67 & 80 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	PT-485	1971	Replaced	N/A
Piping	RPC	N/A	N/A	N/A	PT-485	1987	Replacement	N/A

7. Description of Work Replaced 'B' MS line Condenser Pot for PT-485 and Isol. Valve MS-25
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1380 psi Test Temp. ≥50 °F
9. Remarks 85-AJXG-1 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) 7/16 (Date), 19 87

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 8-12-, 19 87 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 8-12-87 — 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 7-13-87
   411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy 151 & S.C. 23 (Name) Unit HBR-2
   Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) 85-AJXJ1
   Same as Item 2 (Address) Repair Organization P.O. No., Job No., etc.
4. Identification of System Main Steam Class 2
5. (a) Applicable Construction Code B31.1 19 67 & 80 Edition N/A Addenda, Code Cases N/A
   (b) Applicable Edition of Section XI Utilized for Repairs or Replacements — 19 77, S78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfr. 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	PT-484	1971	Replaced	N/A
Piping	RPC	N/A	N/A	-N/A	PT-484	1987	Replacement	N/A

7. Description of Work Replaced 'B' MS line cond. Pot for PT-484 & PIC-487
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1390 psi Test Temp. ≥50 °F and 1380 ≥50 °F
9. Remarks 85-AJXJ1 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) 7/16 (Date), 19 87

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 Gorve, IL. have inspected the replacement (Repair(s) or Replacement(s)) described in this Report on 8-12-, 1987 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 8-12-87 (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) 411 Fayetteville St., (Address) Raleigh, N.C. 27602 — Date 7-14-87 — Sheet 1 of 1
2. Plant H.B. Robinson, Hwt 151 & S.C. 23 (Name) Hartsville, S.C. (Address) 29550 — Unit HBR-2
3. Work Performed by Robinson Project Const. (Name) Same as Item 2 (Address) — 85-AJXB-1 (Repair Organization P.O. No., Job No., etc.)
4. Identification of System Main Steam Class 2
5. (a) Applicable Construction Code B31.1 19 67 & 80 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.	Mfr. 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	PT-474	1971	Replaced	N/A
Piping	RPC	N/A	N/A	N/A	PT-474	1987	Replacement	N/A

7. Description of Work Replaced 'A' MS line Condenser Pot for PT-474 and PIC-477
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1400 psi Test Temp. ≥ 50 °F and 1380 ≥ 50°F
9. Remarks 85-AJXB-1 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) 7/16 (Date), 19 87

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 8-12-, 19 87 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 8-12-87 (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 7-13-87
   411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy. 151 & S.C.-23 (Name) Unit HBR-2
   Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) 85-AJXK1
   Same as Item 2 (Address) Repair Organization P.O. No., Job No., etc.
4. Identification of System Main Steam 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	PT-494	1971	Replaced	N/A
Piping	RPC	N/A	N/A	-N/A	PT-494	1987	Replacement	N/A

7. Description of Work Replaced 'C' MS line cond pot for PT-494 & PIC-497
8. Tests Conducted: Hydrostatic [X] Pneumatic [ ] Nominal Operating Pressure [ ] Other [ ]
   Pressure 1400 psi Test Temp. ≥50 °F and 1380 ≥50°F
9. Remarks 85- AJXK1 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) 7/16 (Date), 19 87

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 8-13-, 1987 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 8-13-87 (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 7-14-87
411 Fayetteville St., (Address) Raleigh, N.C. 27602 (Name) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy 151 (Address) & S.C. 23 Unit HBR-2
Hartsville, S.C. (Address) 29550 (Name)
3. Work Performed by Robinson Project Const. (Address) 85-AJXF-1
Same as Item 2 (Name) Repair Organization P.O. No., Job No., etc.
4. Identification of System Main Steam (Address) Class 2
5. (a) Applicable Construction Code B31.1 19 67 & 80 Edition N/A Addenda, Code Cases N/A
(b) Applicable Edition of Section XI Utilized for Repairs or Replacements – 19 77, S78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfr. 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	PT-495	1971	Replaced	N/A
Piping	RPC	N/A	N/A	N/A	PT-495	1987	Replacement	N/A

7. Description of Work Replaced 'C' MS line Condenser Pot for PT-495 & Isol. Valve MS-34
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
Pressure 1390 psi Test Temp. ≥50 °F
9. Remarks 85-AJXF-1 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. Richard B. Weber

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 7/16 (Date), 19 87

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 8-13-, 19 87 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 8-13-87 (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) 411 Fayetteville St. (Street) Raleigh, N.C. 27602 (City, State, Zip) — Date 7-14-87 — Sheet 1 of 1
2. Plant H.B. Robinson, Hwy 151 & S.C.-23 (Name) Hartsville, S.C. (Street, City, State) 29550 (Zip) — Unit HBR-2
3. Work Performed by Robinson Project Const. (Name) Same as Item 2 (Street, City, State, Zip) — 85-AJXD-1 (Repair Organization P.O. No., Job No., etc.)
4. Identification of System Main Steam Class 2
5. (a) Applicable Construction Code B31.1 1967 & 80 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	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
Piping	Ebasco	N/A	N/A	N/A	PT-496	1971	Replaced	N/A
Piping	RPC	N/A	N/A	N/A	PT-496	1987	Replacement	N/A

7. Description of Work Replaced 'C' MS line Condenser Pot for PT-496 and Isol. Valve MS-35
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 1380 psi Test Temp. ≥ 50 °F
9. Remarks 85-AJXD-1 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) 7/16 (Date), 19 87

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 8-13-, 1987 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 8-13-87 — 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 7-13-87
   411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy 151 & S.C. 23 (Name) Unit HBR-2
   Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Maintenance (Name) H12Z33-529-LVJ-85 (Repair Organization P.O. No., Job No., etc.)
   Same as Item 2 (Address)
4. Identification of System Service Water System Class 3
5. (a) Applicable Construction Code AISC 19 80 -8th 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 'B'	Ebasco	N/A	N/A	N/A	Support	1971	Repaired	N/A
				-				

7. Description of Work Structural Steel repair on S.W. Booster Pump 'B' Motor Stand
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ Visual
   Pressure N/A psi Test Temp. N/A °F
9. Remarks H12Z33-529-LVJ-85 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 Repair (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 7-14 (Date), 19 87

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 8-13-, 19 87 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 8-13-87 (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 and Light Company (Name) Date 6/30/87
   411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
   Hartsville, S. C. 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) (Name) MOD 874 (Repair Organization P.O No., Job No., etc.)
   Same as Item 2 (Address)
4. Identification of System Componenet Cooling Water System
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	RPC	N/A	N/A	N/A	N/A	1986	Replacement	N/A

7. Description of Work Rerouting of CCW piping to facilitate replacement of CV purge valves.
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 160 psi Test Temp. N/A °F
9. Remarks Mod 874 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) 7/2 (Date), 19 87

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 8-13-, 19 87 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 8-13-87 (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) 411 Fayetteville St., Raleigh, NC 27602 (Address) Date 6/30/87 Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Hartsville, SC 29550 (Address) Unit HBR-2
3. Work Performed by ITT Henze Services (Name) Mobile, Alabama (Address) Job #110107 WR #87-AESC1 (Repair Organization P.O. No., Job No., etc.)
4. Identification of System Feedwater System
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	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
FW-8B	Crane Co.	CV-04017 04-8B	N/A	N/A	N/A	1971	Repaired	N/A

7. Description of Work Skim cut on pressure seal landing area of valve body (≈.002" - .004")
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ Liquid Penetrant
   Pressure ____ psi Test Temp. ____ °F
9. Remarks WR #87-AESC1 Turnover Package (Applicable Manufacturer's Data Reports to be attached)

CERTIFICATE OF COMPLIANCE

RBW 7/1/87

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

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 7/1 (Date), 19 87

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 8-13-, 1987 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 8-13-87 (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) 411 Fayetteville St., Raleigh, NC 27602 (Address) Date 6/29/87 Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Hartsville, SC 29550 (Address) Unit HBR-2
3. Work Performed by ITT Henze Services (Name) Mobile, Alabama (Address) Job #110107 WR #87-AEZP1 (Repair Organization P.O. No., Job No., etc.)
4. Identification of System Feedwater System
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, S78 Addenda, Code Cases N/A
6. Identification of Components Repaired or Replaced, and Replacement Components

Name of Component	Name of Mfr.	Mfr. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
FW-8C	Crane Co.	CV-04017 04-8C	N/A	N/A	N/A	1971	Repaired	N/A

7. Description of Work Skim cut on pressure seal landing area (.004 - .007") and grind two linear indications in top seal weld of aspirator tubes in valve body
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒* followed by weld buildup of ground out area.
   Pressure N/A psi Test Temp. N/A °F *Liquid Penetrant
9. Remarks WR #87-AEZP1 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 Repair (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 7/1/87 (Date). 19 87

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 8-13-, 19 87 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 8-13-87 (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 and Light Company (Name) Date 7/10/87
   411 Fayetteville St., Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H.B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
   Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Const. (Name) WR/JO 86-ALIR1 Class 3
   Same as Item 2 (Address) Repair Organization P.O No., Job No., etc.
4. Identification of System Feedwater System
5. (a) Applicable Construction Code AWS D1.1 19 83 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)
Bracket	Ebasco	N/A	N/A	N/A	Snubber #29	1971	Replaced	N/A
Bracket	RPC	N/A	N/A	N/A	Snubber #29	1987	Replacement	N/A

7. Description of Work Old bracket for Snubber #29 removed and replaced with new bracket.
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ Liquid Penetrant
   Pressure N/A psi Test Temp. N/A °F
9. Remarks WR/JO 86-ALIR1 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. Richard B. Weber

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 7/13 (Date), 19 87

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 8-13-, 19 87 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 8-13-87 (Inspector) Commissions NC 1007 (State or Province, National Board)

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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 and Light Company (Name) Date 8/12/87
   411 Fayetteville Street, Raleigh, N.C. 27602 (Address) Sheet 1 of 1
2. Plant H. B. Robinson, Hwy. 151 & SC 23 (Name) Unit HBR-2
   Hartsville, S.C. 29550 (Address)
3. Work Performed by Robinson Project Const. (NELD) (Name) MOD 891 and EST-083 Repair Organization P.O. No., Job No., etc.
   Same as Item 2 (Address)
4. Identification of System Chemical and Volume Control System (Letdown) Class 1 and 2
5. (a) Applicable Construction Code ANSIB31.1 19 67&80 Edition N/A Addenda, Code Cases N/A
   (b) Applicable Edition of Section XI Utilized for Repairs or Replacements – 19 78, S78 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	RPC	N/A	N/A	N/A	N/A	1987	Replacement	N/A
Valve 460A	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
Valve 460B	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
Valve 474	Ebasco	N/A	N/A	N/A	N/A	1971	Replaced	N/A
As Listed	RPC	N/A	N/A	N/A	N/A	1987	Replacement	N/A

7. Description of Work Replacement and Relocation of Letdown Stop Valves (460A&B and 474)
8. Tests Conducted: Hydrostatic ☒ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☐
   Pressure 3150 psi Test Temp. ≤100 °F and 2500 PSI ≤100°F
9. Remarks Mod 891 Turnover Package. See also EST-083.
   (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. Wilson (Owner or Owner's Designee) Sr. Specialist (Title) 8/13/87 (Date), 19 87

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 8-14-, 19 87 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 8-14-87 Signed (Inspector) Commissions NC 1007 (State or Province, National Board)

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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 8/21/87
   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 Maintenance (Name) 4080-KOD-86 (Repair Organization P.O. No., Job No., etc.)
   Same as Item 2 (Address)
4. Identification of System Component Cooling Water System Class 3
5. (a) Applicable Construction Code Sec. VIII 19 65 Edition S/67 Addenda, Code Cases None
   (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.	Mfr. Ser. No.	Nat'l. Bd. No.	CRN No.	Other Identification	Year Built	Repaired, Replaced, or Replacement	ASME Code Stamped (Yes or No)
C.C.W.H.X. "B"	Engrs. & Fabctrs.	15220B	1012B	N/A	J.O.# 10398	1968	Repaired	Yes

7. Description of Work 1/16" deep x 1/4" wide nick on flange sealing surface repaired.
8. Tests Conducted: Hydrostatic ☐ Pneumatic ☐ Nominal Operating Pressure ☐ Other ☒ Liquid Penetrant and Visual
   Pressure N/A psi Test Temp. N/A °F
9. Remarks 4080-KOD-86 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 repair (repair or replacement) conforms to Section XI of the ASME Code.

Signed Richard B. Weber (Owner or Owner's Designee) Sr. Specialist (Title) 8/25 (Date), 19 87

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 8-31-, 1987 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 8-31-87 Signed [signature] (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 2 - Outgage 2
Inspection Examination Summary

INTRODUCTION

An inservice examination of Class 1, 2, and 3 components was conducted at the H. B. Robinson Unit 2 in April, 1987. 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 B4.2.

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 did not produce any recordable indications.

CLASS II

The Class II examinations produced a total of 22 recordable indications (8 surface and 14 visual). The surface indications were as follows: 3 had a total of 7 arc strikes, 1 had arc strikes and indications which were removed, 3 had indications which were acceptable as is, and 1 had a tool mark which was acceptable as is.

The visual indications were as follows: 7 had loose parts, 4 had insufficient thread engagement, 1 was insulated, 1 had grout missing, and 1 had broken an ground tack welds.

CLASS III

The Class III examinations produced 63 visual indications as follows: 28 supports missing or with missing components, 13 with heavy rust, 8 with loose parts, 6 with insufficient thread engagement, 4 with boric acid on them, 2 misaligned, 1 broken grout and 1 with the spring scale painted.

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.

Note: In conclusion, the status of the work required for the current interval is on schedule as per the requirements of paragraphs IWB-2412, IWC-2412 and IWD-2410.

COMPONENT NAME	MANUFACTURER NAME - ADDRESS	COMPONENTS NUMBERS
Reactor Vessel	Combustion Engineering, Inc. 1000 Prospect Hill Road Windsor, Connecticut 06095	N.B. #20772 S/N 66109
Steam Generators A, B, & C	Westinghouse Electric Corporation Nuclear Components Division Post Office Box 1313 Pensacola, Florida 32596	NPT S/N 93732 (A) NPT S/N 93733 (B) NPT S/N 93734 (C)
Regenerative Heat Exchanger	Sentry Equipment Company Oconomowoc, Wisconsin	TOP S/N 3996-A3-4 MID S/N 3996-A3-5 BOT S/N 3996-A3-6
Reactor Coolant Pump C	Westinghouse Electric Corporation Electro Mechanical Division Cheswick, Pennsylvania	Model #V11001-B1
Boron Injection Tank	Southwest Fabricating & Welding Co., Inc.	N.B. #368 S/N 0049
Volume Control Tank	Richmond Eng. Co. Richmond, Virginia	S/N L8555
Residual Heat Exchanger A	Atlas Industrial Mfg. Co. Clifton, New Jersey	(A) N.B. #731 S/N 881
Reactor Coolant Filter	Commercial Filter Div. of Kennecot Corp.	Mod. #16352-8TSS-200
Seal Water Injection Filters A & B	Mulflow Filters Commercial Filters Corp. Lebanon, Indiana	S/N 16918-1232 S/N 16918-1233
Seal Water Return Filter	AMF Cuno Engineering	Model #CG-12DB4-51029
Seal Water Heat Exchanger	Atlas Industrial Mfg. Co. Clifton, New Jersey	N.B. #669 S/N 816

COMPONENT NAME	MANUFACTURER NAME - ADDRESS	COMPONENTS NUMBERS
Letdown Non-Regenerative Heat Exgr.	Atlas Industrial Mfg. Co. Clifton, New Jersey	N.B. #685 S/N 834
Pulsation Dampener A	Johnson Controls Engineered Piping Systems Div. Compton, Cal. Unit Formerly Associ. Pipe & Engr. Corp.	(A) S/N 0391
Suction Stabilizer A	Johnson Controls Engineered Piping Systems Div. Compton, Cal. Unit Formerly Associ. Pipe & Engr. Corp.	(A) S/N 0393
Residual Heat Removal Pumps A&B	Ingersoll-Rand, Cameron Pump Div. Phillipsburg Plant	CPL-ACAPRH-1 and 2
Piping & Supports	Ebasco Services Incorporated Two World Trade Center New York, New York 10048	N/A

1987
EXAMINATION PROGRAM PLAN
FOR
CAROLINA POWER & LIGHT
H. B. ROBINSON NUCLEAR PROJECT
UNIT #2

This document details the proposed planned scope of examination by Westinghouse for Refueling Outage 1987, including items and areas selected for examination, sketches illustrating areas and identification of volumes and surfaces subject to examination and procedures for examination and documentation.

The proposed planned scope of examinations is based on the ASME B&VP Code Section XI, 1977 Edition, and up to and including the summer, 1978 Addenda. Because many of the items selected for examination are fabricated and constructed from austenitic materials and no appropriate methodology exist in the applicable Code Section, alternative examinations in accordance with sub-paragraph IWA-2240 of Section XI will be utilized. The examinations will be conducted utilizing the procedures incorporated herein.

Efforts should be made to provide access to all planned examinations, however, due to circumstances such as radiation, environment, etc., some variations may occur. In the event of such occurrences, substitute areas may be selected.

Calibration blocks for ultrasonic examination will be selected from those provided for this outage by the utility and/or Westinghouse.

Qualification of examiners, materials and equipment will be available on the site prior to the start of and during examinations. Quality Assurance documentation which may be required shall be supplied by Westinghouse Nuclear Services Integration Division.

This Program and the procedures incorporated herein, require approval by Carolina Power & Light Company and approval/concurrence by the Authorized Nuclear Inservice Inspector and Westinghouse.

Prepared by: WESTINGHOUSE ELECTRIC CORPORATION

W Approval/Concurrence: _____ 4-29-87 Date

CP&L Approval: _____ 4/29/87 Date

Authorized Inspector Concurrence: _____ 4-9-87 Date

Agency: Kemper Group 4-9-87 Date

ID:5696r/13087:51

EXAMINATION PROGRAM PLAN
FOR
CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON UNIT #2
IN-SERVICE INSPECTION
INTERVAL 2 - PERIOD 2
1987

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 1 Reactor Vessel				
1.	B1.30	Reactor Vessel Shell to Flange Weld #3 33 1/3%	48	--	--	101
2.	B6.40	Reactor Vessel Ligaments #18 through 34 & 38	48	--	--	101A
3.	B13.10	Reactor Vessel Interior	--	--	8	101
4.	B15.10	Leakage	--	--	--	101
		Pressurizer				
5.	B15.20	Leakage	--	--	--	103
		Steam Generator A, B, & C				
6.	B15.30	Leakage	--	--	--	105
7.	B16.20	Tubing (Separate Program) E/C	*	--	--	105
		Regenerative Heat Exchanger				
8.	B2.51	Circ. Shell Weld #1 (33 1/3%)	206	--	--	106
9.	B2.60	Tube Sheet to Shell Weld #6	206	--	--	106
10.	B3.150	Nozzle to Vessel Welds #15 & 16	206	11	--	106
11.	B15.40	Leakage				106

Program Item	IWB-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure			Sketch Reference CP&L
		Class I	U/T	Surf.	V/T	
12.	B11.10	Support "D"	--	--	8	116B
13.	B9.40	Weld #16	--	11	--	133
14.	B7.50	Flange Bolts (8)	--	--	8	136
	IWC-2500-1	**Class II**				
15.	C1.10	Welds #1 and 2 (33 1/3%)	206	--	--	202
16.	C1.20	Welds #3 and 4 (33 1/3%)	206	--	--	202
17.	C2.20	Welds #3 & 4	--	11	--	202
18.	C3.10	WS-2	--	11	--	202
19.	C3.20	WS-2	--	--	8	202
20.	C5.11	Weld #7	--	11	--	202
21.	C1.10	Welds #1 and 2 (33 1/3%)	206	--	--	203
22.	C3.10	WS-3	--	11	--	203
23.	C3.20	WS-3	--	--	8	203
24.	C1.10	Circ. Shell Weld #1 H.X:A	206	--	--	204
25.	C1.20	Head Circ. Weld #2 H.X:A	206	--	--	204
26.	C2.20	>1/2" Nozzle Weld #3 & #4	--	11	--	204
		H.X:A Reinforcing Ring Welds 1 and 2	--	11	--	204
27.	C3.10	WS-2 H.X:A	--	11	--	204
28.	C3.20	WS-2 H.X:A	--	--	8	204
29.	C7.10	Pressure Test	--	--	--	204
30.	C2.20	>1/2" Nozzle Weld #8 S/G A	47	70	--	205
31.	C1.10	Circ. Shell Weld #4 S/G B	47	--	--	205A
32.	C2.20	>1/2" Nozzle Weld #8 S/G C	47	70	--	205B
33.	C1.20	Circ. Weld #8	206	--	--	206

Program Item	IWC-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure			Sketch Reference CP&L
			U/T	Surf.	V/T	
34.	C1.30	Tube Sheet to Shell Weld #7	206	--	--	206
35.	C3.20	Supports C&D	--	--	8	206
36.	C1.10	Circ. Shell Weld #1 (33 1/3%)	206	--	--	208
37.	C3.20	Support WS-2	--	--	8	208
38.	C1.10	Filt. #1-1 Circ. Shell Welds #1 (33 1/3%)	206	--	--	209
39.	C1.20	Filt. #1-1 Circ. Weld #2 (33 1/3%)	206	--	--	209
40.	C3.20	WS-2 Suppot	--	--	8	209
41.	C1.10	Circ. Shell Weld #1 (33 1/3%)	206	--	--	210
42.	C1.20	Circ. Weld #2 (33 1/3%)	206	--	--	210
43.	C3.20	Support WS-2	--	--	8	210
44.	C1.10	Circ. Shell Weld #1 (33 1/3%)	--	11	--	211
45.	C1.20	Circ. Weld #2 (33 1/3%)	--	11	--	211
46.	C3.20	Support WS-2	--	--	8	211
47.	C1.10	Circ. Shell Weld #1 (33 1/3%)	206	--	--	211A
48.	C1.20	Circ. Weld #2 (33 1/3%)	206	--	--	211A
49.	C3.20	Support WS-2	--	--	8	211A
50.	C1.10	Suct Stab. A Welds #1A & 2A (33 1/3%)	206	--	--	237A
51.	C3.20	Suct Stab. A WS-1A	--	--	8	237A
52.	C1.10	Puls. Damp. A Weld #1A (33 1/3%)	206	--	--	238
53.	C3.20	Suppt. WS-1A	--	--	8	238
54.	C3.40	Int. Attach. T-WS	--	70	--	212

Program Item	IWC-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure			Sketch Reference CP&L
			U/T	Surf.	V/T	
55.	C3.50	Support T	--	--	8	212
56.	C5.21	Circ. Weld #1	206	70	--	213
57.	C3.40	F-WS	--	70	--	213
58.	C3.50	Support F & G	--	--	8	213
59.	C3.40	Int. Attach. N-WS	--	--	8	214
60.	C3.50	Support W	--	--	8	215
61.	C3.40	Int. Attach. G-WS	--	70	--	216
62.	C3.50	Support G	--	--	8	216
63.	C5.21	Circ. Weld #14 A	206	70	--	216
64.	C3.40	Int. Attach. S-WS	--	70	--	217
65.	C3.50	Support S	--	--	8	217
66.	C3.50	Support C, D, E, N	--	--	8	218
67.	C5.11	Welds #5, 10 & 11	--	11	--	218
68.	C3.50	Supports E, G, I & L	--	--	8	219
69.	C5.21	Circ. Weld #187 & 188	206	11	--	219
70.	C5.11	Circ. Weld #184	--	11	--	219
71.	C3.50	Support O & S	--	--	8	219A
72.	C5.21	Circ. Weld #203	206	11	--	219A
73.	C3.50	Supports E & F	--	--	8	220
74.	C5.11	Circ. Weld #42 & 43	--	11	--	220
75.	C3.50	Support H & N	--	--	8	220A
76.	C5.11	Weld #62 & 74	--	11	--	220A
77.	C3.50	Supports DD & II	--	--	8	221
78.	C5.11	Welds #167 & 174	--	11	--	221

Program Item	IWC-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure			Sketch Reference CP&L
			U/T	Surf.	V/T	
79.	C3.50	Supports k, L, M, N, O & I	--	--	8	221A
80.	C5.11	Welds #95, 96, 98 & 99	--	11	--	221A
81.	C3.50	Supports D & G	--	--	8	221B
82.	C5.11	Welds #123A, 123B, 123C & 123E & 155	--	11	--	221B
83.	C3.50	Supports D & E	--	--	8	222
84.	C3.50	Supports G & H	--	--	8	222A
85.	C5.11	Weld #3 & 17	--	11	--	222A
86.	C3.50	Supports E, F, G, & H	--	--	8	222B
87.	C5.11	Weld #15 & 6	--	11	--	222B
88.	C3.50	Support C	--	--	8	229
89.	C3.50	Supports D, E, & J	--	--	8	230
90.	C5.11	Weld #3, 10 & 16	--	11	--	230
91.	C3.50	Support B	--	--	8	231
92.	C5.11	Weld #38 18A	--	11	--	231
93.	C5.31	Weld #12BC	--	11	--	231
94.	C5.11	Weld #16	--	11	--	231
95.	C3.40	Int. Attach. D-WS	--	11	--	232
96.	C3.50	Supports D, J, K, L, M, N, O, & P	--	--	8	232
97.	C3.50	Supports A, B, C, J, K, L. M, & N	--	--	8	233
98.	C5.11	Welds #33 & 35, 24 & 25	--	11	--	233
99.	C3.50	Supports G & H	--	--	8	234
100.	C5.11	Welds #15, 18, 21, 22, 23, 24, 25, & 26	--	11	--	234

Program Item	IWC-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure			Sketch Reference CP&L
			U/T	Surf.	V/T	
101.	C3.50	Supports L, M & N	--	--	8	234A
102.	C5.11	Weld #6DM	--	11	--	235
103.	C5.21	Weld #2	206	11	--	236
	IWD-2500-1	**Class III**				
104.	D2.2/2.3	Supports 100%	--	--	8	313
105.	D2.2/2.3	Supports 100%	--	--	8	313A
106.	D2.2/2.3	Supports 100%	--	--	8	314
107.	D2.2/2.3	Supports 100%	--	--	8	314A
108.	D2.2/2.3	Supports 100%	--	--	8	315
109.	D2.2/2.3	Supports 100%	--	--	8	316
110.	D2.2/2.3	Supports 100%	--	--	8	322
111.	D2.2/2.3	Supports 100%	--	--	8	323
112.	D2.2/2.3	Supports 100%	--	--	8	324
113.	D2.2/2.3	Supports 100%	--	--	8	324A
114.	D2.2/2.3	Supports 100%	--	--	8	324B
115.	D2.2/2.3	Supports 100%	--	--	8	324C
116.	D2.2/2.3	Supports 100%	--	--	8	325
117.	D2.2/2.3	Supports 100%	--	--	8	326
118.	D2.2/2.3	Supports 100%	--	--	8	327
119.	D2.2/2.3	Supports 100%	--	--	8	328
120.	D2.2/2.3	Supports 100%	--	--	8	329
121.	D2.2/3.3	Supports 100%	--	--	8	330

Program Item	IWD-2500-1 Reference	Item/Area Subject to Examination	Examination Procedure			Sketch Reference CP&L
			U/T	Surf.	V/T	
	IWD-2500-1	Class III				
122.	D1,2/1.3	Supports 100%	--	--	8	331
123.	D1.2/1.3	Supports 100%	--	--	8	331A
124.	D1.2/1.3	Supports 100%	--	--	8	331B
125.	D1.2/1.3	Supports 100%	--	--	8	332
126.	D1.2/1.3	Supports 100%	--	--	8	333
127.	D1.2/1.3	Supports 100%	--	--	8	334
128.	D1.2/1.3	Supports 100%	--	--	8	345
129.		Class I, II, & III Pressure Tests				
		Areas to be Monitored				
130.	B9.11	Welds #5 & 6	--	11	--	118A
131.	B11.10	Support V	--	--	8	122A
132.	C3.50	Support H & L	--	--	8	215
133.	C3.80	A & B Supports	--	--	8	224
134.	D2.2/2.3	Support 2-C	--	--	8	335
135.	B6.190	18 Seal House Bolts Pump C	--	70	8	144

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FIGURE B-04

SHELL-TO-FLANGE WELD JOINT

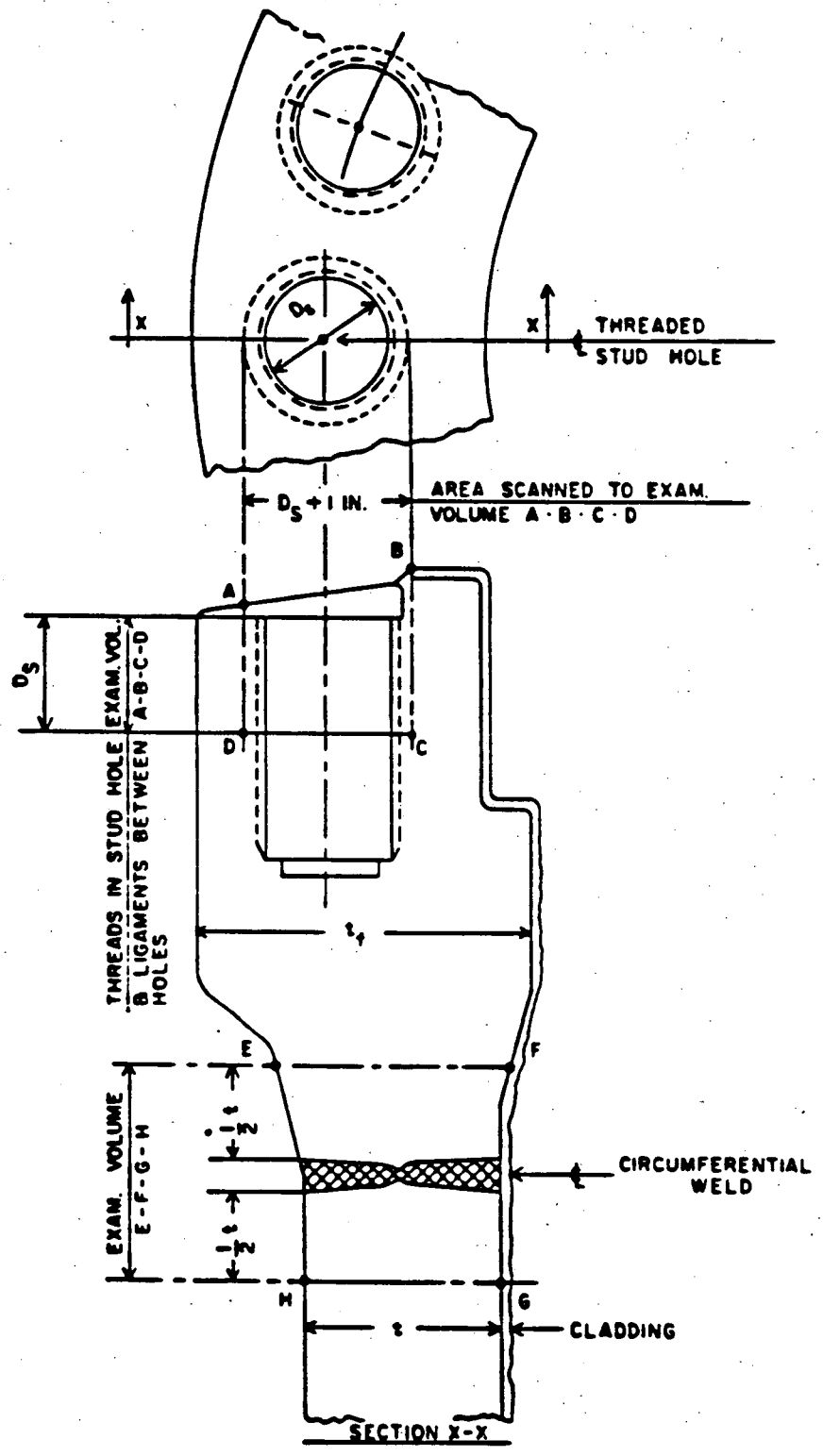

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FIGURE C-01

VESSEL CIRCUMFERENTIAL WELDS

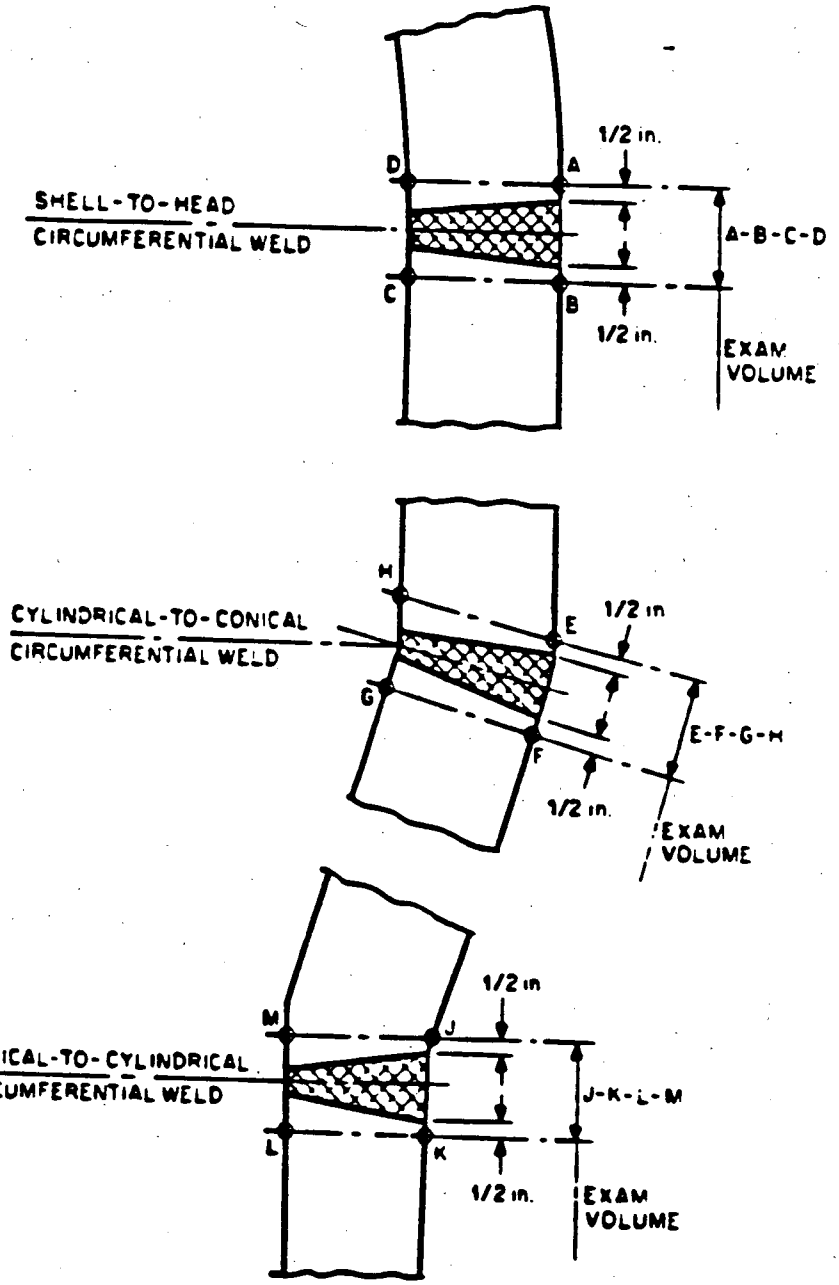

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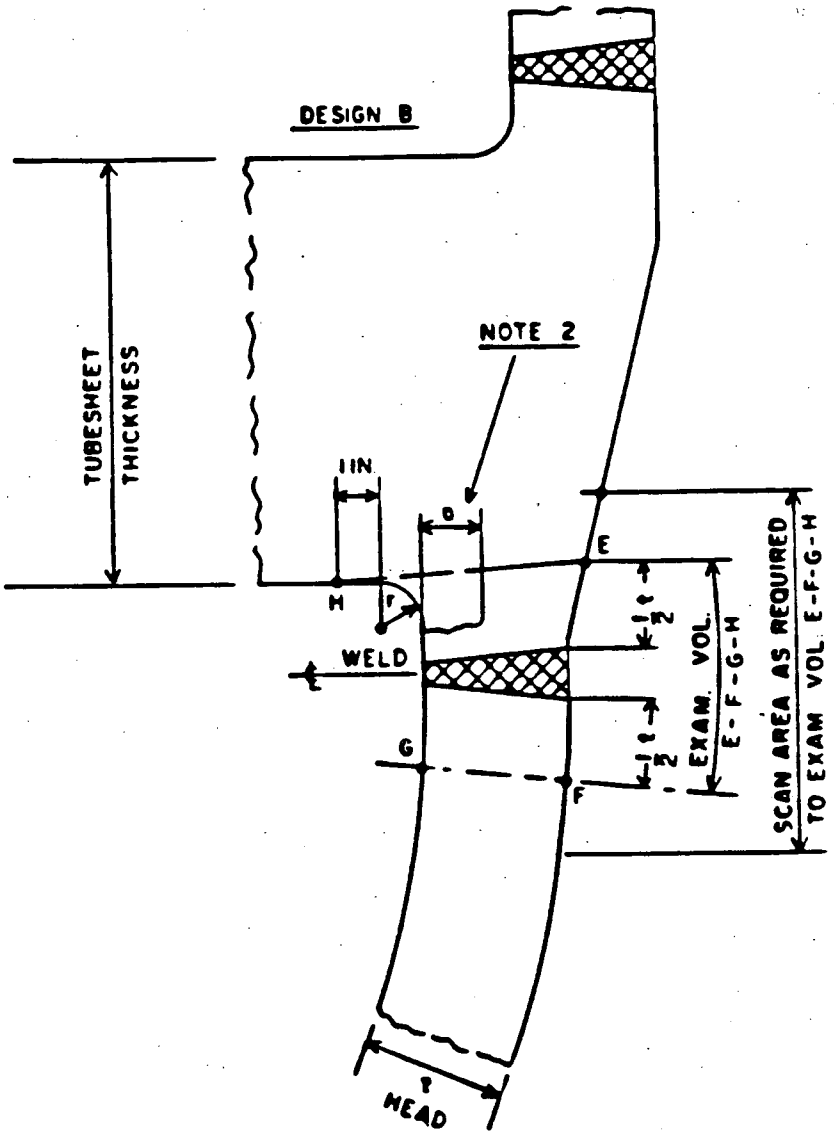
FIGURE B-06

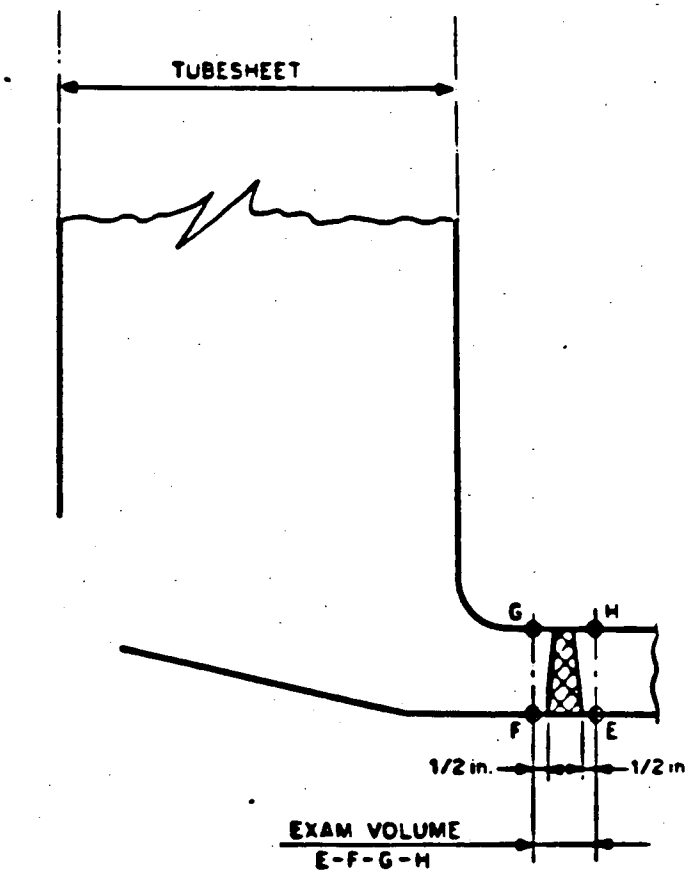
TYPICAL TUBESHEET-TO-HEAD WELD JOINTS



ILLUSTRATIVE ONLY

FIGURE C-02

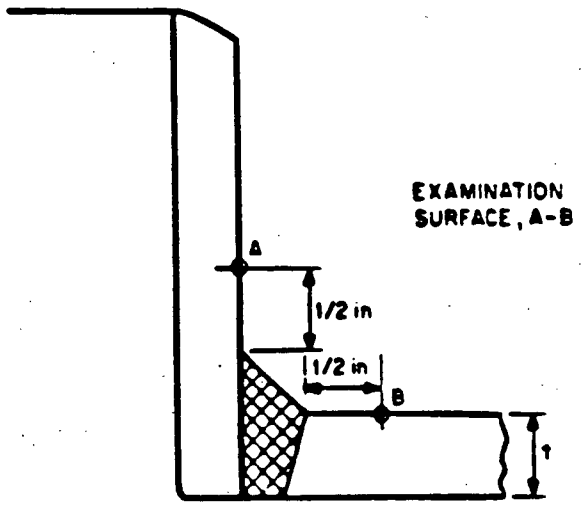
TYPICAL TUBESHEET-TO-SHELL CIRCUMFERENTIAL WELDS



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



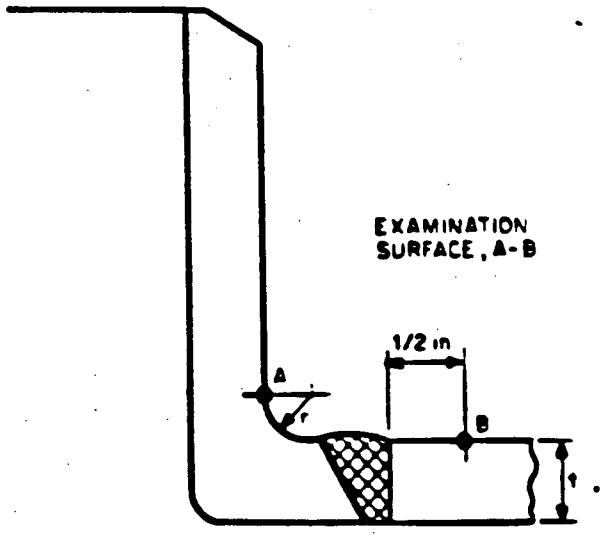


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FIGURE C-04

NOZZLE-TO-VESSEL WELDS

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

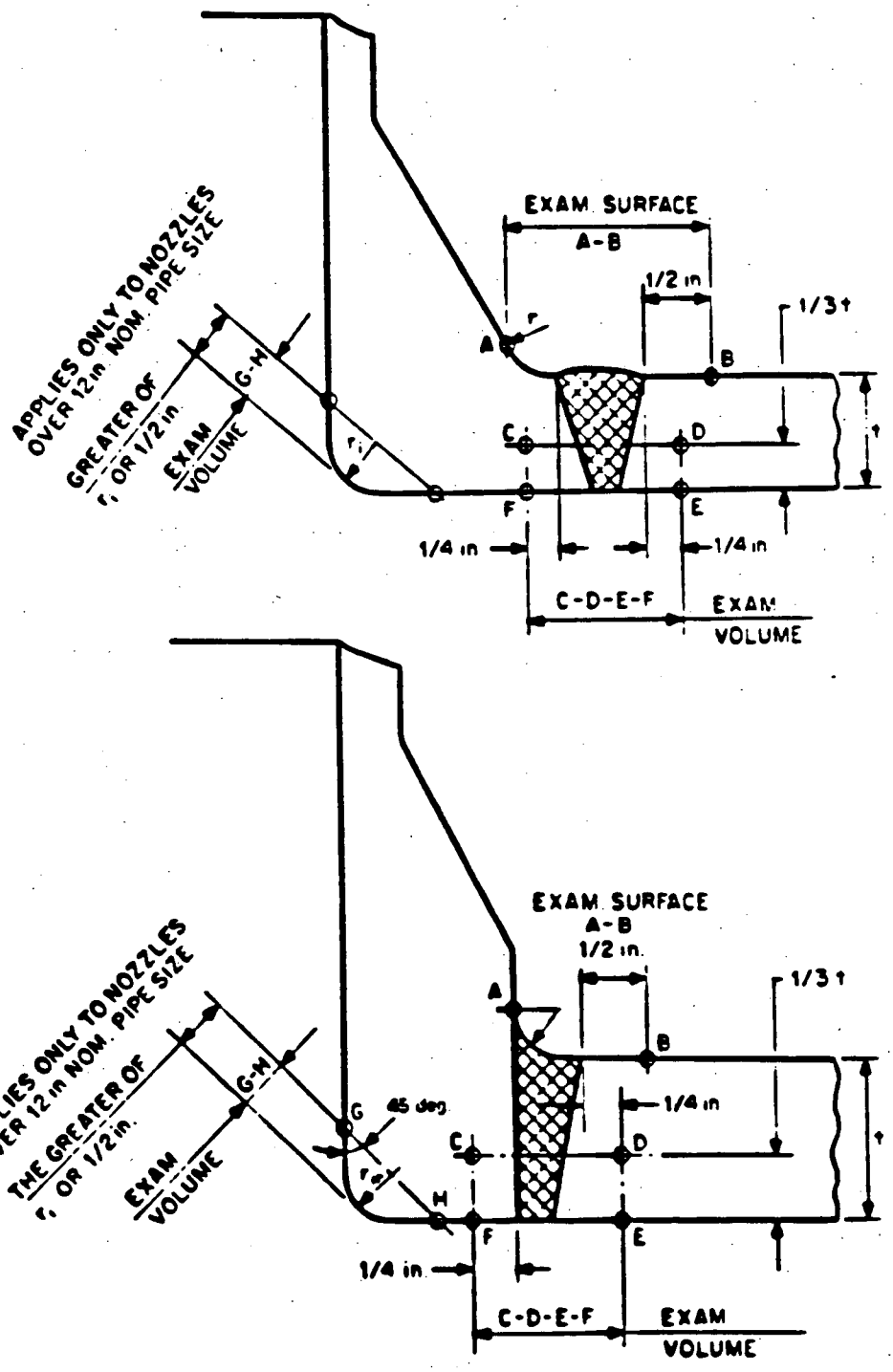

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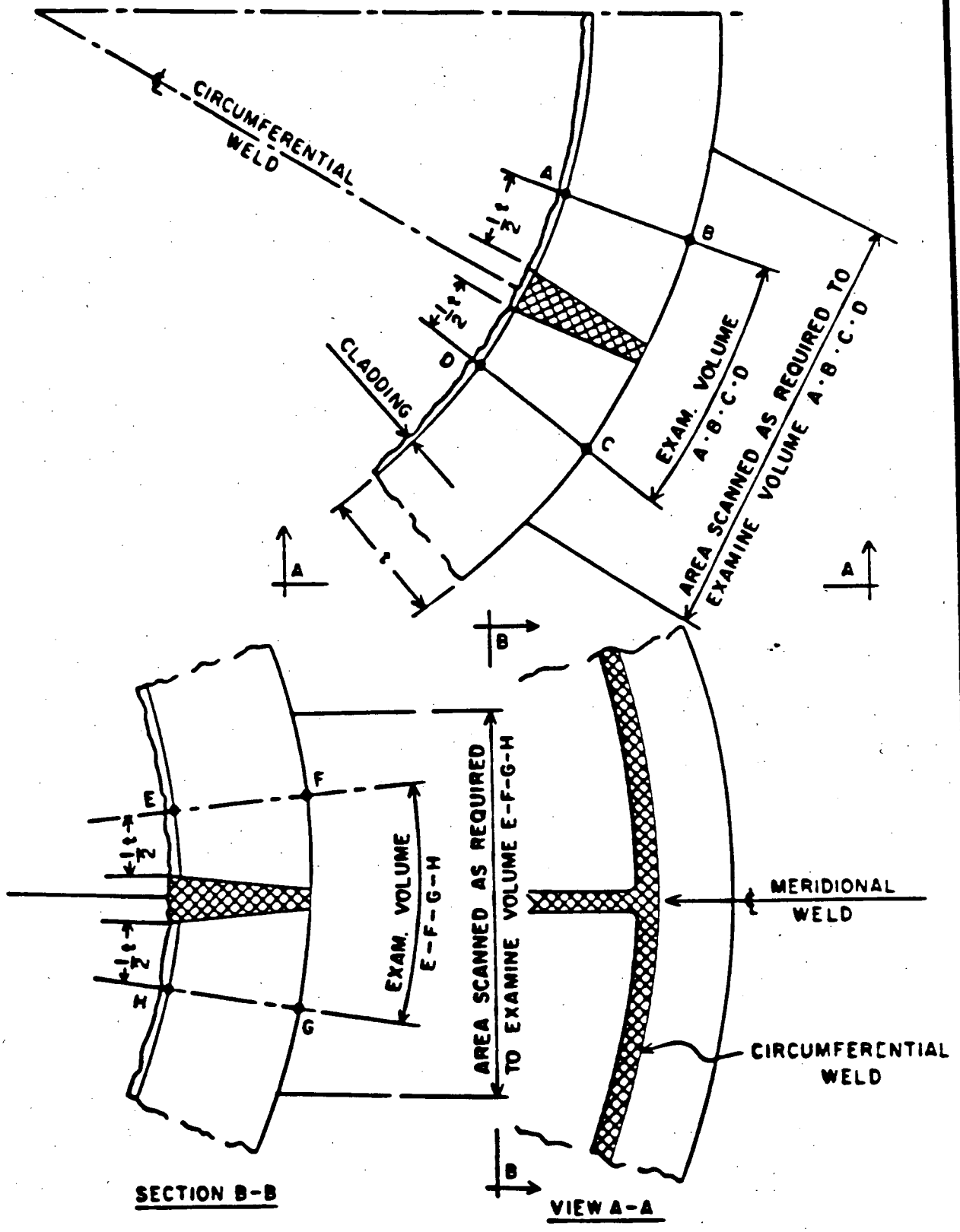
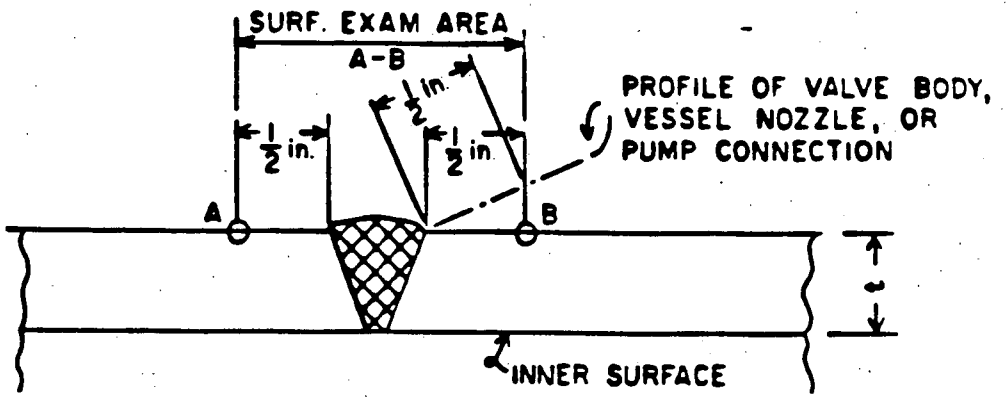
FIGURE B-03

SPHERICAL VESSEL HEAD CIRCUMFERENTIAL AND MERIDIONAL WELD JOINTS

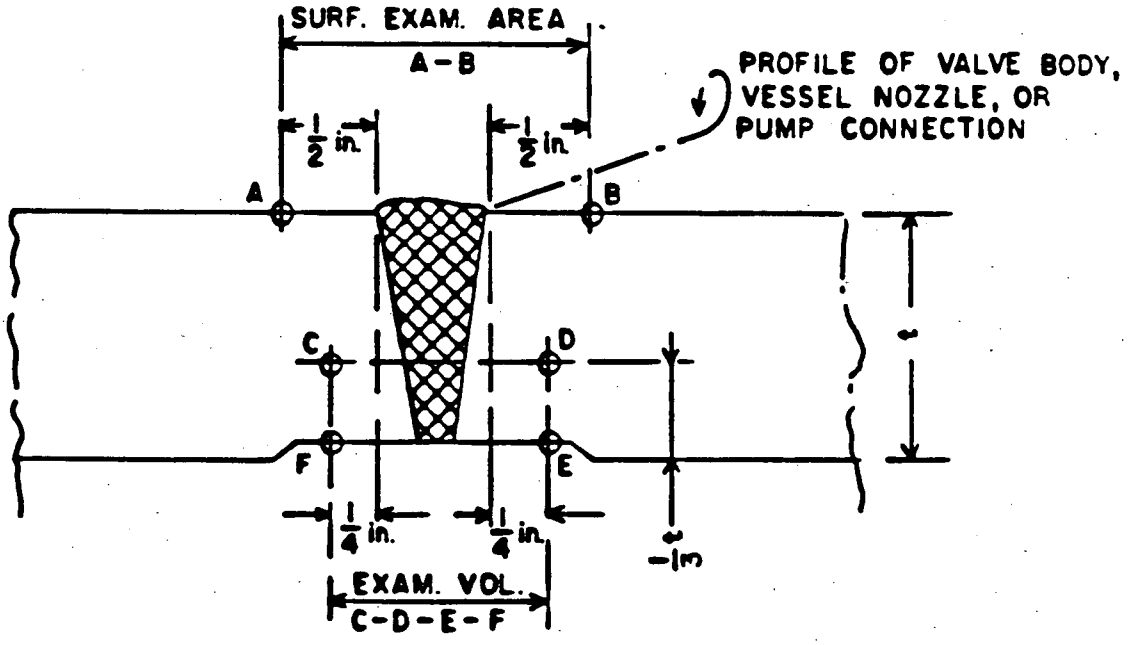


ILLUSTRATIVE ONLY FIGURE B-08

SIMILAR AND DISSIMILAR METAL WELDS IN PIPING



NOM. PIPE SIZE LESS THAN 4 IN.



NOM. PIPE SIZE 4 IN. AND GREATER

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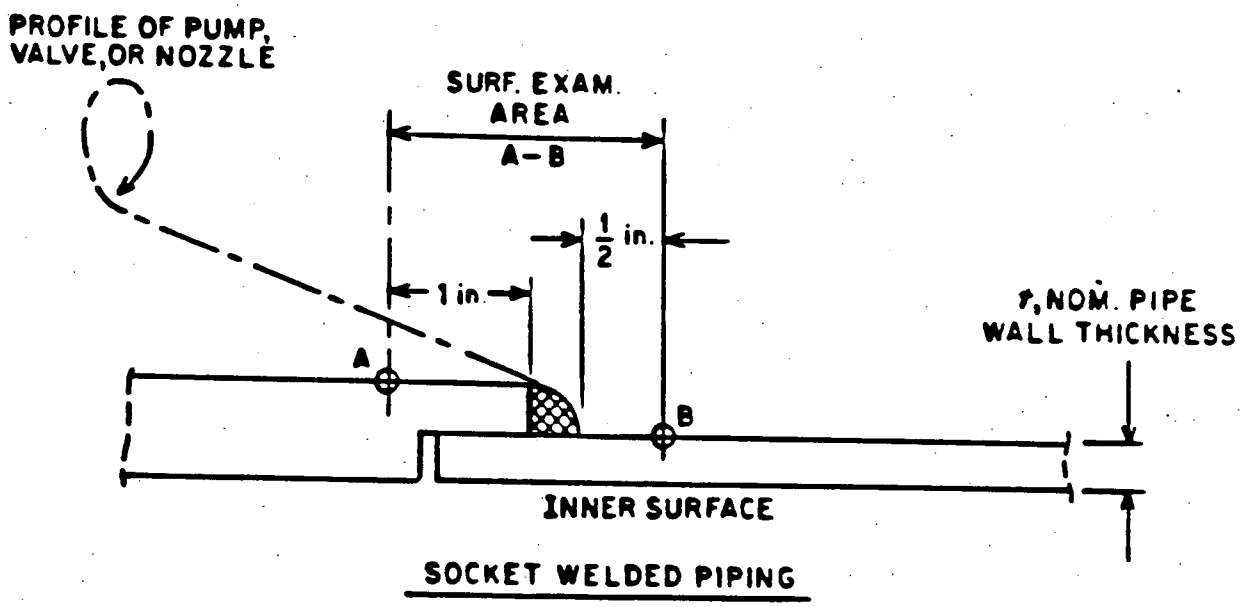
FIGURE B-08(a)

SOCKET WELDED PIPING

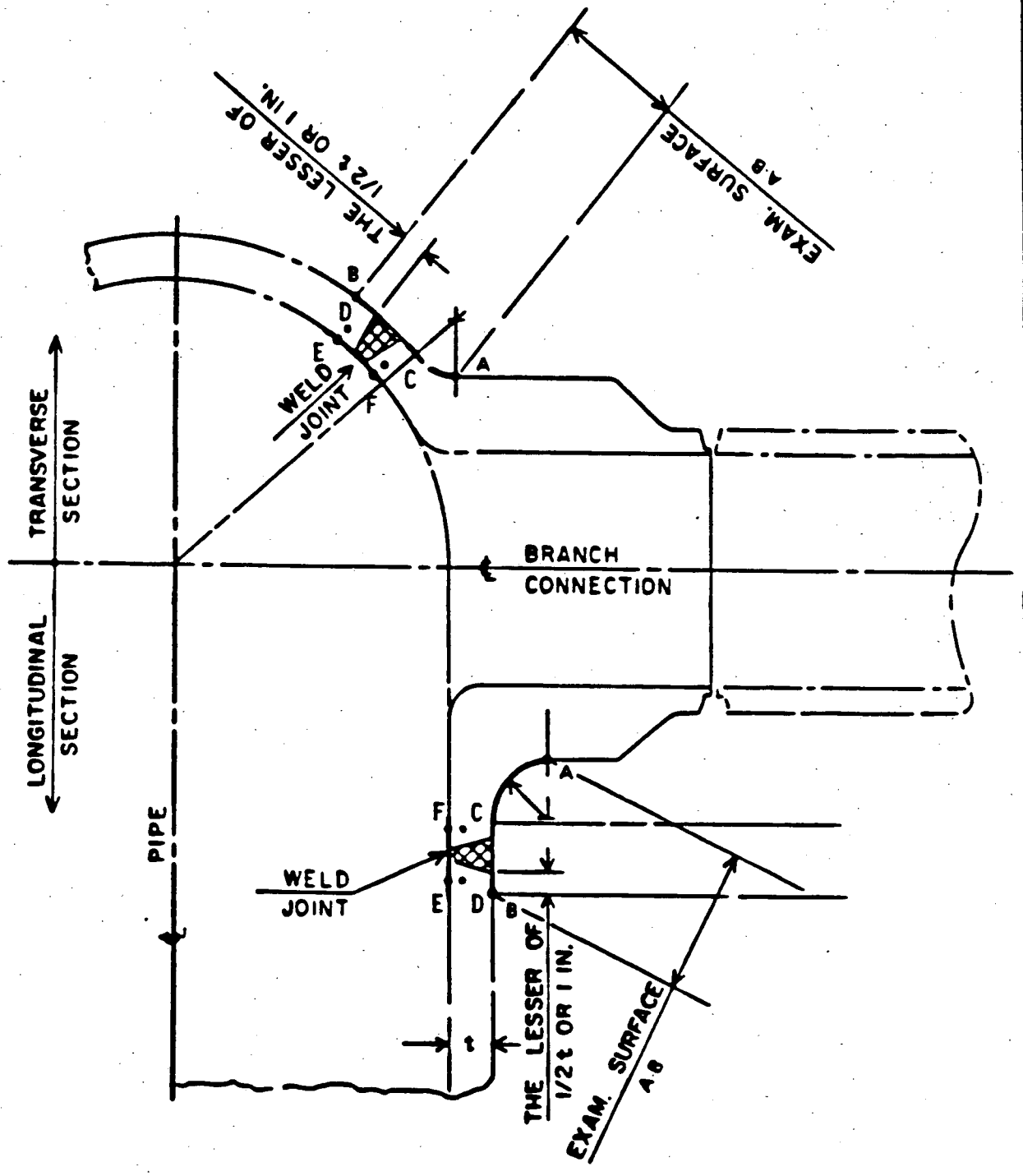


SOCKET WELDED PIPING

ILLUSTRATIVE ONLY

FIGURE B-09

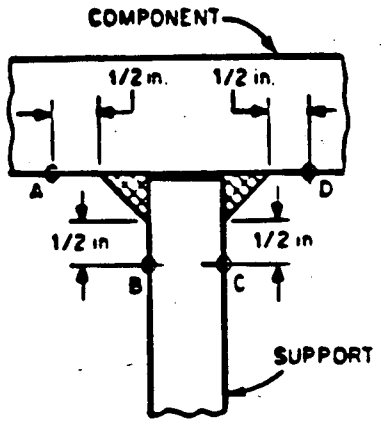
PIPE BRANCH CONNECTION



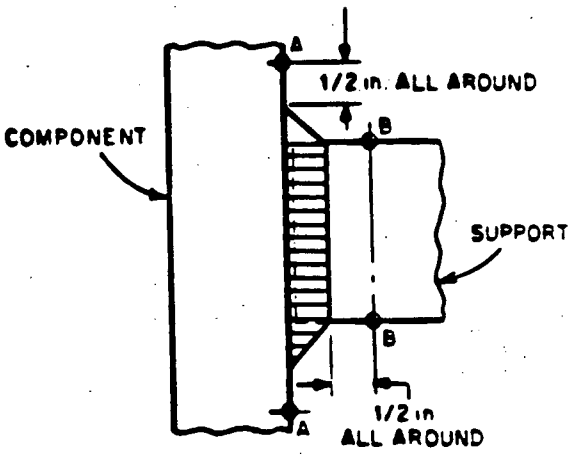
ILLUSTRATIVE ONLY

FIGURE C-05

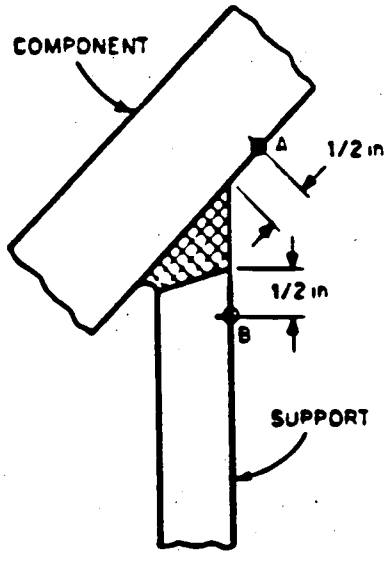
INTEGRALLY WELDED COMPONENT SUPPORTS



EXAM SURFACES
A-B AND C-D

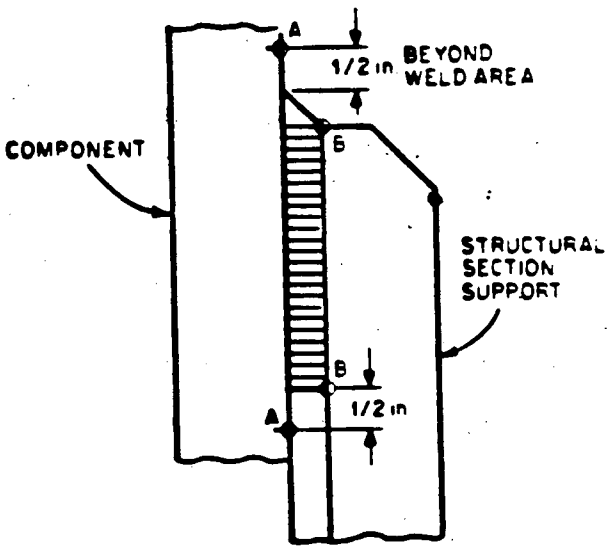


EXAM SURFACES
A-B



EXAM SURFACES
A-B

PLATE AND SHELL TYPE
SUPPORT WELDS

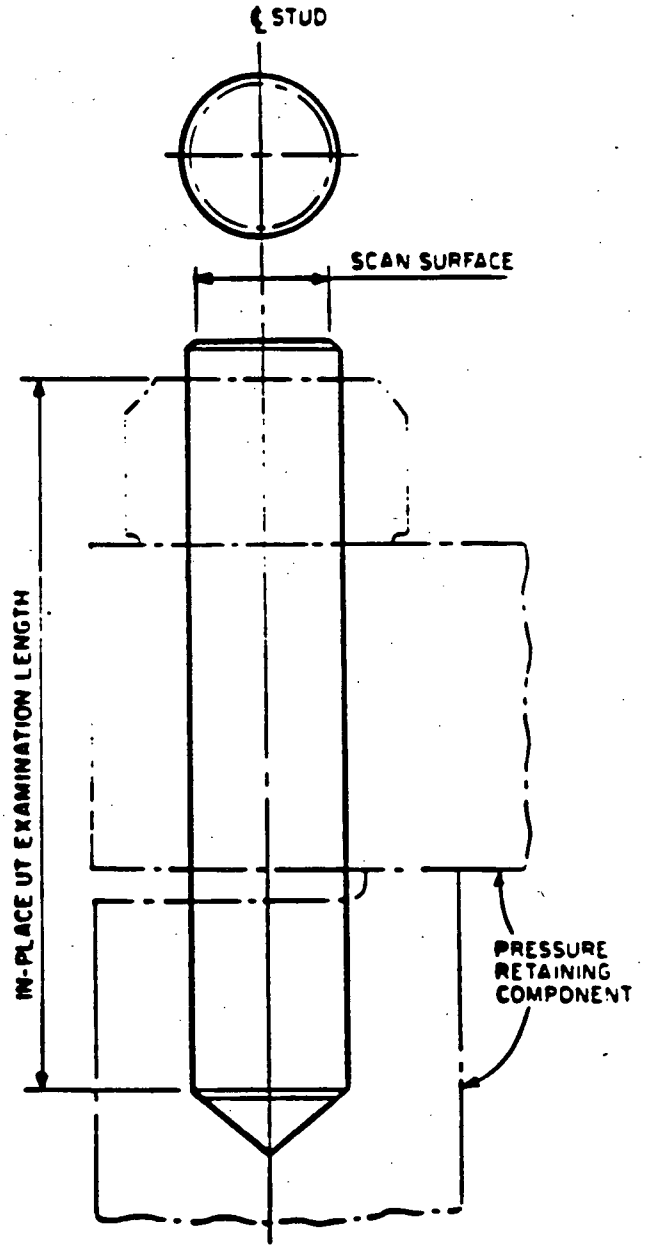


EXAM SURFACES
A-B

LINEAR TYPE
SUPPORT WELDS

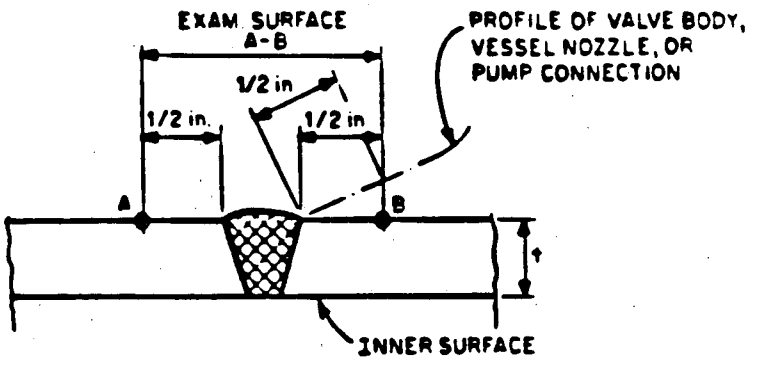
ILLUSTRATIVE ONLY FIGURE C-06

PRESSURE RETAINING BOLTING

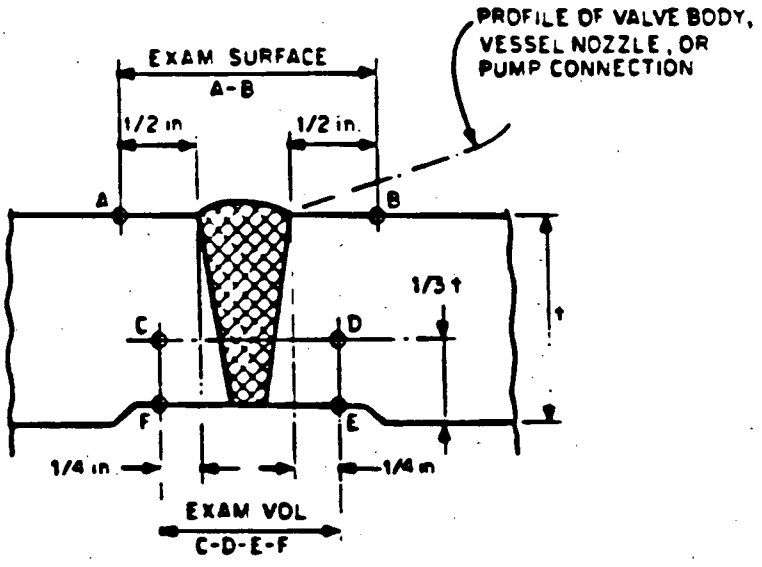


ILLUSTRATIVE ONLY FIGURE C-07

WELDS IN PIPING



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

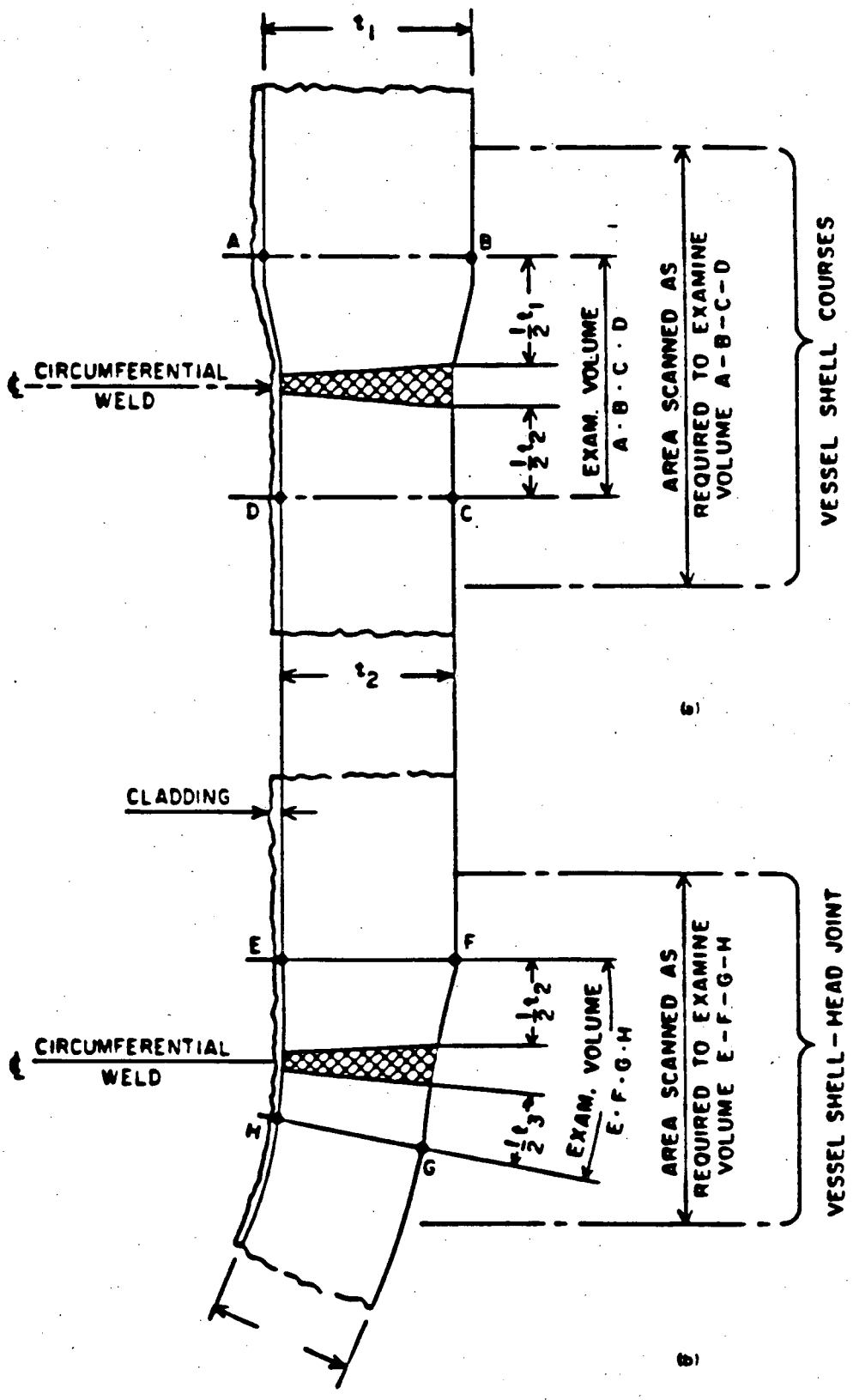


NOM PIPE WALL THICKNESS t OVER 1/2 in.

ILLUSTRATIVE ONLY

FIGURE B-01

VESSEL SHELL CIRCUMFERENTIAL WELD JOINTS

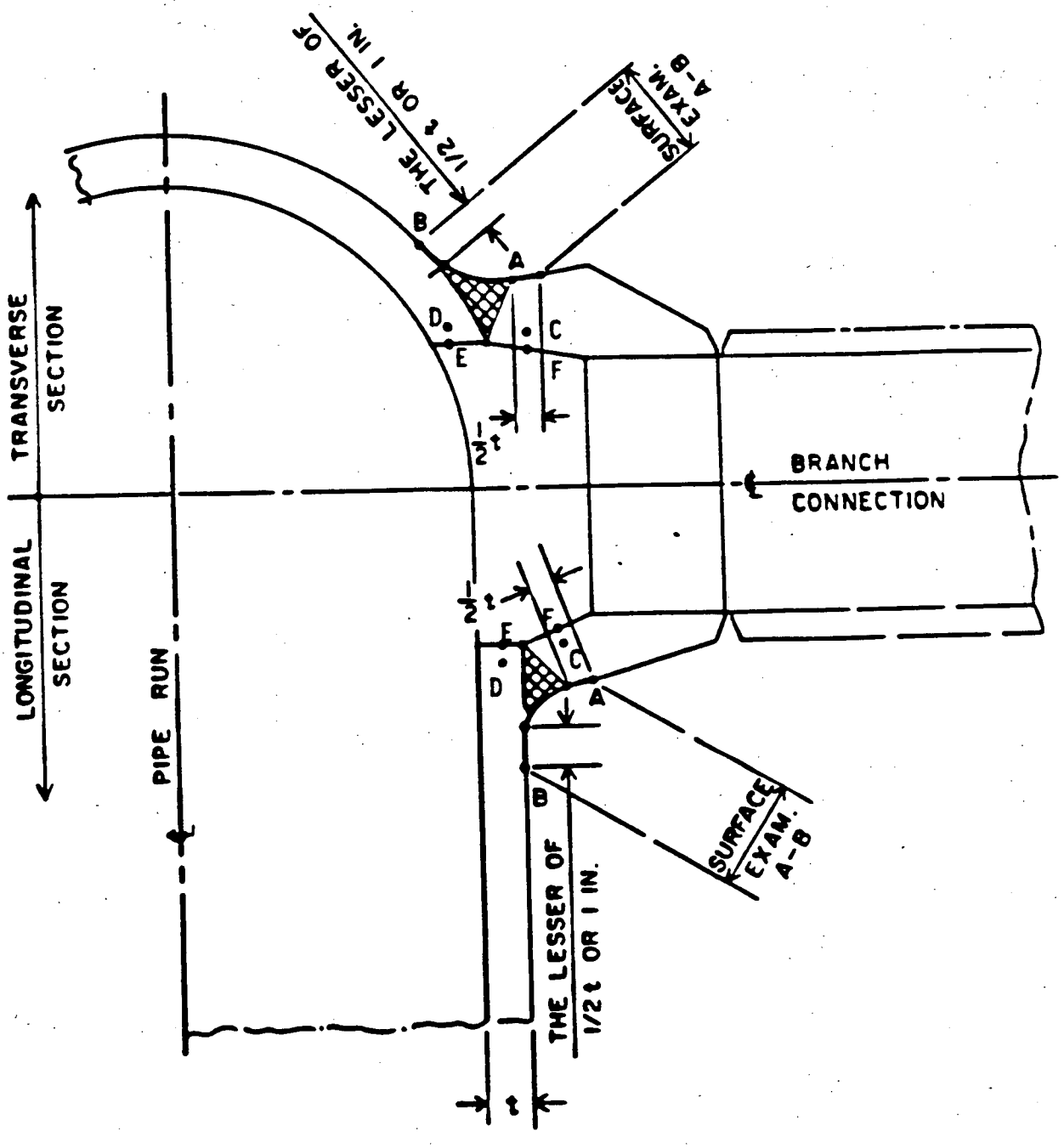


WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-10

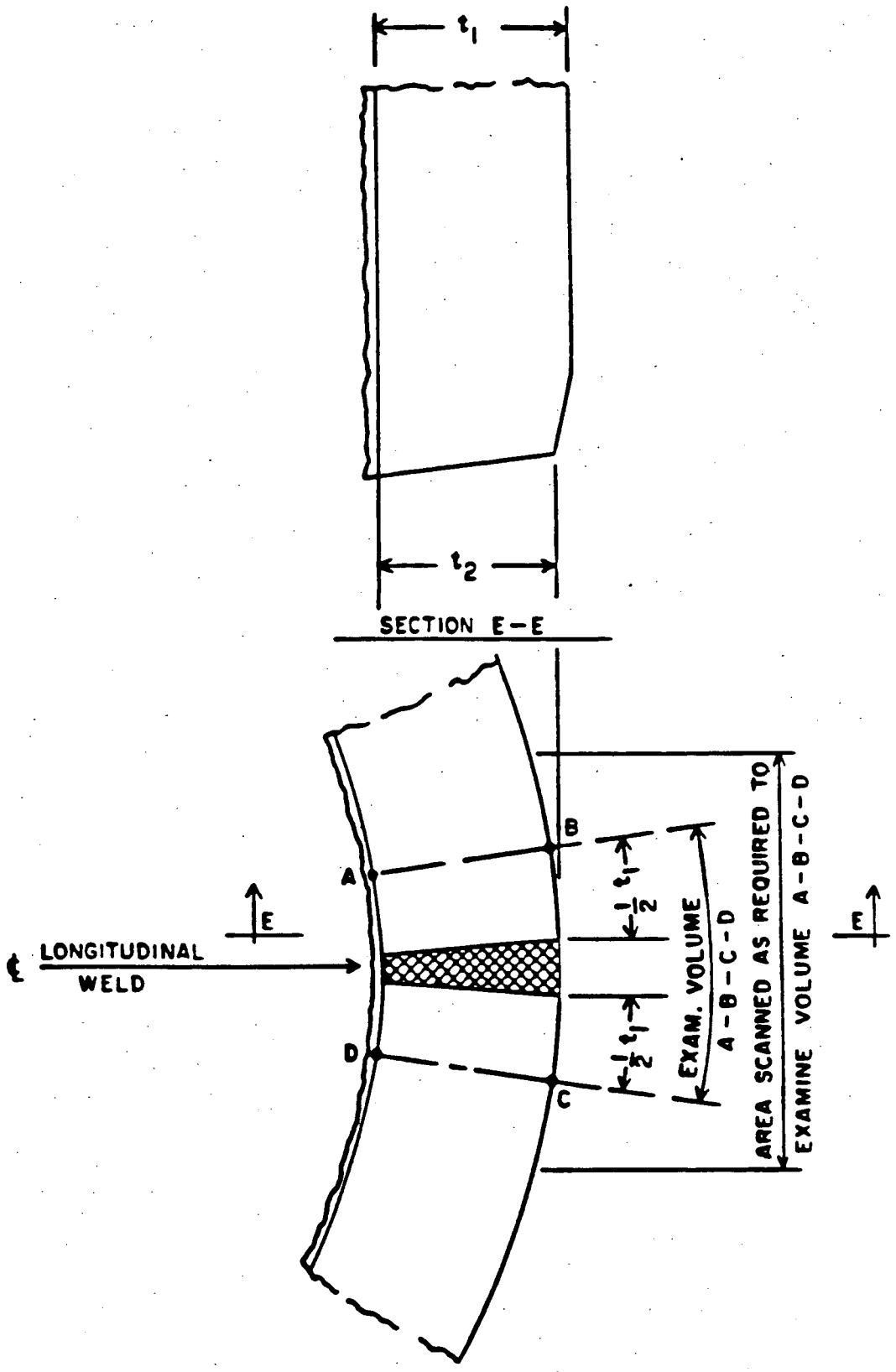
PIPE BRANCH CONNECTION



ILLUSTRATIVE ONLY

FIGURE B-02

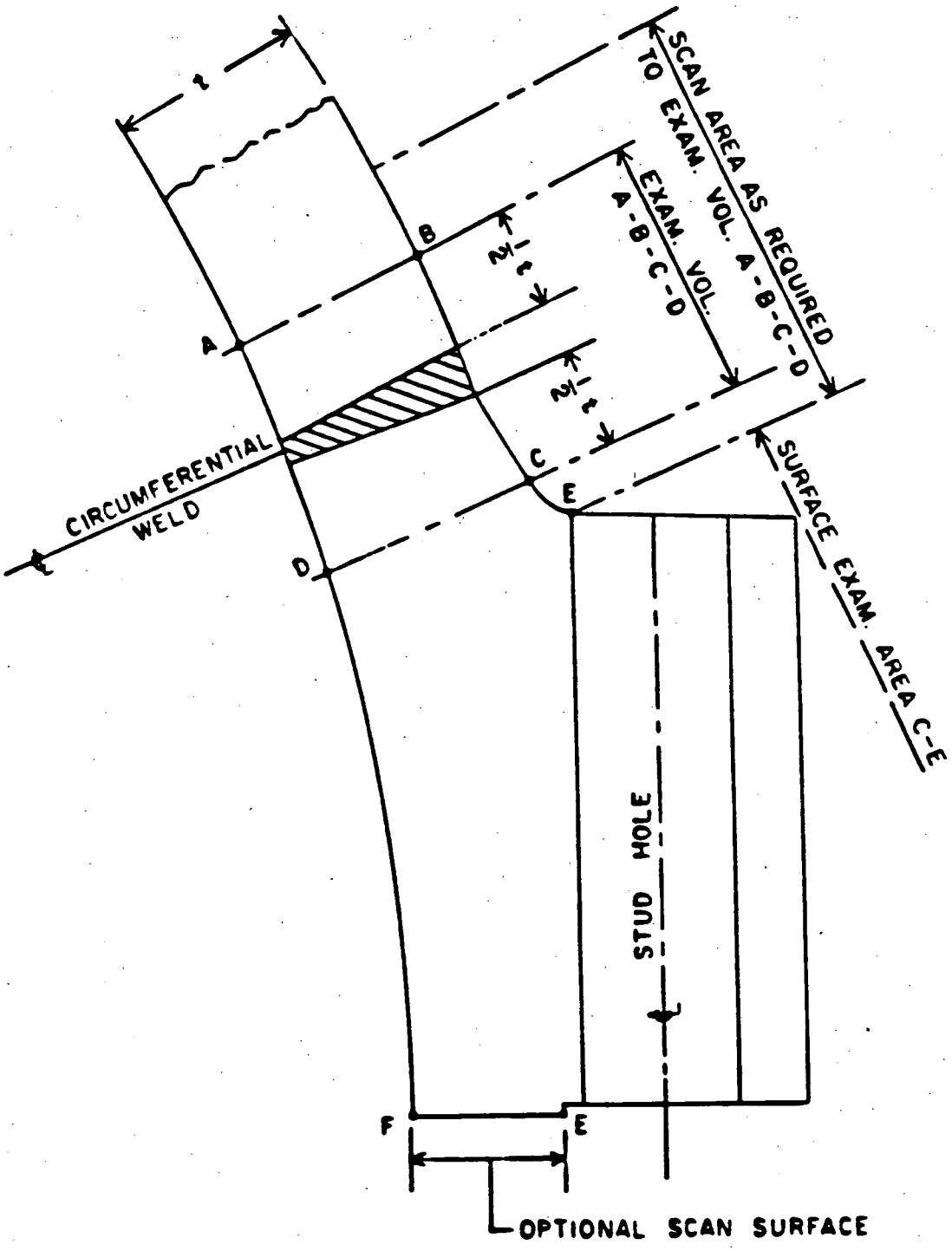
VESSEL SHELL LONGITUDINAL WELD JOINTS



ILLUSTRATIVE ONLY

FIGURE B-05

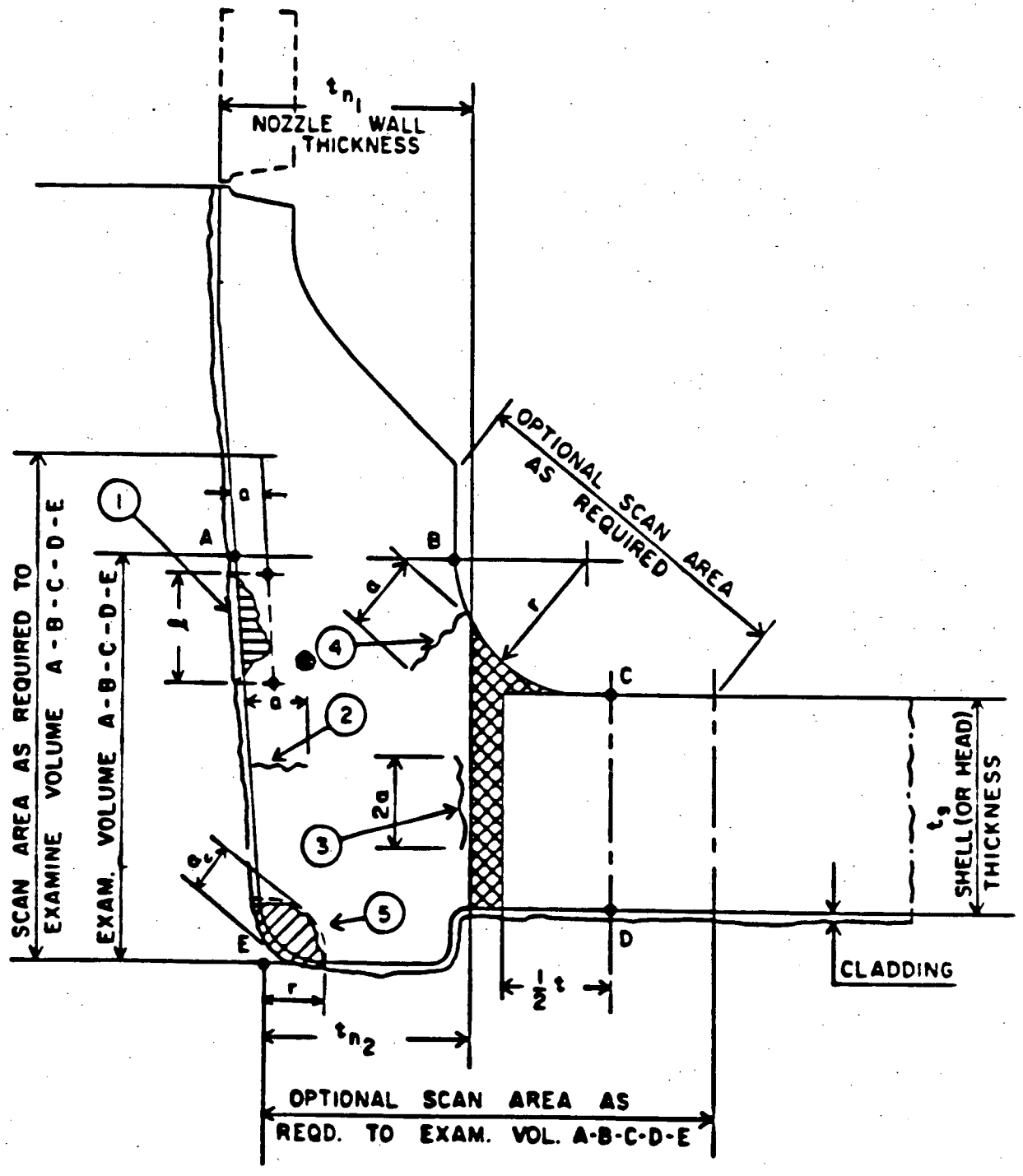
HEAD-TO-FLANGE WELD JOINT



ILLUSTRATIVE ONLY

FIGURE B-07

NOZZLE-TO-SHELL OR HEAD WELD JOINTS



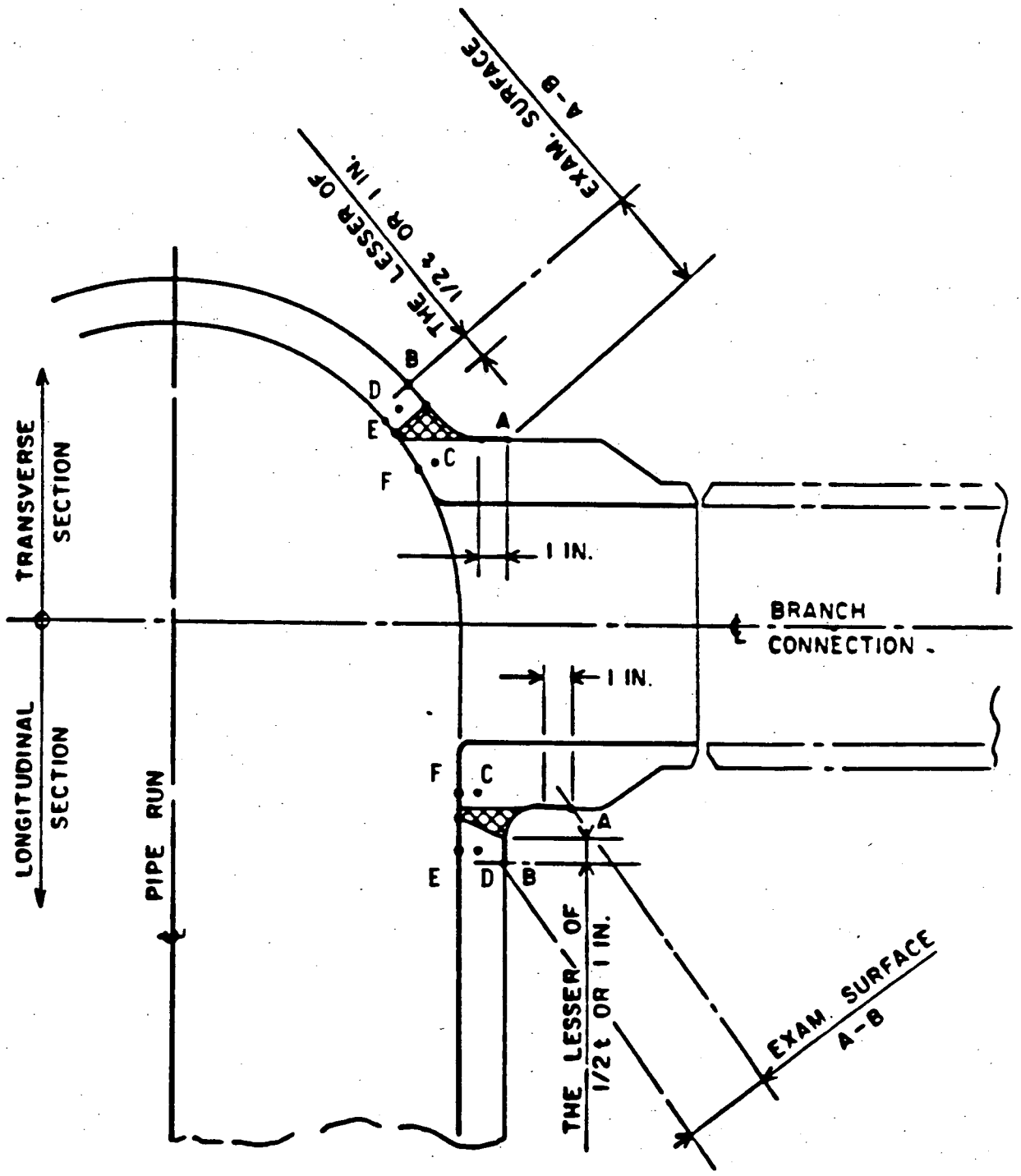
NOTE: ALL FLAWS ARE EXAGGERATED IN SIZE AND SCALE

WESTINGHOUSE ELECTRIC CORPORATION

ILLUSTRATIVE ONLY

FIGURE B-11

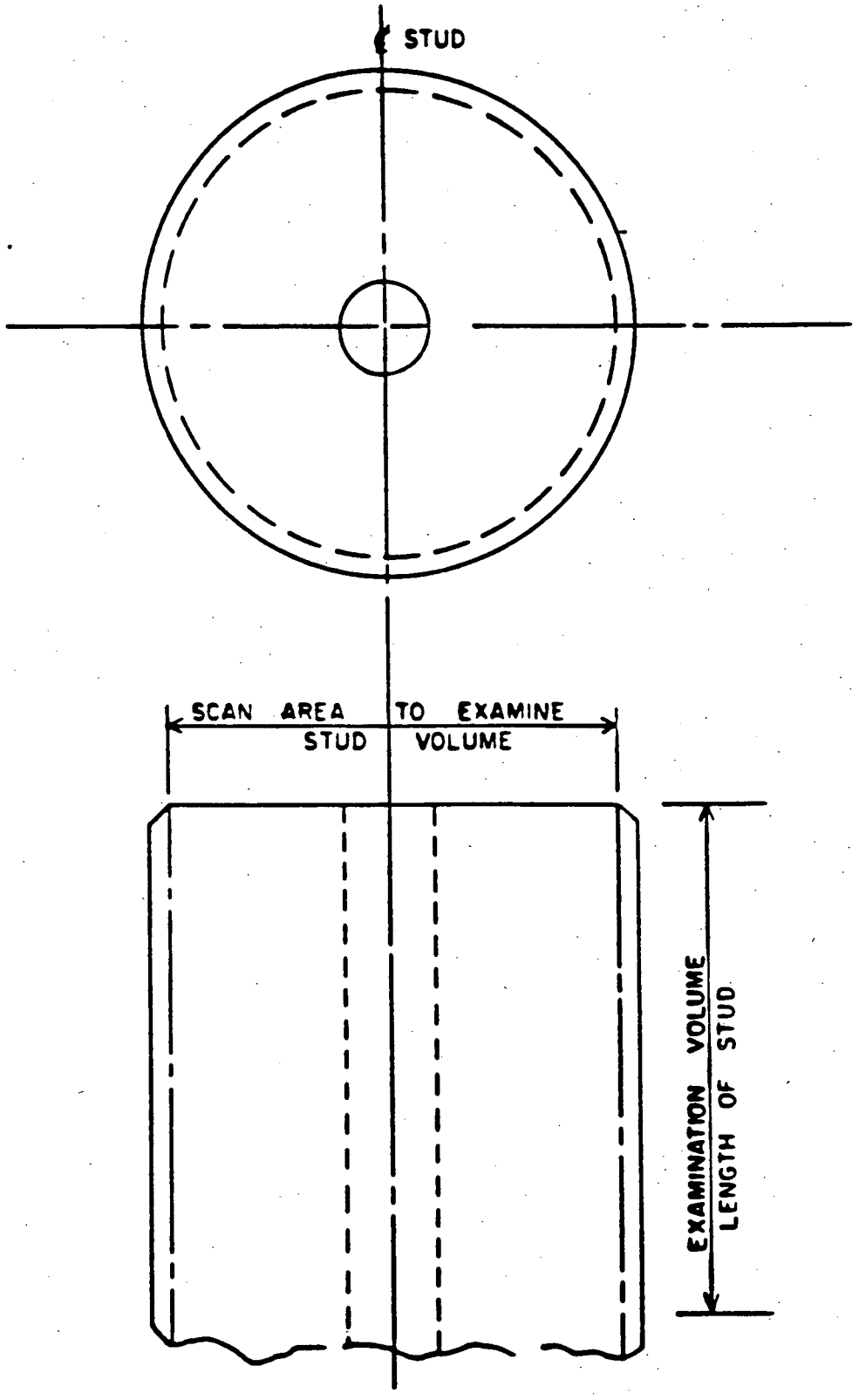
PIPE BRANCH CONNECTION



ILLUSTRATIVE ONLY

FIGURE B-12

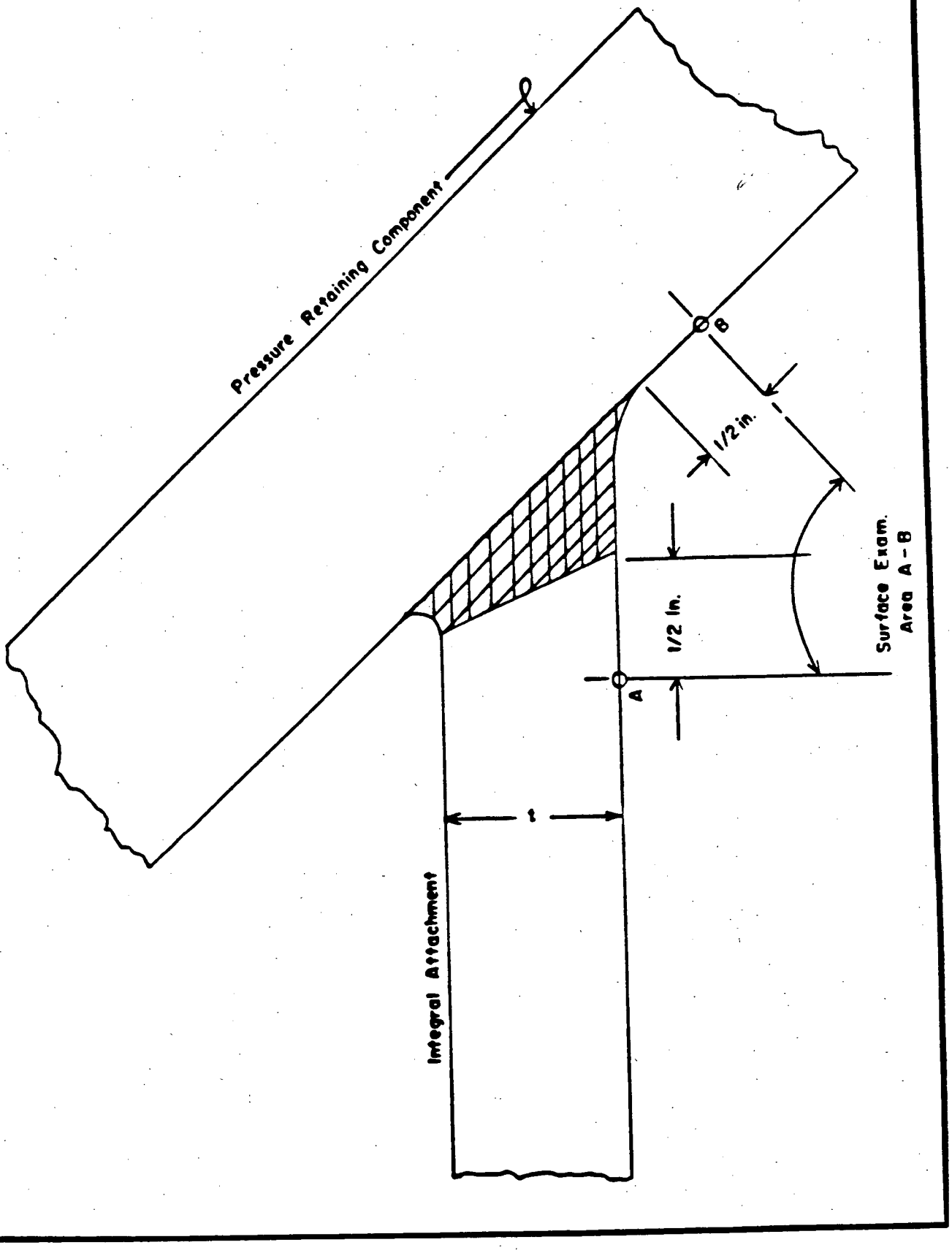
CLOSURE STUD



ILLUSTRATIVE ONLY

FIGURE B-13

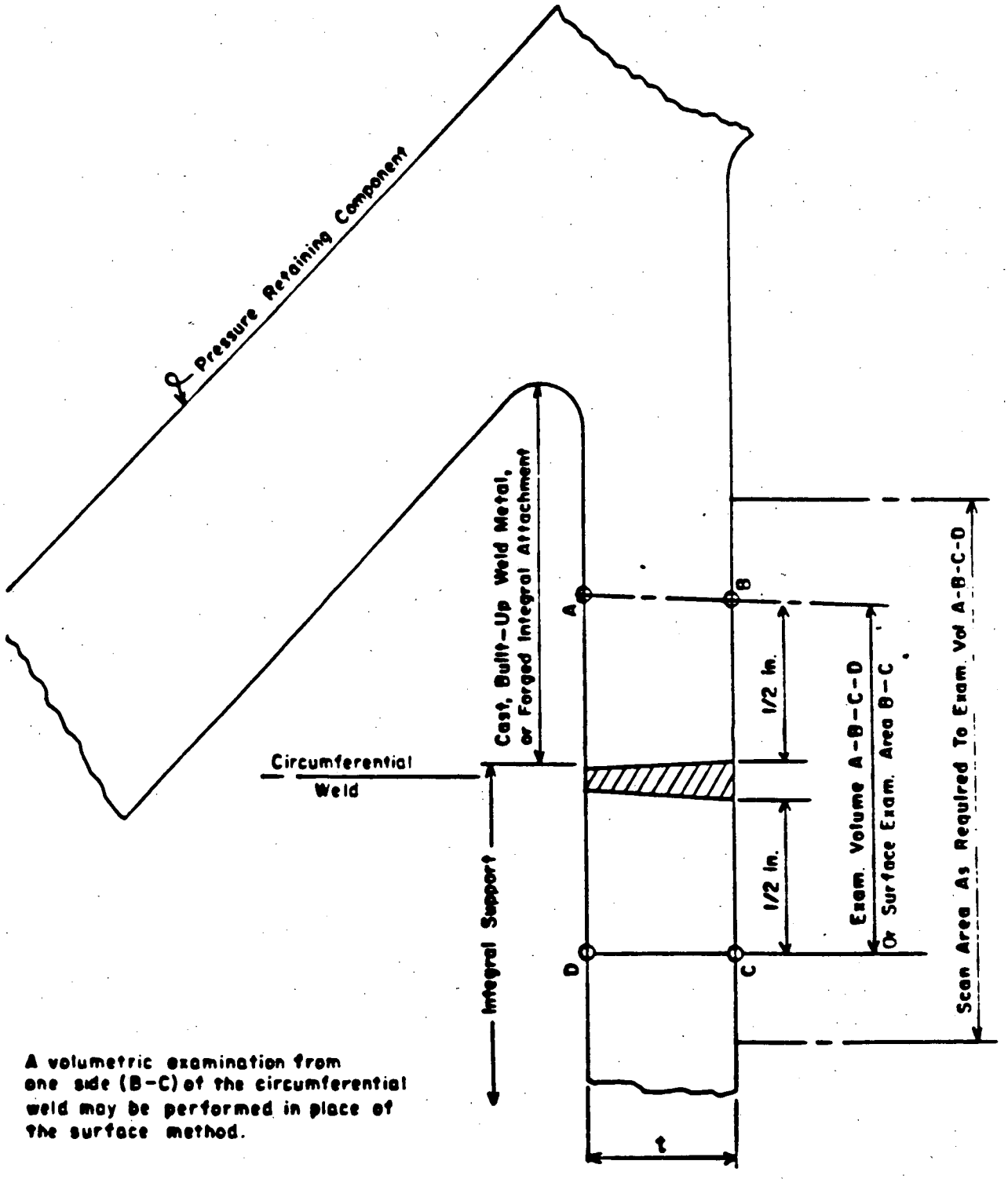
SUPPORT CIRCUMFERENTIAL WELD JOINT



ILLUSTRATIVE ONLY

FIGURE B-14

SUPPORT CIRCUMFERENTIAL WELD JOINT

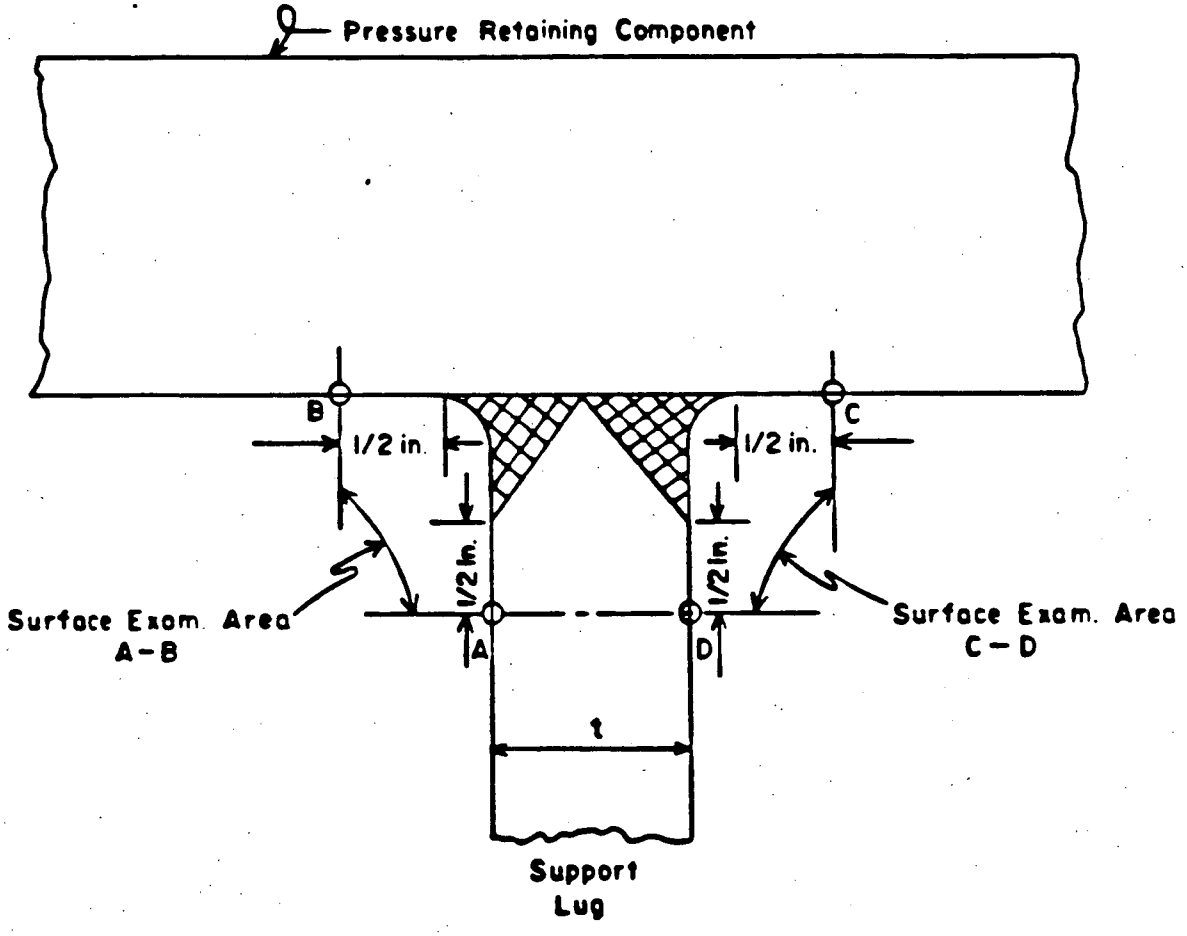


A volumetric examination from one side (B-C) of the circumferential weld may be performed in place of the surface method.

ILLUSTRATIVE ONLY

FIGURE B-15

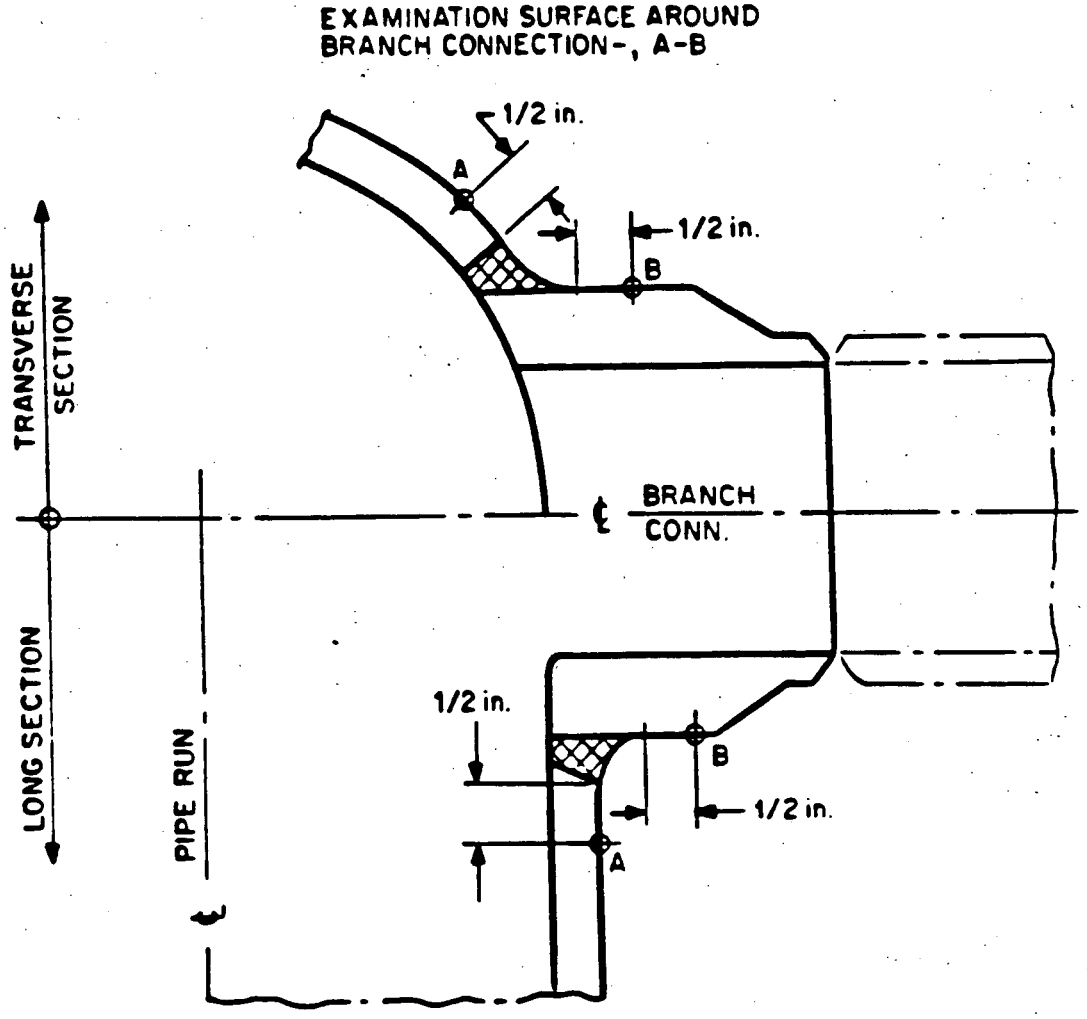
SUPPORT LUG ATTACHMENT



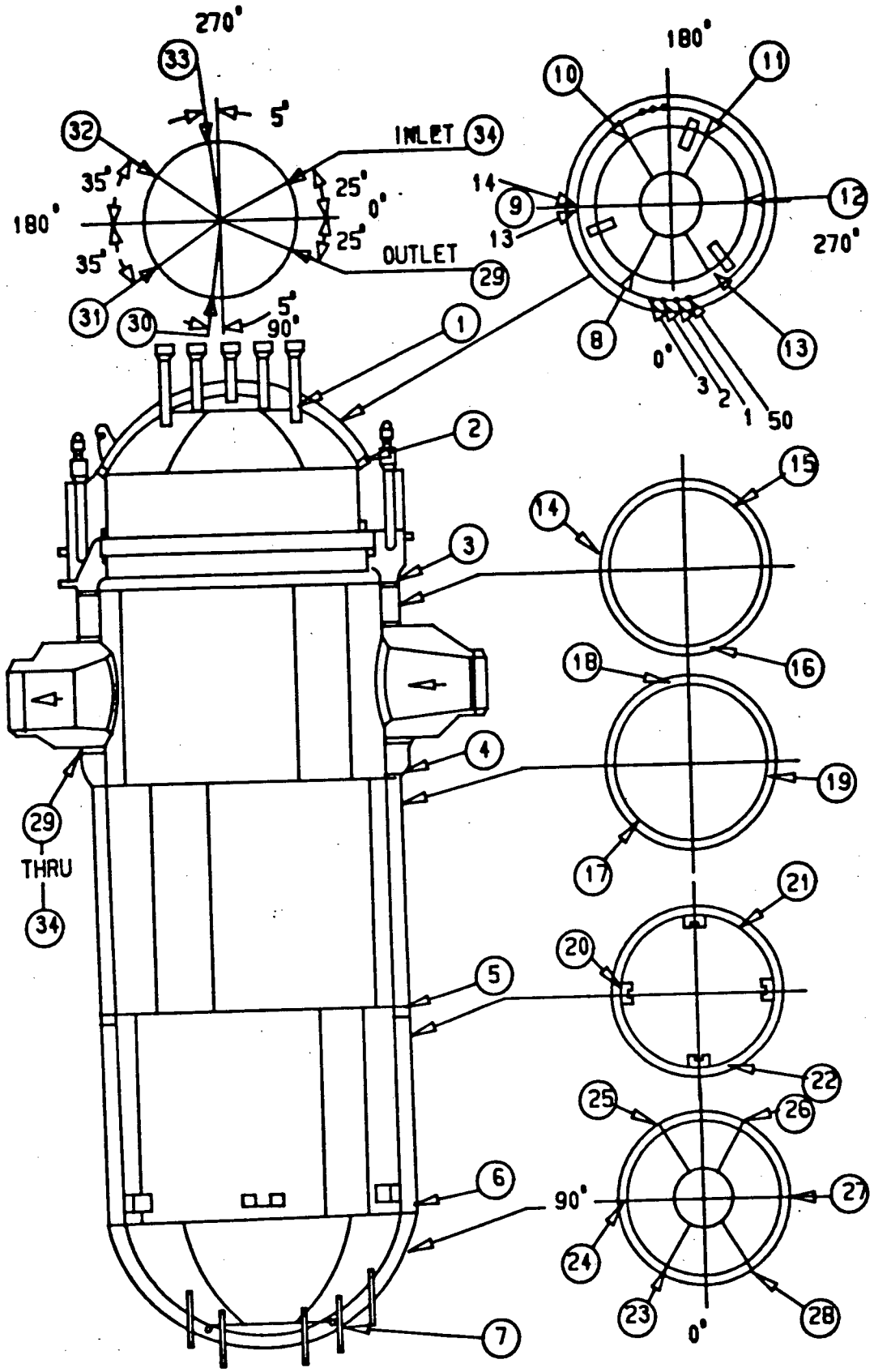
ILLUSTRATIVE ONLY

FIGURE C-09

BRANCH CONNECTION WELDS



RESULTS INDEX



H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION REACTOR VESSEL SHELL WELDS		
LINE NO.	CPL-101 REV.	1

WESTINGHOUSE FOR.. /62

SKETCH CPL 101 **002**

EXAMINATION SUMMARY
FOR
1987

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	3	X												
3	RV Flange								X					

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

003

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL 101

SYST/COMP REACTOR VESSEL FLANGE PROCEDURE 1518 REV 9

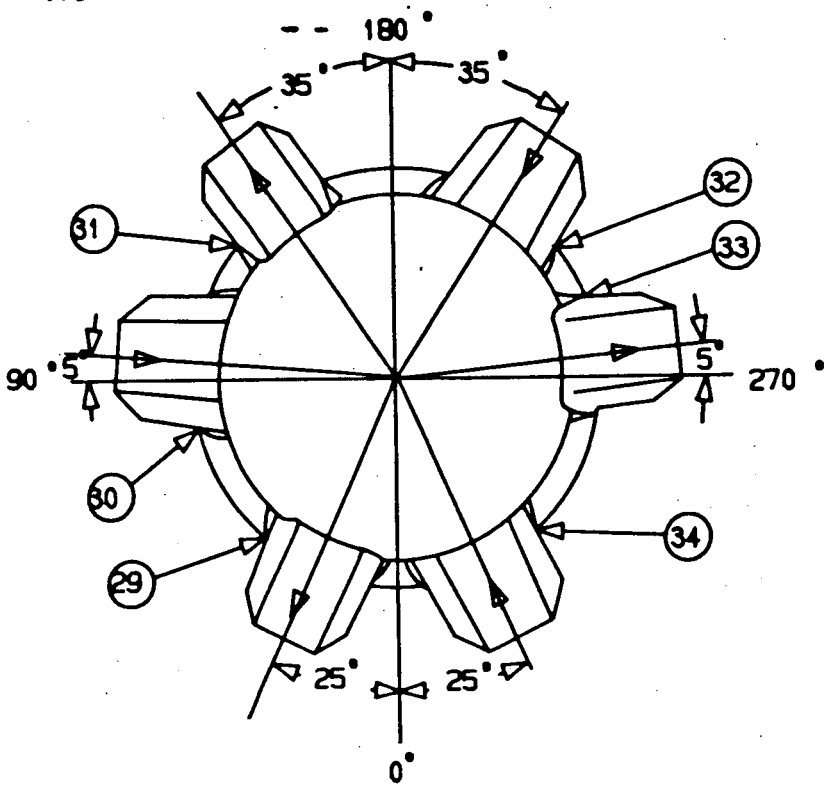
EXAMINER [illegible] LEVEL II [illegible] LEVEL II DATE 4-19-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
REACTOR VESSEL		X		DROP LIGHTS	CAVITY FILLED WITH WATER
FLANGE VT3				BINOCULARS	POLE USED TO MOVE LIGHTS

Richard B. Weber 4/21/87
[illegible] ANII 4-22-87

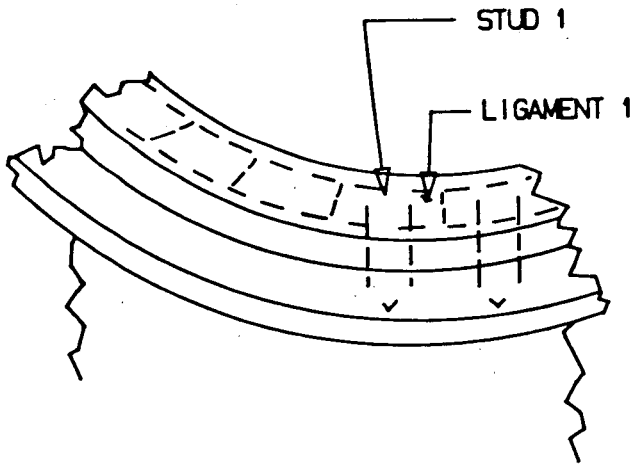
FORM 459348

R. V. NOZZLE TO VESSEL WELDS



VESSEL FLANGE LIGAMENTS

LIGAMENT SURROUNDING STUD HOLE TO CORRESPOND WITH STUD HOLE NUMBER



H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION	VESSEL NOZZLE & FLANGE WELDS	
LINE NO.	CPL-101A REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 101A 005

EXAMINATION SUMMARY
FOR
1987

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	18	X												
2	19	X												
2	20	X												
2	21	X												
2	22	X												
2	23	X												
2	24	X												
2	25	X												
2	26	X												
2	27	X												
2	28	X												
2	29	X												
2	30	X												
2	31	X												
2	32	X												
2	33	X												
2	34	X												
	38	X												

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-101A

SYST/COMP.: REACTOR VESSEL LIGAMENTS | PROCEDURE: ISI-48, REV.0 FC 1, FC 2, F.C.3

EXAMINER (LEVEL II): Joseph D. Furnyak II Ralph L. Churchfield IT | DATE: 4-28-84-11-87

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8				
INST. S/N: Sonic MK I 11221E	S/N	H09565											
	SIZE	1.0"											
	FREQ.	2.25 MHZ											
	ANGLE	0°											
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS	
REJECT: OFF	#1 8"	100%	2.0										
DAMPING: MIN	#2 11"	80%	4.0										
FILTER: OFF	#3 14"	55%	6.0										
LIN. CHECK: SAT													
SU CABLE: 24' BNC-BNC													
COUPLANT: SONOTRACE 40 BATCH # 8558	CAL. GAIN	50 db											

CALIBRATION CHECK
INITIAL TIME 0650 JNF
FINAL TIME 0810 JNF
CAL. BLOCK: CPL RV-2
THICKNESS: 22"
TEMP.: 60°F

LIGAMENT NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
18	+10°F					YES		MACHINED	X			
19	+10°F					YES		MACHINED	X			
20	+10°F					YES		MACHINED	X			
21	+10°F					YES		MACHINED	X			
22	+10°F					YES		MACHINED	X			
23	+10°F					YES		MACHINED	X			
24	+10°F					YES		MACHINED	X			
25	+10°F					YES		MACHINED	X			
26	+10°F					YES		MACHINED	X			Richard B. Weber 4/18/87
27	+10°F					YES		MACHINED	X			John Jaworski ANII 4-29-87
28	+10°F					YES		MACHINED	X			

900

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
WELD ULTRASONIC EXAMINATION
(CONTINUATION SHEET)
INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-101A
SYST/COMP: REACTOR VESSEL LIGAMENTS | PROCEDURE: ISI-48, REV. 0 FC 1 FC 3
EXAMINER (LEVEL II): Joseph D. Furnyak II Ralph L Churchfield II T 4-29-87 | DATE: 4-11-87

LIGAMENT NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
29	+10°F					YES		MACHINED	X			
30	+10°F					YES		MACHINED	X			
31	+10°F					YES		MACHINED	X			
32	+10°F					YES		MACHINED	X			
33	+10°F					YES		MACHINED	X			
34	+10°F					YES		MACHINED	X			
38	+10°F					YES		MACHINED	X			

Richard B Weber 4/18/87
John Durnwald ANII
4-19-87

007

FORM 49010

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-101A 4-18-87

SYST/COMP.: REACTOR VESSEL FLANGE TO VESSEL WELD #3 | PROCEDURE: ISI-48 REV. 0 FC 1 FC 2 FC 3

EXAMINER (LEVEL II): [illegible] II Timothy & Baloh I | DATE: 4-11-87

EQUIPMENT	TRANSDUCER	~~STRAIGHT BEAM SCAN~~ DIRECTION ~~0~~ 12°	AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N: SONIC MARK I 05939E	S/N	J03267											INITIAL TIME 0640 W.U.M.
	SIZE	1.0" DIA.											
	FREQ.	2.25 MHZ											
	ANGLE	12° L											
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS		
REJECT: OFF	#1 25"	80%	5.0										
DAMPING: MIN	#2 27½"	70%	6.0										
FILTER: HI	#3 30"	60%	7.0										FINAL TIME 0805 W.U.M.
LIN. CHECK: SAT													
SU CABLE: 18' BNC-RNC													CAL. BLOCK CPL-RV-2
COUPLANT: SONOTRACE 40 #8558	CAL. GAIN	70 dB											THICKNESS 37.5"
													TEMP. 60° F

LIGAMENT NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
18	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			GEOMETRY, VARYING
19	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			AMPLITUDES BETWEEN
20	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			50% AND 100% OF DAC,
21	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			FOUND WHEN SCANNING
22	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			BETWEEN FLANGE STUD
23	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			HOLES (18 THRU 34 AND 38)
24	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			FROM FLANGE AND LIP
25	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			SURFACES. SCANNING
26	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			DIRECTION WAS
27	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			TOWARDS THE OUTER
28	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			RADIUS OF THE FLANGE.

Richard B. Walker 4/18/87 — Level III

[illegible] 4-29-87 — Level II

008

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
WELD ULTRASONIC EXAMINATION
(CONTINUATION SHEET)
INSERVICE

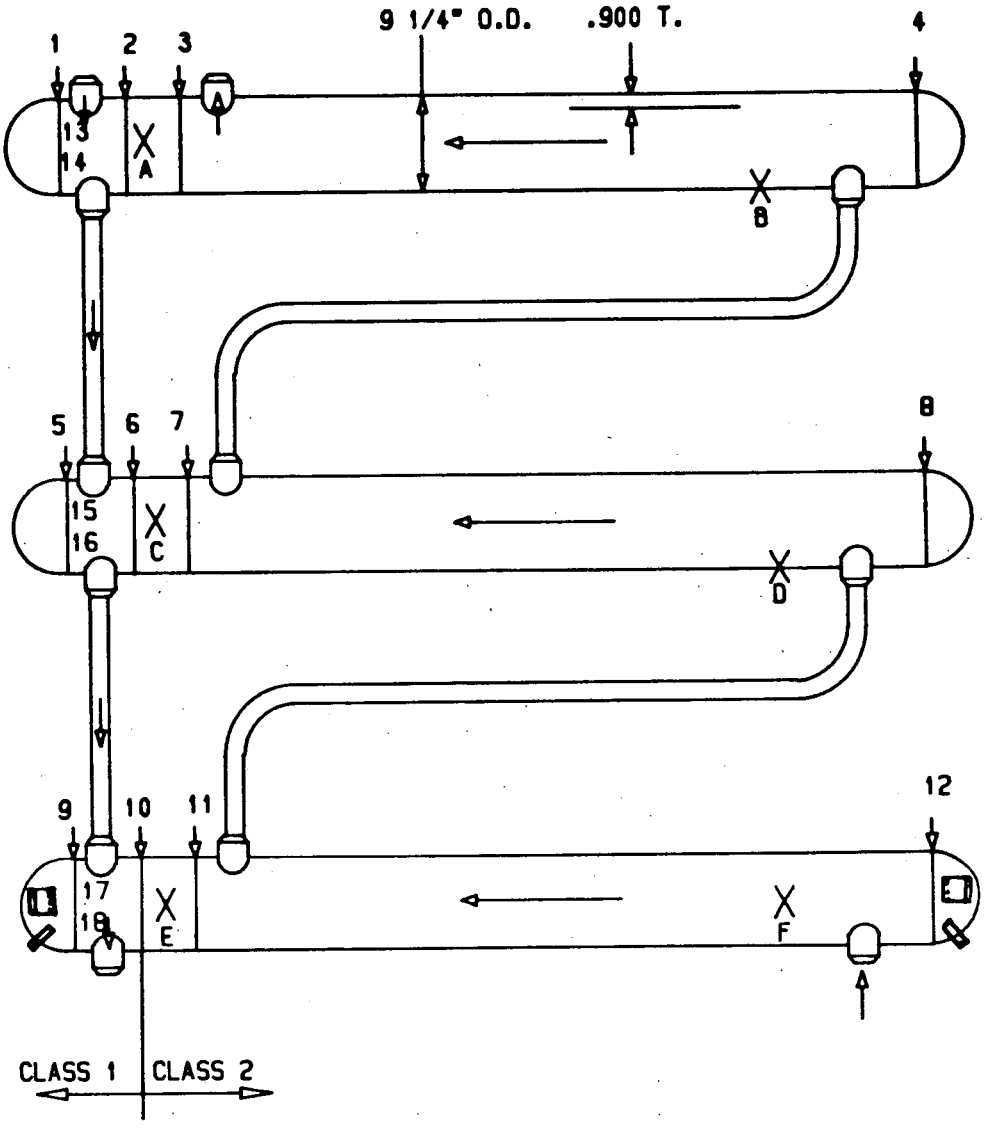
PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-101A (SSC-4-18-87)
SYST/COMP: REACTOR VESSEL FLANGE TO VESSEL WELD #3 | PROCEDURE: ISI-48 REV.0 F.C.3 (EC FC 2)
EXAMINER (LEVEL II): Will. L. W. Mill II Timet & Babcock I | DATE: 4-11-87

LIGAMENT NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
29	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			SCANNING DIRECTION
30	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			AS PER ISI-48, REV 0 F.C.3
31	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			
32	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			
33	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			
34	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			
38	+10°F	NA	NA	NA	NA	NA	FLANGE STUD HOLES, LIP	MACHINED	X			

Richard B. Weber 4/18/87
ANII 4-19-87

600

FORM 49010



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION REGENERATIVE HEAT EXCHANGER		
LINE NO.	CPL-106 REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 106 011

EXAMINATION SUMMARY
FOR

1987

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
8	1	X												
9	6	X												
10	15	X			X									
10	16	X			X									

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-106

SYST/COMP.: REGENERATIVE HEAT EXCHANGER | PROCEDURE: ISI-206, REV. 1

EXAMINER (LEVEL II): Joseph D. Furnyak II, Ralph L. Churchfield IT SMC 40982 | DATE: 4-14-87

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	C16353		62410					62410					INITIAL TIME: 0° - 0210 INT
	SIZE	0.25"		0.25"					0.25"					
06209E	FREQ.	5.0 MHz		2.25 MHz					2.25 MHz					45° - 0300 INT
REP. RATE: 3K	ANGLE	0°		45°					45°					
REJECT: OFF	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
DAMPING: 8	¼T	80%	2.0											
	¾T	30%	6.0											
FILTER: HIGH	1T		8.0	80%	2.0				80%	2.1				
LIN. CHECK: SAT	2T			45%	4.0				30%	4.2				FINAL TIME: 0° - 0240 INT; 45° - 0330 INT
SU CABLE: 12' BNC-MCD	3T			15%	6.0									CAL. BLOCK: CPL-29
COUPLANT: Sonotrace 40, Batch # 8558	CAL. GAIN	27db		50db					52db					THICKNESS: 0.751"
														TEMP.: 74°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	-5°F	N/A	YES	YES	YES	YES		GROUND	X			AREA EXAMINED: 90° TO 270°
6	-5°F	N/A	YES	YES	YES	YES	SUPPORT	GROUND	X			
15	-5°F	N/A	YES	NO	PAR	PAR	WELD CONFIGURATION	GROUND	X			
16	-5°F	N/A	NO	YES	PAR	PAR	WELD CONFIGURATION	GROUND	X			

Richard B. Weber 4/18/87
AN II
4-19-87

012

013

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-106

SYST/COMP. REGENERATIVE HEAT EXCHANGER PROCEDURE ISI-11, REV. 10 FC 3

EXAMINER Paul J. Kovallo-II LEVEL II Ralph R Chesnfield - IT 4-15-87 DATE 4-14-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
15	X				69°
16	X				69°

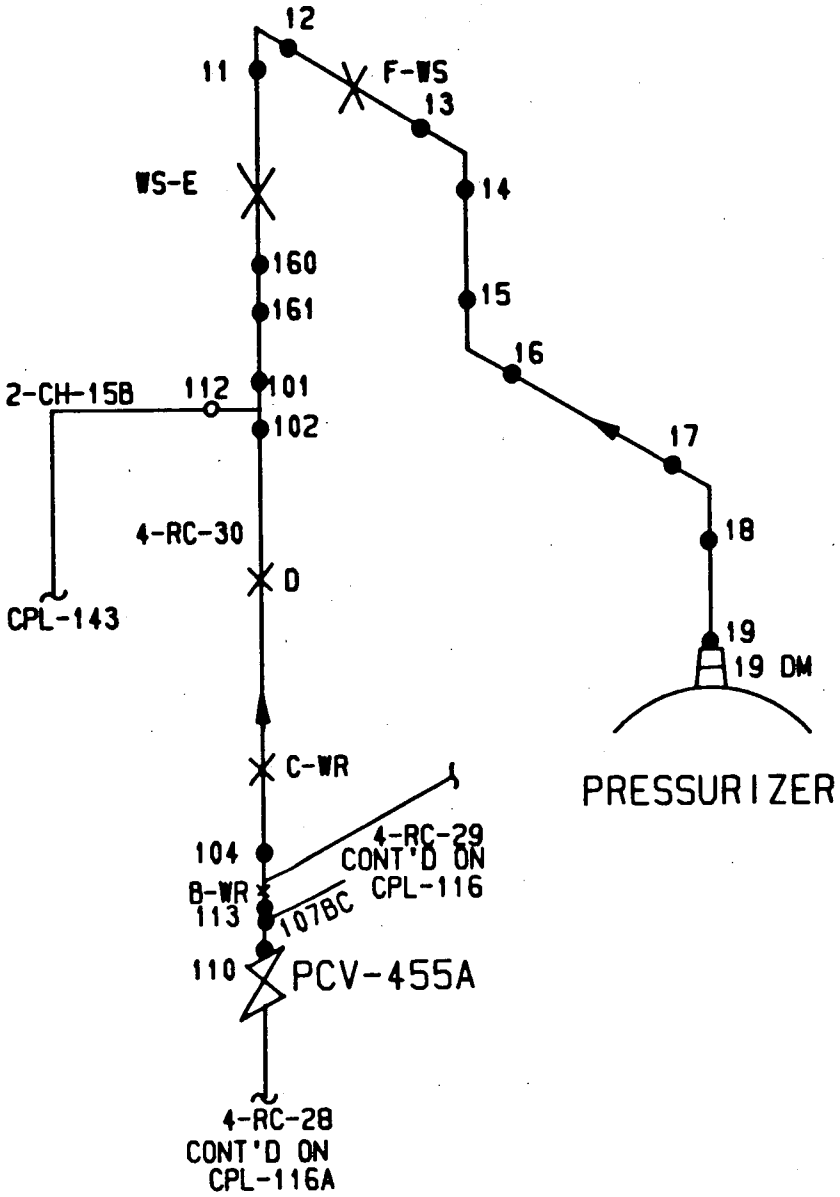
Richard B. Wilson 4/18/87

4-19-87

FORM 45935C

SPRING HANGERS
F

WELD SUPPORT
F-WS



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION LOOPS B&C-4"SPRAY LINE		
LINE NO. 4-RC-30	CPL-116B REV.	2

WESTINGHOUSE FORM 46762

SKETCH CPL 116B **015**

EXAMINATION SUMMARY
FOR
1987

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	D									X				See Tab F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

016

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116B

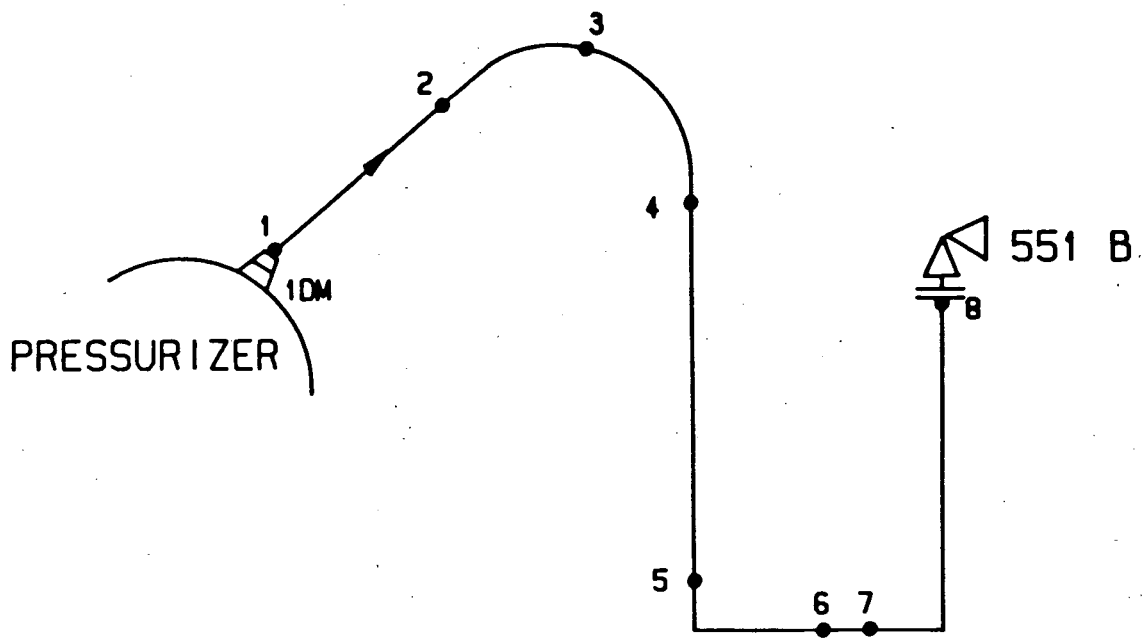
SYST/COMP LOOPS B+C-4" SPRAY LINE PROCEDURE ISI 8, REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-24-87
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
D VT-3			X	FLASHLIGHT	UNABLE TO DO VALID EXAM DUE TO INSULATION

Richard B. Webb 4/26/87
John Jurewicz ANII 4-27-87

FORM 45934B



NOTES:

H.B. ROBINSON S.E. PLANT	C
UNIT NO. 2	F
DESCRIPTION 4" PRESSURIZER SAFETY LINE	&
LINE NO. 4-RC-43 CPL-.118A REV. 1	L

WESTINGHOUSE FORM 46762

SKETCH CPL 118A **018**

EXAMINATION SUMMARY
FOR
1987

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
130	5					X								
130	6					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

019

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-118A

SYST/COMP. 4" PRESSURIZER SAFETY LINE PROCEDURE ISI 11, REV. 10 F.C.3

EXAMINER Joseph A. Fennyak II Fin & Rated I LEVEL II DATE 4-23-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
5		X		AS WELDED *	80° F
6		X		AS WELDED *	80° F
				* MANUFACTURING MARKS ON PIPE NOT EXAMINED EXTEND INTO THE AREA OF INTREST.	

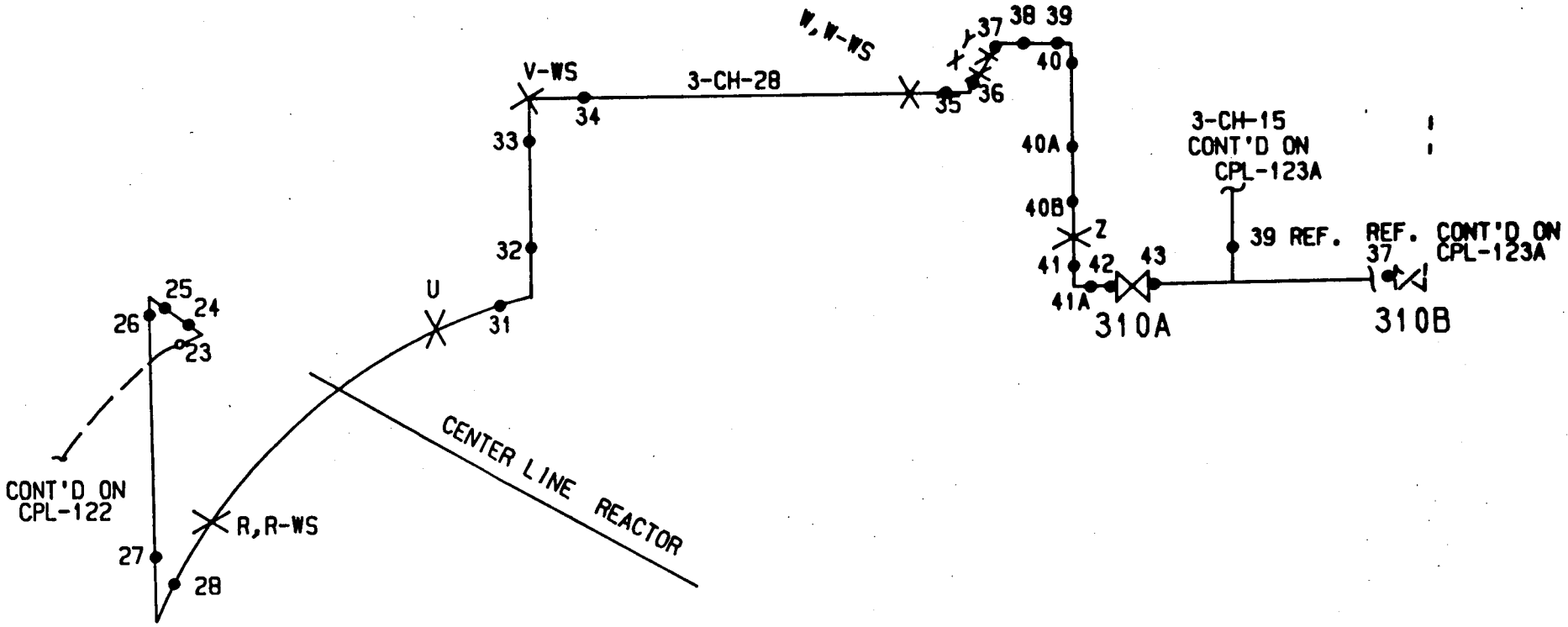
Richard B. Weber 4/24/87
John Jaccard ANII
4-27-87

FORM 45935C

SPRING HANGERS
X,Y

WELDED SUPPORTS

W-WS
R-WS
V-WS



NOTES:

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION: LP.A 3" ALT. CHARGING LINE	

CP&L

SKETCH CPL 122A **021**

EXAMINATION SUMMARY
FOR

1987

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
131	V							X						

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

022

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-122A

SYST/COMP LP. A 3" ALT. CHARGING LINE PROCEDURE ISI 8, REV. 9

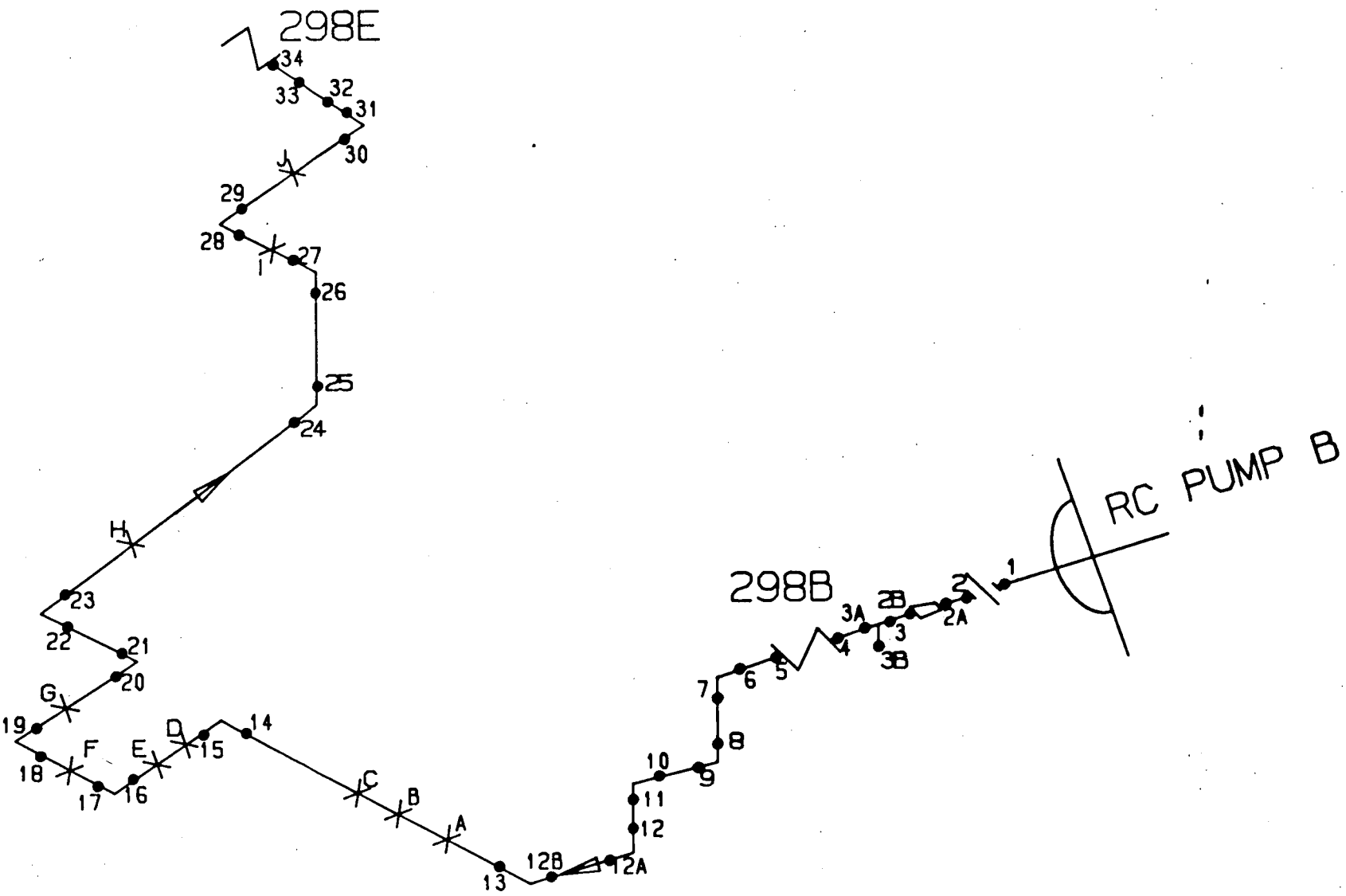
EXAMINER Joseph D. Furyak II LEVEL II DATE 4-15-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V-WS VT-3	X			FLASHLIGHT	

Richard B. Weber 4/18/87

ANII 4-19-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION: LOOP B 2" SEAL INJECT. LINE	
	REV. 1

CP&L

SKETCH CPL 133 **024**

EXAMINATION SUMMARY
FOR
1987

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

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

025

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-133

SYST/COMP. LOOP "B" 2" SEAL INJECTION LINE PROCEDURE ISI,11 REV.10 FC 3

EXAMINER Paul J. Kovalle-II LEVEL II Richard W. Hughes I DATE 4-25-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T

EQUIPMENT

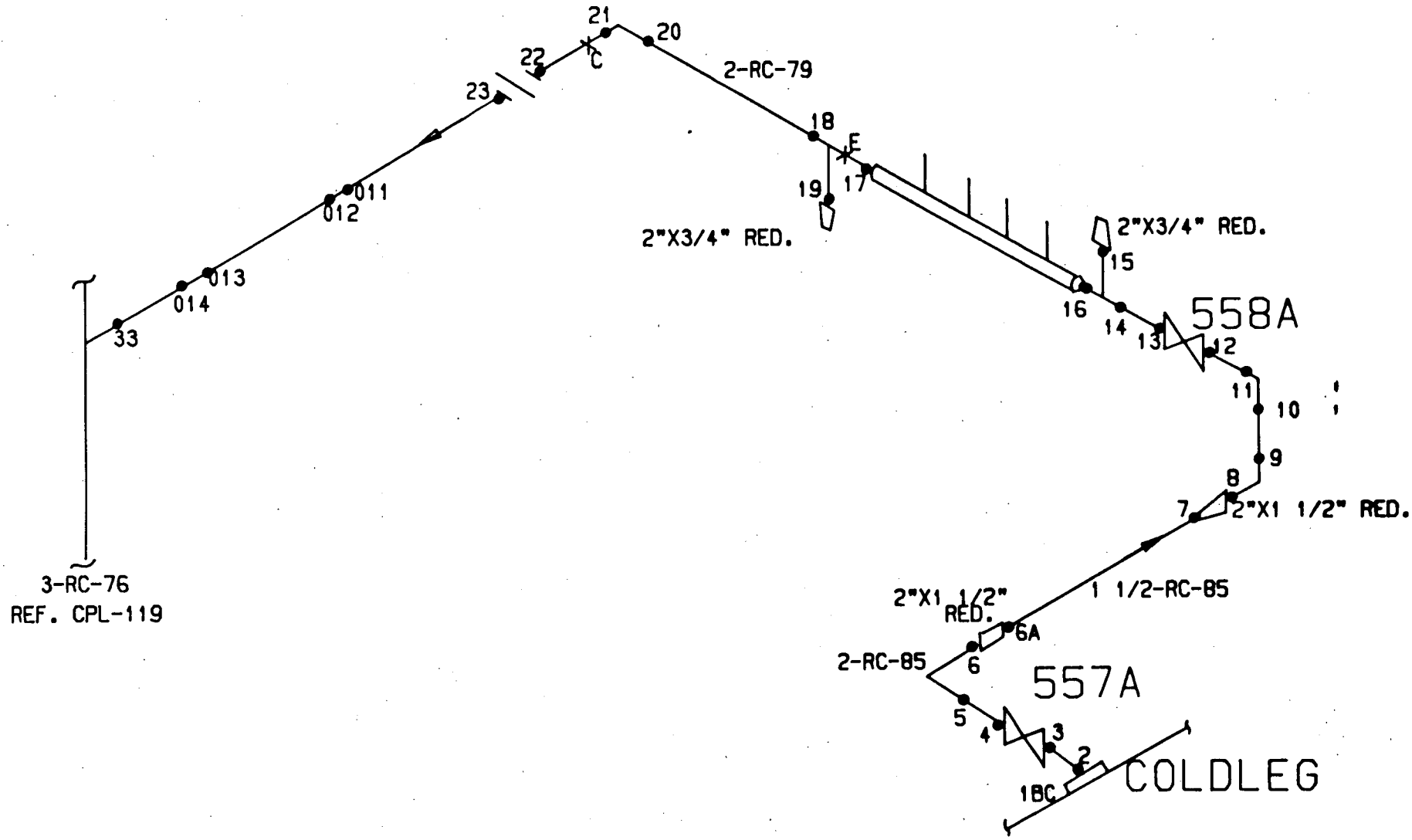
EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
16	X				76°F

Richard B. Weber 4/25/87
John J. Russell ANII
4-27-87

FORM 45935C



NOTES:

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LP.A2"X1 1/2" COLDLEG RTD.SWP.	

WESTINGHOUSE FORM 46762

SKETCH CPL 136 **027**

EXAMINATION SUMMARY
FOR
1987

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
14	1								X					
14	2								X					
14	3								X					
14	4								X					
14	5								X					
14	6								X					
14	7								X					
14	8								X					

28

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

028

VISUAL EXAMINATION DATA

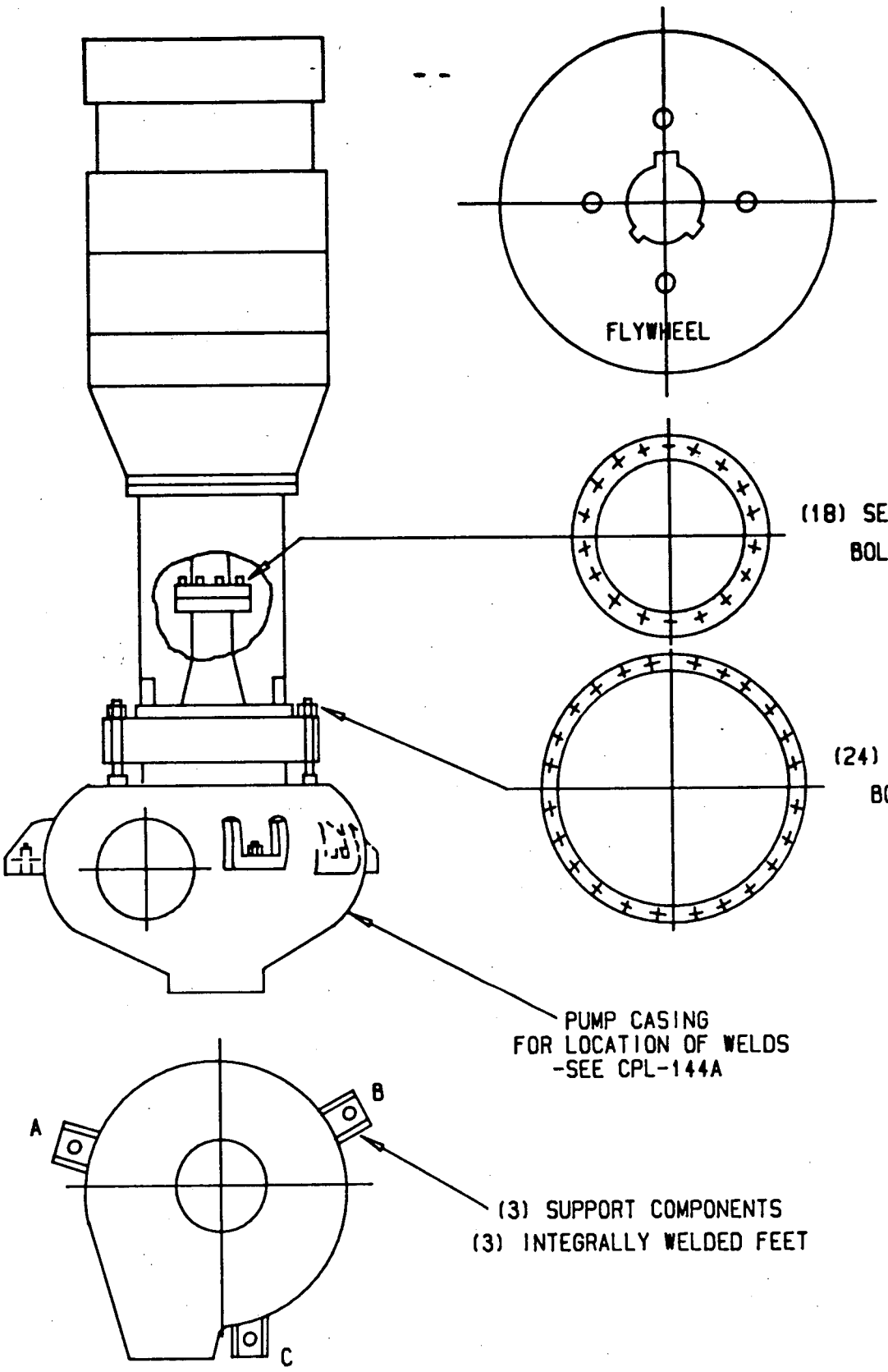
PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-136

SYST/COMP LPA 2"x 1½" COLDLEG RTD BYP PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Tunyak II DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
FLANGE BOLTING VT-1		X		FLASHLIGHT MIRROR	LIGHT RUST
8 BOLTS					
					Richard B. Weber 4/28/87
					John Tunyak ANII 4-28-87

FORM 45934B



H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION REACT-COOLANT PUMPS A,B,&C		
LINE NO.	CPL-144 REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 144 **030**

EXAMINATION SUMMARY
FOR

1987

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	MT NI	MT NRI	MT RI	REMARKS
135	Bolts 1-18								X		X			

031

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B ROBINSON UNIT 2 SKETCH CPL-144

SYST/COMP. PUMP C SEAL HOUSE BOLTING PROCEDURE ISI-70, REV.2

EXAMINER Joseph D. Fumyak II (signature) II Robert W. Hughes II DATE 4-14-87
LEVEL II

P/T	BATCH NOS.
CLEANER	
PENETRANT	
DEVELOPER	
REMOVER	

M/T

EQUIPMENT L-10 COIL

BLACK LIGHT

EXAM. MEDIUM 14AM PREPARED BATH BATCH # 87A039

BLACK-LIGHT CHECK TIME 0400 hrs 0600 HRS

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
BOLTS 1 THRU 18	X				68°F
				Richard B. Weber 4/18/87	
				(signature) ANII 4-19-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

032

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-144

SYST/COMP PUMP C SEAL HOUSE BOLTING PROCEDURE ISI-8, REV. 9

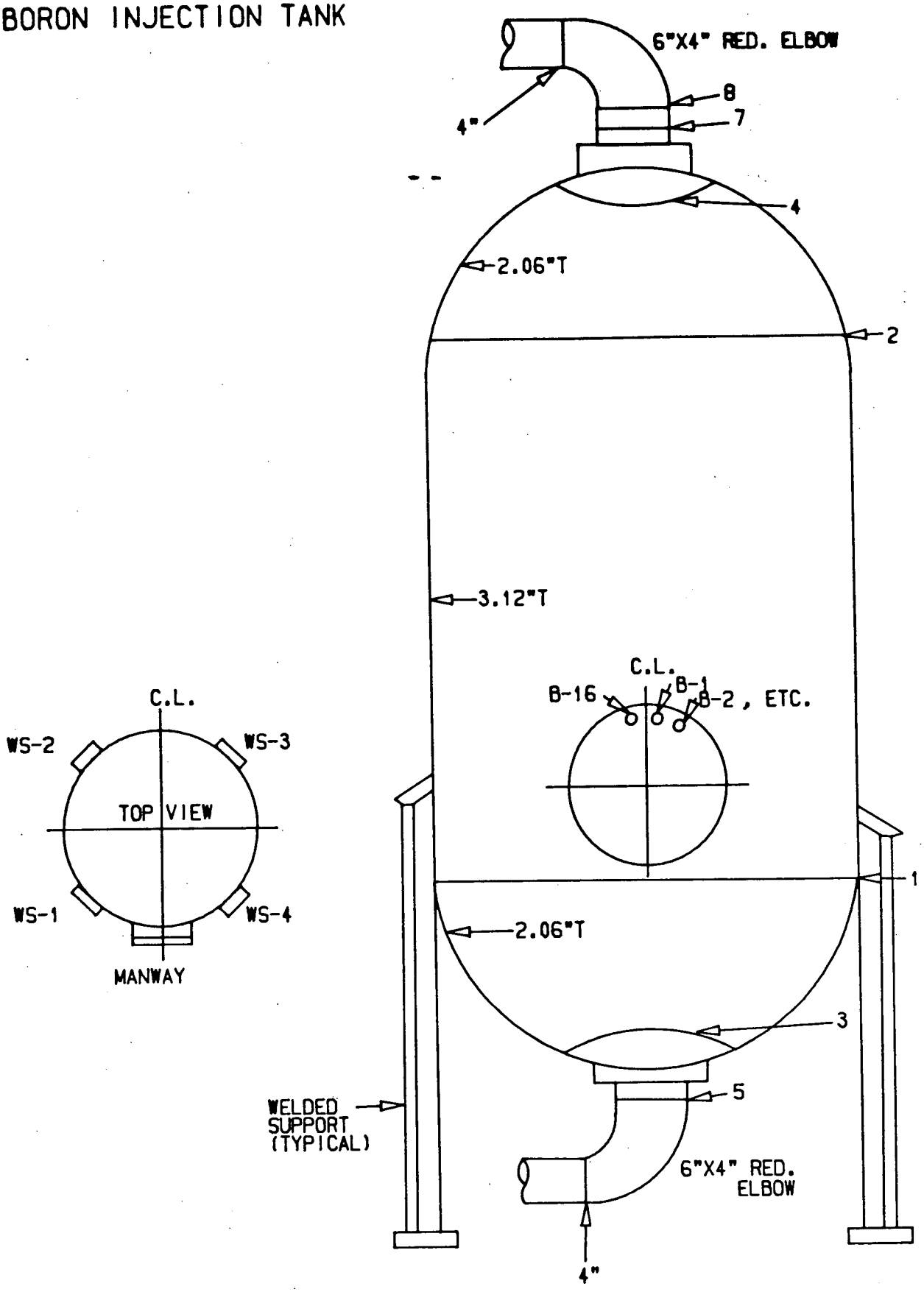
EXAMINER Joseph J. Furnyak II LEVEL II DATE 4-14-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
BOLTS 1 THRU 18		X			LIGHT NICKS ON SHAFT AND THREADS
VT-1					

Richard B. Weber 4/18/87
ANII
4-19-87

FORM 45934B

BORON INJECTION TANK



H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: BORON INJECTION TANK		
LINE NO.	CPL-202 REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 202 034

EXAMINATION SUMMARY
FOR

1987

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	1	X												
15	2	X												
17-16	3	X				X								
17-16	4	X			X									
19-18	WS-2					X			X					
20	7					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H.B. Robinson | UNIT: 2 | SKETCH: CPL-202
SYST/COMP.: Boron Injection Tank | PROCEDURE: ISI-206 Rev. 1
EXAMINER (LEVEL II): William L. Foley II William C. Mills II | DATE: 4-23-87 / 4-24-87

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8				
INST. S/N: SONIC MARK I 07853E	S/N	C03620		56761					56761				
	SIZE	.375"		.5"					.5"				
	FREQ.	2.25 MHz		2.25 MHz					2.25 MHz				
	ANGLE	0°		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		
						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS	
REJECT: OFF	1/4 T	80%	1.0										
DAMPING: MIN	1/2 T	45%	3.0										
	3/4 T	25%	5.0										
FILTER: MED	1 T		7.4	80%	2.0				80%	2.0			
	2 T			40%	4.0				40%	4.0			
LIN. CHECK: SAT	3 T			22%	6.0				22%	6.0			
SU CABLE: 0° - 12' BNC-MCD; 45° - 12' BNC-BNC													
COUPLANT: SONOTRACE 40 #8662	CAL. GAIN	12 dB		34 dB					34 dB				

CALIBRATION CHECK

INITIAL TIME
0° IC 2240 WPK
CC 2353 WPK
CC 0320 WPK
45° IC 0405 WPK

FINAL TIME
0° FC 0400 WPK
45° FC 0450 WPK

CAL. BLOCK: CPL-47A
THICKNESS: 2.006"
TEMP.: 71° F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	0					PAR	Weld Configuration	Ground	X			Weld 1 - Examined 30"
2	0		NO	PAR	PAR	PAR	Weld Configuration	Ground	X			Between WS-2 and WS-3
4	0		PAR	NO	PAR	PAR	Weld Crown	Ground	X			and 30" Between WS-3
												and WS-4.
												Weld 2 - Examined from
												46" CW To 124" CW, Using
												"0" Datum From ℄ of
												The Manway.
								Richard B. Weber 4/25/87				Examined 100% of
								John J. Guzzardo ANII				Accessible Area on
								4-27-87				Weld 4

035

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-202

SYST/COMP.: BORON INJECTION TANK | PROCEDURE: ISI-206 REV. 1

EXAMINER (LEVEL II): [signature] [signature] | DATE: 4-24-87

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 07853E	S/N	C03620		56761					56761					INITIAL TIME: 0°-2115 WWM; 45°-2227 WWM
	SIZE	.375"		.5"					.5"					
	FREQ.	2.25 MHZ		2.25 MHZ					2.25 MHZ					
	ANGLE	0°		45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	¼ T	80%	1.0											
DAMPING: MIN	½ T	50%	3.0											
	¾ T	25%	5.0											
FILTER: MED	1 T		7.4	80%	2.0				80%	2.0				
LIN. CHECK: SAT	2 T			40%	4.0				40%	4.0				FINAL TIME: 0°-2209 WWM; 45° 2317 WWM
	3 T			20%	6.0				20%	6.0				
SU CABLE 0°-12' BNC-McD 45°-12' BNC-BNC														CAL. BLOCK: CPL-47A
COUPLANT: SONOTRACE 40 #8662	CAL. GAIN	13dB		30dB					30dB					THICKNESS: 2.006; 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	+4°F		PAR	NO	PAR		WELD CONFIGURATION	GROUND	X			WELD 1- EXAMINED 30" BETWEEN WS-2 AND WS-3 AND 30" BETWEEN WS-3 AND WS-4. EXAMINED 100% OF ACCESSIBLE AREA ON WELD 3.
3	+4°F		NO	PAR	PAR	PAR	WELD CROWN	GROUND	X			

Richard B. Weber 4/25/87

ANII 4-27-87

036

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

037

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-202

SYST/COMP. BORON INJECTION TANK PROCEDURE ISI-11 REV. 10 FC. 3

EXAMINER Paul J. Kovallo-II Kenneth Mical I DATE 4-23-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
3		X			71° F
4	X				71° F
7		X			71° F
WS-2		X			71° F

Richard B. Weber 4/24/87
ANII
4-27-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

038

VISUAL EXAMINATION DATA

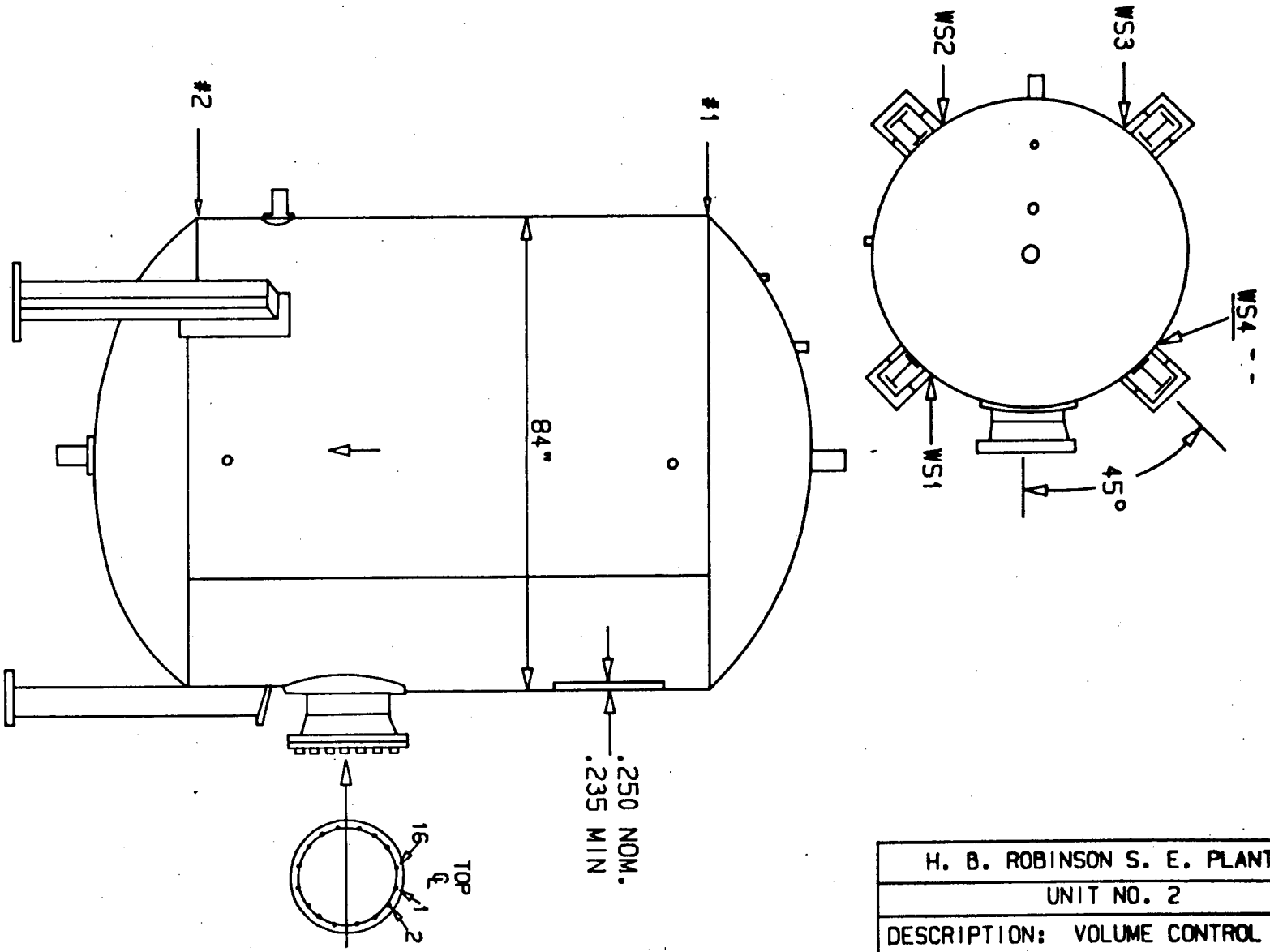
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-202

SYST/COMP BORON INJECTION TANK PROCEDURE ISI-8 REV. 9

EXAMINER [signature] LEVEL II DATE 4-25-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-2 VT3		X		FLASHLIGHT	
					Richard B. Webb 4/25/87
					John J. Jarrard ANII 4-27-87

FORM 45934B



H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: VOLUME CONTROL TANK		
LINE NO. N/A	CPL-203 REV.	1

CP&L

WESTINGHOUSE FORM 46762

SKETCH CPL 203 **040**

EXAMINATION SUMMARY
FOR

1987

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	1	X												
21	2	X												
22	WS 3						X	X						See Tab F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-203
SYST/COMP.: VOLUME CONTROL TANK | PROCEDURE: ISI-206, REV.1
EXAMINER (LEVEL II): William G. Holley II Paul J. Kovallo-I | DATE: 4-26-87

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 07853E	S/N			20176					20176					INITIAL TIME 0240 WJH
	SIZE			.25" DIA.					.25" DIA.					
	FREQ.			2.25					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				80%	2.0				
DAMPING: MIN	2T			45%	4.0				45%	4.0				
FILTER: OFF	3T			33%	6.0				33%	6.0				FINAL TIME 0348 WJH
LIN. CHECK: SAT	4T			20%	8.0				20%	8.0				
SU CABLE: 12' BNC-McD														CAL. BLOCK CPL-42
COUPLANT: SONOTRACE 40 BATCH # 8662	CAL. GAIN			29dB					29dB					THICKNESS .313"
														TEMP. 81° F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	+2°F		PAR	PAR	PAR		WELD CROWN	GROUND	X			AREA EXAMINED 94" CCW FROM ℄ OF MANWAY TO 208° CCW.
2	+2°F		PAR	PAR	PAR		WELD CROWN, WS2 & WS 3	GROUND	X			AREA EXAMINED 94" CCW FROM ℄ OF MANWAY TO 208" CCW.

Richard B. Weber 4/26/87
John Jarrard ANII
4-28-87

041

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-203

SYST/COMP.: VOLUME CONTROL TANK | PROCEDURE: ISI-206 Rev. 1

EXAMINER (LEVEL II): William G. Holley II Tim S. Balal I | DATE: 4-25-87

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 07853E	S/N: C03620											INITIAL TIME 0340 WHH
REP. RATE: 3K	SIZE: 0.375"											
REJECT: OFF	FREQ.: 2.25 MHz											
DAMPING: 8	ANGLE: 0°											
FILTER: MED	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	
LIN. CHECK: SAT	1/2T	80%	3.6									
SU CABLE: 12' BNC-MCD	1T		8.0									FINAL TIME 0430 WHH
COUPLANT: SONOTRACE 40 BATCH #8662	CAL. GAIN	34dB										CAL. BLOCK CPL-42
												THICKNESS .313"
												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	+2°F					PAR	WELD CROWN	GROUND	X			AREA EXAMINED 94" CCW FROM ℄ OF MANWAY TO 208" CCW.
2	+2°F					PAR	WELD CROWN, WS-2 + WS-3	GROUND	X			AREA EXAMINED 94" CCW FROM ℄ OF MANWAY TO 208" CCW.

Richard B. Weber 4/26/87

John Hammond ANII 4-28-87

042

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

043

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP. VOLUME CONTROL TANK PROCEDURE ISI-11, REV. 10 FC 3

EXAMINER Paul A. Kovalle II LEVEL II Kenneth Mead I DATE 4-24-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
WS-3			X	3/32" LINEAR INDICATION FOUND ON VOLUME CONTROL TANK, LEFT SIDE OF WELD SUPPORT #3	78° F
				* SEE ATTACHED INDICATION SHEET.	
				Richard B. Weber 4/25/87	
				John J. Jarrard 4-27-87 ANII	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

044

GENERAL – INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-203

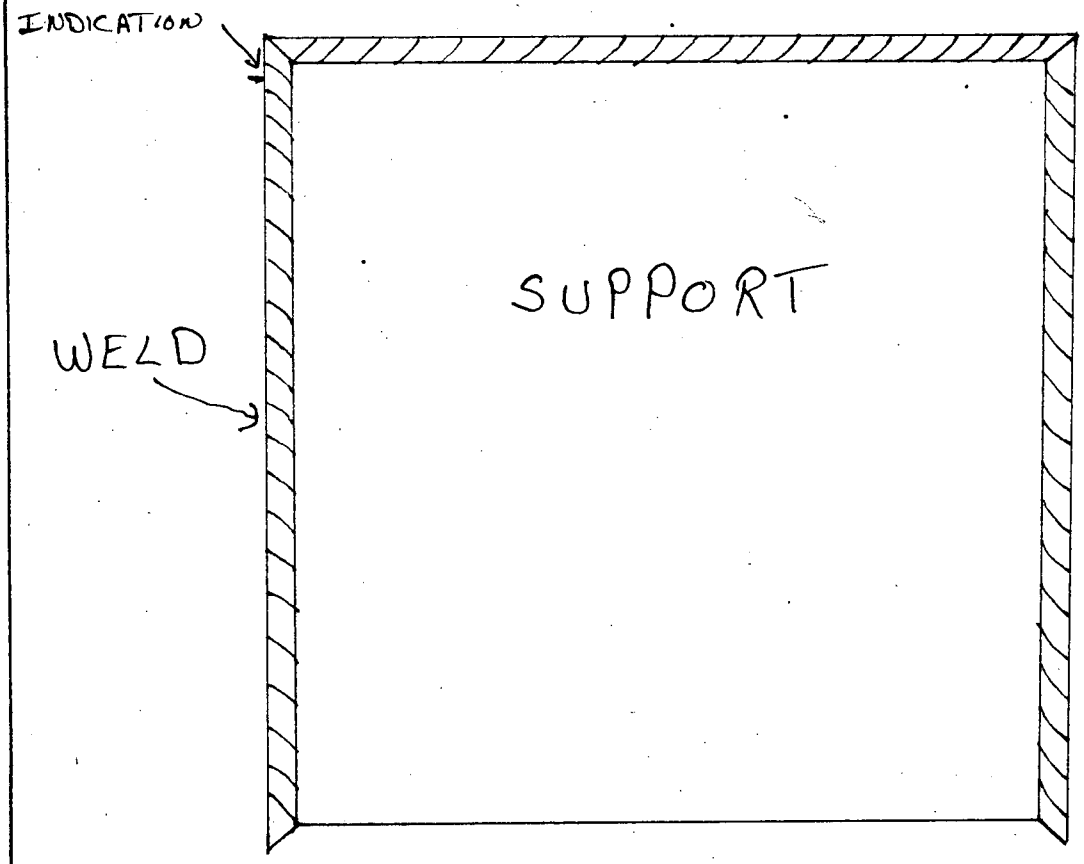
SYST/COMP VOLUME CONTROL TANK PROG. NO.

EXAMINER Paul J. Kovallo-II DATE 4-24-87 PROCEDURE ISI-11, REV. 10 FC 3

DETECTED BY U/T ____ P/T ✓ M/T ____ V/T ____ IDENT NO. WS-3

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.

INDICATION 1/4" DOWN AND LOCATED ON VOLUME CONTROL TANK. LINEAR INDICATION 3/32" LONG.



Richard B. Weber 4/25/87
ANII
4-27-87

FORM 45936

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP VOLUME CONTROL TANK PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D Frungale II (LEVEL II) DATE 4-25-87

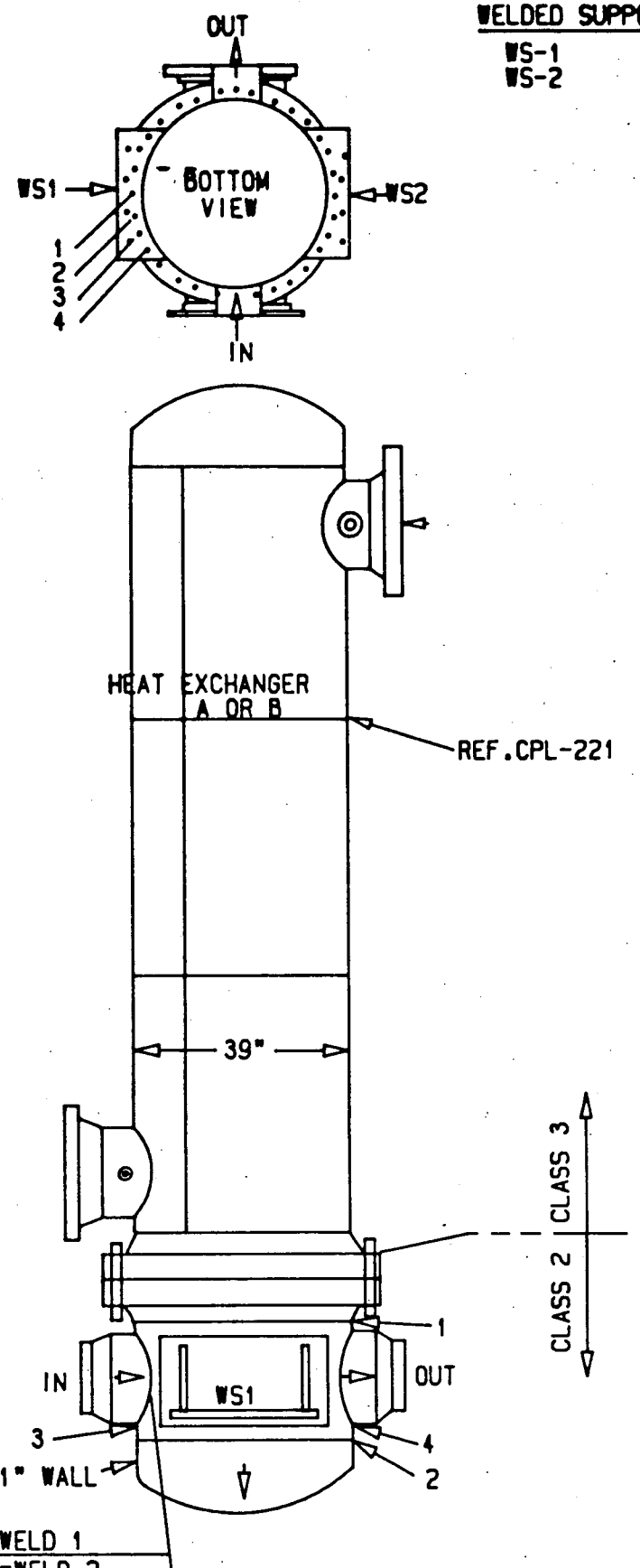
IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-3 VT-3	X			FLASHLIGHT	

Richard B. Weber 4/26/87

John Hancock ANII 4-27-87

FORM 45934B

WELDED SUPPORT
WS-1
WS-2



PIPE TO REINFORCING RING=WELD 1
REINFORCING RING TO SHELL=WELD 2

NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: RHR HEAT EXCHANGERS (2)		
LINE NO.	CPL- 204 REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 204 **047**

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
24	1-A		X											
25	2-A	X												
28-27	WS 2 HX A						X		X					SEE TAB F
26	Weld 3 RG, Ring 1					X								
26	Weld 3 RG Ring 2					X								
26	Weld 4 RE Ring 1					X								
26	Weld 4 RE Ring 2					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-204

SYST/COMP.: RHR HEAT EXCHANGER "A" | PROCEDURE: ISI-206, REV. 1

EXAMINER (LEVEL II): Joseph D. Frampak II, Paul J. Kovallo-I | DATE: 4-20-87

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 07853E	S/N	C03620		56761					56761					INITIAL TIME
	SIZE	0.375"		0.5" X 0.5"					0.5" X 0.5"					0°-0120 90F
	FREQ.	2.25 MHZ		2.25 MHZ					2.25 MHZ					45°-0150 90F
	ANGLE	0°		45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4T	80%	1.9											
DAMPING: 0°-7/45° MIN	3/4T	80%	5.8											
FILTER: MED	1T		8.0	80%	2.0				80%	2.0				FINAL TIME
LIN. CHECK: SAT	2T			45%	4.0				45%	4.0				0°-0141 90F
SU CABLE: 0°-12' BNC-MCD, 45°-12' BNC-BNC	3T			20%	6.0				20%	6.0				45°-0220 90F
COUPLANT: SONOTRACE 40 BATCH # 8558	CAL. GAIN	24db		34db					34db					CAL. BLOCK: CPL-49
														THICKNESS: 0.875"
														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
1A	+11°F	N/A	PAR	PAR	PAR	PAR	WS-1, WS-2, FLANGE, 2 REINFORCING RINGS	GROUND		X		
2A	+11°F	N/A	PAR	PAR	PAR	PAR	WS-1, WS-2, 2 REINFORCING RINGS	GROUND	X			

Richard B. Walker 4/23/87

John Duncan ANII 4-23-87

0148

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

049

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-204

SYST/COMP. RHR HEAT EXCHANGERS "A" PROCEDURE ISI 11 REV. 10 F.C.3

EXAMINER Will D. Mell II Tim R. & Balch I DATE 4-19-87
LEVEL II

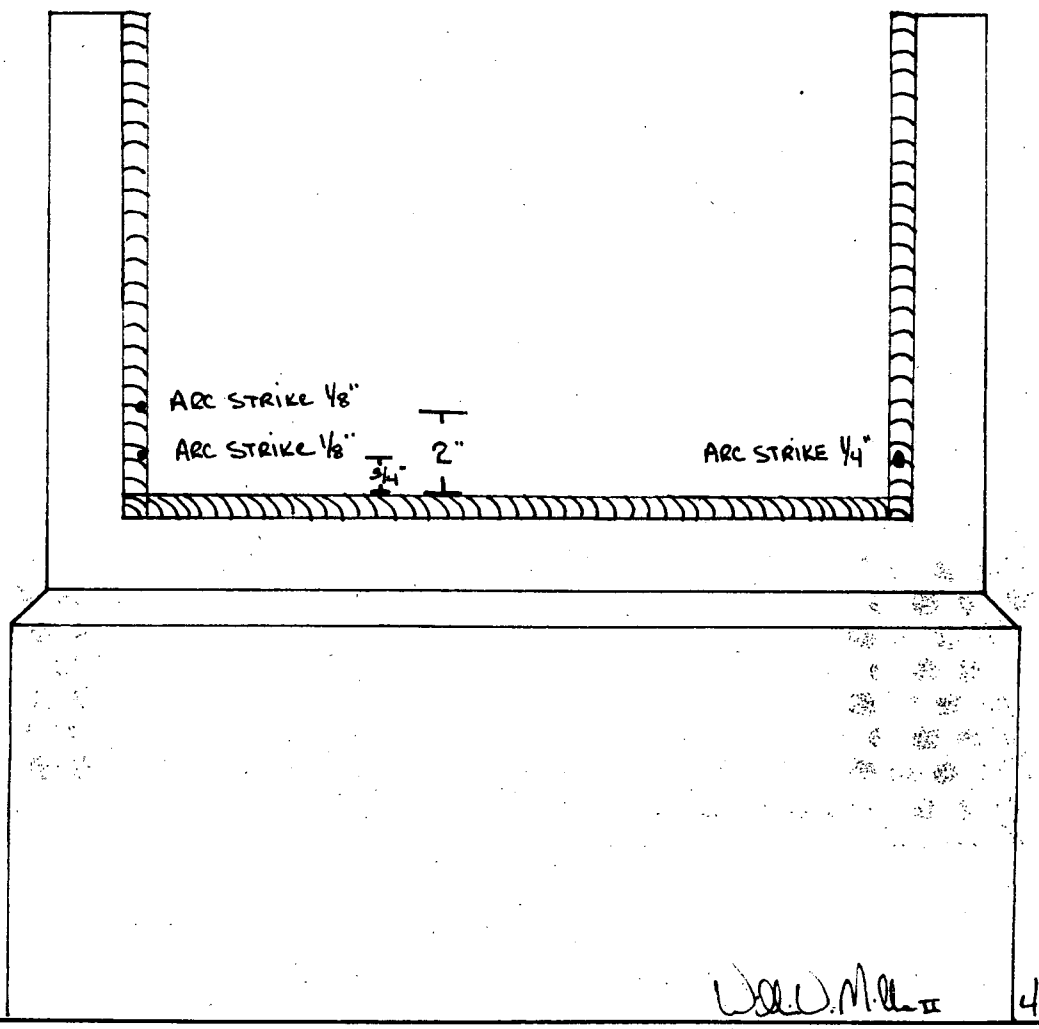
P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
REF. WELD 3 WELD 1		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
REF. WELD 3 WELD 2		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
REF. WELD 4 WELD 1		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
REF. WELD 4 WELD 2		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
WS-2			X	AS WELDED, ARC STRIKES 2@1/8", 1@1/4"	74° F
				SEE ATTACHED SKETCH.	
				Richard B. Weber 4/21/87	
				John Hammond ANII 4-22-87	

FORM 45935C

RHR HEAT EXCHANGERS "A" WS-2



4-19-87

4-22-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

051

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-204

SYST/COMP RHR HEAT EXCHANGERS "A" PROCEDURE ISI-8 REV. 9

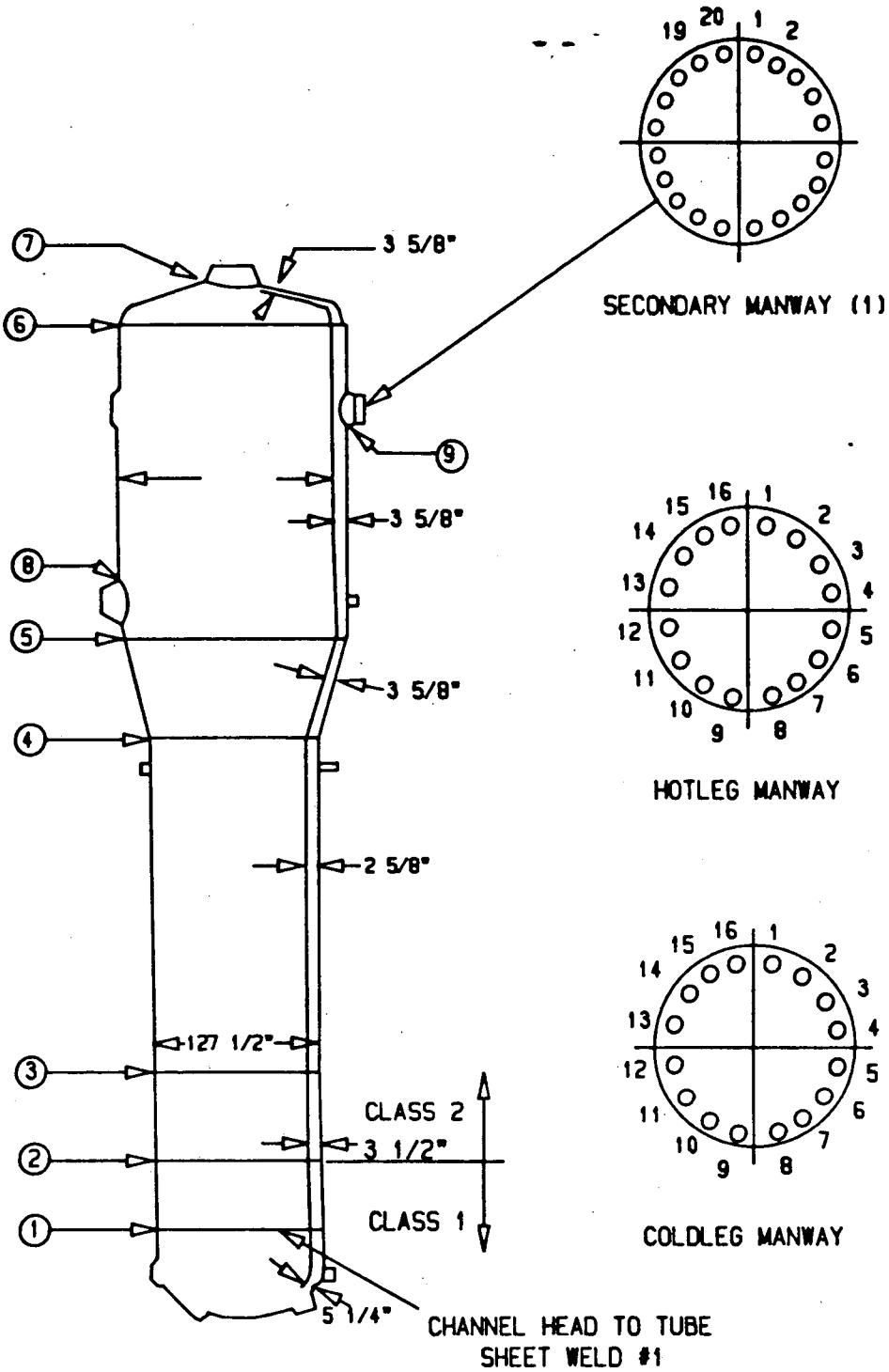
EXAMINER Will. W. McClain II William L. Valley I DATE 4-19-87
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
WS-2 VT-3		X		FLASHLIGHT	SLIGHT UNDERCUT

Richard B. Weber 4/21/87

John Durand ANII 4-22-87

FORM 45934B



NOTES:

1. CLASS 2 PORTION WAS CPL-201

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: STEAM GENERATOR A		
LINE NO.	CPL- 205 REV.	1

CF&L

SKETCH CPL 205 053

EXAMINATION SUMMARY
FOR
1987

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	MT NI	MT NRI	MT RI	REMARKS
30	A-8		X								X			

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-205
SYST/COMP.: STEAM GENERATOR A | PROCEDURE: ISI 47 REV. 4
EXAMINER (LEVEL II): Paul J. Kovallo-I | DATE: 4-22-87

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 05939E	S/N	H09565										INITIAL TIME 2014 WWM
	SIZE	1.0" DIA.										
	FREQ.	2.25 MHZ										
	ANGLE	0°										
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS	
REJECT: OFF	1/4 T	60%	2.0									
DAMPING: MIN	1/2 T	80%	4.0									
FILTER: HI	3/4 T	80%	6.0									FINAL TIME 2225 WWM
LIN. CHECK: SAT	1 T		8.0									
SU CABLE: 12' BNC - BNC												CAL. BLOCK CPL-50A
COUPLANT: SONOTRACE 40 #8558	CAL. GAIN	40 dB										THICKNESS 3.50"
												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
8	+10°F					PAR	INSULATION SUPPORT RING, INSULATION AND NOZZLE CONFIGURATION	GROUND	X			EXAMINED 100% OF ACCESSIBLE AREA

Richard B. Weber 4/23/87
ANII
4-24-87

054

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

055

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 4-22-87

EXAMINER [signature] LEVEL II PROCEDURE ISI-47 REV. 4

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	1.0"
MODEL	MARK I	FREQ.	2.25MHz
SERIAL NO.	05939E	SERIAL NO.	H09565
COUPLANT	SONOTRACE 40 BATCH #8558	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

	100%	90%	80%	70%	60%	50%	40%	30%	20%
1ST SIGNAL									
2ND SIGNAL	52%	47%	40%	37%	29%	23%	18%	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	40%	32% - 48%
80% FSH	-12DB	21%	16% - 24%
40% FSH	+6DB	82%	64% - 96%
20% FSH	+12DB	75%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

[signature] ANII
4-24-87

FORM 45951E

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-205

SYST/COMP.: STEAM GENERATOR A | PROCEDURE: ISI-47, REV. 4

EXAMINER (LEVEL II): Joseph D. Tunyak II Kenneth Mead IT | DATE: 4-22-87

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 06209E	S/N			49297					49297					INITIAL TIME: 2138 EDT
	SIZE			0.5" x 1.0"					0.5" x 1.0"					
	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	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4 T			80%	1.5				80%	1.5				
DAMPING: MIN	1/2 T			65%	3.0				65%	3.0				
FILTER: OFF	3/4 T			40%	4.5				40%	4.5				FINAL TIME: 2340 EDT
LIN. CHECK: SAT	NOTCH			65%	6.0				65%	6.0				
SU CABLE: 6' BNC-BNC	1 1/4 T			22%	7.5				22%	7.5				CAL. BLOCK: CPL-50A
COUPLANT: SONOTRACE 40 BATCH #8558	CAL. GAIN			39 dB					39 dB					THICKNESS: 3.50"
														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
8	+10°F		PAR	NO	PAR		INSULATION SUPPORT RING	GROUND		X		

Richard B. Weber 4/23/87

ANII 4-24-87

056

057

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H. B. ROBINSON UNIT 2 DATE 4-22-87

EXAMINER Joseph D. Furnyak II LEVEL II PROCEDURE ISI 47, REV. 4

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.5"x1.0"
MODEL	MARK I	FREQ.	2.25 MHZ
SERIAL NO.	06209E	SERIAL NO.	49297
COUPLANT	SONOTRACE 40 BATCH #8558	ANGLE	45°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	49%	45%	40%	35%	29%	24%	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	37%	32% - 48%
80% FSH	-12DB	18%	16% - 24%
40% FSH	+6DB	85%	64% - 96%
20% FSH	+12DB	91%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII
4-24-87

FORM 45951E

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B ROBINSON | UNIT: 2 | SKETCH: CPL-205
SYST/COMP.: STEAM GENERATOR "A" | PROCEDURE: 151-47 Rev. 4
EXAMINER (LEVEL II): William L. Bailey II Timothy J. Bales I | DATE: 4-22-87

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 11221E	S/N			35716				35716				INITIAL TIME 2050 WBT
	SIZE			0.5" X 1.0"				0.5" X 1.0"				
	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	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	
REJECT: OFF	1/4 T			80 %	1.5			80 %	1.5			
DAMPING: MIN	1/2 T			40 %	3.0			40 %	3.0			
FILTER: HI	3/4 T			25 %	4.5			25 %	4.5			FINAL TIME 2335 WBT
LIN. CHECK: SAT	1 T			9 %	5.8			9 %	5.8			
SU CABLE: 12' BNC-BNC	1 1/4 T			15 %	7.5			15 %	7.5			CAL. BLOCK CPL-50A
COUPLANT: SONOTRACE 40 BATCH # 8558	CAL. GAIN			51dB				51dB				THICKNESS 3.50"
												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
8	+10°F		PAR	NO	PAR		INSULATION SUPPORT RING, INSULATION AND NOZZLE CONFIGURATION	GROUND		X		EXAMINED 100% OF ACCESSIBLE AREA

Richard B. Weber 4/23/87
ANII 4-24-87

058

059

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 4-22-87

EXAMINER William G. Halley II LEVEL II PROCEDURE ISI-47 REV. 4

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.5" x 1.0"
MODEL	MARK I	FREQ.	2.25 MHZ
SERIAL NO.	11221E	SERIAL NO.	35716
COUPLANT	SONOTRACE 76 BATCH # 8358	ANGLE	60°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	49%	45%	40%	35%	30%	25%	19%	15%	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	20%	16% - 24%
40% FSH	+6DB	84%	64% - 96%
20% FSH	+12DB	82%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

AN II
4-24-87

FORM 45951E

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

060

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-205

SYST/COMP. STEAM GENERATOR "A" PROCEDURE ISI-70 REV. 2

EXAMINER [illegible] LEVEL II Joseph D. Furnyak II DATE 4-22-87

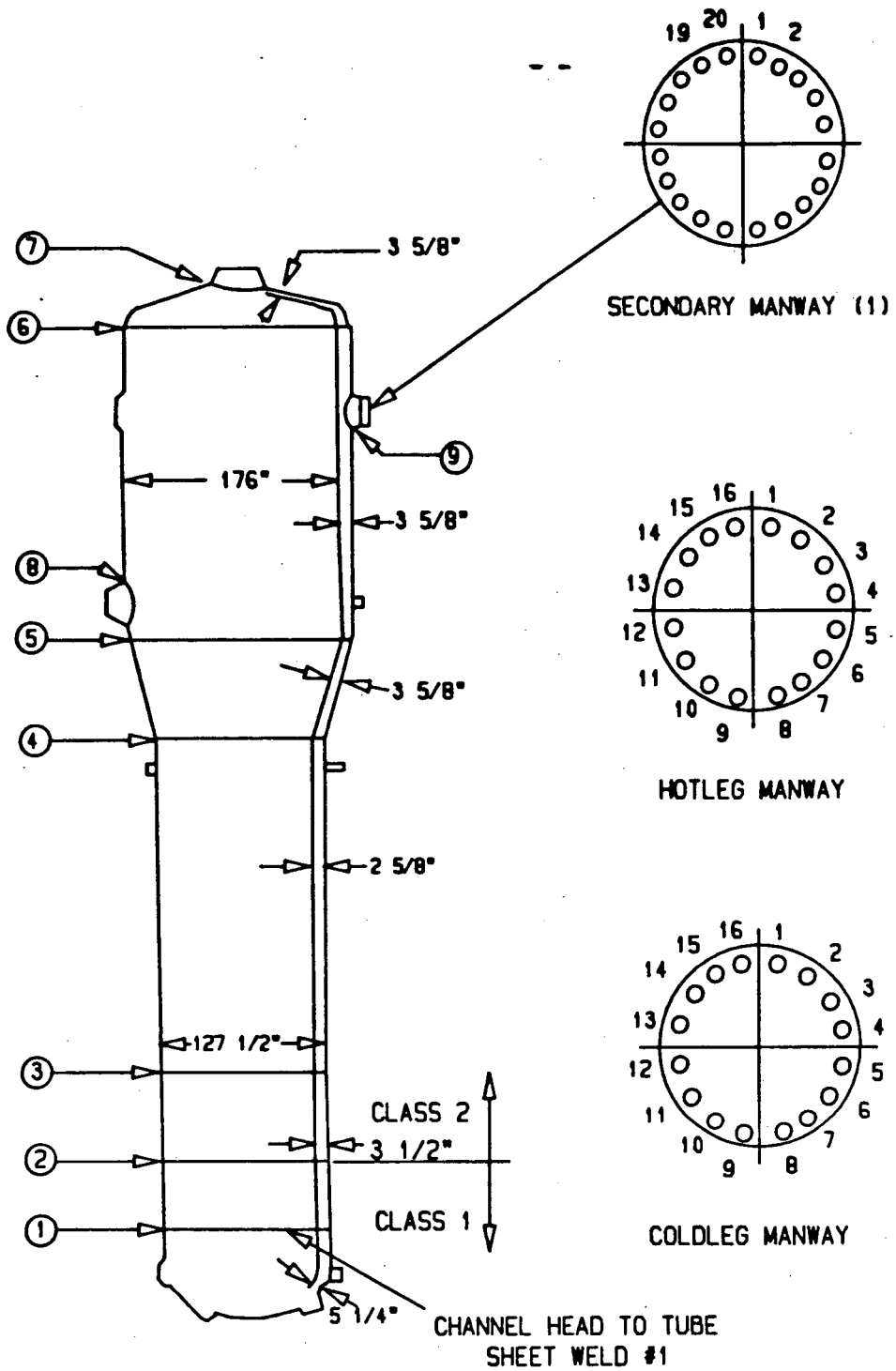
P/T	BATCH NOS.	M/T	
CLEANER		EQUIPMENT	Y-6 YOKE S/N W004
PENETRANT			
DEVELOPER		EXAM. MEDIUM	MX / 201 GREEN #84J035
REMOVER		BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
8	X			150° TO 210° NOT EXAMINED DUE TO INTERFERENCE WITH INSULATION SUPPORT RING.	80°F

Richard B. Weber 4/23/87

[illegible] ANII 4-23-87

FORM 45935C



NOTES:

1. CLASS 2 PORTION WAS CPL-201

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: STEAM GENERATOR B		
LINE NO.	CPL- 205A REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 205A **062**

EXAMINATION SUMMARY FOR 1987

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	MT NI	MT NRI	MT RI	REMARKS
31	4	X												

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-205A

SYST/COMP.: STEAM GENERATOR "B" | PROCEDURE: ISI-47 REV. 4

EXAMINER (LEVEL II): [signature] Paul J. Kovallo-I | DATE: 4-20-87, 4-21-87

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 05939E	S/N: H09565											INITIAL TIME
	SIZE: 1.0"											IC 2120 WWM
	FREQ.: 2.25 MHz											CC 0013 WWM
	ANGLE: 0°											CC 0321 WWM
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	CC 0508 WWM
REJECT: OFF	1/4 T	60%	2.0									CC 0514 WWM
DAMPING: MIN	1/2 T	80%	4.0									
FILTER: HI	3/4 T	80%	6.0									FINAL TIME 0615 WWM
LIN. CHECK: SAT	1 T		8.0									
SU CABLE: 12' BNC-BNC												CAL. BLOCK: CPL-50A
COUPLANT: SONOTRACE 40 #8558	CAL. GAIN	40 dB										THICKNESS 3.50"
												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
4	+4°F					PAR	SEE ATTACHED LIMITATION SHEETS	GROUND	X			AREA EXAMINED, 100% OF ACCESSIBLE AREA.

Richard B. Weber 4/24/87

[signature] ANII 4-24-87

063

064

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 4-20-87

EXAMINER W.W. Mill III LEVEL II PROCEDURE ISI-47, REV. 4

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	1.0"
MODEL	MARK I	FREQ.	2.25 MHZ
SERIAL NO.	05939E	SERIAL NO.	H09565
COUPLANT	SONOTRACE 40 BATCH #8558	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	48%	43%	40%	34%	29%	24%	19%	13%	8%

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	38%	32% - 48%
80% FSH	-12DB	19%	16% - 24%
40% FSH	+6DB	82%	64% - 96%
20% FSH	+12DB	83%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII
4-24-87

FORM 45951E

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-205 A
SYST/COMP.: STEAM GENERATOR B | PROCEDURE: ISI-47 REV. 4
EXAMINER (LEVEL II): Joseph D Tumyak II Kenneth Mead IT | DATE: 4-21-87

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 06209 E	S/N			49297					49297					INITIAL TIME: 0430 EST
	SIZE			0.5" x 1.0"					0.5" x 1.0"					
	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	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4 T			80 %	1.5				80 %	1.5				
DAMPING: MIN	1/2 T			65 %	3.0				65 %	3.0				
FILTER: HIGH	3/4 T			40 %	4.5				40 %	4.5				FINAL TIME: 0620 EST
LIN. CHECK: SAT	NOTCH			65 %	6.0				65 %	6.0				
SU CABLE: 12' BNC-BNC	5/8 T			22 %	7.5				22 %	7.5				CAL. BLOCK: CPL-50H
COUPLANT: SONOTRACE 40 BATCH # 8558	CAL. GAIN			43 db					43 db					THICKNESS: 3.50"
														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
4	+4°F	N/A	PAR	PAR	PAR	N/A	SEE ATTACHED LIMITATION SKETCHES	GROUND	X			AREA EXAMINED FROM 84° TO 401° CW OF ACCESSIBLE AREA

Richard B. Weber 4/24/87
ANII
4-24-87

065

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-205 A
SYST/COMP.: STEAM GENERATOR B | PROCEDURE: ISI-47, REV. 4
EXAMINER (LEVEL II): Joseph D. Feenyak II Kenneth Wood IT | DATE: 4-21-87

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 06209E	S/N			49297					49297					INITIAL TIME: 0040 EST
	SIZE			0.5" x 1.0"					0.5" x 1.0"					
	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	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4 T			80%	1.5				80%	1.5				
DAMPING: MIN	1/2 T			65%	3.0				65%	3.0				
FILTER: HIGH	3/4 T			40%	4.5				40%	4.5				FINAL TIME: 0335 EST
LIN. CHECK: SAT	NOTCH			65%	6.0				65%	6.0				
SU CABLE: 12' BNC-BNC	5/8 T			22%	7.5				22%	7.5				CAL. BLOCK: CPL-50A
COUPLANT: SONOTRACE 40 BATCH" 8558	CAL. GAIN			44 db					44 db					THICKNESS: 3.50"
														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
4	+4°F	N/A	PAR	PAR	PAR	N/A	SEE ATTACHED LIMITATION SKETCHES	GROUND	X			AREA EXAMINED FROM 0" TO 84" CW OF ACCESSIBLE AREA.

Richard B. Weber 4/24/87
4-24-87

960

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

067

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 4-21-87

EXAMINER Joseph D. Furnyak II PROCEDURE IST 47, REV. 4
LEVEL II

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	0.5" x 1.0"
MODEL	MARK I	FREQ.	2.25 MHz
SERIAL NO.	06209E	SERIAL NO.	49297
COUPLANT	SONOTRACE 40 BATH # 2558	ANGLE	45°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	50%	46%	40%	35%	30%	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	38%	32% - 48%
80% FSH	-12DB	19%	16% - 24%
40% FSH	+6DB	86%	64% - 96%
20% FSH	+12DB	80%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE

AN II
4-24-87

FORM 45951F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B ROBINSON | UNIT: 2 | SKETCH: CPL-205A

SYST/COMP.: STEAM GENERATOR 'B' | PROCEDURE: ISI-47, REV. 4

EXAMINER (LEVEL II): William L. Halley II Tim E. Balch I | DATE: 4-20-87 4-21-87

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 11221E	S/N		35716	35716	INITIAL TIME
	SIZE		0.5"x1.0"	0.5"x1.0"	IC: 2240 WBH
	FREQ.		2.25 MHZ	2.25 MHZ	CC: 0108 WBH
	ANGLE		60°	60°	CC: 0413 WBH

REP. RATE	REJECT	DAMPING	FILTER	LIN. CHECK	SU CABLE	COUPLANT
3K	OFF	MIN	HI	SAT	12' BNC-BNC	SONOTRACE 40 BATCH #8558

CALIBRATION REFLECTOR LOCATION	STRAIGHT BEAM SCAN DIRECTION 0: SIGNAL AMPLITUDE	STRAIGHT BEAM SCAN DIRECTION 0: SWEEP POSITION	AXIAL SCANS: SIGNAL AMPLITUDE	AXIAL SCANS: SWEEP POSITION	AXIAL SCANS: DISTANCE FROM SCRIBE/REF. LINE TO PEAK	AXIAL SCANS: DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	CIRCUMFERENTIAL SCANS: SIGNAL AMPLITUDE	CIRCUMFERENTIAL SCANS: SWEEP POSITION	CIRCUMFERENTIAL SCANS: DISTANCE FROM SCRIBE/REF. LINE TO PEAK	CIRCUMFERENTIAL SCANS: DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS
1/4 T			80%	1.5			80%	1.5		
1/2 T			40%	3.0			40%	3.0		
3/4 T			25%	4.5			25%	4.5		
1 T			9%	5.8			9%	5.8		
1 1/4 T			15%	7.5			15%	7.5		
CAL. GAIN			51 db				51 db			

FINAL TIME: FC: 0644 WBH

CAL. BLOCK: CPL-50A

THICKNESS: 3.50"

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
4	+4°F		PAR	PAR	PAR		SEE ATTACHED LIMITATION SHEETS	GROUND	X			AREA EXAMINED 100% OF ACCESSABLE AREA

Richard B. Weber 4/24/87

John Jarrard ANII 4-24-87

090

069

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H. B. ROBINSON UNIT 2 DATE 4-20-87

EXAMINER William S. Holley II LEVEL II PROCEDURE ISI 47 REV. 4

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	.5" x 1.0"
MODEL	MARK I	FREQ.	2.25 MHZ
SERIAL NO.	11221E	SERIAL NO.	35716
COUPLANT	SONOTRACE 40 BATCH # 8558	ANGLE	60°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	50%	45%	40%	35%	30%	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	38%	32% - 48%
80% FSH	-12DB	18%	16% - 24%
40% FSH	+6DB	85%	64% - 96%
20% FSH	+12DB	90%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

ANII
4-24-87

FORM 45951E

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

070

LIMITATION TO EXAMINATION

PLANT H. B. ROBINSON UNIT II SKETCH CPL 205A

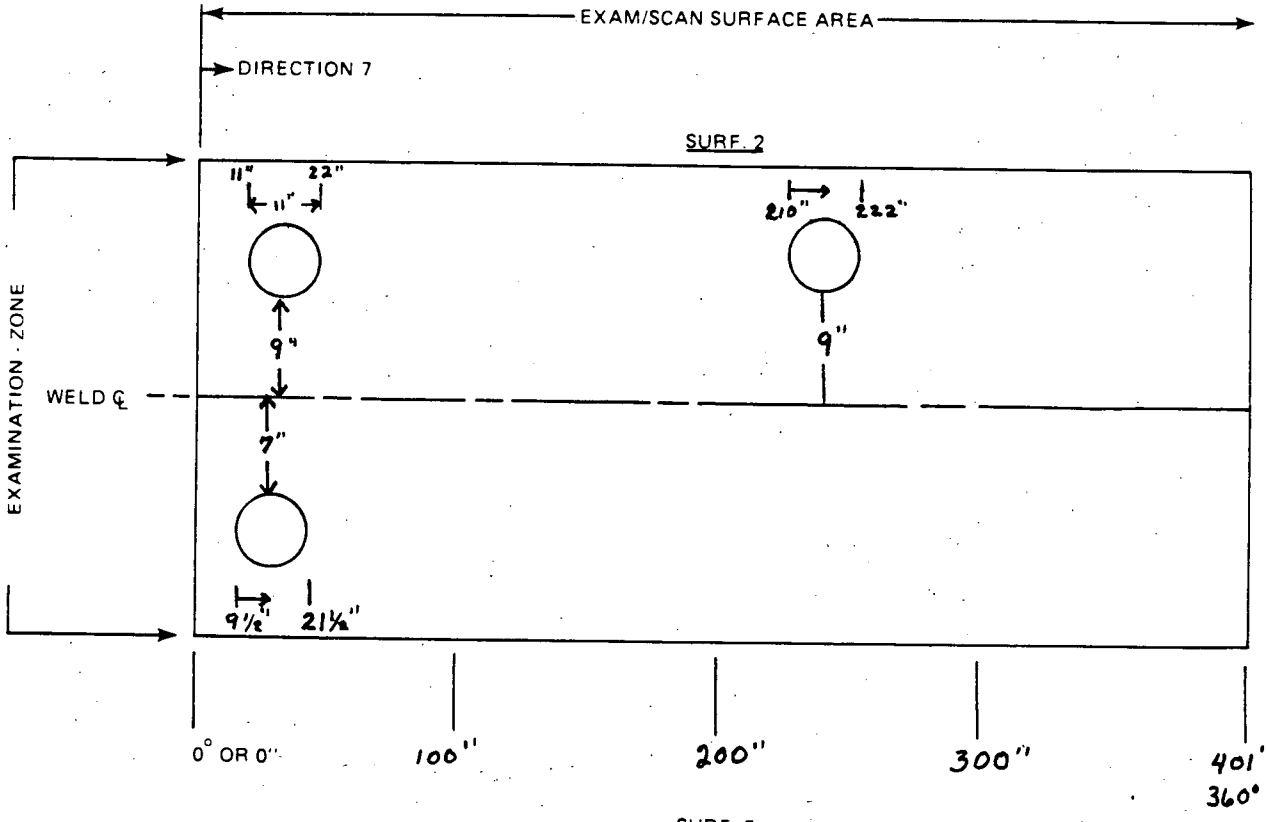
SYST/COMP STEAM GENERATOR 'B' 0°, 45°, 60°

EXAMINER [signature] DATE 4-21-87 PROCEDURE ISI-47 REV 4

Joseph G. Frenyak II LEVEL II William G. Talley II

RELATED TO: U/T X P/T _____ M/T _____ V/T _____ ITEM(S): WELD #4

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



O DATUM IS ℄ OF FEEDWATER NOZZLE.

FORM 48745

[signature] AWI
4-24-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

071

LIMITATION TO EXAMINATION

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-205A

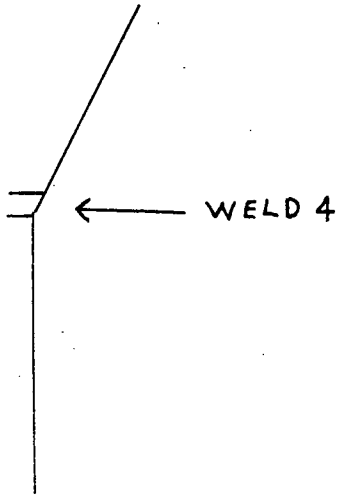
SYST/COMP STEAM GENERATOR 'B' PROCEDURE ISI-47, REV. 4

EXAMINER [signature] LEVEL II / William E. Holley II DATE 4/21/87

0°, 45°, 60°

RELATED TO: U/T X P/T ____ M/T ____ V/T ____ ITEM(S): WELD #4

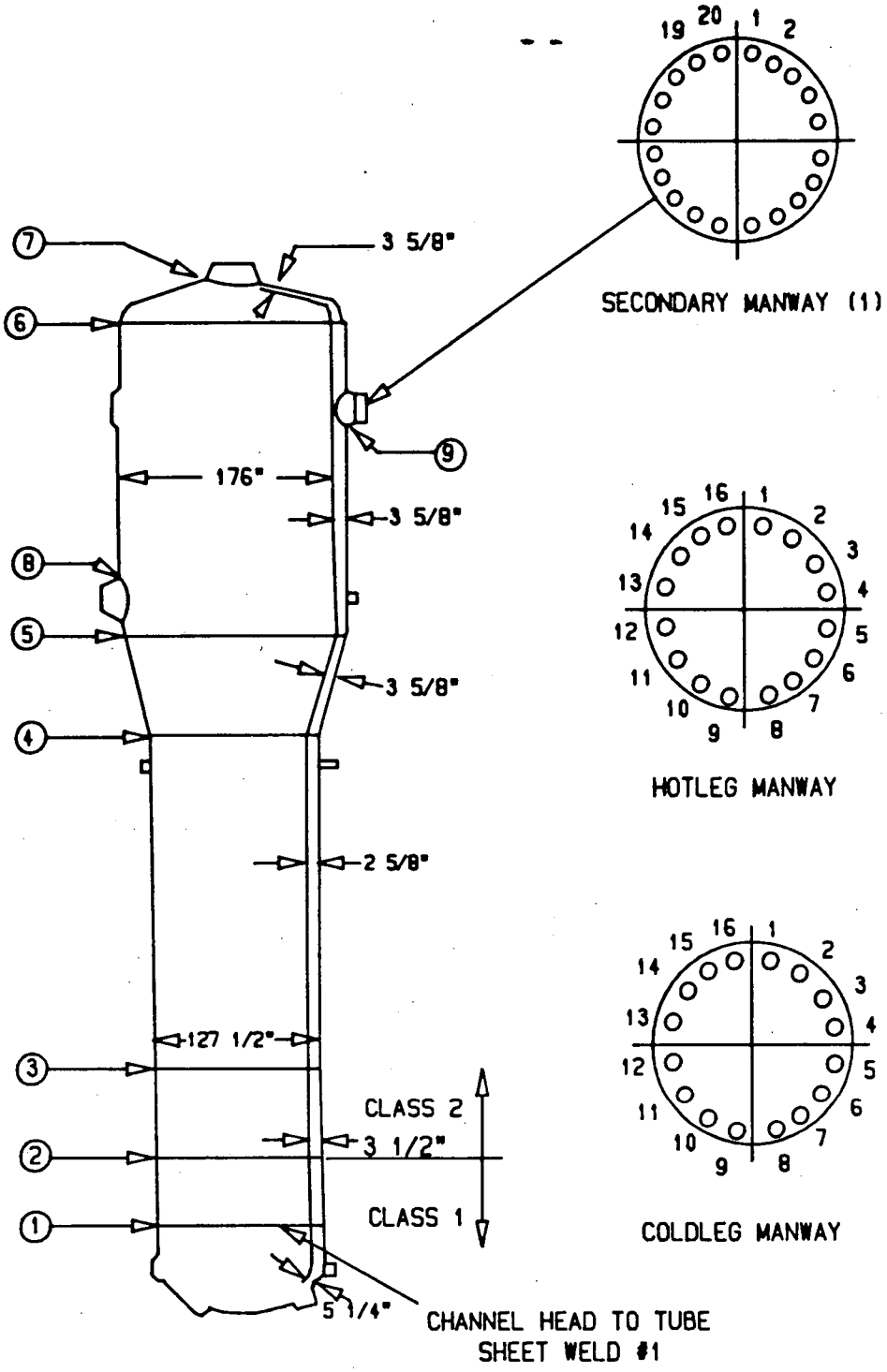
PROVIDE GENERAL INFORMATION TO DESCRIBE APPROXIMATE SIZE, LOCATION AND TYPE OF LIMITATION.



LOSS OF CONTACT DUE TO GENERATOR CONFIGURATION

F49077

[signature] ANII 4-24-87



NOTES:

1. CLASS 2 PORTION WAS CPL-201

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: STEAM GENERATOR C		
LINE NO.	CPL- 205B REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 205B **073**

EXAMINATION SUMMARY
FOR
1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT			MT			REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
32	8		X								X			

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-205 B
SYST/COMP.: STEAM GENERATOR "C" | PROCEDURE: ISI-47 REV. 4
EXAMINER (LEVEL II): [illegible] Paul J. Kvallo | DATE: 4-22-87

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 05939E	S/N	H09565												INITIAL TIME: 2014 WWM
	SIZE	1.0"												
	FREQ.	2.25 MHz												
	ANGLE	0°												
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	1/4 T	60%	2.0											
DAMPING: MIN	1/2 T	80%	4.0											
FILTER: HI	3/4 T	80%	6.0											FINAL TIME: 2225 WWM
LIN. CHECK: SAT	1 T		8.0											
SU CABLE: 12' BNC-BNC														CAL. BLOCK: CPL-50A
COUPLANT: SONOTRACE 40 #8558	CAL. GAIN	40 dB												THICKNESS: 3.50"
														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
8	+10°F					PAR	INSULATION SUPPORT RING, INSULATION AND NOZZLE CONFIGURATION	GROUND	X			EXAMINED 100% OF ACCESSIBLE AREA.

Richard B. Weber 4/23/87
[illegible] AWA
4-24-87

074

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-205 B

SYST/COMP.: STEAM GENERATOR 'C' | PROCEDURE: ISI-47, REV. 4

EXAMINER (LEVEL II): Yoshio O. Furuyama II Kenneth Mead II | DATE: 4-22-87

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 06209E	S/N		49297	49297	INITIAL TIME: 2138 9/24
	SIZE		0.5" X 1.0"	0.5" X 1.0"	
	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	1/4 T		80% 1.5	80% 1.5	
DAMPING: MIN	1/2 T		65% 3.0	65% 3.0	
FILTER: OFF	3/4 T		40% 4.5	40% 45	FINAL TIME: 2340 9/24
LIN. CHECK: SAT	NOTCH		65% 6.0	65% 6.0	
SU CABLE: 6' BNC-BNC	1 1/4 T		22% 7.5	22% 7.5	CAL. BLOCK: CPL-50A
COUPLANT: SONOTRACE 40 BATCH # 8558	CAL. GAIN		39 db	39db	THICKNESS: 3.50"
					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
8	+10°F		PAR	NO	PAR		INSULATION SUPPORT RING	GROUND		X		

Richard B. Weber 4/23/87
John Maynard ANII 4-24-87

075

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-205B

SYST/COMP.: STEAM GENERATOR "C" | PROCEDURE: ISI-47 Rev. 4

EXAMINER (LEVEL II): William G. Kelly II TWC & Robert I | DATE: 4-22-87

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 1122IE	S/N			35716					35716					INITIAL TIME 2050 WHH
	SIZE			0.5" X 1.0"					0.5" X 1.0"					
	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	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4T			80%	1.5				80%	1.5				
DAMPING: MIN	1/2T			40%	3.0				40%	3.0				
FILTER: HI	3/4T			25%	4.5				25%	4.5				FINAL TIME 2335 WHH
LIN. CHECK: SAT	1T			9%	5.8				9%	5.8				
SU CABLE: 12' BNC-BNC	1 1/4T			15%	7.5				15%	7.5				CAL. BLOCK CPL-50A
COUPLANT: SONOTRACE 40 BATCH# 8558	CAL. GAIN			51dB					51dB					THICKNESS 3.50"
														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
8	+10°F		PAR	NO	PAR		INSULATION SUPPORT RING, INSULATION AND NOZZLE CONFIGURATION	GROUND	X			EXAMINED 100% OF ACCESSIBLE AREA

Richard B. Weber 4/23/87

John Jennings ANII 4-24-87

076

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

077

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-205B

SYST/COMP. STEAM GENERATOR "C" PROCEDURE ISI-70 REV. 2

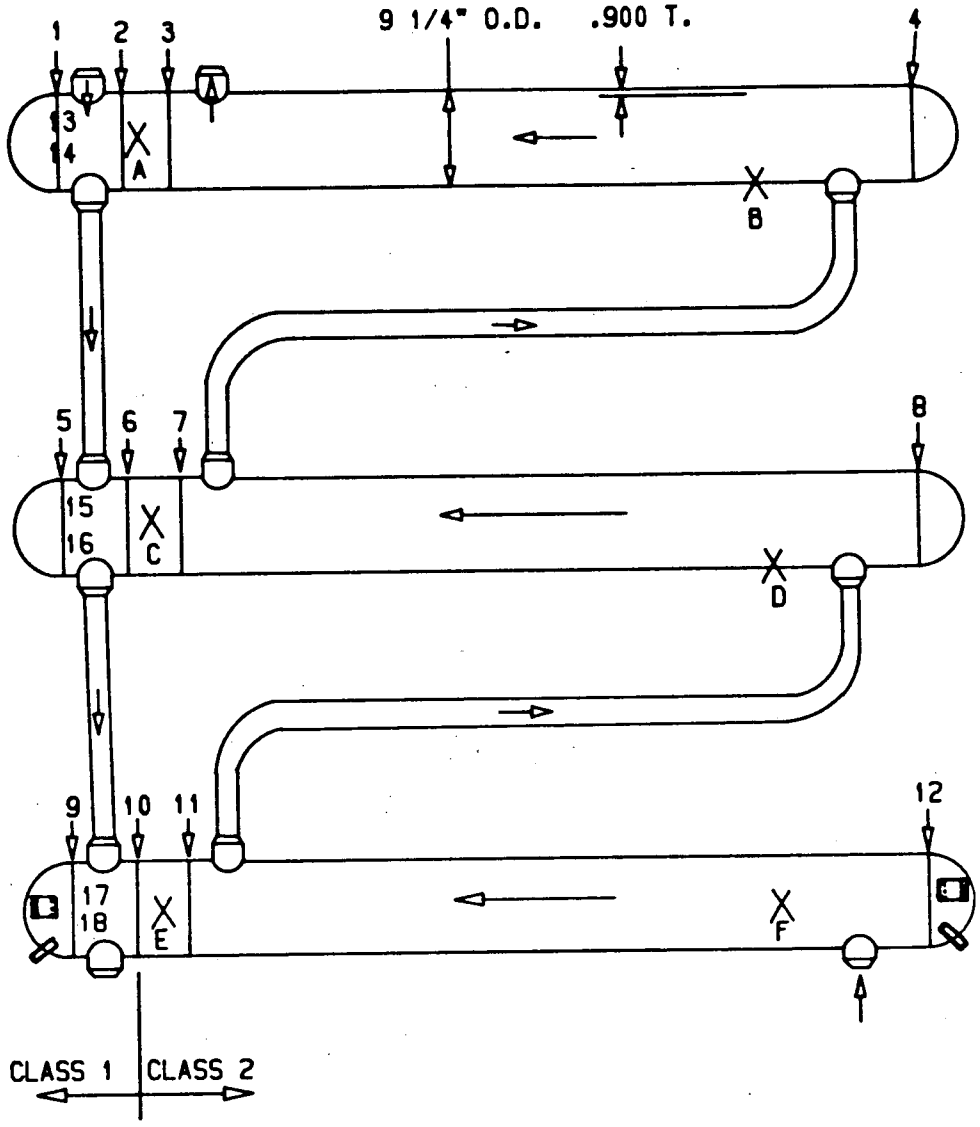
EXAMINER Joseph D. Turnyak II Timothy J. Balch I DATE 4-22-87
LEVEL II

P/T	BATCH NOS.	M/T	
CLEANER		EQUIPMENT	Y-6 YOKE S/N W004
PENETRANT			
DEVELOPER		EXAM. MEDIUM	MX/201 GREEN #84J035
REMOVER		BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
8	X			150° TO 210° EXAMINED PARALLEL TO THE WELD ONLY DUE TO INSULATION SUPPORT RING INTERFERENCE.	80°F

Richard B. Weber 4/23/87
John Jamison ANII
4-23-87

FORM 45935C



NOTES:

H.B. ROBINSON S.E. PLANT	
UNIT NO. 2	
DESCRIPTION: REGENERATIVE HEAT EXCHANGER	
LINE NO.	CPL- 206 REV. 1

WESTINGHOUSE FORM 46762

SKETCH CPL 206 **079**

EXAMINATION SUMMARY
FOR
1987

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	8	X												
34	7	X												
35	C								X					
35	D								X					

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-206

SYST/COMP.: REGENERATIVE HEAT EXCHANGER | PROCEDURE: ISI-206, REV. 1

EXAMINER (LEVEL II): Joseph D. Furnyak II Ralph L. Churchfield I | DATE: 4-14-87

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 06209E	S/N	C16353		62410					62410					INITIAL TIME: 0° - 0210 INT
	SIZE	0.25"		0.25"					0.25"					
	FREQ.	5.0 MHz		2.25 MHz					2.25 MHz					
	ANGLE	0°		45°					45°					45° - 0300 INT
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4T	80%	2.0											
DAMPING: 8	3/4T	30%	6.0											
FILTER: HIGH	1T		8.0	80%	2.0				80%	2.1				
LIN. CHECK: SAT	2T			45%	4.0				30%	4.2				FINAL TIME: 0° - 0240 INT
SU CABLE: 12' BNC-MCD	3T			15%	6.0									45° - 0330 INT
COUPLANT: SONOTRACE 40 BATCH # 8558	CAL. GAIN	27db		50db					52db					CAL. BLOCK: CPL-29
														THICKNESS: 0.751"
														TEMP.: 74°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
7	-5°F	N/A	YES	YES	YES	YES	SUPPORT	GROUND	X			
8	-5°F	N/A	YES	YES	YES	YES	SUPPORT	GROUND	X			

Richard B. Weber 4/18/87
AN II
4-19-87

080

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

081

VISUAL EXAMINATION DATA

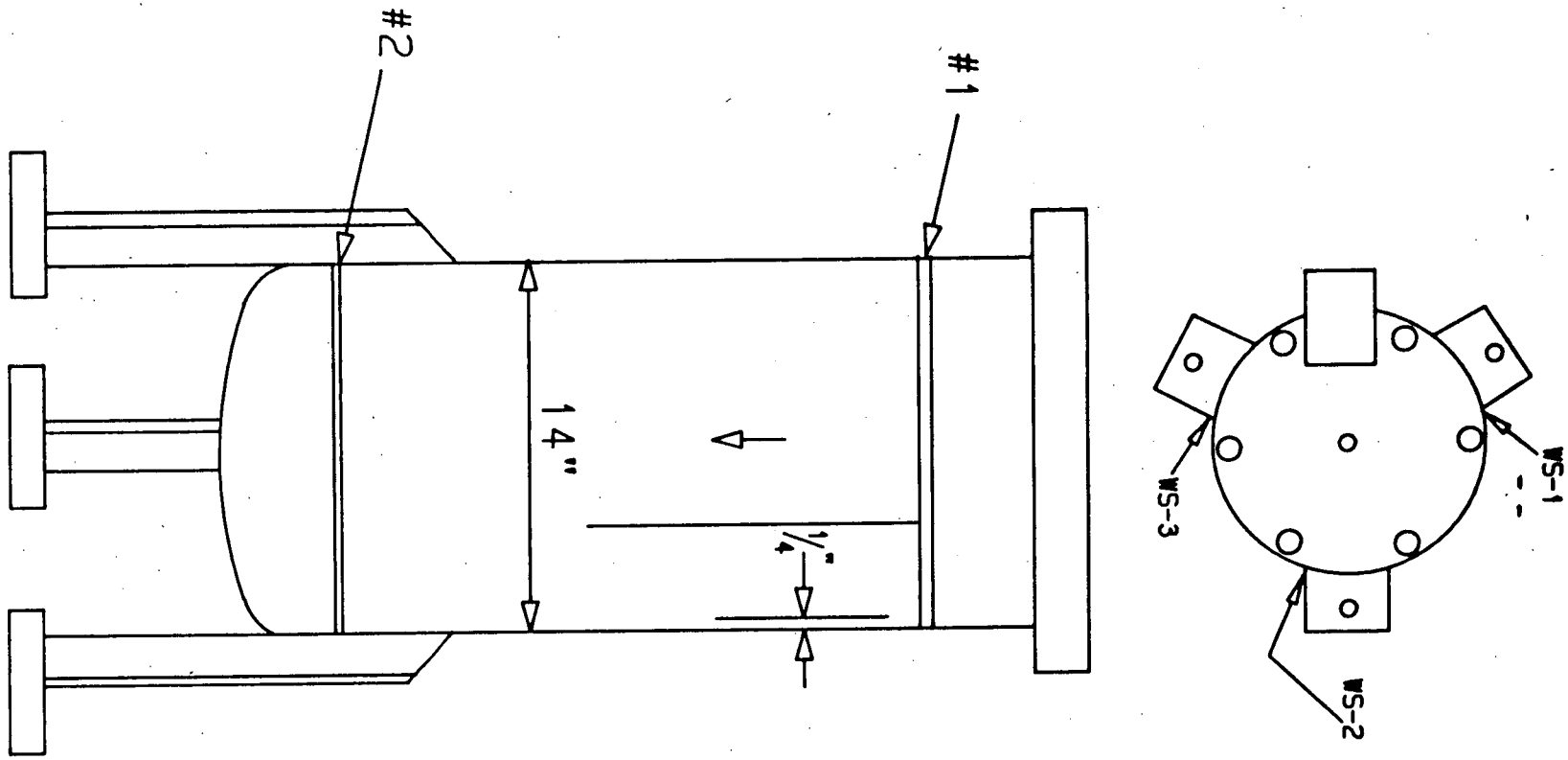
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-206

SYST/COMP REGENERATIVE HEAT EXCHANGER PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Fiumara II Ralph Churchfield II DATE 4-14-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
SUPPORT C		X		FLASHLIGHT	LIGHT RUST VT 3
SUPPORT D		X		FLASHLIGHT	LIGHT RUST VT 3
					Richard B. Weber 4/18/87
					John Fiumara ANII 4-19-87

FORM 45934B



H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: R.C. FILTER		
LINE NO. N/A	CPL-208 REV.	1

CP&L

SKETCH CPL 208 083

EXAMINATION SUMMARY
FOR
1987

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
36	1	X												
37	WS-2							X						

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-208
SYST/COMP.: R.C. FILTER | PROCEDURE: ISI 206 REV. 1
EXAMINER (LEVEL II): William E. Halley II Kenneth Allread IT | DATE: 4-26-87 & 4-27-87

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8				
						DISTANCE FROM SCRIBE/REF. LINE TO					DISTANCE FROM SCRIBE/REF. LINE TO		
		CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	PEAK	50% DAC LOCATIONS	
INST. S/N: SONIC MARK I 07853E	S/N				20176					20176				
	SIZE				.25"					.25"				
	FREQ.				2.25 MHZ					2.25 MHZ				
	ANGLE				45°					45°				
REP. RATE: 3K	1T				80%	2.0								
REJECT: OFF														
DAMPING: MIN	2T				40%	4.0				80%	4.2			
FILTER: OFF	3T				20%	6.0								
LIN. CHECK: SAT														
SU CABLE: 12' BNC - MCD														
COUPLANT: SONOTRACE 40 #8662	CAL. GAIN				31dB					41dB				

CALIBRATION CHECK
INITIAL TIME 2310 WJH
FINAL TIME 0015 WJH
CAL. BLOCK CPL-47B
THICKNESS .250"
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
1	+7° F		PAR	NO	PAR		WELD CROWN, FLANGE CONFIGURATION	GROUND	X			AREA EXAMINED: 18" CW FROM 0° DATUM TO 42" CW.

Richard B. Weber 1/29/87
John Jarecod ANII 4-29-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

085

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-208

SYST/COMP R. C. FILTER PROCEDURE ISI-8 REV. 9

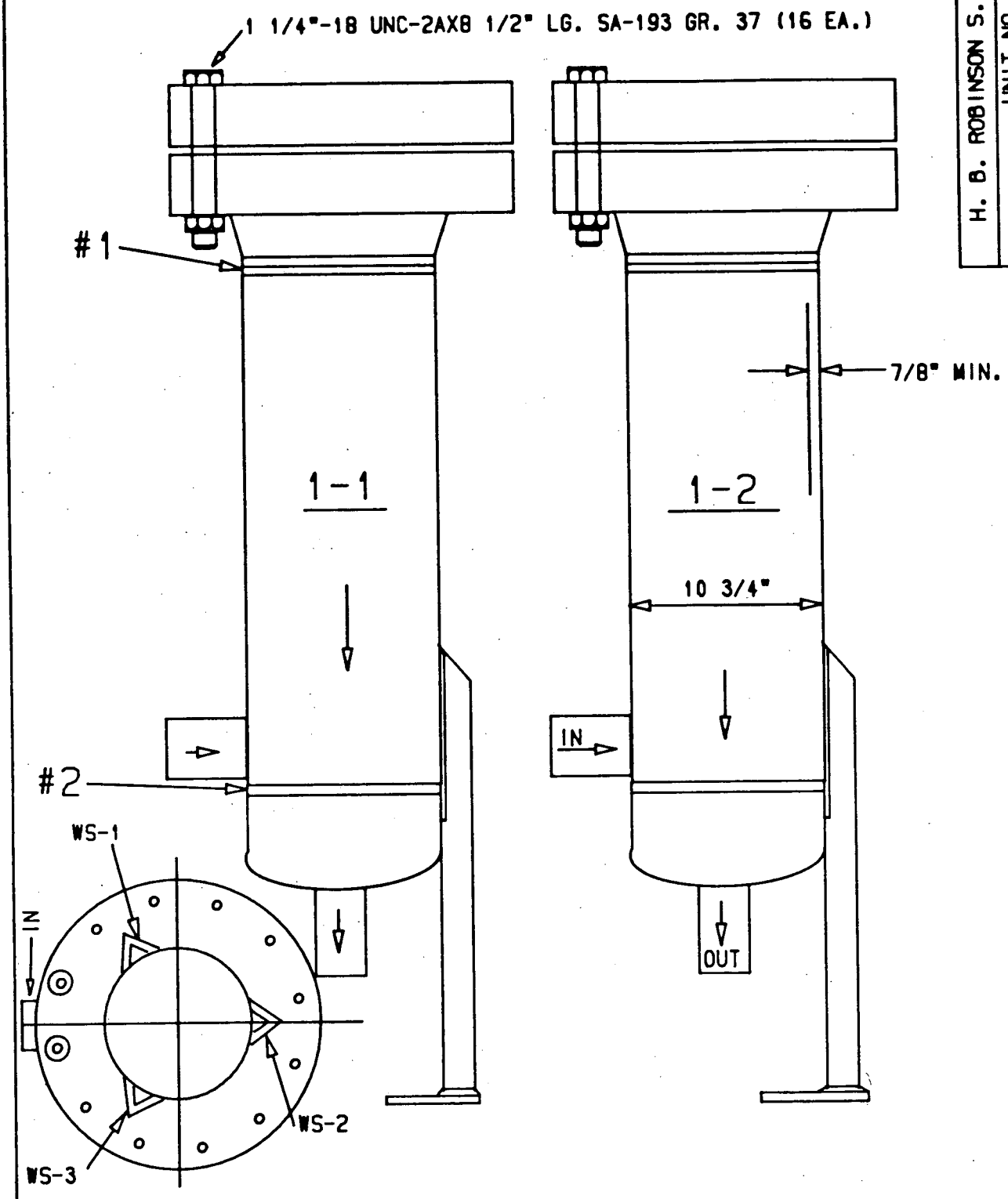
EXAMINER Robert Wm. Hughes II DATE 4-28-86
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-2 VT-3	X			FLASHLIGHT	THERE ARE 4 WELDED SUPPORTS ON THE R.C. FILTER NOT AS SHOWN ON SKETCH CPL-208 (3 SUPPORTS)
					Richard B. Weber 4/28/87
					John Linscott ANII 4-29-87

FORM 45934B

CP&L

H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION: SEAL WATER INJ. FILTER	CPL-209 REV. 1
LINE NO. N/A	



WESTINGHOUSE FORM 46762

SKETCH CPL 209 087

EXAMINATION SUMMARY
FOR

1987

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
38	1-1 1	X												
39	1-1 2	X												
40	WS-2							X						Thickness

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-209

SYST/COMP.: SEAL WATER INJECTION FILTER 1-1 | PROCEDURE: ISI-206, REV-1

EXAMINER (LEVEL II): Joseph O. Fiemyak II | Paul J. Kovallo-I | DATE: 4-23-87

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 07853E	S/N	C03620		56761					56761					INITIAL TIME
	SIZE	0.375"		0.5"X0.5"					0.5"X0.5"					0° 0330 90F
	FREQ.	2.25MHz		2.25MHz					2.25MHz					
	ANGLE	0°		45°					45°					45° 0403 90F
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4T	80%	2.0											
DAMPING: 0°-7 / 45° min	3/4T	60%	4.0											
FILTER: MED	1T		8.0	80%	2.0				80%	2.1				FINAL TIME
LIN. CHECK: SAT														0°-0355 90F
	2T			35%	4.0				40%	4.2				45°-0425 90F
SU CABLE: 0° 12' BNC-MCD 45° 12' BNC-BNC	3T			30%	6.0									CAL. BLOCK: CPL-31
COUPLANT: SONOTRACE 40 BATCH #8558	CAL. GAIN	35db		33db					41db					THICKNESS 0.843"
														TEMP. 75°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	-2°F		PAR	NO	PAR	PAR	WELD CONFIGURATION	GROUND	X			EXAMINED ACCESSIBLE AREA FROM 225° TO 360° CLOCK WISE
2	-2°F		NO	PAR	PAR	PAR	WELD CONFIGURATION WELDED SUPPORTS WS-1, WS-2 AND WS-3	GROUND	X			EXAMINED ACCESSIBLE AREA BETWEEN WS-1, WS-2, WS-3 CLOCKWISE.

Richard B. Weber 4/24/87

ANII 4-24-87

088

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

089

VISUAL EXAMINATION DATA

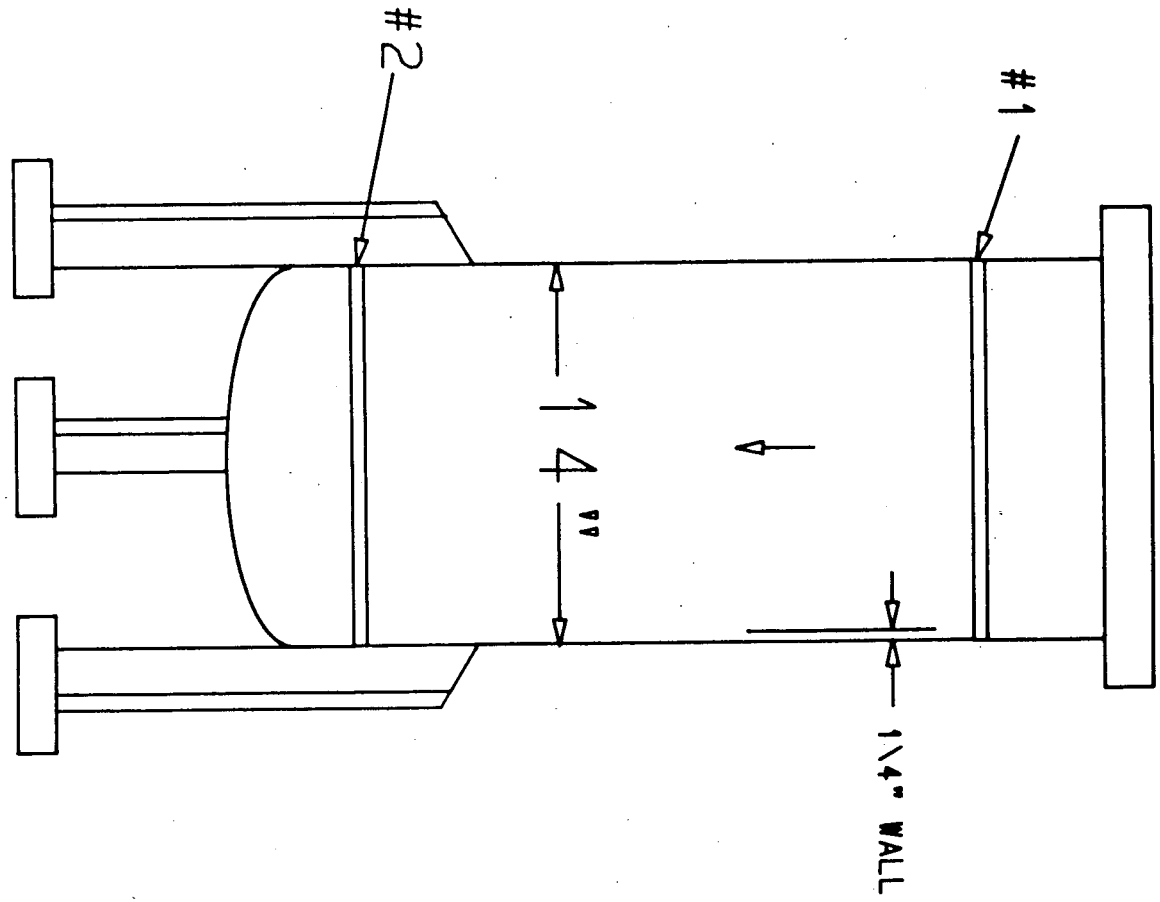
PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-209

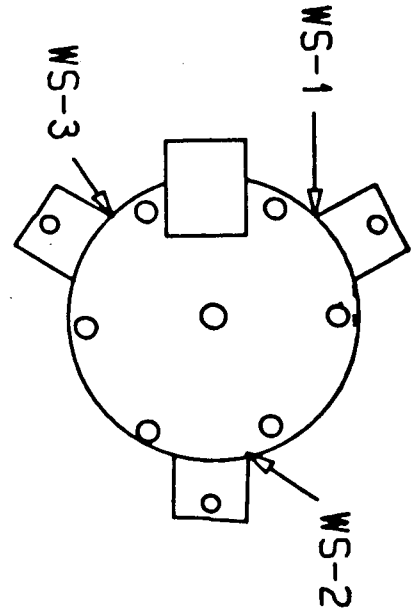
SYST/COMP SEAL WATER INJECTION FILTER PROCEDURE ISI-8, REV. 9

EXAMINER Joseph E. Furnyak Paul J. Kovalloi DATE 4-23-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-2 VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/23/87
					John Jacquot ANII 4-24-87

FORM 45934B





H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SEAL WATER FILTER			
LINE NO. N/A	CPL-210 REV.	1	

SKETCH CPL 210 **091**

EXAMINATION SUMMARY
FOR

1987

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	1	X												
42	2	X												
43	WS-2							X						4 Welded Supports

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-210

SYST/COMP.: SEAL WATER FILTER | PROCEDURE: 1SI-206 Rev. 1

EXAMINER (LEVEL II): William G. Halley II Tim S. Bold I | DATE: 4-26-87 & 4-27-87

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 07853E	S/N			20176					20176					INITIAL TIME 2310 WBH
	SIZE			0.25"					0.25"					
	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			SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			
						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0									
DAMPING: MIN	2T			40%	4.0				80%	4.2				
FILTER: OFF	3T			20%	6.0									FINAL TIME 0015 WBH
LIN. CHECK: SAT														
SU CABLE: 12' BNC-MCD														CAL. BLOCK CPL-47B
COUPLANT: SONOTRACE 40 BATCH #8662	CAL. GAIN			31dB					41dB					THICKNESS .250"
														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
1	+20°F		PAR	NO	PAR		WELD CROWN, FLANGE CONFIGURATION	GROUND	X			AREA EXAMINED 18" CW FROM 0° DATUM TO 42" CW.
2	+20°F		PAR	PAR	PAR		WELD CROWN, WELDED SUPPORT	GROUND	X			AREA EXAMINED 8½" CW FROM 0° DATUM TO 30½"

Richard B. Weber 4/28/87
John Hancock ANII
4-29-87

092

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

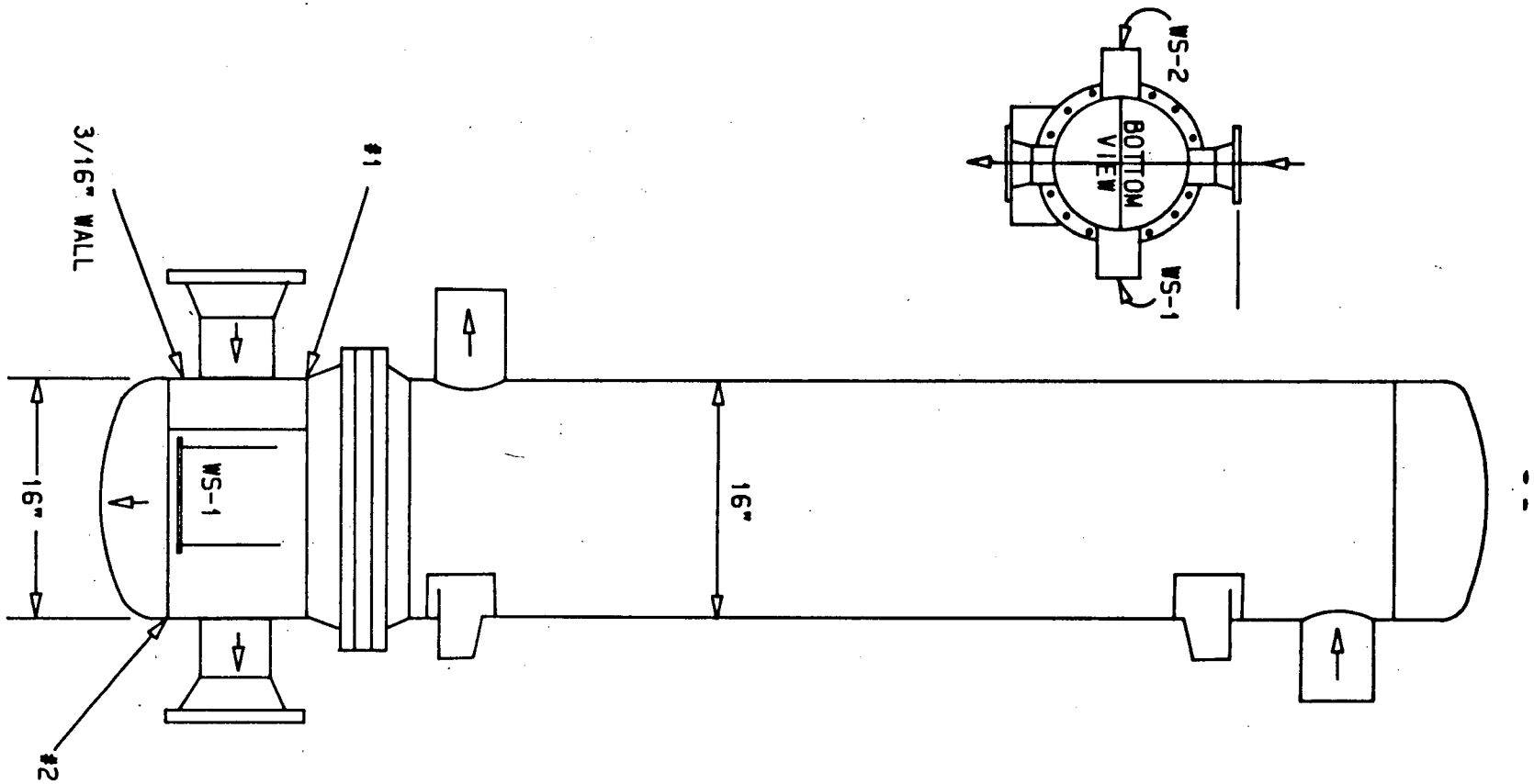
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-210

SYST/COMP SEAL WATER FILTER PROCEDURE ISI-8 REV.9

EXAMINER [signature] LEVEL II [signature] I DATE 4-28-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-2 VT-3	X			FLASHLIGHT, MIRROR	THERE ARE 4 WELDED SUPPORTS ON THE SEAL WATER FILTER AND NOT 3 AS SHOWN ON SKETCH CPL-210.
					Richard B. Weber 4/28/87
					[signature] AH II 4-29-87

FORM 45934B



H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: SEAL WATER HEAT EXGR.		
LINE NO. N/A	CPL-211 REV.	1

CP&L

WESTINGHOUSE FORM 46762

SKETCH CPL 211 095

EXAMINATION SUMMARY
FOR
1987

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	1					X								
45	2				X									
46	WS-2							X						

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-211

SYST/COMP. SEAL WATER HEAT EXCHANGER PROCEDURE ISI-11, REV. 10 F.C.3

EXAMINER Paul J. Kovalcin LEVEL II Kenneth Mead I DATE 4-25-87
Robert Wm. Daughtrey

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T
EQUIPMENT -
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
1		X		AREA EXAMINED 0° DATUM 22" C.C.W.	74° F
2	X			AREA EXAMINED 0° DATUM 22" C.C.W.	74° F
				(0° DATUM IS OUTLET NOZZLE)	
				Richard B. Weber 4/26/87	
				John Hancock ANII 4-27-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

097

VISUAL EXAMINATION DATA

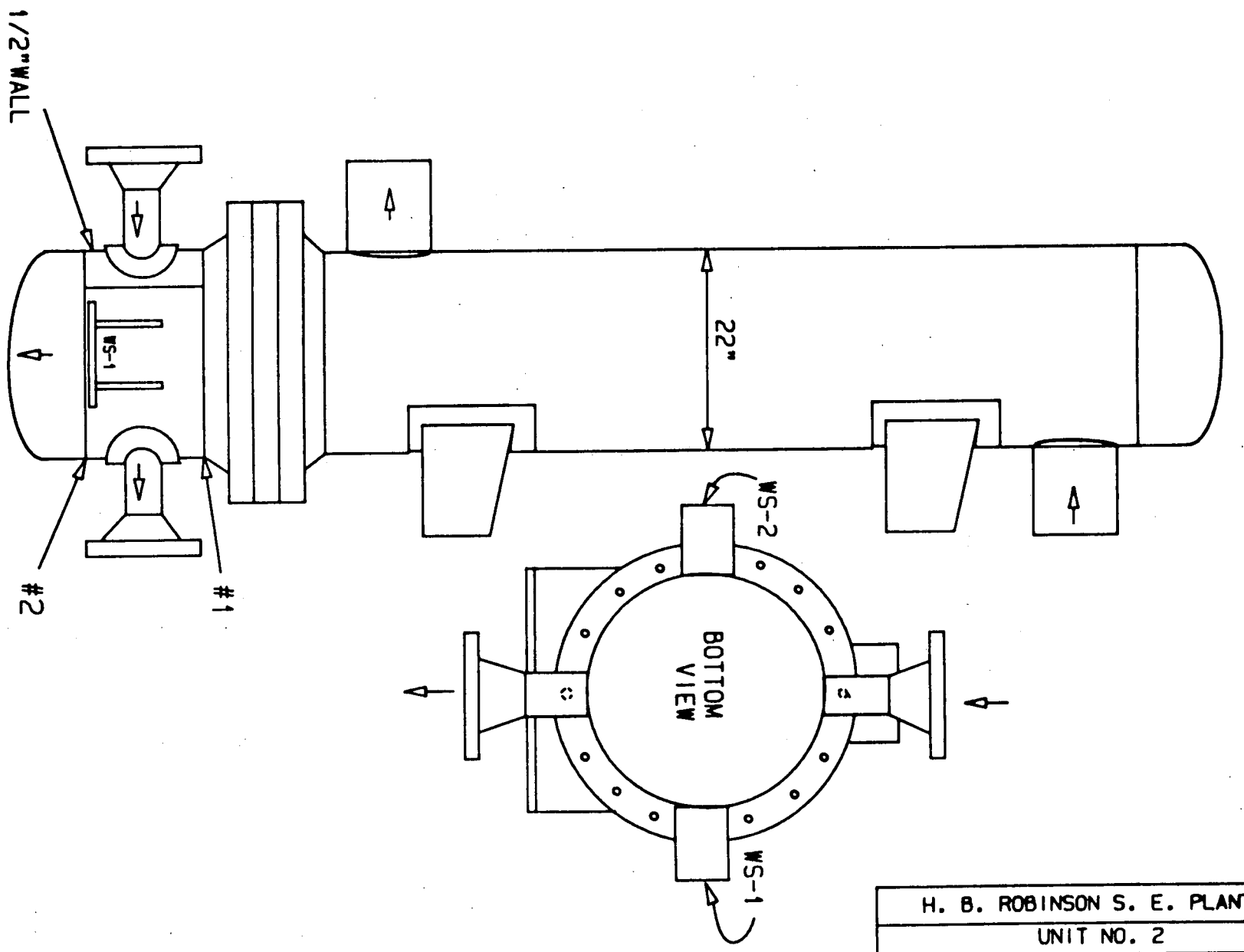
PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-211

SYST/COMP SEAL WATER HEAT EXCHANGER PROCEDURE ISI-8 REV. 9

EXAMINER Richard Wm. Hughes II LEVEL II DATE 4-25-87

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
WS-2 VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/26/87
					John Hancock ANII 4-27-87

FORM 45934B



H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: LETDOWN (NON-REGEN.) H.X.		
LINE NO. N/A	CPL-211A REV.	1

WESTINGHOUSE FORM 46762

SKETCH CPL 211 A **099**

EXAMINATION SUMMARY
FOR
1987

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	1	X												
48	2	X												
49	WS-2							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-211A

SYST/COMP.: LETDOWN (NON-REGEN) H.X. | PROCEDURE: ISI-206 Rev. 1

EXAMINER (LEVEL II): William D. Holley II Tim S. Belal I | DATE: 4-27-87

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 07853E	S/N			20176					20176					INITIAL TIME 0315 WYH
	SIZE			0.25"					0.25"					
	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			SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			
						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0				80%	2.0				
DAMPING: MIN	2T			45%	4.0				45%	4.0				
FILTER: OFF	3T			30%	6.0				30%	6.0				FINAL TIME 0350 WYH
LIN. CHECK: SAT														
SU CABLE: 12' BNC-MCD														CAL. BLOCK CPL-43
COUPLANT: SONOTRACE 40 BATCH# 8662	CAL. GAIN			29dB					29dB					THICKNESS .438"
														TEMP. 76°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS RI	NRI	RI	REMARKS
1	+4°F		PAR	NO	PAR		FLANGE CONFIGURATION + NUTS	GROUND	X			AREA EXAMINED 9" CCW FROM 0° DATUM TO 42" CCW.
2	+4°F		PAR	PAR	PAR		NOZZLE, WS-2	GROUND	X			AREA EXAMINED 9" CCW FROM 0° DATUM TO 42" CCW.

Richard B. Weber 4/28/87
ANII
4-29-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

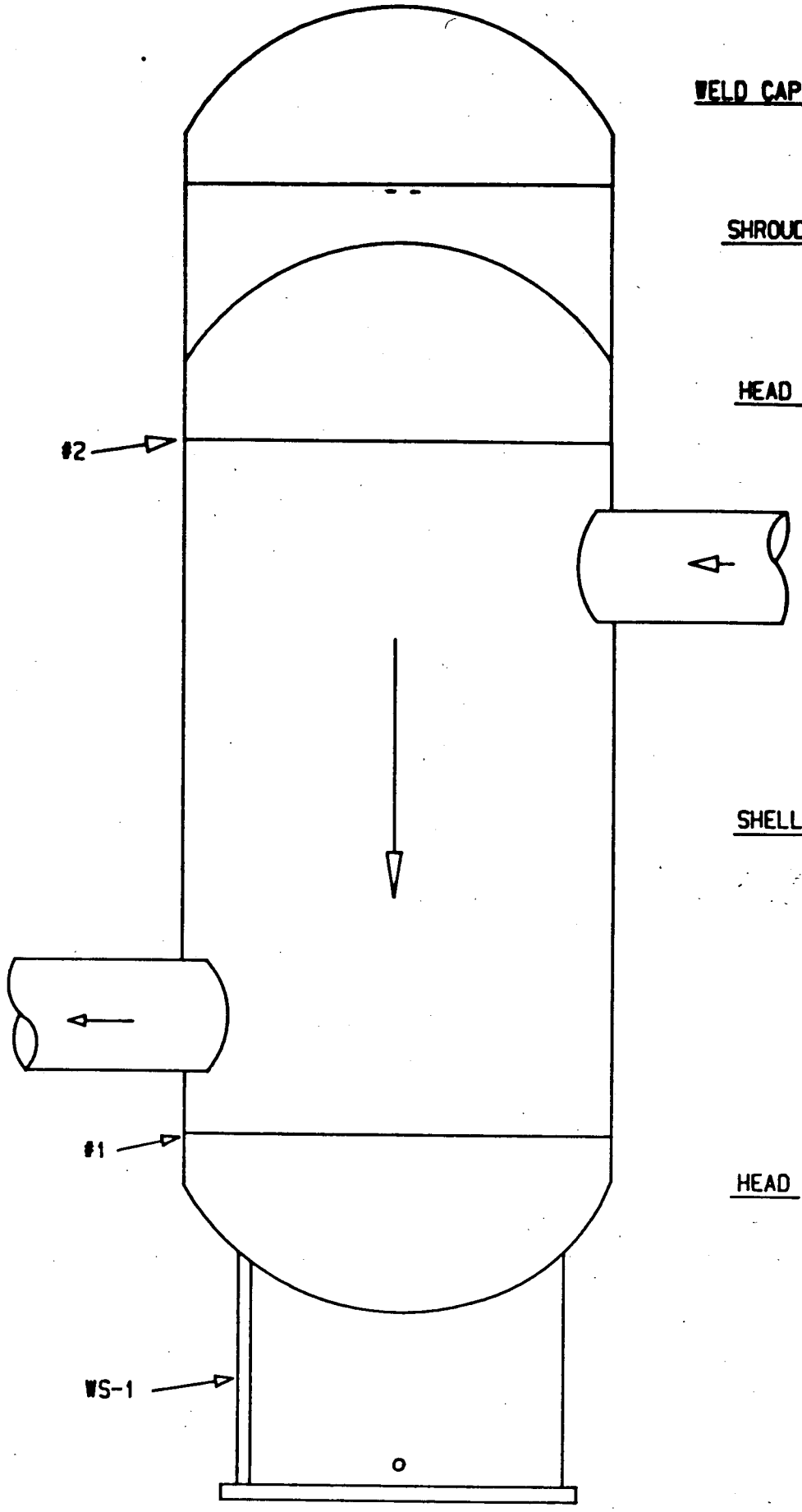
PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-211A

SYST/COMP LETDOWN (NON-REGEN.) HT. EXCH. PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Douglas II DATE 4-25-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-2 VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/26/87
					John Harwood ANII 4-27-87

FORM 45934B



H.B. ROBINSON S.E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: SUCTION STABILIZER (3)		
LINE NO.	CPL-237A REV. 2	

SKETCH CPL 237A

EXAMINATION SUMMARY
FOR

1987

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
50	A-1A	X												
50	A-2A	X												
51	A-WS-1A							X						

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-237A
SYST/COMP.: SUCTION STABILIZER A | PROCEDURE: ISI-206 REV. 1
EXAMINER (LEVEL II): William G Ashley II Tim G Baloh I | DATE: 4-20-87

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 07853E	S/N	C03620		20176					20176					INITIAL TIME
	SIZE	.375" DIA		.25" DIA.					.25" DIA.					0°-0325 WJH
	FREQ.	2.25 MHZ		2.25 MHZ					2.25 MHZ					45° 0400 WJH
	ANGLE	0°		45°					45°					
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	½ T	80%	3.4											
DAMPING: 0°-8/45°-MIN	1 T		8.0	80%	2.0									
FILTER: OFF	2 T			40%	4.0				80%	4.0				FINAL TIME
LIN. CHECK: SAT	3 T			25%	6.0									0°-0344 WJH
SU CABLE: 12' BNC-MCD														45°-0412 WJH
COUPLANT: SONOTRACE 40 #8558	CAL. GAIN	37 dB		35 dB					38 dB					CAL. BLOCK CPL-33
														THICKNESS .373"
														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
1A	+23°F	YES	PAR	PAR	PAR	PAR	WELD CROWN	AS WELDED	X			0° DATUM ℄ OF INTAKE NOZZLE. AREA EXAMINED: FROM 3" CCW TO 22" CCW
2A	+23°F	YES	PAR	PAR	PAR	PAR	WELD CROWN	AS WELDED	X			0° DATUM ℄ OF INTAKE NOZZLE. AREA EXAMINED: FROM 3½" CCW TO 22" CCW

Richard B. Weber 4/28/87
ANII
4-28-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-237A

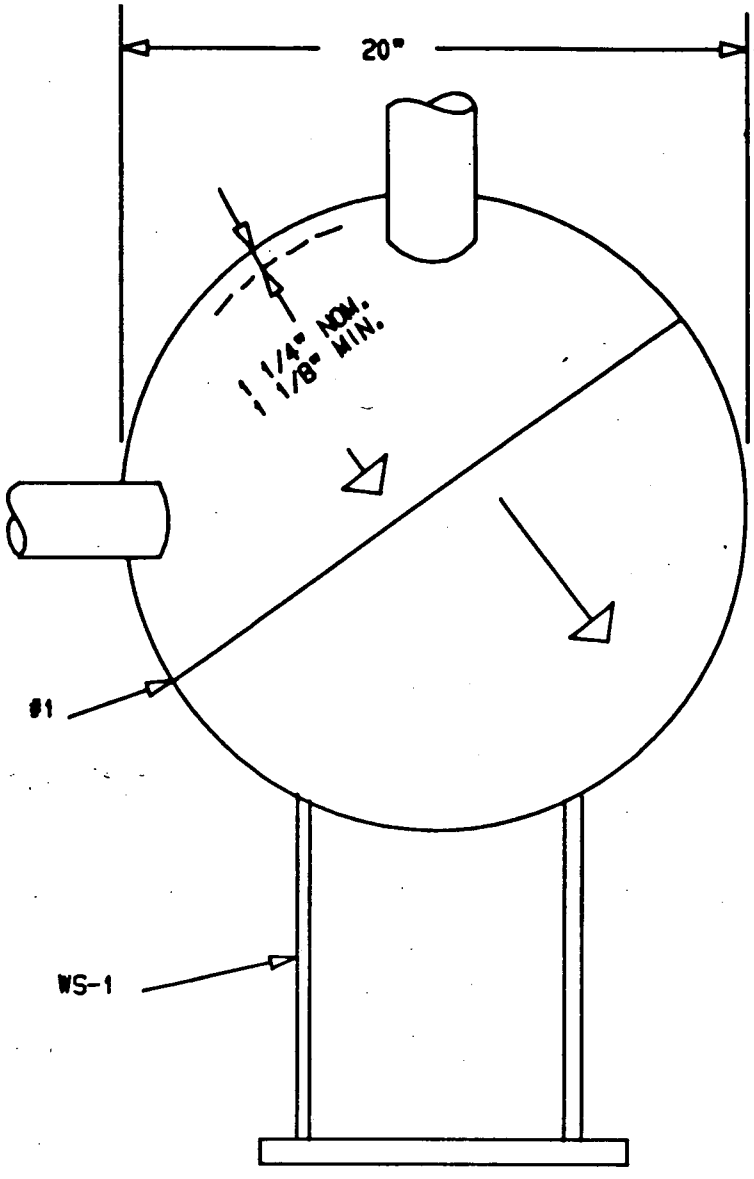
SYST/COMP SUCTION STABILIZER PROCEDURE ISI 8 REV. 9

EXAMINER William D. Mallett II LEVEL II William D. Dalley I DATE 4-20-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A-WS-1 VT-3	X			FLASHLIGHT, MIRROR	

Richard B. Weber 4/21/87
ANII
4-22-87

FORM 45934B



H.B. ROBINSON S.E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: PULSATION DAMP			
LINE NO.	CPL- 238	REV. 1	

SKETCH CPL 238

EXAMINATION SUMMARY
FOR
1987

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	A-1A	X												
53	WS-1									X				See Tab F

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-238
SYST/COMP.: PULSATION DAMP A | PROCEDURE: ISI-206 Rev. 1
EXAMINER (LEVEL II): William G. Halley II, William L. Mabe II | DATE: 4-22-87

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 07853E	S/N	C03620		56761					56761					INITIAL TIME
	SIZE	0.375"		0.5"					0.5"					0° IC: 0012 WNM
	FREQ.	2.25 MHz		2.25 MHz					2.25 MHz					45° IC: 0354 WNM
REP. RATE: 3K	ANGLE	0°		45°					45°					
REJECT: OFF	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
DAMPING: 0°-7/45°-MIN	1/4 T	80%	1.4											
	3/4 T	35%	4.8											
FILTER: MED	1 T		7.0	80%	2.0				80%	2.2				FINAL TIME
LIN. CHECK: SAT	2 T			30%	4.0				40%	4.2				0° FC: 0115 WNM
SU CABLE: 0°-12' BNC-MCD 45°-6' BNC-BNC	3 T			10%	6.0									45° FC: 0436 WNM
COUPLANT: SONOTRACE 40 BATCH #8558	CAL. GAIN	30 dB		37 dB					40 dB					CAL. BLOCK: CPL-36
														THICKNESS 1.250"
														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	+6°F		PAR	PAR	PAR	PAR	WELD CROWN	GROUND	X			AREA EXAMINED MEASURED FROM 0 STAMP FROM 5½" CW TO 16½" CCW LOOKING DOWN FROM TOP OF VESSEL. 22" TOTAL LENGTH

Clifford B. Weber 4/24/87
4-24-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-238

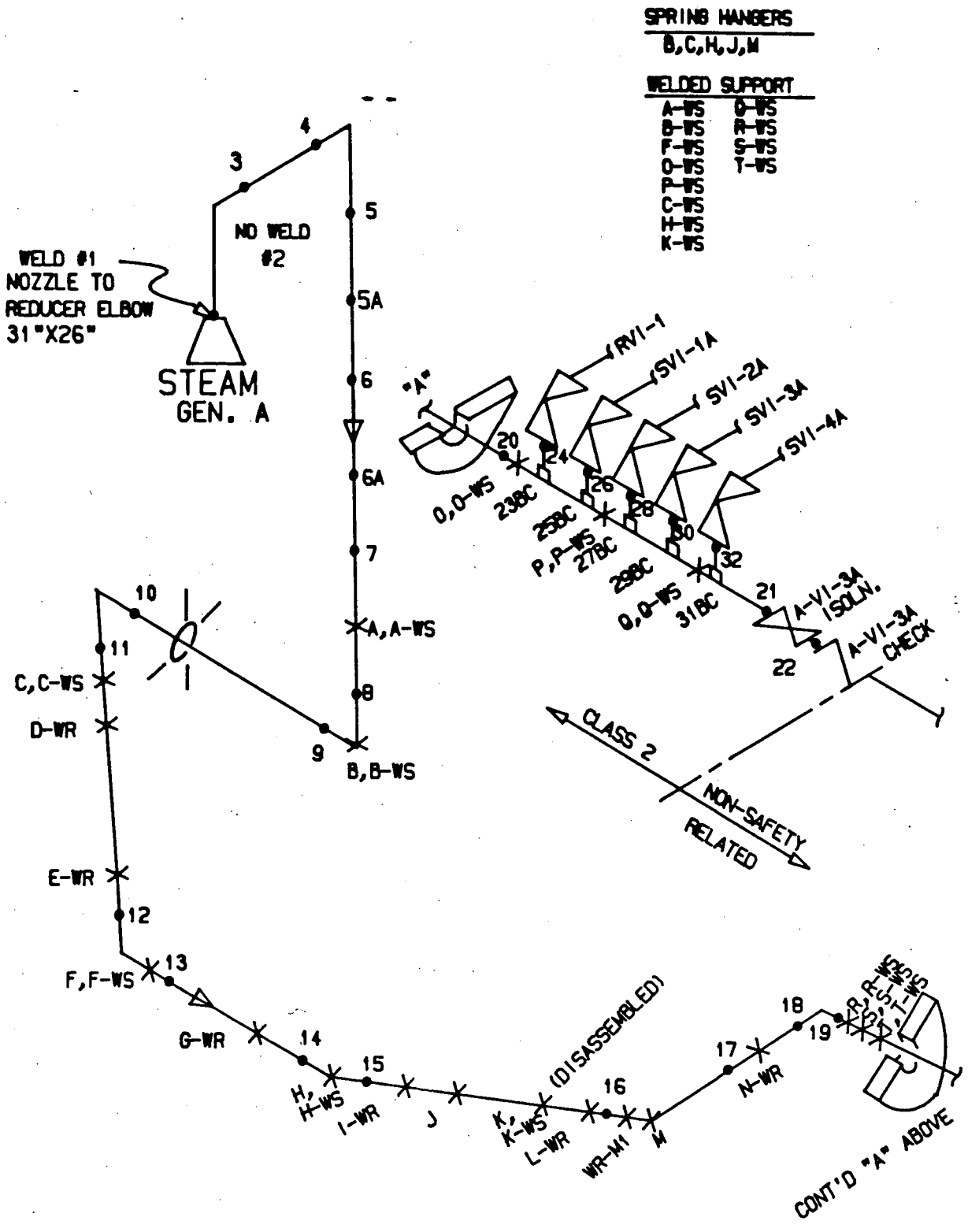
SYST/COMP PULSATION DAMP A PROCEDURE ISI-8, REV. 9

EXAMINER [signature] LEVEL II [signature] I DATE 4-22-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-1			X	FLASHLIGHT, MIRROR	INADEQUATE THREAD ENGAGEMENT ON BOLTS ON BASE PLATE. (4 BOLTS)

[signature] 4/24/87
[signature] ANII 4-24-87

FORM 45934B



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: LOOP A 26" MAIN STEAM		
LINE NO. 26"-MS-A	CPL-212 REV.	2

SKETCH CPL 212 **111**

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT			MT			REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
54	T-WS										X			
55	T								X					

WESTINGHOUSE FORM 4G762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-212

SYST/COMP. LOOP A 26" MAIN STEAM PROCEDURE ISI 70, REV. 2

EXAMINER Joseph S. Fumyak II LEVEL II D.L. W. M.L. II DATE 4-16-87

P/T	BATCH NOS.	M/T	
CLEANER		EQUIPMENT	Y-6 YOKE W-004
PENETRANT			
DEVELOPER		EXAM. MEDIUM	MX-201 GREEN 84J035
REMOVER		BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
T-WS	X			DUE TO SUPPORT CONFIGURATION EXAM WAS PREFORMED	62°F
				IN 1 DIRECTION PARALLEL TO WELD. AREA EXAMINED:	
				160° TO 45° CLOCK WISE	

Robert B. Weber 4/18/87
John J. Juvaad ANII
4-19-87

FORM 46935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-212

SYST/COMP LOOP A 26" MAINSTEAM PROCEDURE ISI-8, REV. 9

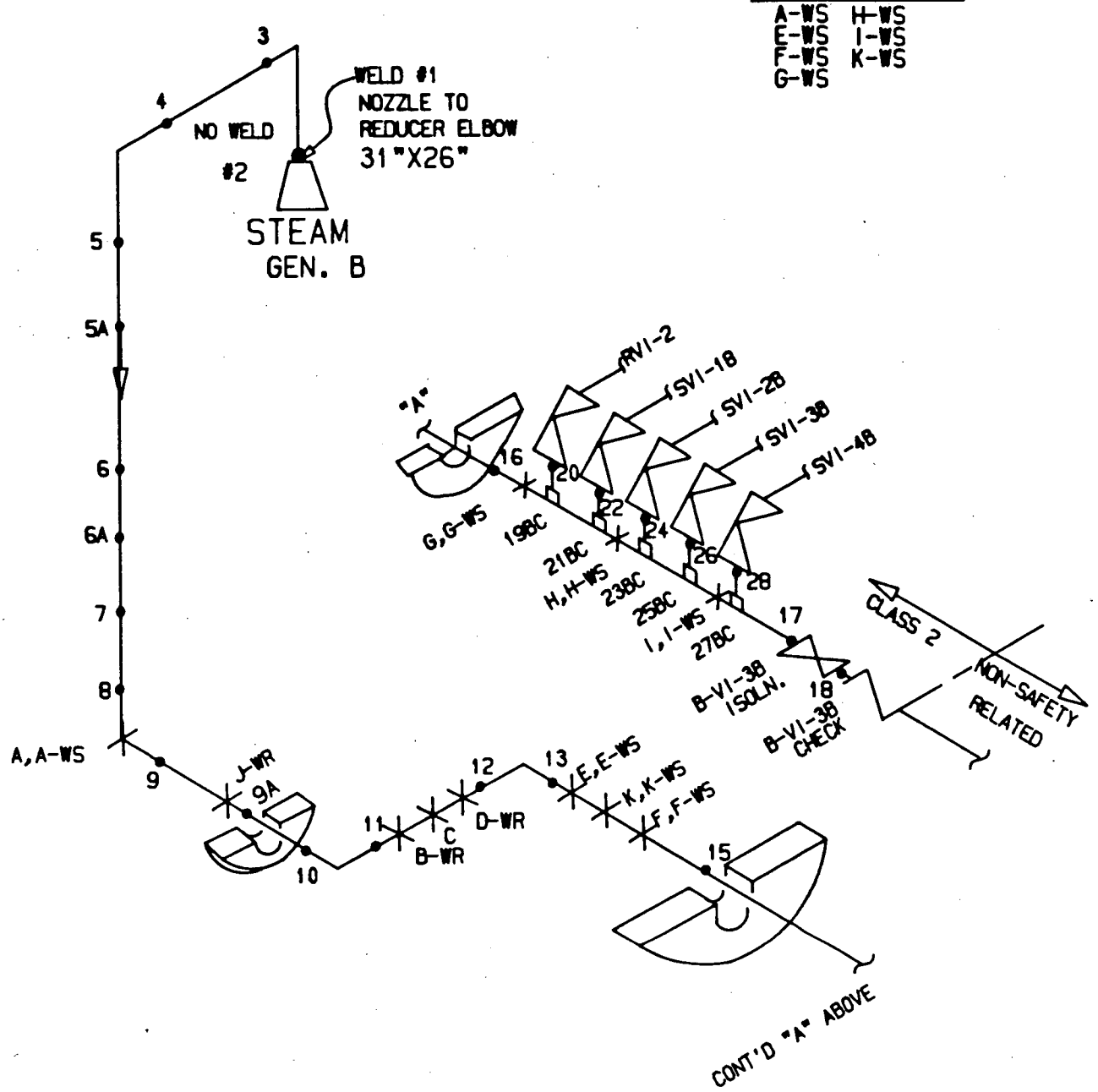
EXAMINER Joseph D. Furmyak II DATE 4-20-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
T VT-3		X		FLASHLIGHT	

Richard B. Weber 4/21/87
[signature] ANII
4-22-87

FORM 45934B

SPRING HANGERS	
A,C	
WELDED SUPPORT	
A-WS	H-WS
E-WS	I-WS
F-WS	K-WS
G-WS	



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: LOOP B 26" MAIN STEAM		
LINE NO. 26"-MS-B	CPL- 213 REV.	2

SKETCH CPL 213 115

EXAMINATION SUMMARY FOR 1987

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT			MT			REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
56	1	X									X			
58	F							X						
57	F-WS										X			
57	G-WS											X		

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-213

SYST/COMP.: LOOP B 26" MAINSTEAM (31"X26") RED. | PROCEDURE: ISI-206 Rev 1

EXAMINER (LEVEL II): William G. Halley II Timothy J. Baldwin I | DATE: 4-14-87

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 05939E	S/N: P45882													INITIAL TIME 0149 WRH
	SIZE: 0.75" DIA.													
	FREQ.: 2.25 MHz													
	ANGLE: 0°													
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1/4 T	80%	2.0											
DAMPING: 8	3/4 T	30%	6.0											
FILTER: HI	1 T		8.0											FINAL TIME 0318 WRH
LIN. CHECK: SAT														
SU CABLE: 24' BNC-BNC														CAL. BLOCK CPL-40
COUPLANT: SONOTRACE 40 BATCH "8558	CAL. GAIN	37 dB												THICKNESS 1.20"
														TEMP. 72°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	+14°F	PAR				PAR	WELDED PAD 3" DIA. 3" FROM TOE OF WELD 1 24½" CLOCKWISE FROM 0° DATUM.	GROUND	X			

Richard B. Weber 4/18/87
ANII
4-A-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-213

SYST/COMP.: LOOP B 26" MAIN STEAM (31"X26") RED. | PROCEDURE: ISI 206 REV. 1

EXAMINER (LEVEL II): Will D. McAlister II Tim E Balsh I | DATE: 4-14-87

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 11221E	S/N			56761				56761				INITIAL TIME 0127 W.J.M
	SIZE			0.5"				0.5"				
	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	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO: PEAK	DISTANCE FROM SCRIBE/REF. LINE TO: 50% DAC LOCATIONS	
REJECT: OFF	1T			80%	2.0			80%	2.0			
DAMPING: MIN	2T			35%	4.0			35%	4.0			
FILTER: HI	3T			30%	6.0							FINAL TIME 0318 W.W.M.
LIN. CHECK: SAT												
SU CABLE: 18' BNC TO BNC												CAL. BLOCK CPL-40
COUPLANT: SONOTRACE 40 #8558	CAL. GAIN			28 dB				29 dB				THICKNESS 1.20"
												TEMP. 72°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
1	+14°F		PAR	PAR	YES		WELDED PAD, 3" DIA. 3" FROM TOE OF THE WELD #1, 24½" CW FROM 0° DATUM	GROUND	X			

Richard B. Weber 4/18/87

4-19-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-213

SYST/COMP. LOOP B 26" MAIN STEAM (31"x26") RED PROCEDURE ISI-70 REV 2

EXAMINER W.D.M. II Tim S & Ralph I DATE 4-14-87
LEVEL II

P/T	BATCH NOS.	M/T	
CLEANER		EQUIPMENT	Y-6 YOKE S/N W004
PENETRANT		EXAM. MEDIUM	MX 201 GREEN POWDER BATCH # 84J035
DEVELOPER		BLACK-LIGHT CHECK TIME	
REMOVER			

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
1	X				86°F
				Richard B. Walter 4/18/87	
				ANII 4-19-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-213

SYST/COMP. LOOP B 26" MAIN STEAM PROCEDURE ISI-70, REV 2

EXAMINER Joseph O. Fuinyak II LEVEL II Dill. V. Mills II DATE 4-16-87

P/T	BATCH NOS.	M/T	
CLEANER		EQUIPMENT	Y-6 YOKE W-004
PENETRANT			
DEVELOPER		EXAM. MEDIUM	MX-201 GREEN 84J035
REMOVER		BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
F-WS	X			DUE TO SUPPORT CONFIGURATION EXAM WAS PREFORMED IN 1 DIRECTION PARALLEL TO WELD. EXAMINED ON 1 SIDE OF SUPPORT ONLY	62°F

Richard B. Weber 4/18/87
John Jones ANII
4-19-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-213

SYST/COMP Loop 'B' 26" MAINSTEAM PROCEDURE TSI-8 REV. 9

EXAMINER Robert Wm. Vaughn II DATE 4-25-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-G VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PLATE

Richard B. Weber 4/26/87
John Jarrard ANII
4-27-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-213

SYST/COMP LOOP B 26" MAIN STEAM PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Fennyak II [signature] II LEVEL II DATE 4-16-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
F VT-3	X			DROP LIGHT	EXAMINED 1 SIDE ONLY
					OTHER SIDE NOT ACCESSIBLE

Richard B. Weber 4/18/87
John [signature] ANII
4-19-87

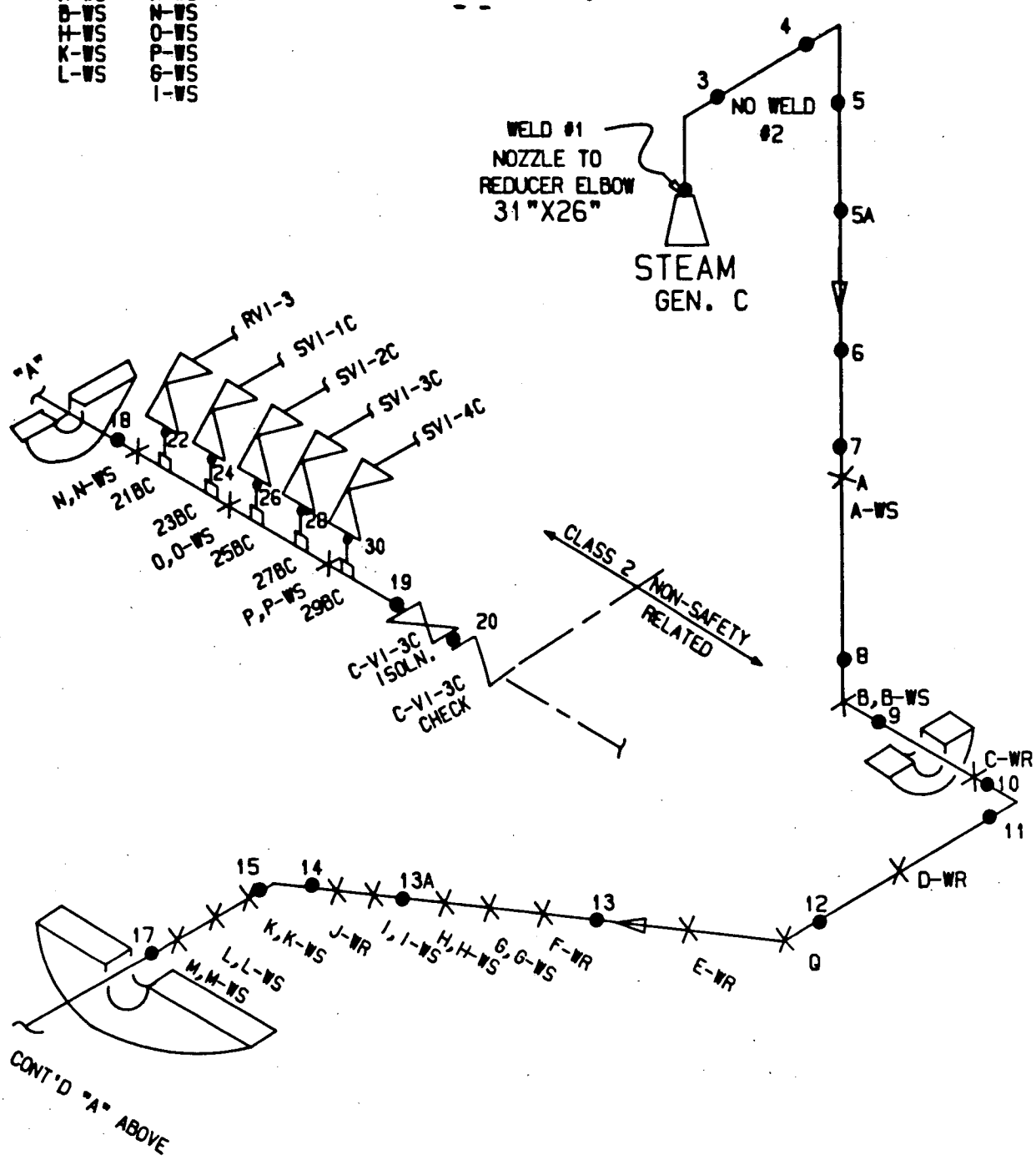
FORM 459348

SPRING HANGERS

B,G,I,Q

WELDED SUPPORT

A-WS	M-WS
B-WS	N-WS
H-WS	O-WS
K-WS	P-WS
L-WS	G-WS
	I-WS



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: LOOP C 26" MAIN STEAM		
LINE NO. 26"-MS-C	CPL- 214 REV.	2

WESTINGHOUSE FORM 46762

SKETCH CPL 214 **123**

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
58	N-WS								X					

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-214

SYST/COMP Loop C 26" MAIN STEAM PROCEDURE ISI-8 REV. 9

EXAMINER Richard Wm. Haughton II DATE 4-25-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-N VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PLATE
					Richard B. Weber 4/26/87
					John Jaccard ANII 4-27-87

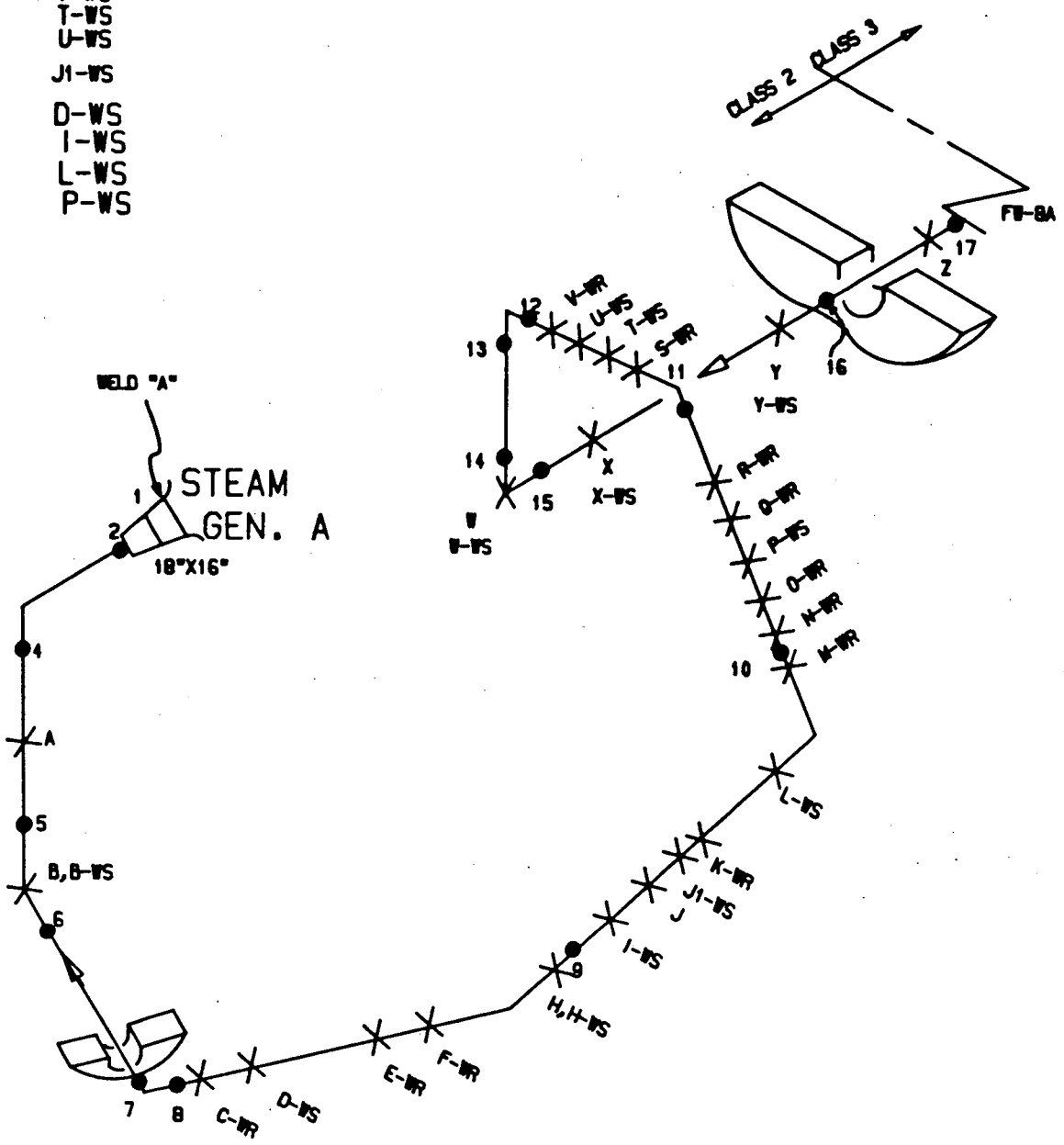
FORM 45934B

SPRING HANGERS

B,D,I,L,P,T,W,

WELDED SUPPORT

B-WS
H-WS
W-WS
X-WS
Y-WS
T-WS
U-WS
J1-WS
D-WS
I-WS
L-WS
P-WS



NOTES:

H.B. ROBINSON S.E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: LOOP A 16" FEEDWATER			
LINE NO. 16-FDW-A	CPL- 215	REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 215 **126**

EXAMINATION SUMMARY FOR 1987

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	MT NI	MT NRI	MT RI	REMARKS
60	W-WS							X						5/8" TK.
132	H							X						
132	L									X				See Tab F

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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 ISI-8, REV. 9

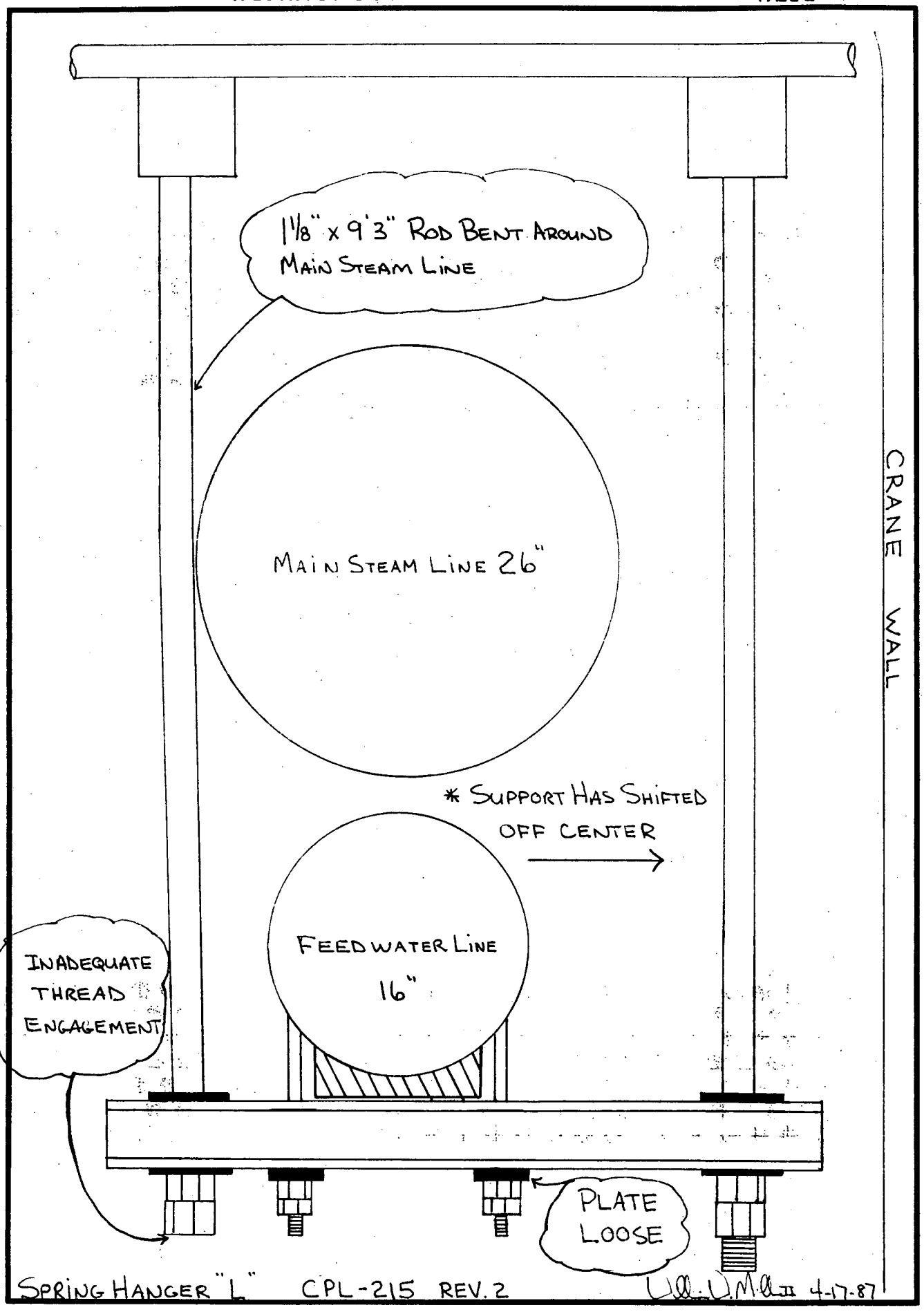
EXAMINER [signature] LEVEL II [signature] DATE 4-16-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
H VT-3	X			FLASHLIGHT	
L VT-3			X	FLASHLIGHT	SEE SKETCH
					SETTINGS: INSIDE 3200 2V8" OUTSIDE 2950 1V2"

Richard B. Weber 4/18/87
[signature] ANII 4-19-87

FORM 45934B

FORM 46



SPRING HANGER "L" CPL-215 REV. 2 4-17-87

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 ISI-8 REV. 9

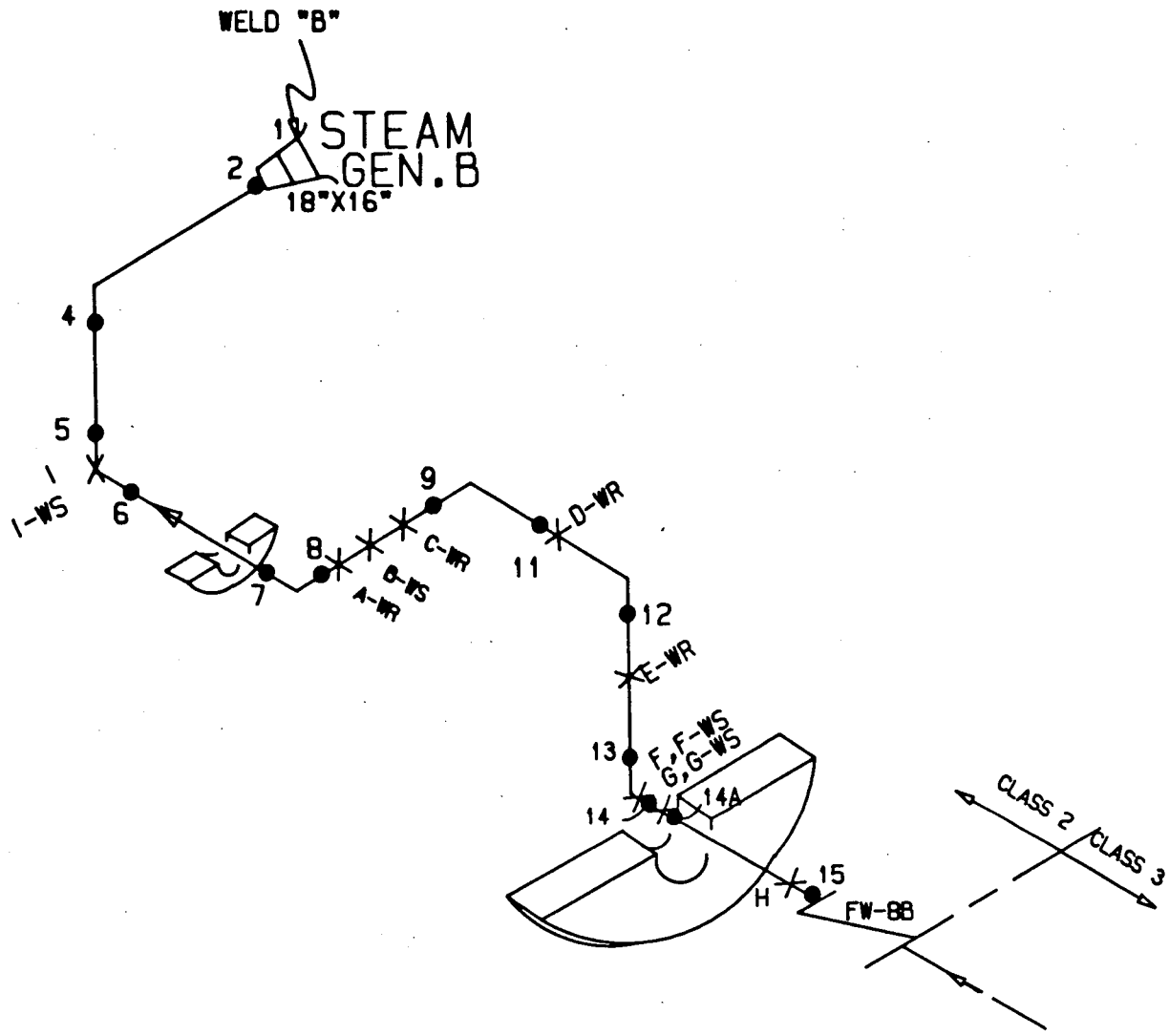
EXAMINER [signature] II LEVEL II [signature] I DATE 4-16-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
W, VT-3	X			FLASHLIGHT	SETTINGS: 4860, 5/8"
					Richard B. Weber 4/18/87
					[signature] 4-19-87
					[signature] ANII

FORM 45934B

SPRING HANGERS
B, I

WELDED SUPPORT	
I-WS	B-WS
F-WS	
G-WS	



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: LOOP B 16" FEEDWATER		
LINE NO. 16-FDW-B	CPL- 216 REV.	2

WESTINGHOUSE FORM 4G762

SKETCH CPL 216 131

EXAMINATION SUMMARY FOR 1987

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	MT NI	MT NRI	MT RI	REMARKS
61-62	G-WS							X			X			
63	14A	X									X			

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-216

SYST/COMP.: Loop B 16" Feedwater | PROCEDURE: 1S1-206 Rev. 1

EXAMINER (LEVEL II): William G. Halley II Timothy S. Baleh I | DATE: 4-16-87

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 11221E	S/N			56761					56761					INITIAL TIME 0256 WEH
	SIZE			0.5" x 0.5"					0.5" x 0.5"					
	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	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT: OFF	1T			80%	2.0				80%	2.1				
DAMPING: MIN	2T			35%	4.0				35%	4.1				
FILTER: HI	3T			20%	6.0									FINAL TIME 0440 WEH
LIN. CHECK: SAT														
SU CABLE: 18' BNC-BNC														CAL. BLOCK CPL-54
COUPLANT: SONOTRACE 40 BATCH # 8558	CAL. GAIN			30dB					36dB					THICKNESS 1.010"
														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
14A	-6°F		PAR	PAR	PAR		Weld Crown, Welded Lug At 0° 3½" From Weld 14A Toe On The 2 Side	Ground	X			

Richard B. Weber 4/18/87

John Jaworski ANII 4-19-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-216

SYST/COMP. LOOP B 16" FEEDWATER PROCEDURE ISI 70, REV. 2

EXAMINER Joseph D. Trumpke II, Level II, William D. Mell II DATE 4-16-87

P/T	BATCH NOS.	M/T	
CLEANER		EQUIPMENT	Y-6 YOKE S/N W-004
PENETRANT			
DEVELOPER		EXAM. MEDIUM	MX-201 GREEN 84J035
REMOVER		BLACK-LIGHT CHECK TIME	N/A

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
14A	X				64°F
G-WS	X			DUE TO SUPPORT CONFIGURATION EXAM WAS PREFORMED IN 1 DIRECTION ONLY, PARALLEL WITH WELD.	64°F

Richard B. Weber 4/18/87
John Jaussaud ANII 4-19-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-216

SYST/COMP LOOP C FEEDWATER PROCEDURE ISI-8, REV. 9

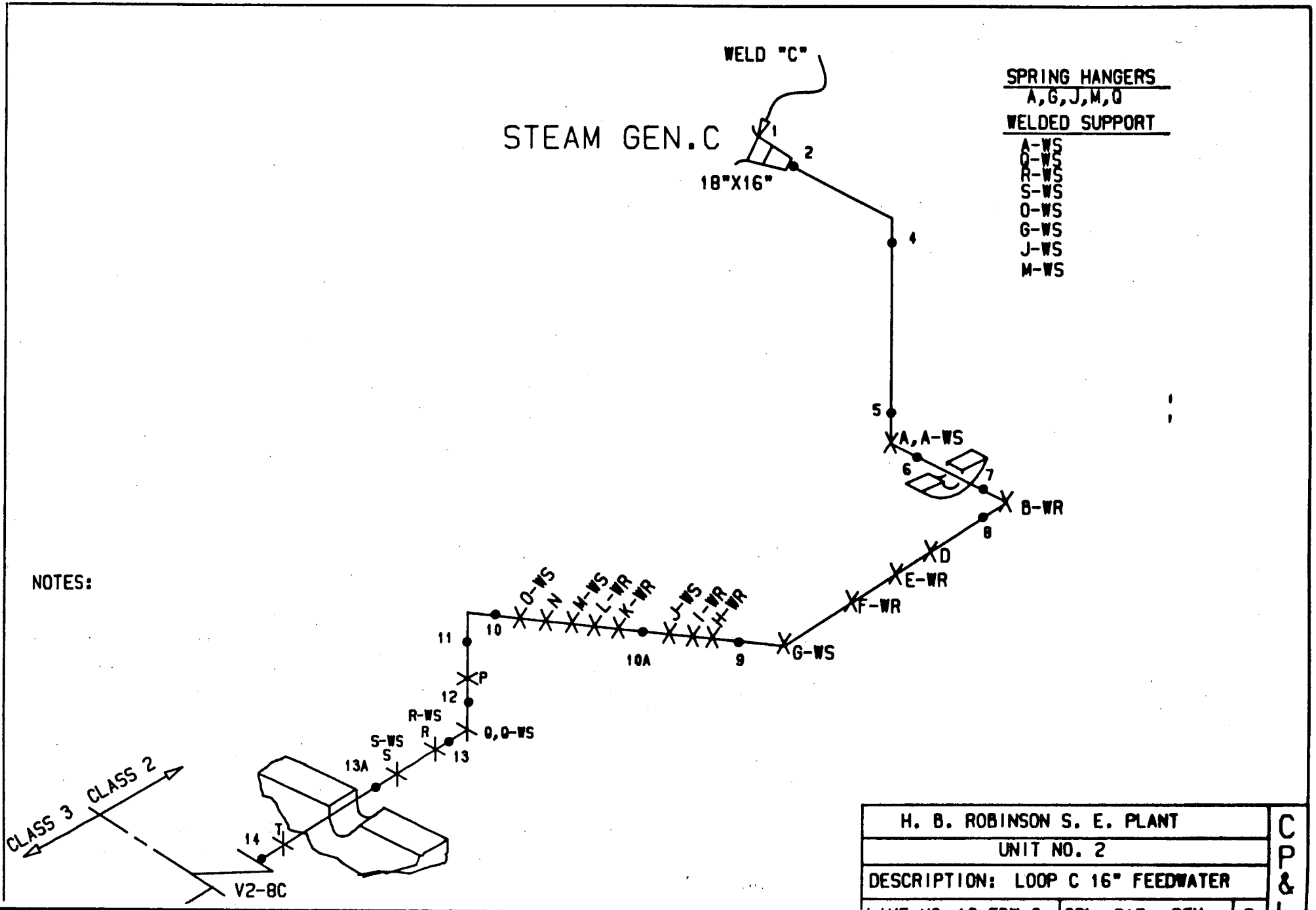
EXAMINER Joseph D. Furyak II, Wm. D. McD II DATE 4-16-87
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
G - VT-3	X			FLASHLIGHT	UNDERCUT

Richard B. Weber 4/18/87

John J. Quinn ANII 4-19-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: LOOP C 16" FEEDWATER	

WESTINGHOUSE FORM 46762

SKETCH CPL 217 136

EXAMINATION SUMMARY FOR 1987

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	MT NI	MT NRI	MT RI	REMARKS
64-65	S-WS							X			X			

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-217

SYST/COMP. LOOP C 16" FEEDWATER PROCEDURE ISI 70, REV. 2

EXAMINER Joseph D. Furyak II LEVEL II Paul J. Knalle-I DATE 4-16-87

P/T	BATCH NOS.	M/T	
CLEANER		EQUIPMENT	Y-6 YOKE S/N W-004
PENETRANT			
DEVELOPER		EXAM. MEDIUM	MX-201 GREEN 84J035
REMOVER		BLACK-LIGHT CHECK TIME	N/A

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
S-WS	X			EXAMINED 1 SIDE ONLY. DUE TO SUPPORT	64°F
				CONFIGURATION EXAM WAS PREFORMED IN	
				1 DIRECTION ONLY PARALLEL WITH WELD.	
				Richard B. Weber 4/18/87	
				John Harwood ANII 4-19-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-217

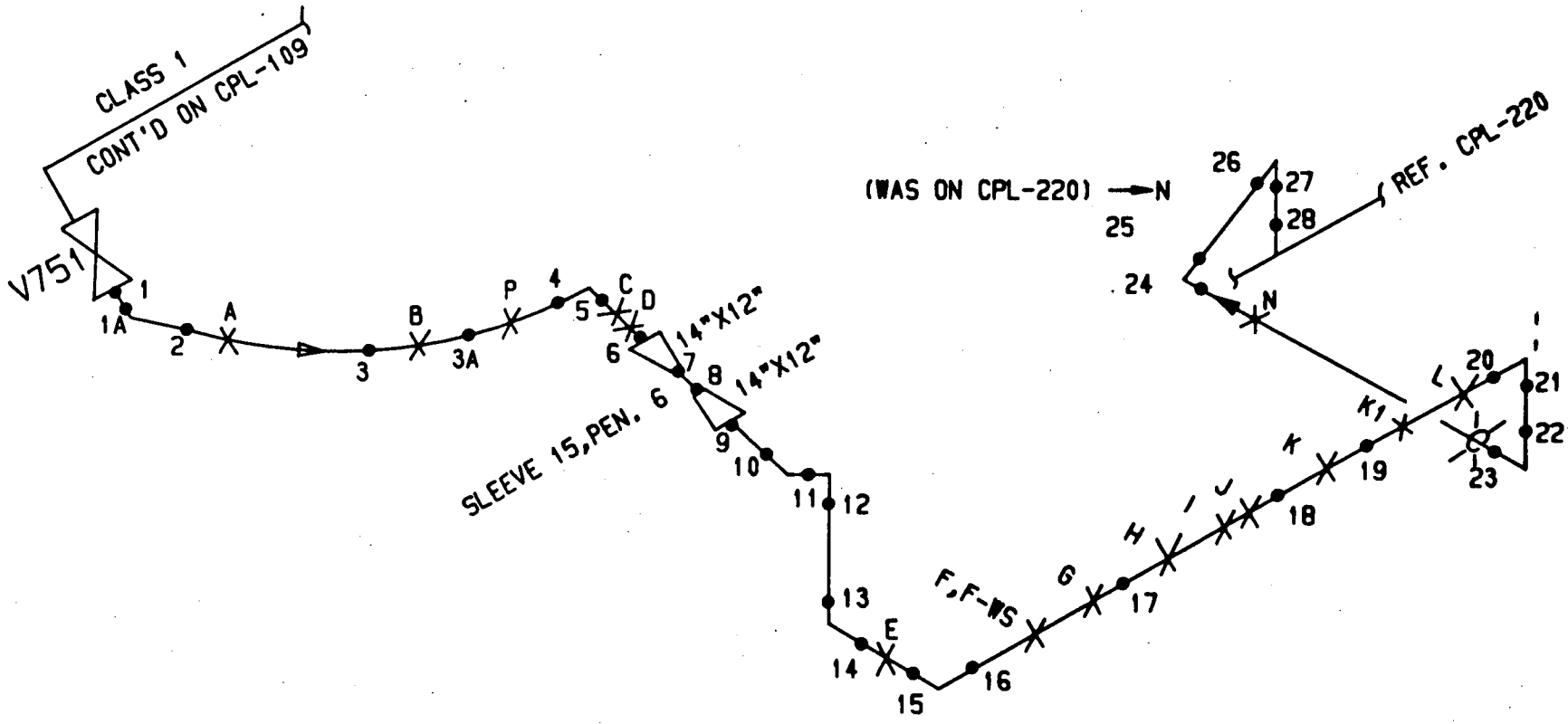
SYST/COMP LOOP C 16" FEEDWATER PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Funyak II DATE 4-16-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
S VT-3	X			FLASHLIGHT	UNDERCUT
					Richard B. Weber 4/18/87
					John [illegible] ANII
					4-19-87

FORM 45934B

SPRING HANGERS
A,C,E,N
WELDED SUPPORT
F-WS



NOTES:

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: 14" RHR TAKEOFF	

WESTINGHOUSE FORM 46762

SKETCH CPL 218 140

EXAMINATION SUMMARY
FOR

1987

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
66	C							X						
66	D							X						
66	E							X						
66	N									X				Tab F
67	5				X									
67	10					X								
67	11					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-218

SYST/COMP. 14" RHR TAKEOFF PROCEDURE ISI-11, REV. 10 FC. 3

EXAMINER Paul J. Kovallo-II LEVEL II Ralph L. Churchfield I LEVEL I DATE 4-14-87 4-09-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
5	X			PARTIAL DUE TO SUPPORT CLAMP	72°F
				Richard B. Weber 4/18/87	
				John Harwood ANII 4-19-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-218

SYST/COMP. 14" RHR TAKEOFF PROCEDURE ISI-11, REV. 10, FC3

EXAMINER Joseph J. Fennyak II LEVEL II William G. Halley II DATE 4-19-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85A1035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
10		X		AS WELDED	94°F
11		X		AS WELDED WELD SPATTER	94°F

Richard S. Weber 4/21/87
Level III
4-22-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

143

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-218

SYST/COMP. 14" RHR TAKEOFF PROCEDURE IST-11, REV. 10 FC 3

EXAMINER Paul J. Kovallo-II LEVEL II Richard B. Weber IT DATE 4-26-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
11		X		AS WELDED- AREA EXAMINED AFTER REMOVAL OF WELD SPATTER	75°F
				Richard B. Weber 4/26/87	
				John J. Kovallo ANII 4-29-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

144

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-218

SYST/COMP 14" RHR TAKEOFF PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Fumyak II DATE 4-17-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E VT-3	X			FLASHLIGHT	SETTINGS 1900 3/8"
					Richard B. Weber 4/18/87
					John Juracsek ANII 4-19-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-218

SYST/COMP 14" RHR TAKEOFF PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Fumyak II (LEVEL II) DATE 4-15-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
C VT-3	X			FLASHLIGHT	2850 LOAD LBS. 5/8" DEFLECTION
D VT-3	X			FLASHLIGHT	INSULATED AT PIPE CLAMP

Richard D. Weber 4/18/87
ANII
4-19-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-218

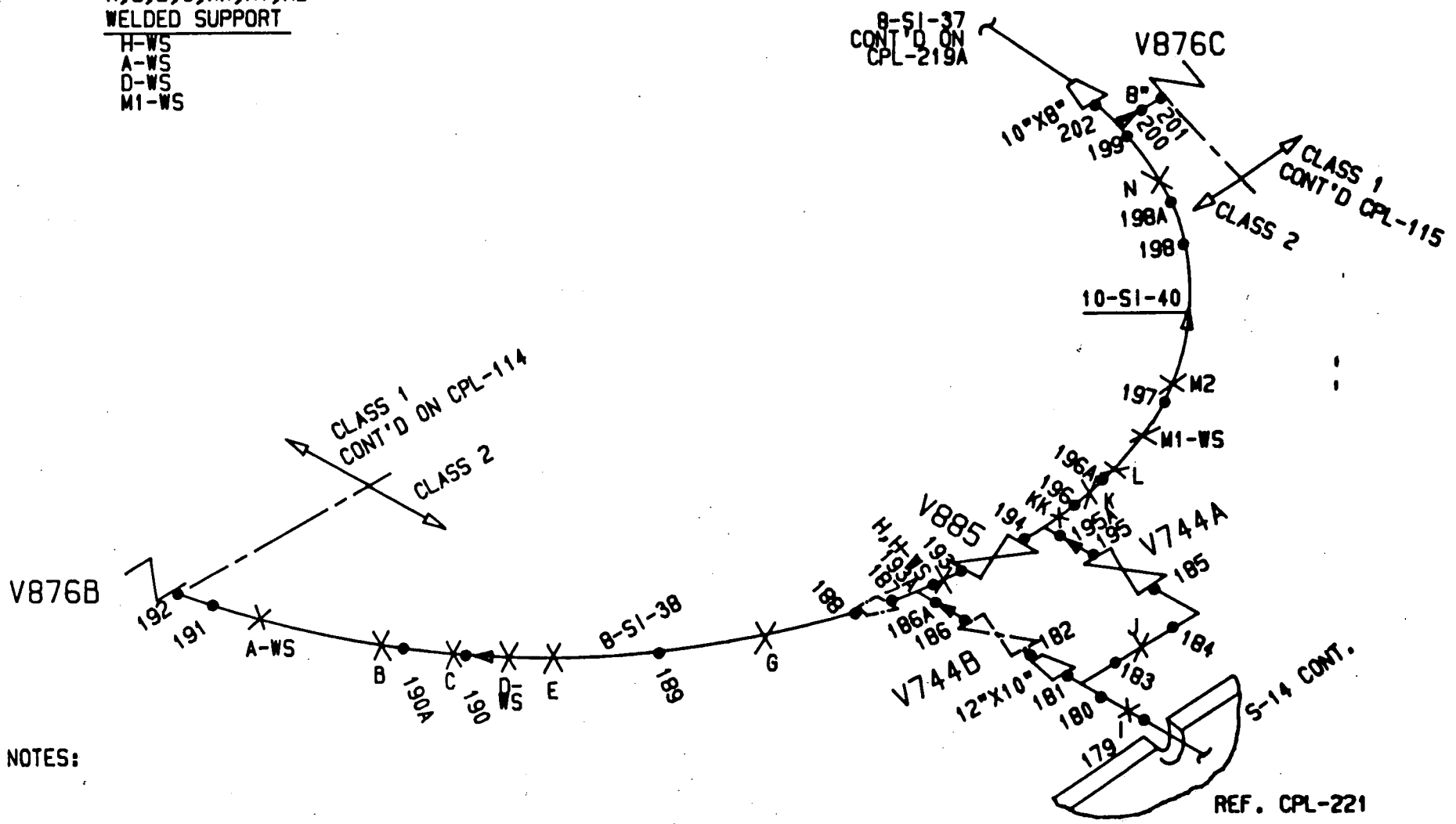
SYST/COMP 14" RHR TAKE OFF PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II Kenneth Mac I DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
N VT-3			X	FLASH LIGHT	LEFT NUT ON U-CLAMP IS LOOSE. THE WHOLE U-CLAMP IS LOOSE SETTINGS LEFT 1870-1" RIGHT 1870-1"
					Richard B. Webb 4/28/87
					John Jarnagin ANII 4-29-87

FORM 45934B

SPRING HANGERS
A,B,D,G,KK,M1,M2
WELDED SUPPORT
H-WS
A-WS
D-WS
M1-WS



NOTES:

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: SIS & RHR RETURN	
LINE NO. 10-SI-40 CPL-219 REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 219 **148**

EXAMINATION SUMMARY
FOR

1987

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
68	E								X					
68	G							X						
68	I							X						
68	L							X						
69	187				X			X						
69	188	X			X									
70	184				X									

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: ISI-206 REV.1

EXAMINER (LEVEL II): William G. Halley II | Timothy S Baloh I | DATE: 4-15-87

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8					CALIBRATION CHECK
INST. S/N	S/N	C 16353		56761					56761					INITIAL TIME
SONIC MARK I	SIZE	0.25"		0.5"X0.5"					0.5"X0.5"					0° IC: 0529
11221E	FREQ.	5.0 MHZ		2.25 MHZ					2.25 MHZ					45° IC: 0615
	ANGLE	0°		45°					45°					WSH
REP. RATE 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		
REJECT OFF	¼ T	80%	1.8											
DAMPING 0°-8/45° MIN	¾ T	30%	5.6											
FILTER HI	1 T		8.0	80%	2.0				80%	2.1				FINAL TIME WSH
LIN. CHECK SAT	2 T			40%	4.0				35%	4.1				0° FC: 0559
SU CABLE 0°-12' BNC-MCD 45°-18' BNC-BNC	3 T			25%	6.0									45° FC: 0649
COUPLANT SONOTRACE 40 #8558	CAL. GAIN	28dB		29dB					37dB					CAL. BLOCK CPL-32
														THICKNESS 1.048"
														TEMP. 75°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
187	+2°F	PAR	PAR	NO	PAR	PAR	WELD CROWN, REDUCER CONFIGURATION, AT 40° FROM 0° DATUM INSULATED PIPE RESTRICTS EXAM AREA.	AS WELDED	X			

Richard B. Weber 4/18/87

John Hancock ANII 4-19-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H.B. ROBINSON | UNIT: 2 | SKETCH: CPL-219

SYST/COMP.: SIS & RHR RETURN 10"X8" REDUCER | PROCEDURE: 1SI-206, REV.1

EXAMINER (LEVEL II): William G. Halley II, Paul J. Kovalls-I | DATE: 4-28-87

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8				
INST. S/N: SONIC MARK 1 06209E	S/N			20176					20176				
	SIZE			0.25" DIA.					0.25" DIA.				
	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	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	
REJECT: OFF	1T			80%	2.0				80%	2.1			
DAMPING: MIN	2T			35%	4.0				20%	4.3			
FILTER: OFF	3T			19%	6.0								
LIN. CHECK: SAT													
SU CABLE: 12' BNC-MCD													
COUPLANT: SONOTRACE 40 BATCH #8662	CAL. GAIN			30dB					35dB				

CALIBRATION CHECK

INITIAL TIME 2214 WHH

FINAL TIME 2245 WHH

CAL. BLOCK CPL-32

THICKNESS 1.048"

TEMP. 79°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
187	-1°F		PAR	NO	PAR		WELD CROWN, REDUCER CONFIGURATION	AS WELDED	X			AREA EXAMINED 0° DATUM CW TO 10" CW OF AREA THAT WAS NOT ACCESSIBLE DUE TO INSULATION

Richard B. Weber 4/28/87

ANII 4-29-87

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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: 151-206 Rev. 1

EXAMINER (LEVEL II): William H. Holley II Tuff & Ball I | DATE: 4-15-87

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8				
						DISTANCE FROM SCRIBE/REF. LINE TO					DISTANCE FROM SCRIBE/REF. LINE TO		
		CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE	SWEEP POSITION	PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	PEAK	50% DAC LOCATIONS	
INST. S/N: SONIC MARK I 05939E	S/N: C16353												
	SIZE: 0.25"												
	FREQ.: 5.0 MHz												
	ANGLE: 0°												
REP. RATE: 3K													
REJECT: OFF		½T	80%	3.7									
DAMPING: MIN		1T		8.0									
FILTER: HI													
LIN. CHECK: SAT													
SU CABLE: 12' BNC-MCD													
COUPLANT: SONOTRACE 40 BATCH# 8558	CAL. GAIN:	32dB											

CALIBRATION CHECK

INITIAL TIME 0400 WBH

FINAL TIME 0503 WBH

CAL. BLOCK: CPL-28

THICKNESS: .755"

TEMP.: 75°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
188	+2°F	PAR				PAR	WELD CROWN, REDUCER CONFIGURATION	AS WELDED	X			

Richard B. Weber 4/28/87
ANII
4-28-87

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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: 1SI-206 REV. 1

EXAMINER (LEVEL II): William D. Halley II Tim S Baldwin I | DATE: 4-15-87

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 11221E	S/N			56761					56761					INITIAL TIME 0417 WBH
	SIZE			0.5" X 0.5"					0.5" X 0.5"					
	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		
	1T			80%	2.0				80%	2.1				
DAMPING: MIN	2T			52%	4.0				70%	4.1				
FILTER: HI	3T			30%	6.0									FINAL TIME 0458 WBH
LIN. CHECK: SAT														
SU CABLE: 18' BNC-BNC														CAL. BLOCK CPL-28
COUPLANT: SONOTRACE 40 BATCH# 8558	CAL. GAIN			32 dB					39 dB					THICKNESS .755"
														TEMP. 75°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
188	+2°F		PAR	NO	PAR		WELD CROWN REDUCER CONFIGURATION, AT 40° FROM 0° DATUM INSULATED PIPE RESTRICTS EXAM AREA.	AS WELDED	X			

Richard B Kirby 4/28/87
ANII
4-28-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION
INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-219

SYST/COMP.: SIS + RHR RETURN 10"X8" REDUCER | PROCEDURE: 151-206 Rev. 1

EXAMINER (LEVEL II): William Y. Holley II, Paul J. Kovalle-I | DATE: 4-28-87

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 06209E	S/N			20176					20176					INITIAL TIME 2214 WYH
	SIZE			0.25"					0.25"					
	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			SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO			
REJECT: OFF						PEAK	50% DAC LOCATIONS				PEAK	50% DAC LOCATIONS		
DAMPING: MIN	1T			80%	2.0				80%	2.1				
FILTER: OFF	2T			35%	4.0				20%	4.3				
LIN. CHECK: SAT	3T			19%	6.0									FINAL TIME 2245 WYH
SU CABLE: 12' BNC-MCD														CAL. BLOCK CPL-32
COUPLANT: SONOTRACE 40 BATCH # 86602	CAL. GAIN			30dB					35dB					THICKNESS 1.048"
														TEMP. 79°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
188	-1°F		PAR	NO	PAR		WELD CROWN, REDUCER CONFIGURATION	AS WELDED	X			EXAMINED WITH A 10" CAL. BLOCK FOR INFORMATION ONLY
												Richard B. Weber 4/28/87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-219

SYST/COMP. SIS & RHR RETURN PROCEDURE ISI-11, REV. 10 FC 3

EXAMINER Paul J. Kovalle-II (LEVEL II) Ralph L Churchfield-I T QMC 4-29-87 DATE 4-15-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
184	X				73°F
187	X				77°F
188	X				77°F
				Richard B. Weber 4/18/87	
				John Juncosa ANII 4-19-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219

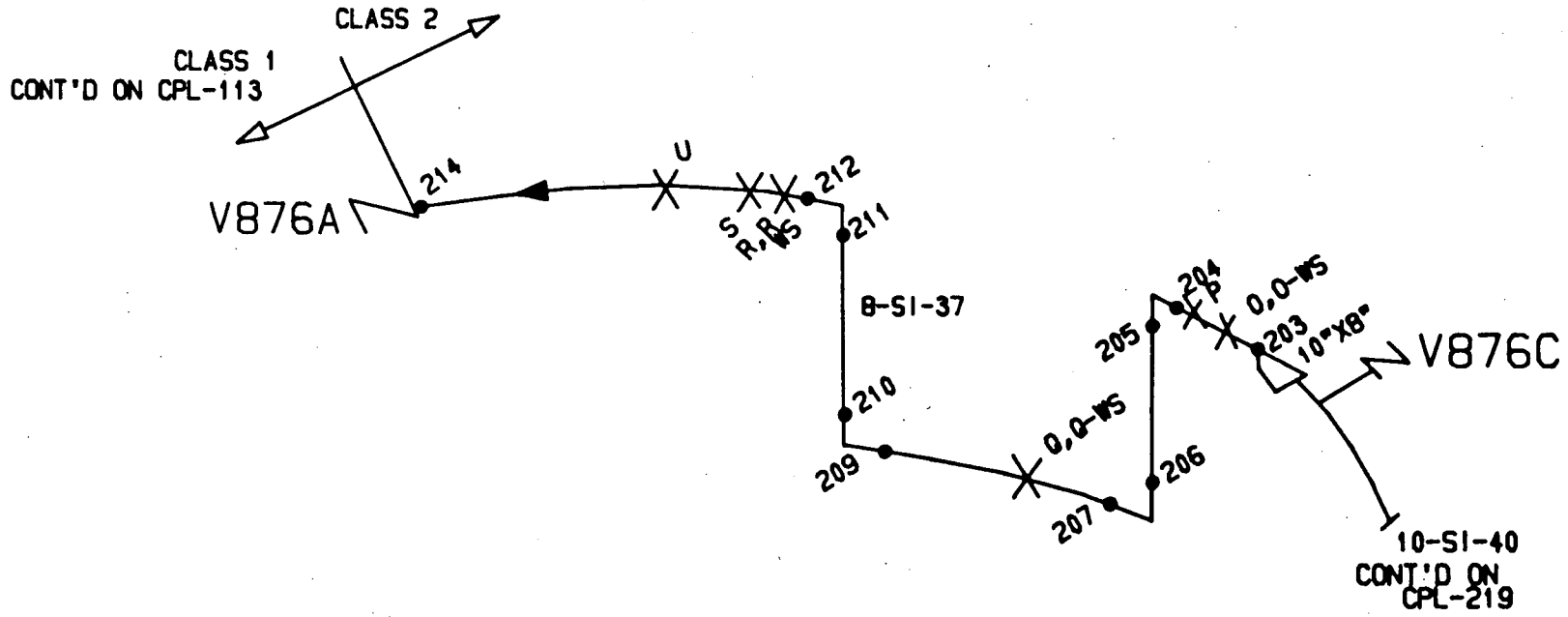
SYST/COMP SIS + RHR RETURN PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II LEVEL II Richard D. Weber II DATE 4-15-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E VT-3		X		FLASHLIGHT	MODERATE RUST AND RESIDUE
G VT-3	X			FLASHLIGHT	1950 3/8" SETTINGS
I VT-3	X			FLASHLIGHT	INSULATED AT PIPE CLAMP
L VT-3	X			FLASHLIGHT	BACK SIDE OF SUPPORT AT TOP OF ROD INACCESSIBLE
					Richard D. Weber 4/18/87
					John Furnyak ANII 4-19-87

FORM 45934B

WELDED SUPPORT
Q-WS
Q-WS



NOTES:

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: SIS & RHR RETURN	

SKETCH CPL 219A 157

EXAMINATION SUMMARY
FOR

1987

WESTINGHOUSE FOR. .62

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
71	O-WS				Too thin					X				See Tab F
71	S							X						
72	203	X			X									-

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-219A

SYST/COMP.: S I S & RHR RETURN | PROCEDURE: ISI-206 Rev. 1

EXAMINER (LEVEL II): William G. Halley II Tim S. Baldi I | DATE: 4-14-87 & 4-15-87

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 05939E	S/N: C16353											INITIAL TIME 2334 WHH
REP. RATE: 3K	SIZE: .25"											
REJECT: OFF	FREQ.: 5.0 MHz											
DAMPING: MIN	ANGLE: 0°											
FILTER: HI	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	
LIN. CHECK: SAT	1/2T	80%	3.7									
SU CABLE: 12' BNC-MCD	1T		8.0									FINAL TIME 0046 WHH
COUPLANT: SONOTRACE 40 BATCH# 8558	CAL. GAIN	33dB										CAL. BLOCK CPL-28
												THICKNESS .755"
												TEMP. 75°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
203	-5°F	PAR				PAR	WELD CROWN, REDUCER CONFIGURATION	AS WELDED	X			

Richard B. Weber 4/28/87

ANII 4-28-87

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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: 151-206 Rev. 1

EXAMINER (LEVEL II): William G. Halley II Twyg S Baldwin I | DATE: 4-14-87 & 4-15-87

EQUIPMENT	TRANSDUCER	STRAIGHT BEAM SCAN DIRECTION 0		AXIAL SCANS DIRECTIONS 2 & 5					CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8				
						DISTANCE FROM SCRIBE/REF. LINE TO					DISTANCE FROM SCRIBE/REF. LINE TO		
		CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	PEAK	50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	PEAK	50% DAC LOCATIONS	
INST. S/N Sonic MARK 1 11221E	S/N				56761					56761				
	SIZE				0.5" X 0.5"					0.5" X 0.5"				
	FREQ.				2.25 MHz					2.25 MHz				
	ANGLE				45°					45°				
REP. RATE 3K														
REJECT OFF	1T			80%	2.0				80%	2.1				
DAMPING MIN	2T			52%	4.0				70%	4.1				
FILTER HI	3T			30%	6.0									
LIN. CHECK SAT														
SU CABLE 18' BNC-BNC														
COUPLANT Sonotrace 40 BATCH# 8558	CAL. GAIN			32dB					39dB					

INITIAL TIME 2356 WEH

FINAL TIME 0051 WEH

CAL. BLOCK CPL-28

THICKNESS .755"

TEMP. 75°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
203	-5°F		PAR	NO	PAR		WELD CROWN, REDUCER CONFIGURATION	AS WELDED	X			

Richard B. Wesley 4/28/87

4-28-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219A

SYST/COMP. SIS + RHR RETURN PROCEDURE ISI-11, REV 10 FC3

EXAMINER Joseph D. Furnyak II Timothy J. Bolduc I DATE 4-15-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
203	X			AS WELDED CONDITION	70°F

Richard B. Weber 4/18/87

John Jarecki ANII 4-19-87

FORM 45935C

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219A

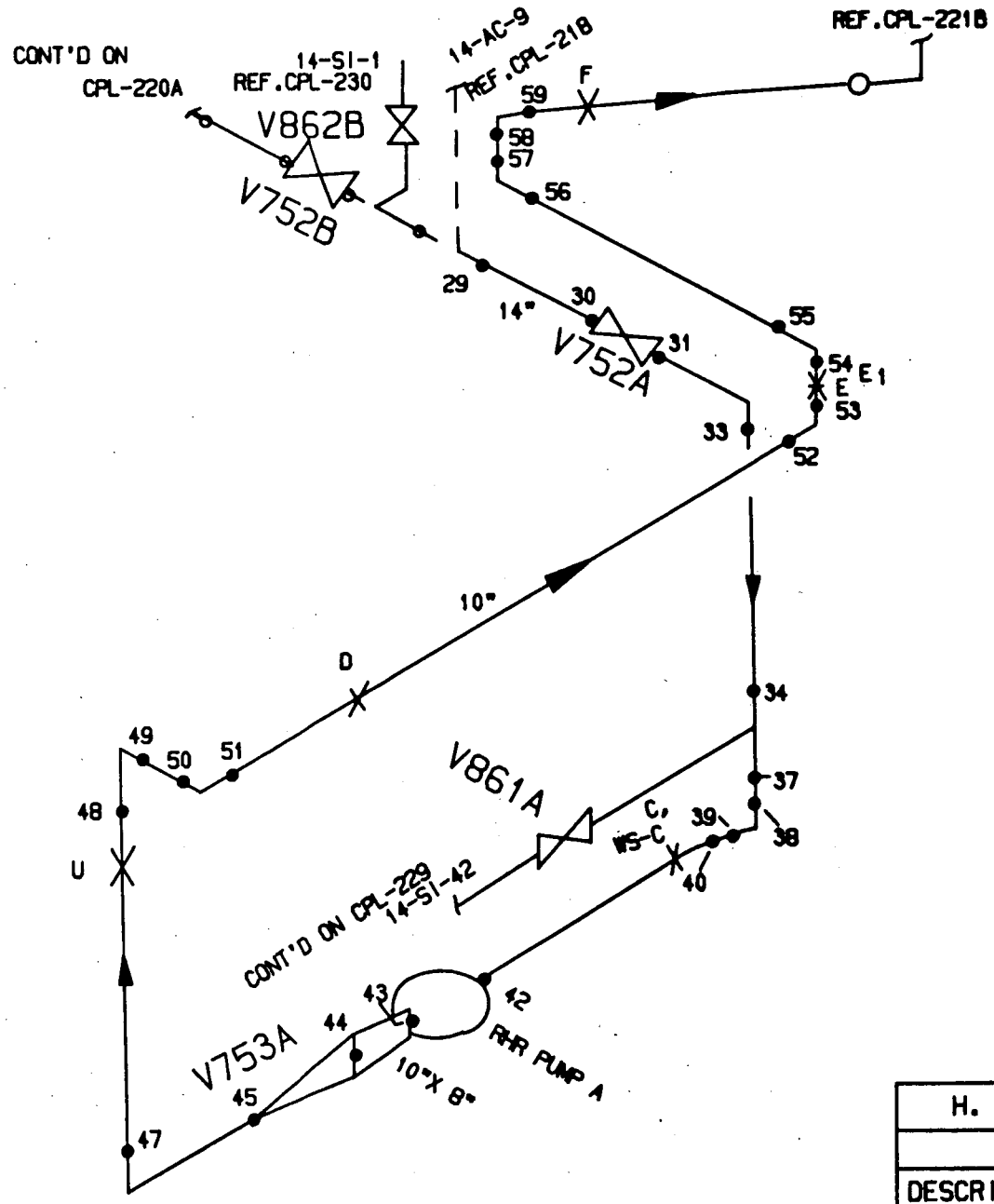
SYST/COMP SIS + RHR RETURN PROCEDURE ISI 8, REV. 9

EXAMINER Joseph J. Fenyak II LEVEL II DATE 4-15-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
O VT-3			X	FLASHLIGHT	2 BOLTS WITH LOOSE WASHERS ARE NOT TIGHT AGAINST WALL PLATE
S VT-3	X			FLASHLIGHT	

Richard B. Weber 4/18/87
John [illegible] ANII 4-19-87

FORM 45934B



SPRING HANGERS
D

SNUBBERS
C

WELDED SUPPORTS
C-WS

NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: LP.A-14" RESID.HEAT REMOVAL			
LINE NO. 14-AC-10	CPL-220	REV. 2	

SKETCH CPL 220 163

EXAMINATION SUMMARY
FOR
1987

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
73	E							X						
73	F									X				See Tab F
74	42						X							See Tab F
74	43						X							See Tab F

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-220

SYST/COMP. LP. A 14" RESID. HEAT REMOVAL PROCEDURE ISI-11, REV. 10 F.C. 3

EXAMINER Joseph S. Furnyak II TIR J. Ball I DATE 4-24-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
42			X	SEE INDICATION SHEET	70°F
43			X	SEE INDICATION SHEET	70°F

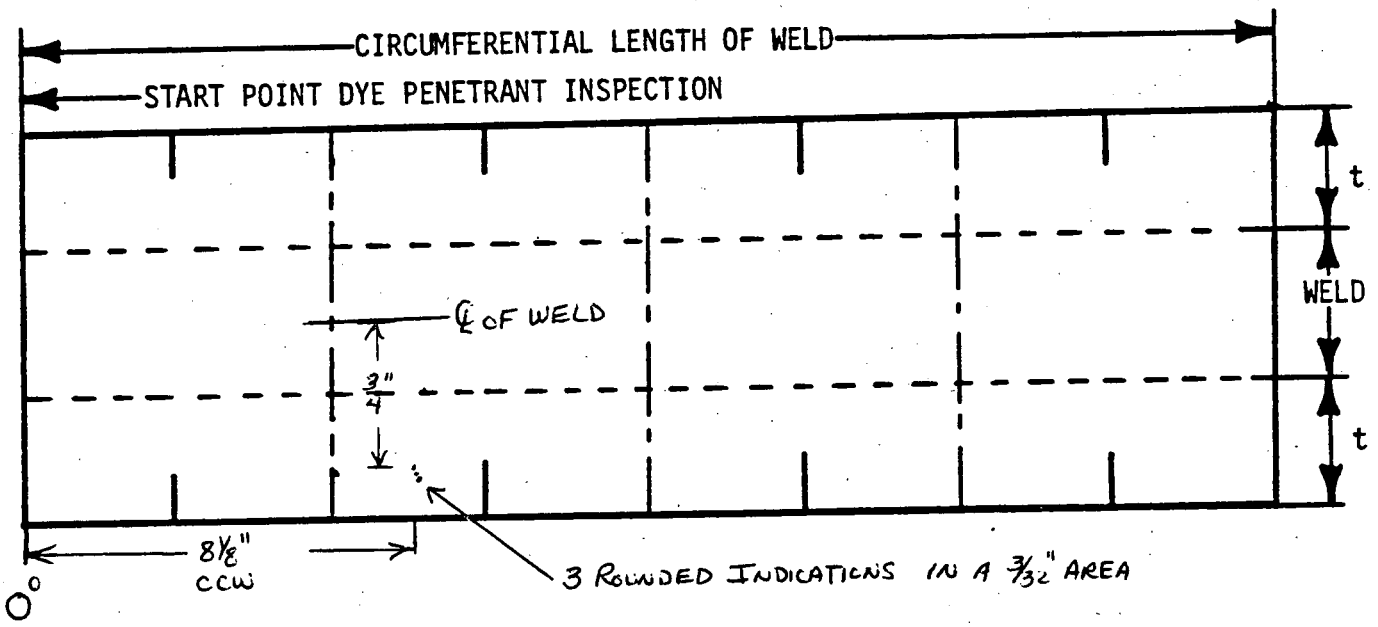
Richard B. Weber 4/25/87
John Jarrard ANII
4-27-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI 11, REV. 10 EC. 3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: Joseph J Furyak II DATE: 4-24-87



REMARKS: 2 SIDE OF WELD

COMPONENT/PIPING SYSTEM LP-A 14" RESID. HEAT REMOVAL

WELD NO. 42

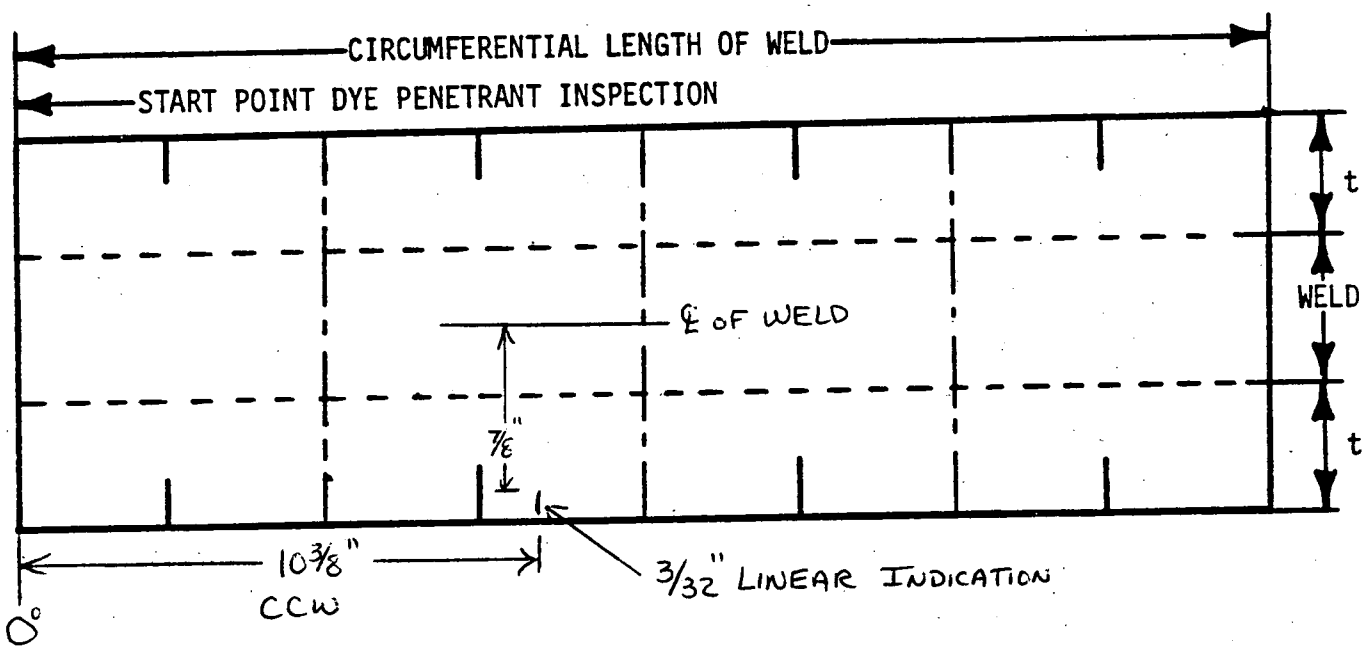
ISO/SKETCH NO. CPL-220

Richard B. Weber 4/25/87
John Jarrett ANII
4-27-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI 11, REV. 10 F.C-3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: Joseph J. Furyak II DATE: 4-24-87



REMARKS: 5 SIDE OF WELD

COMPONENT/PIPING SYSTEM LP-A 14" RESID. HEAT REMOVAL

WELD NO. 43

ISO/SKETCH NO. CPL-220

Richard B. Weber 4/25/87
ANII
4-27-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-220

SYST/COMP LP A-14" RESID. HEAT REMOVAL PROCEDURE ISI-8, REV.9

EXAMINER Joseph G Furnyak II DATE 4-24-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E VT-3	X			FLASHLIGHT	
F VT-3			X	FLASHLIGHT	BOTH SUPPORT ROD ARE LOOSE, NUTS ARE TIGHT.
					Richard B. Weber 4/24/87
					John Jarrard ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-220

SYST/COMP LP. A-14" RESID. HEAT REMOVAL PROCEDURE ISE-8, REV. 9

EXAMINER Joseph D. Fumyak II Tim J. Ball I DATE 4-29-87
LEVEL II

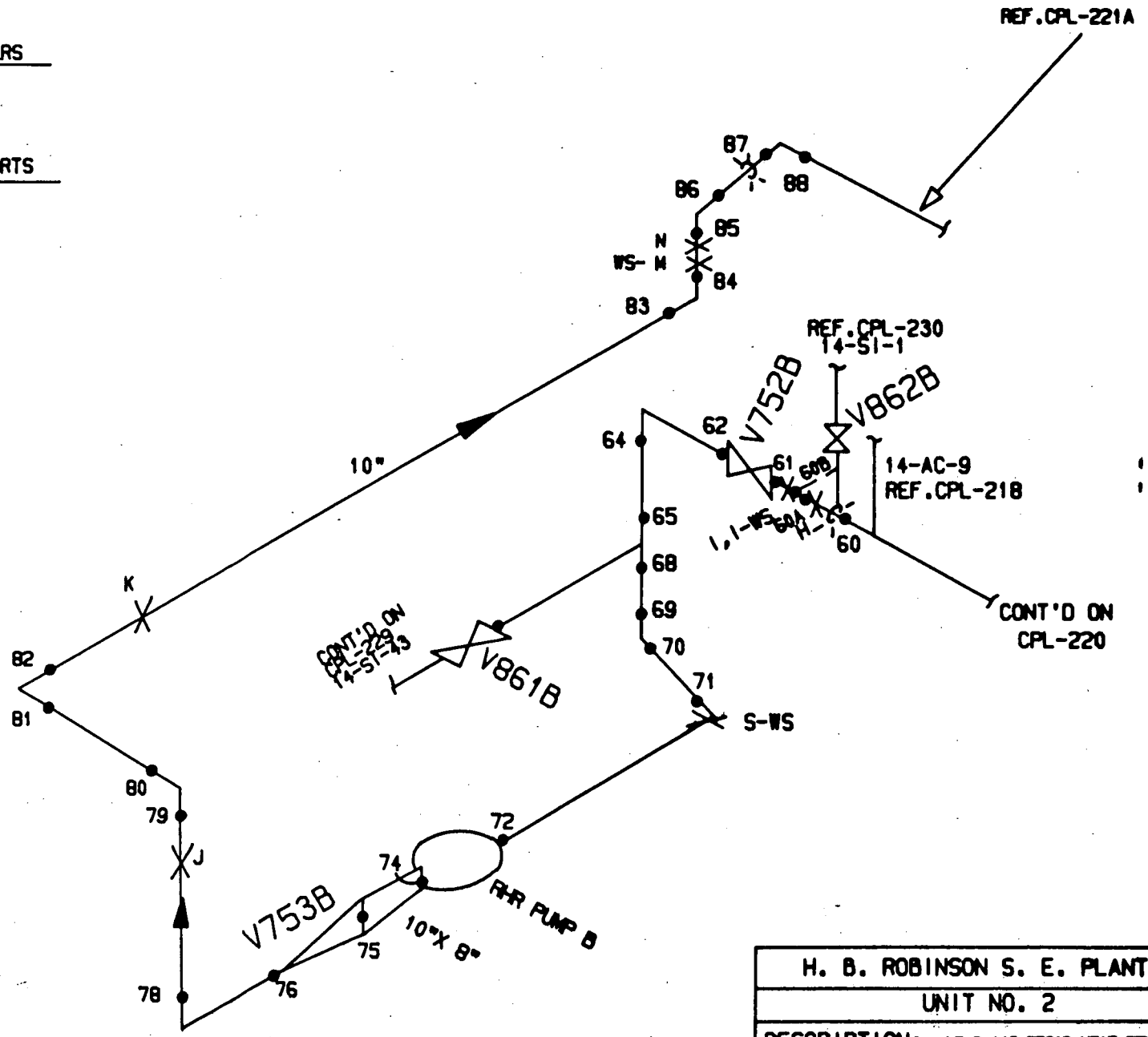
IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
F VT-3		X		FLASHLIGHT	LIGHT RUST. AFTER REWORK

Richard B. Weber 4/29/87

John J. Jones ANII 4-29-87

FORM 459348

SPRING HANGERS
K,O,P
SNUBBERS
H,I,S
WELDED SUPPORTS
I-WS
M-WS
S-WS



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: LP.B-14" RESID.HEAT REMOVAL			
LINE NO. 14-AC-11	CPL-220A	REV.	2

WESTINGHOUSE FORM 46762

SKETCH CPL 220A **170**

EXAMINATION SUMMARY
FOR

1987

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
75	H							X						
75	N							X						
76	62					X								
76	74					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-220A

SYST/COMP. LP-B 14" RESID. HEAT REMOVAL PROCEDURE ISI-11, Rev. 10 F.C. 3

EXAMINER Joseph D. Furnish II FOR J. R. Ball I DATE 4-25-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
62		X			70°F
74		X			70°F
				Richard B. Weber 4/25/87	
				John Jamieson ANII	
				4-27-87	

FORM 46935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-220A

SYST/COMP LP-B 14" RESID. HEAT REMOVAL PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Tunyak II DATE 4-24-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
H VT-3	X			FLASHLIGHT	
N VT-3	X			FLASHLIGHT	

Richard B. Weber 4/25/87
ANII
4-27-87

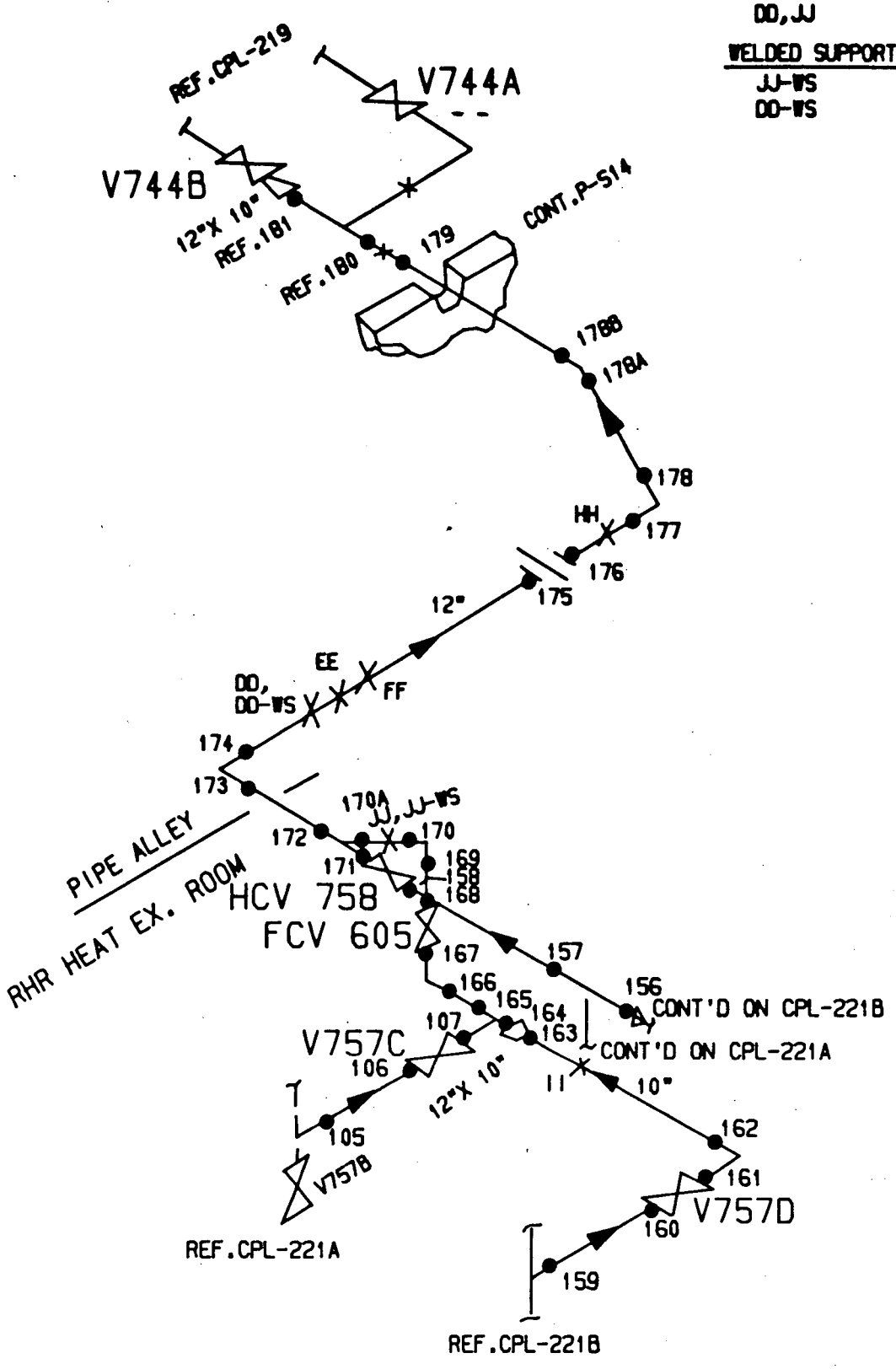
FORM 45934B

SPRING HANGERS

DD, JJ

WELDED SUPPORTS

JJ-WS
DD-WS



NOTES:

H.B. ROBINSON S.E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SIS & RHR RETURN			
LINE NO. 12-AC-3	CPL-221 REV.	2	

WESTINGHOUSE FORM 46762

SKETCH CPL 221 174

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
77	DD								X					
97	II								X					
78	167					X								
78	174					X								

175

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221

SYST/COMP. SIS & RHR RETURN PROCEDURE ISI-11, REV.10 FC 3

EXAMINER Paul J. Kovalle-II (LEVEL II) Kenneth Mical I DATE 4-19-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
174		X		BROWN RESIDUE FOUND ON WELD AND BASE METAL, 360° INTERMITENT, CLEANERS WERE UNABLE TO REMOVE IT. DID NOT INTERFERE WITH EXAM.	89°F
				Richard B. Weber 4/21/87	
				John Howard ANII 4-22-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH GPL-221

SYST/COMP. SIS and RHR RETURN PROCEDURE ISI-11 REV. 10 F.C 3

EXAMINER William G. Halley II LEVEL II Kenneth Mead I DATE 4-19-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
167		X		AS WELDED	68° F

Richard B. Weber 4/21/87
John Jarrard ANII
4-22-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221

SYST/COMP SIS + RHR RETURN PROCEDURE IST-8 REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
II VT-3		X		FLASHLIGHT	LT. RUST
					Richard B. Weber 4/29/87
					John Jarrard AN II 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT II SKETCH CPL-221

SYST/COMP SIS + RHR RETURN PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-17-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
DD VT-3		X		FLASHLIGHT	SETTINGS WALLSIDE 1250 - 1 1/16" OUTSIDE 1190 - 0"

Richard B. Weber 4/18/87

John Jansen ANII 4-19-87

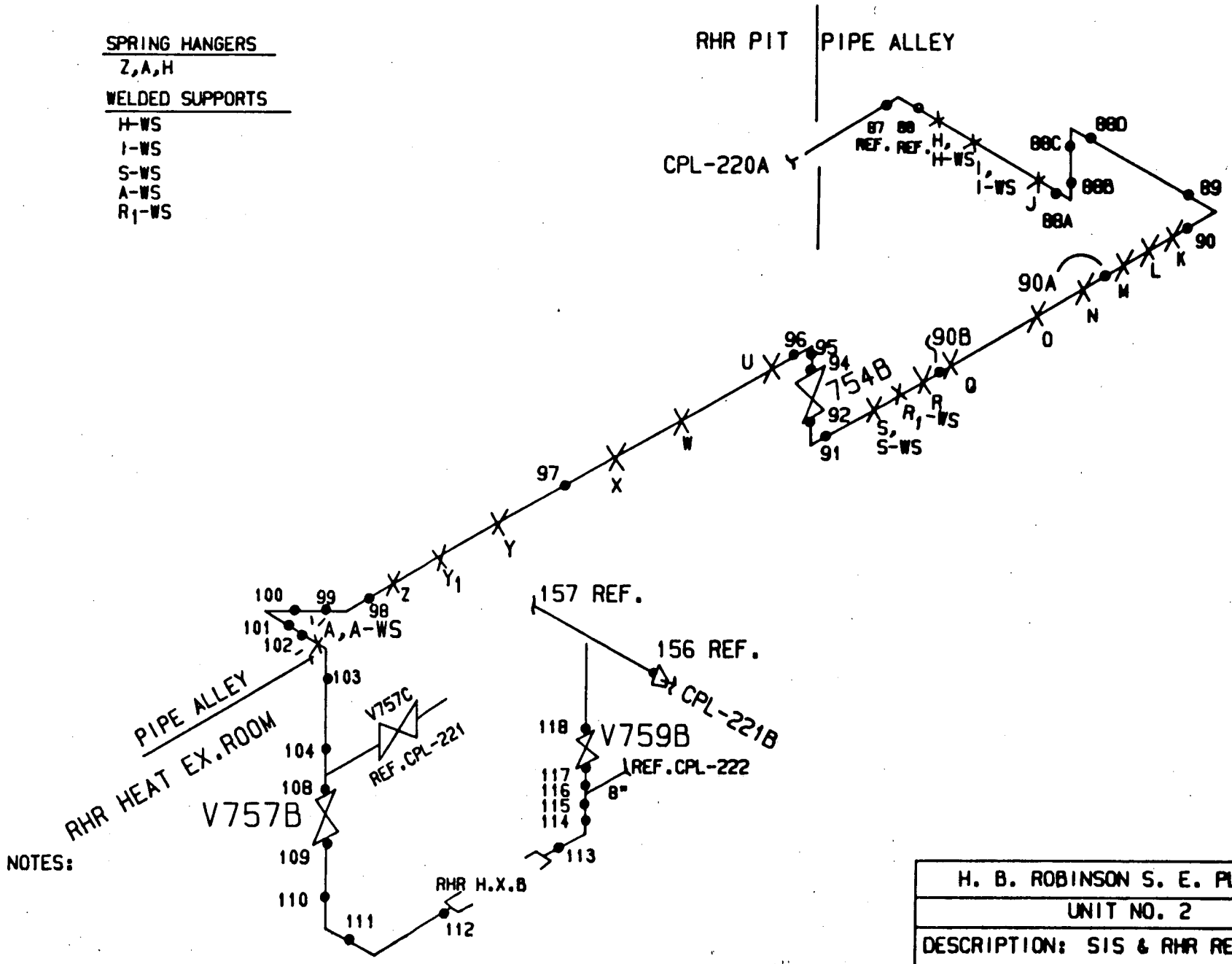
FORM 45934B

SPRING HANGERS

Z, A, H

WELDED SUPPORTS

H-WS
I-WS
S-WS
A-WS
R_1-WS



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SIS & RHR RETURN			
LINE NO. 10-AC-1	CPL-221A	REV. 2	

SKETCH CPL 221A **180**

EXAMINATION SUMMARY
FOR

1987

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
79	K									X				See Tab F
79	L							X						
79	M							X						
79	N									X				See Tab F
79	O							X						
79	I							X						
80	95						X							See Tab F
80	96						X							See Tab F
80	98				X									
80	99				X									

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221A

SYST/COMP. SIS & RHR RETURN PROCEDURE ISI-11 REV. 10 F.C.3

EXAMINER [illegible] II Timothy J Belch I DATE 4-19-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
95			X	① ARC STRIKE 4 3/4" CW, 9/16" FROM TOE OF WELD, 5/32" ROUNDED, ELBOW SIDE	86° F
				② ARC STRIKE 5 1/4" CW, 3/8" FROM TOE OF WELD, 1/8" ROUNDED, ELBOW SIDE	
96			X	① ARC STRIKE 6 3/4" CW, 5/8" FROM TOE OF WELD, 3/4" LONG, ELBOW SIDE	86° F
				② ARC STRIKE 10 3/8" CW, 1/2" FROM TOE OF WELD, 1/8" ROUNDED, ELBOW SIDE	

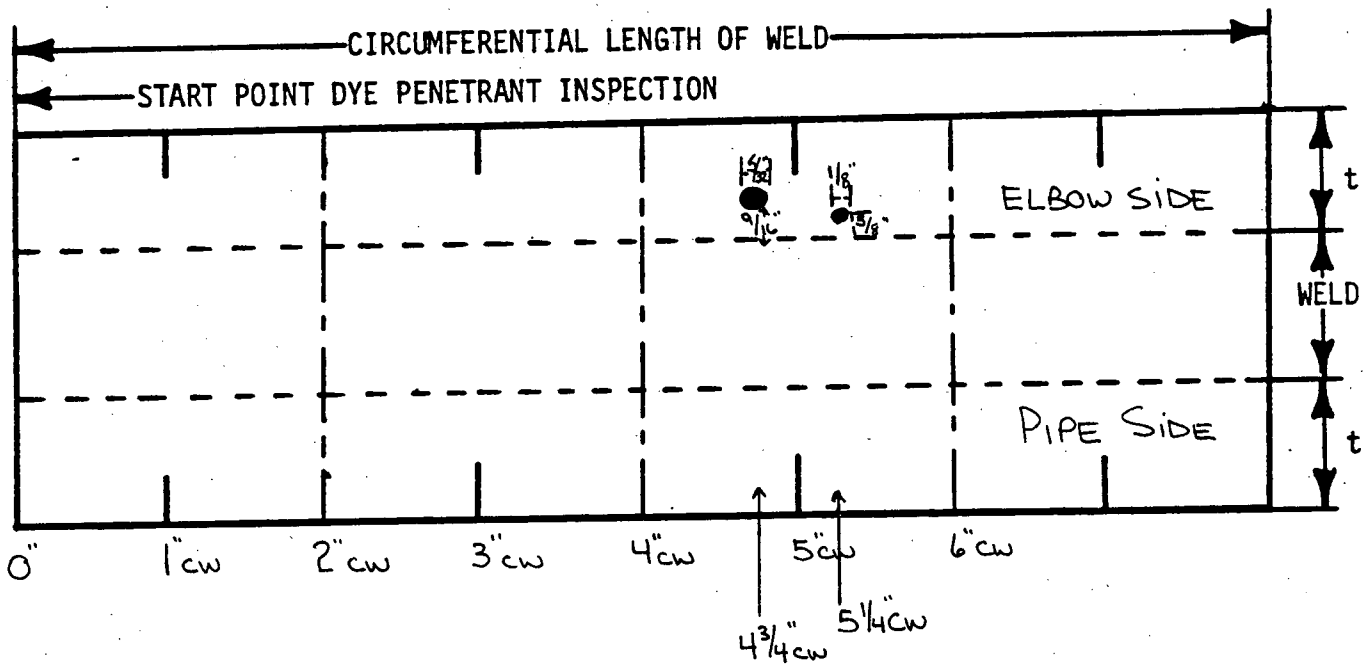
Richard B. Weber 4/23/87
[illegible] ANII
4-23-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI-11 REV.10 F.C. 3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: [illegible] DATE: 4-19-87



REMARKS: ARC STRIKES

COMPONENT/PIPING SYSTEM SIS + RHR RETURN

WELD NO. 95

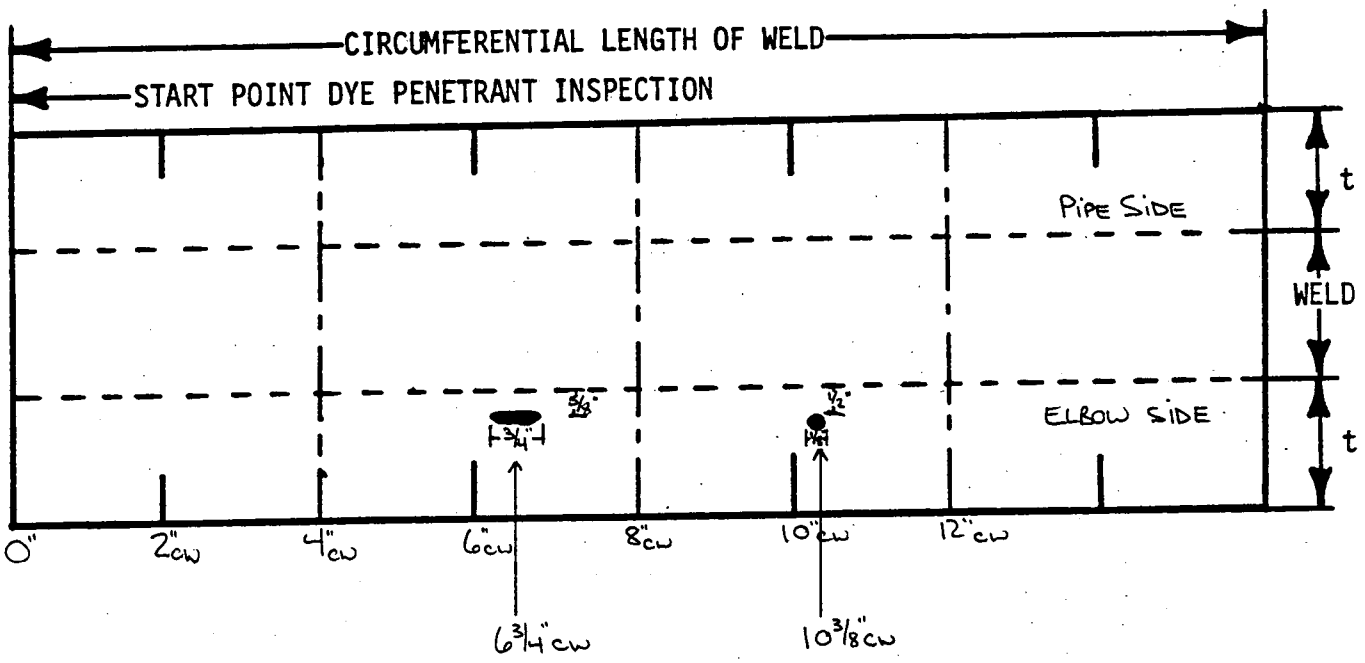
ISO/SKETCH NO. CPL-221A

Richard B. Weber 4/23/87
ANII 4-23-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI-11 REV. 10 F.C. 3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: [illegible] DATE: 4-19-87



REMARKS: ARC STRIKES

COMPONENT/PIPING SYSTEM SIS+RHR RETURN

WELD NO. 96

ISO/SKETCH NO. CPL-221A

Richard B. Weber 4/23/87
ANII
4-23-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221A

SYST/COMP. SIS & RHR RETURN PROCEDURE ISI-11, REV. 10 FC 3

EXAMINER Paul J. Kovallo-II (LEVEL II) Robert W. Hughes-II DATE 4-17-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT -
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
98	X				77°F

Richard B. Weber 4/18/87
John Durand ANII 4-19-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221A

SYST/COMP. SIS & RHR RETURN PROCEDURE ISI-11, REV.10 FC 3

EXAMINER Paul J. Kovalo-II LEVEL II Robert W. Douglas IT DATE 4-18-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
99	X				77°F

Richard B. Weber 4/18/87
John Jaccard ANII 4-19-87

FORM 46935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221A

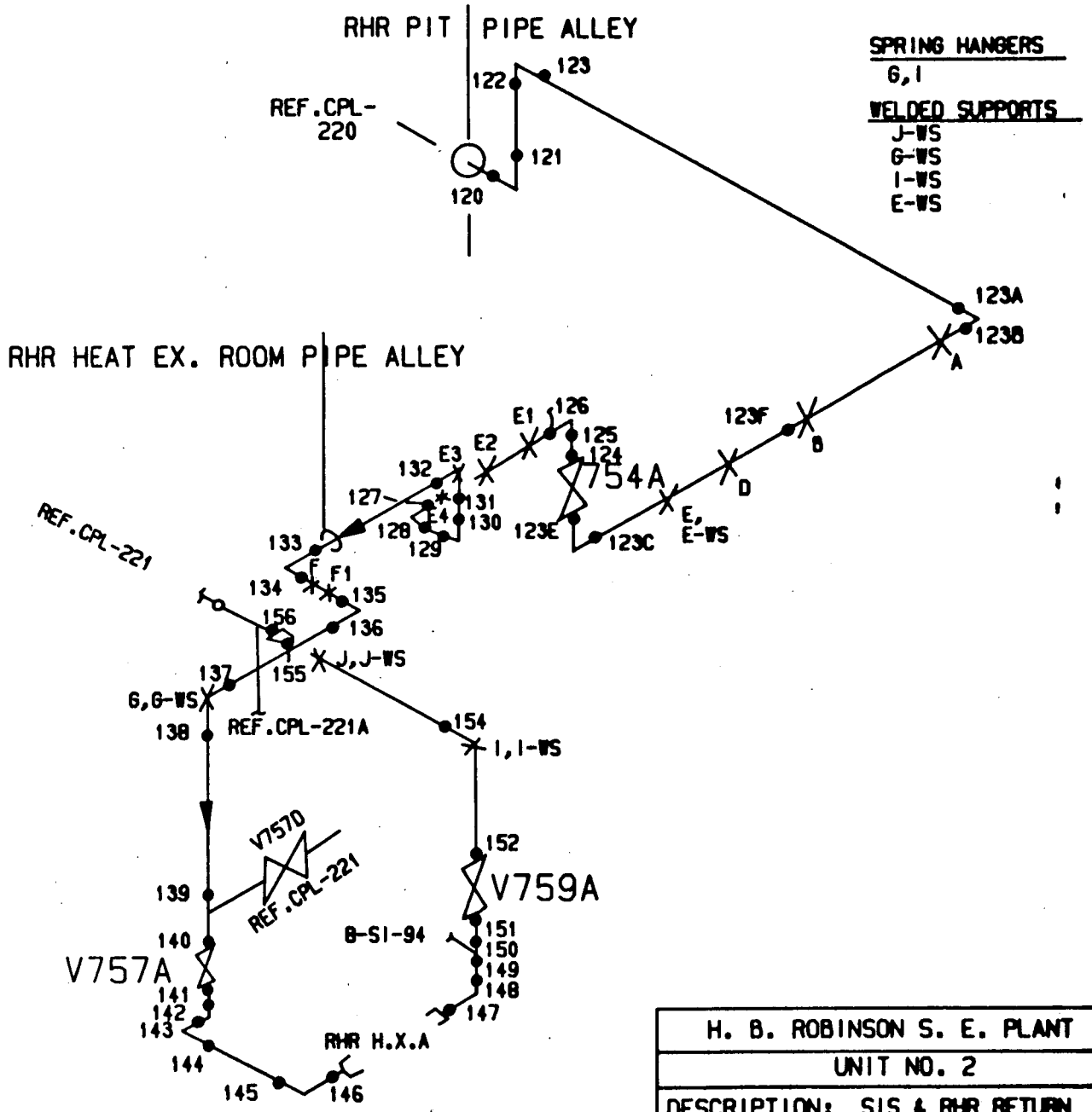
SYST/COMP SIS+RHR RETURN PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Fennyak II DATE 4-17-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
I VT-3	X			FLASH LIGHT	
K VT-3			X	FLASHLIGHT	BOTTOM OF PIPE CLAMP NUT NOT FULLY ENGAGED. THE WHOLE SUPPORT IS LOOSE
L VT-3	X			FLASHLIGHT	
M VT-3	X			FLASHLIGHT	
N VT-3			X	FLASHLIGHT	BOTTOM OF PIPE CLAMP NUT NOT FULLY ENGAGED
O VT-3	X			FLASHLIGHT	

Richard B. Weber 4/23/87
ANII
4-23-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT	CP&L
UNIT NO. 2	
DESCRIPTION: SIS & RHR RETURN	

WESTINGHOUSE FORM 46762

SKETCH CPL 221B

EXAMINATION SUMMARY
FOR
1987

PROGRAM REF.	SKETCH REF.	UT			PT			VT						
(SEE TAB C)	IDENT. NO.	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	REMARKS
81	D							X						
81	G									X				see tab F
82	123A					X								
82	123B					X								
82	123C					X								
82	123E					X								
82	155					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-221B

SYST/COMP. SIS and RHR RETURN PROCEDURE ISI-11 REV. 10 F.C. 3

EXAMINER William L. Talley II Kenneth Mead I DATE 4-19-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86JD18
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
155		X		AS WELDED	68° F

Richard B. Weber 4/21/87
John Hancock ANII 4-22-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221B

SYST/COMP. SIS & RHR RETURN PROCEDURE ISI-11, REV. 10 FC 3

EXAMINER Paul J. Kovalle-II (LEVEL II) Robert W. Hughes IT DATE 4-17-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT -

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

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

Richard B. Weber 4/18/87

AN II 4-19-87

FORM 45935C

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221B

SYST/COMP. SIS & RHR RETURN PROCEDURE ISI-11, REV. 10 F.C. 3

EXAMINER [illegible] LEVEL II Timothy & Ralph I DATE 4-18-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
123B		X			67°F
123C		X			67°F
123E		X			67°F
				Richard B. Weber 4/18/87	
				John Howard 4-1987 ANII	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-221B

SYST/COMP SIS + RHR RETURN PROCEDURE ISI-8, REV-9

EXAMINER Joseph J Furnyak II DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
G VT-3			X	FLASHLIGHT	SUPPORT ROD IS LOOSE. UNABLE TO GET TO SPRING CAN TO TAKE SETTINGS
					Richard B. Weber 4/29/87
					John Hancock ANII
					4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-221B

SYST/COMP SIS + RHR RETURN PROCEDURE ISI-8, REV 9

EXAMINER Joseph D. Furyak II LEVEL II DATE 4-17-87

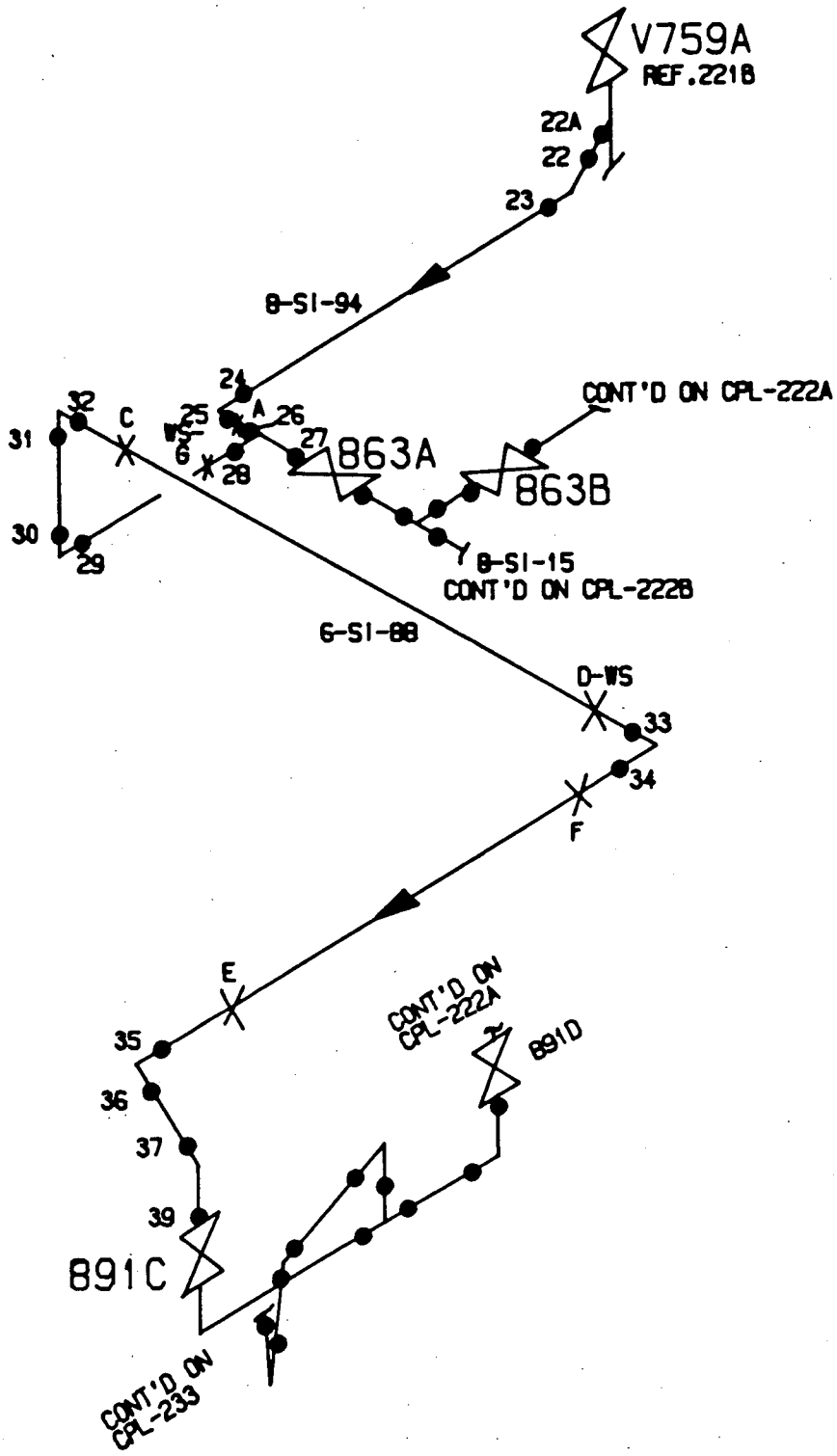
IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
D VT-3	X			FLASHLIGHT	

Richard B. Weber 4/18/87
John [illegible] ANII
4-19-87

FORM 45934B

WELDED SUPPORTS

6-WS
D-WS



NOTES:

H.B. ROBINSON S.E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION:		
LINE NO. 6-SI-84	CPL- 222 REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 222 195

EXAMINATION SUMMARY
FOR
1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
83	D-WS							X						
83	E							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

196

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-222

SYST/COMP SAFETY INJECTION PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-17-87
LEVEL II

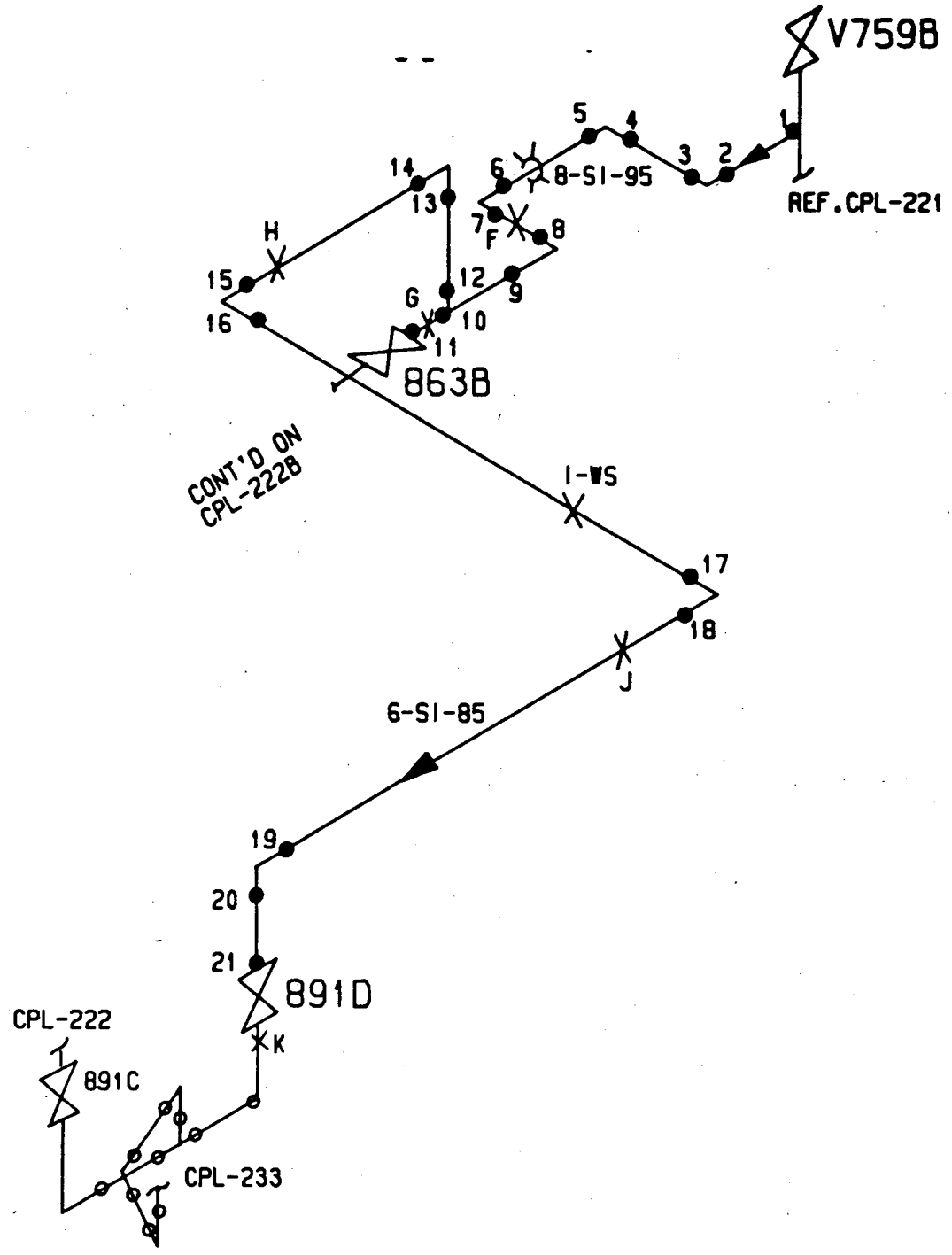
IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D-WS VT-3	X			FLASH LIGHT	
E VT-3	X			FLASH LIGHT	

Richard B. Weber 4/18/87
John Jennaro ANII
4-19-87

FORM 45934B

WELDED SUPPORT

I-WS



NOTES:

H.B. ROBINSON S.E. PLANT			C
UNIT NO. 2			P
DESCRIPTION:			&
LINE NO. 6-SI-85	CPL-222A REV.	2	L

SKETCH CPL 222A **198**

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
84	G							X						
84	H							X						
85	3					X								
85	17					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL - 222A

SYST/COMP. SIS and RHR RETURN PROCEDURE ISI - 11 REV. 10 F.C. 3

EXAMINER William L. Halley II LEVEL II Kenneth Mead I DATE 4-19-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
3		X		AS WELDED	65° F
				Richard B. Weber 4/21/87	
				John Hancock ANII 4-22-87	

FORM 45935C

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

200

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH C PL-222A

SYST/COMP. SAFETY INJECTION PROCEDURE ISI-11, REV.10 FC 3

EXAMINER Paul J. Kovalls II Richard W. Hughes IT DATE 4-18-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85K045
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
17		X			66°F

Richard B. Weber 4/18/87
ANII
4-19-87

FORM 45935C

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-222A

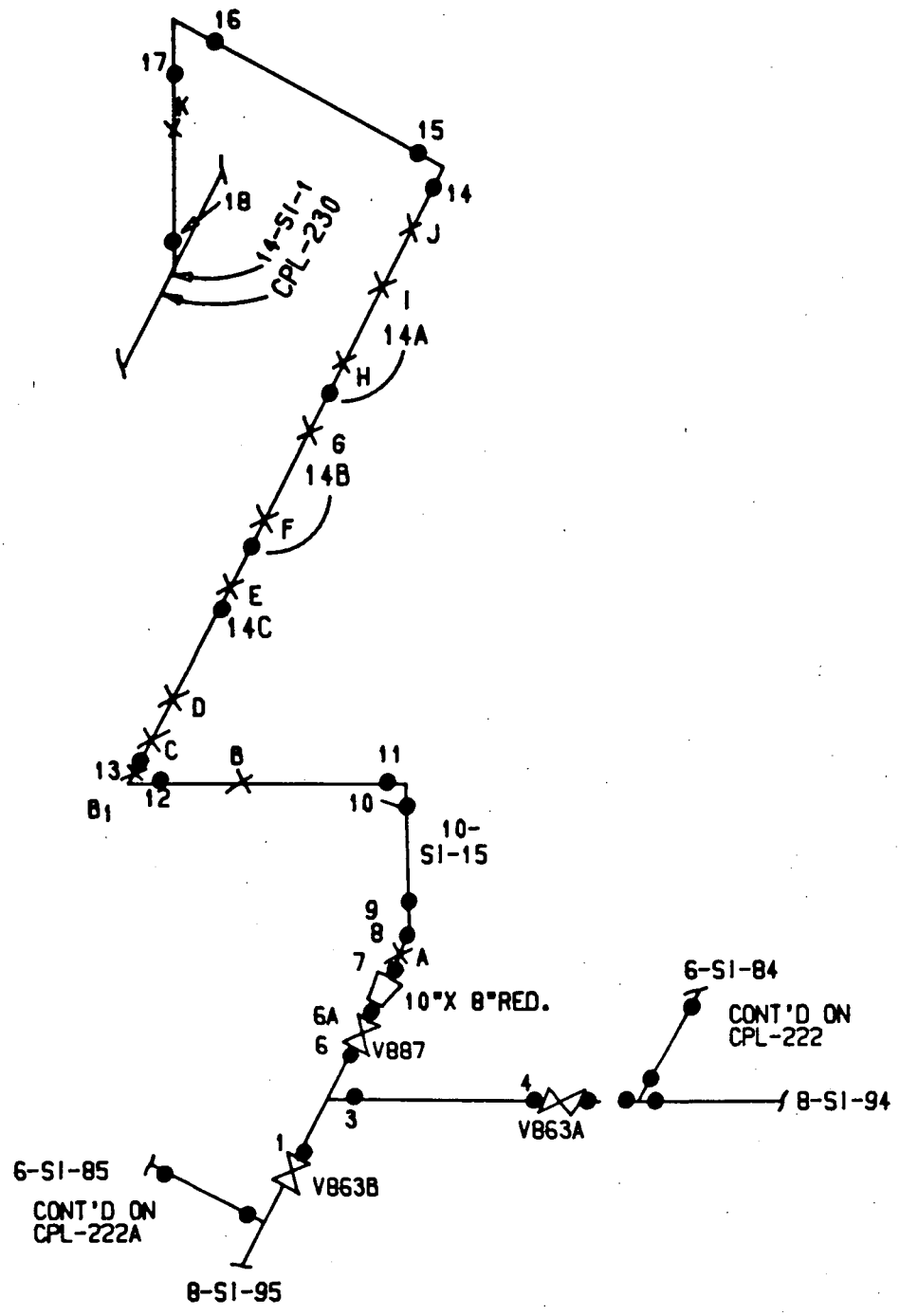
SYST/COMP SAFETY INJECTION PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Funyak II LEVEL II DATE 4-17-87

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
G VT-3	X			FLASHLIGHT	
H VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/18/87
					John [illegible] ANII 4-19-87

FORM 45934B

PIPE ALLEY



NOTES:

H.B. ROBINSON S.E. PLANT			
UNIT NO. 2			
DESCRIPTION:			
LINE NO. 10-SI-15	CPL- 222B	REV.	3

SKETCH CPL 222B **203**

EXAMINATION SUMMARY
FOR
1987

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
86	E							X						
86	F							X						
86	G							X						
86	H									X				See Tab F
87	15					X								
87	6					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-222B

SYST/COMP. SAFETY INJECTION PROCEDURE ISI-11 REV.10 F.C. 3

EXAMINER W.M. Tim & Ralph I DATE 4-17-87
LEVEL II

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
15		X		BROWN RESIDUE FOUND ON WELD AND BASE METAL, 360° INTERMITTENT, CLEANERS WERE UNABLE TO REMOVE IT. DID NOT INTERFERE WITH EXAM.	70° F

Richard B. Weber 4/18/87
John Jarrard AN II
4-19-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-222 R

SYST/COMP. SAFETY INJECTION PROCEDURE ISI-11 REV. 10 F.C.3

EXAMINER Paul J. Karalle-II LEVEL II Timothy J. Rolph I DATE 4-16-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
6		X			68°F

Richard B. Nebe 4/18/87

ANII 4-19-87

FORM 45938C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

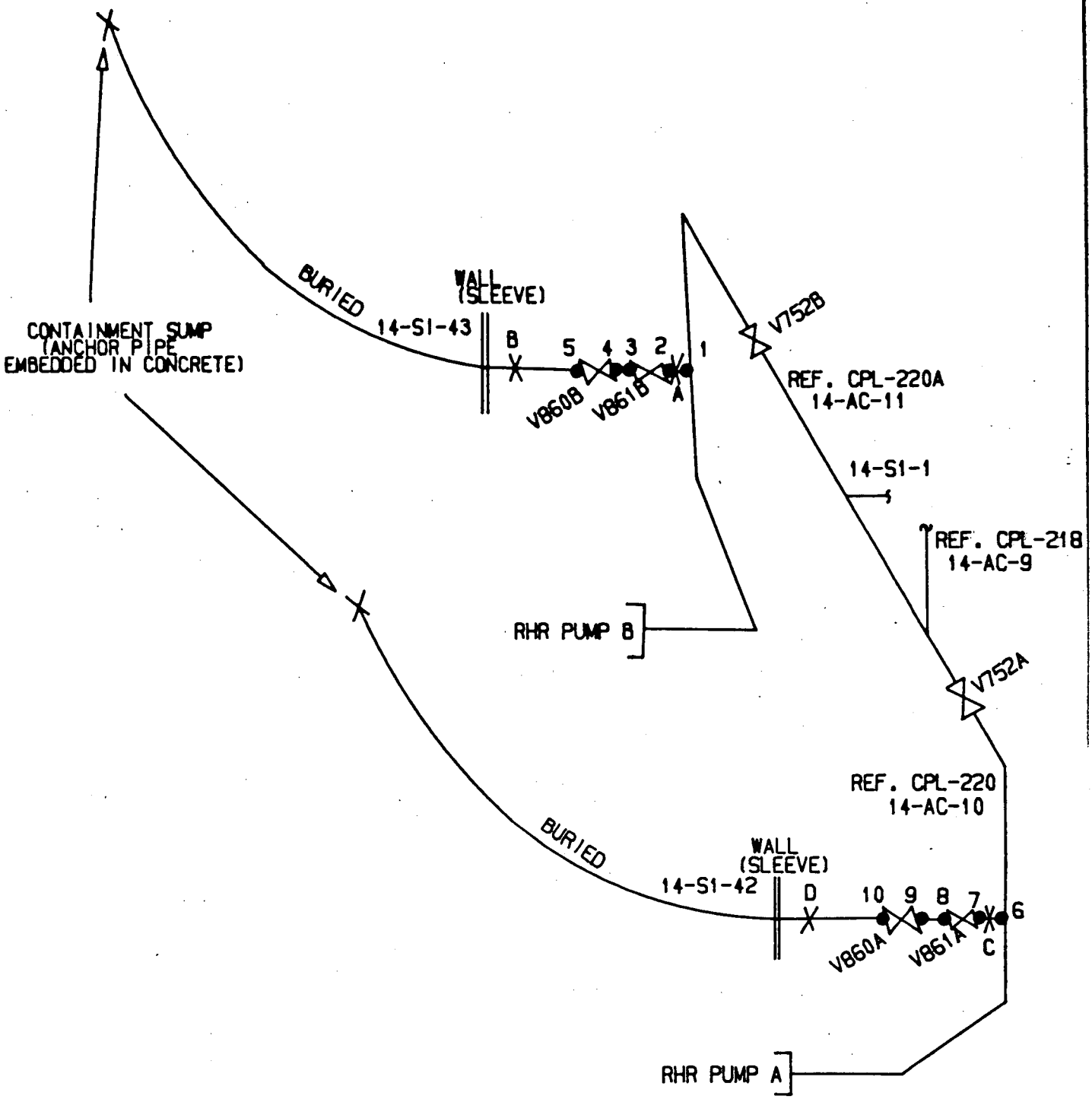
PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-222B

SYST/COMP SAFETY INJECTION PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Fennyak II (LEVEL II) DATE 4-18-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E VT-3	X			FLASHLIGHT	
F VT-3	X			FLASHLIGHT	
G VT-3	X			FLASHLIGHT	
H VT-3			X	FLASHLIGHT	NUTS ARE NOT TIGHT AGAINST PLATES AN C-CLAMP NOTE: C-CLAMP IS A U-BOLT.
					Richard B. Weber 4/18/87 John Hayward ANII 4-19-87

FORM 459348



NOTES:

H.B. ROBINSON S.E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: 14"-CV SUMP TO RHR PUMP		
LINE NO. 14-S1-42	CPL-229 REV. 1	

SKETCH CPL 229 209

EXAMINATION SUMMARY
FOR

1987

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

WESTINGHOUSE FORM 46762

208

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

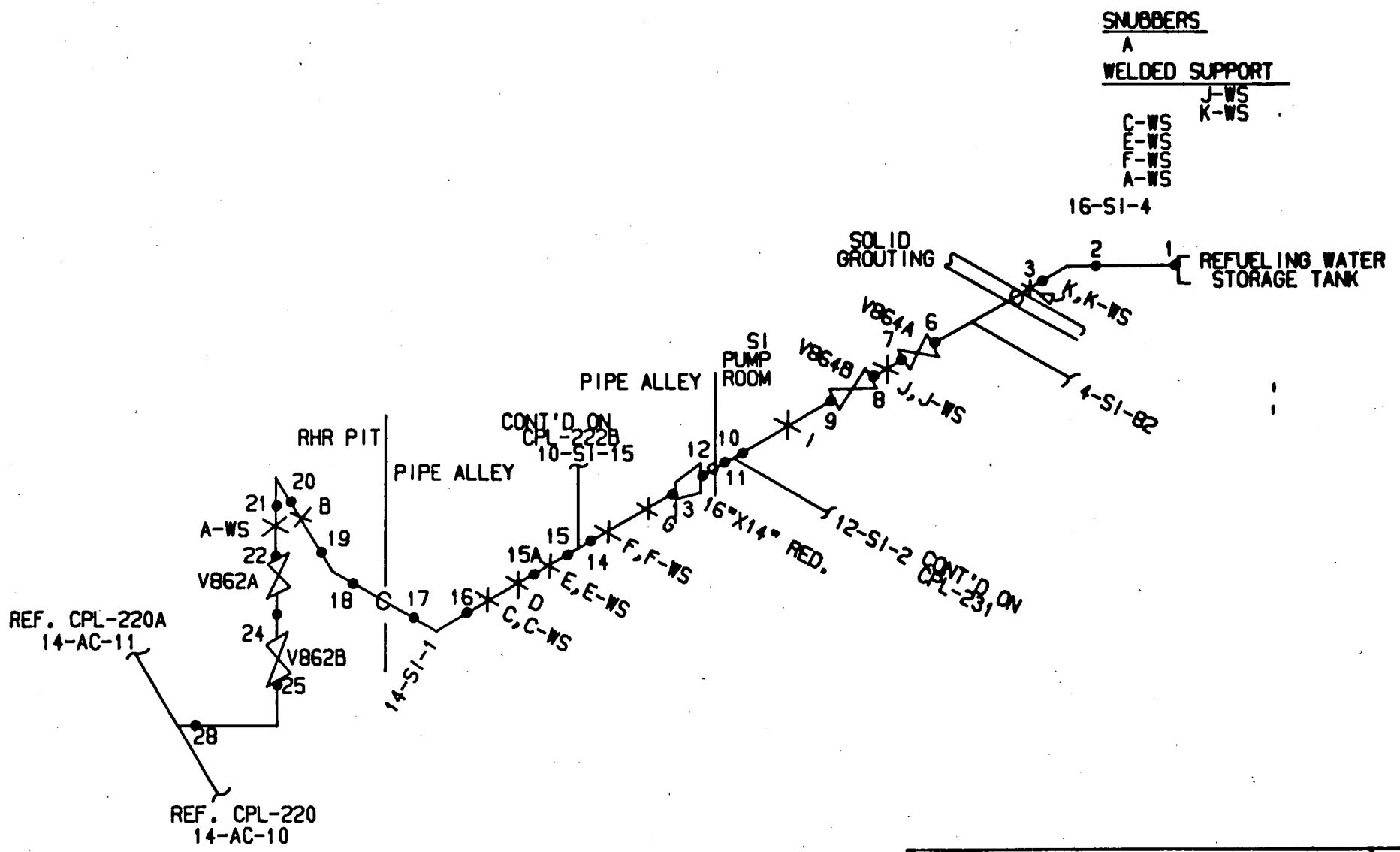
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-229

SYST/COMP 14" - CV SUMP TO RHR PUMP PROCEDURE ISI-8, REV 9

EXAMINER Joseph J. Fennyak II Kenneth Meade I DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
C VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
					REMOTE AT TOP OF SUPPORT ROD.
					Richard B. Weber 4/28/87
					John Jennard ANII
					4-29-87

FORM 459348



NOTES:

H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: RHR PUMPS TO RWS TANK		
LINE NO. 16-SI-4	CPL- 230 REV.	2

CP&L

SKETCH CPL 230 211

EXAMINATION SUMMARY
FOR
1987

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	J-WS							X						Not Welded
890	D							X						
896	E									X				See Tab F
90	3					X								
90	10					X								
90	16					X								

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-230

SYST/COMP. RHR PUMPS TO RWS TANK PROCEDURE ISI-11, REV. 10, F.C. 3

EXAMINER Joseph D Furnyak II LEVEL II Kenneth Mical I DATE 4-21-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
3		X		AS WELDED	62°F
				Richard B. Weber 4/23/87	
				ANII 4-23-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-230

SYST/COMP. RHR PUMPS TO RWS TANK PROCEDURE ISI 11 REV. 10 F.C. 3

EXAMINER Paul J. Kovalls-II Timothy J. Baloh I (LEVEL II) DATE 4-22-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
10		X			66° F°

Richard B. Nebel 4/23/87
John Jumonville ANII 4-23-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-230

SYST/COMP. RHR PUMPS TO RWS TANK PROCEDURE ISI-11 REV. 10 EC 3

EXAMINER Paul J. Kovallo-II (LEVEL II) Kenneth Mical I DATE 4-19-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T

EQUIPMENT -

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	REMARKS	TEMP. F°
16		X			76° F
				Richard B. Nelson 4/21/87	
				John Kennedy ANII 4-22-87	

FORM 46935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-230

SYST/COMP RHR PUMPS TO RWS TANK PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-23-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
J, J-WS VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/24/87
					John Norwood ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

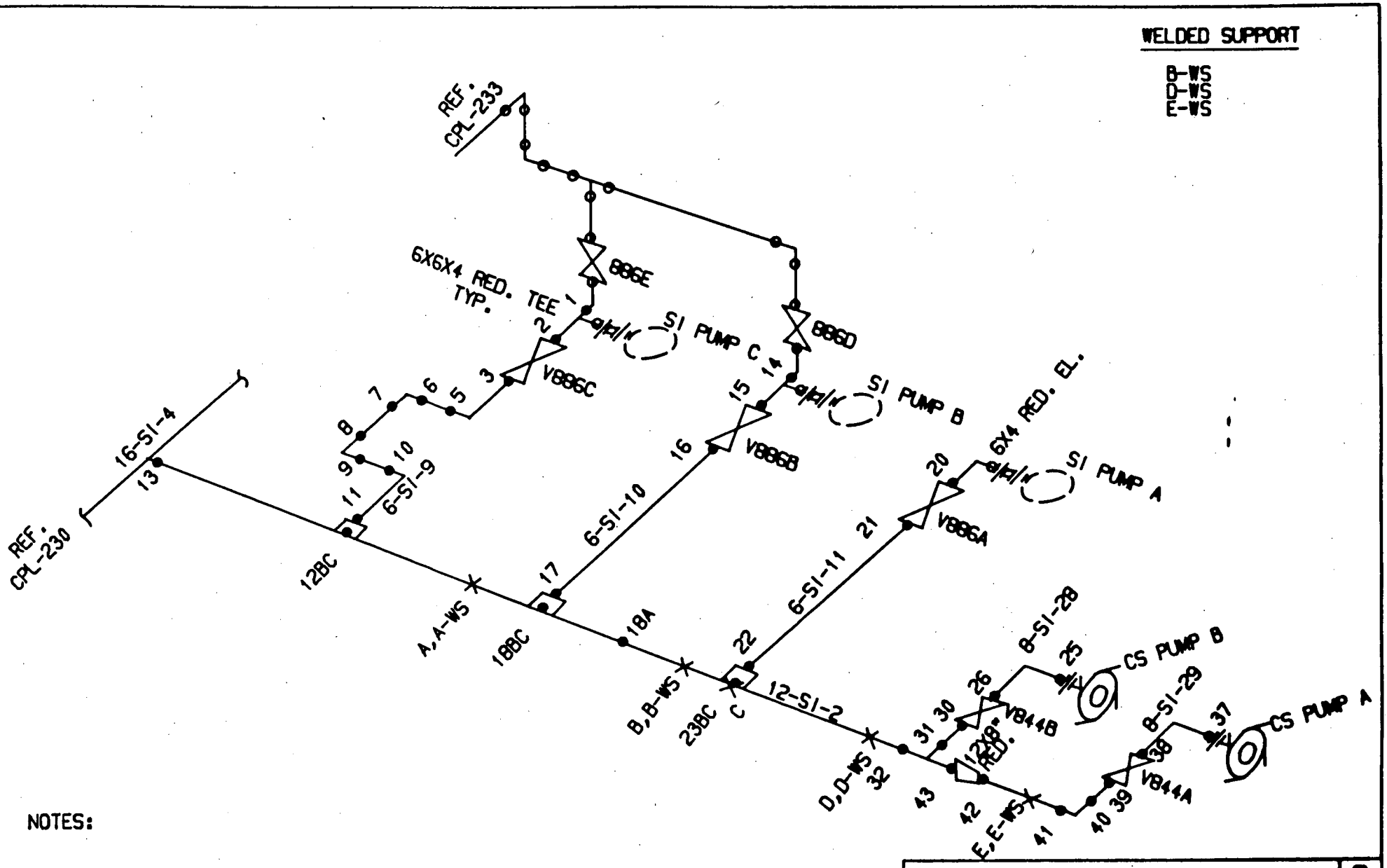
PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-230

SYST/COMP RHR PUMPS TO RWS TANK PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furyak II William H. Daly I DATE 4-18-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D VT-3	X			FLASHLIGHT	
E VT-3			X	FLASHLIGHT	GROUT IS MISSING ON 2 SIDES AND UNDER FLOOR SUPPORT
					Richard B. Weber 4/18/87
					John Jarrard ANII 4-19-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: SI&CS PUMP SUCTION		
LINE NO. 12-SI-2	CPL- 231 REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 231 218

EXAMINATION SUMMARY
FOR
1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
91	B-WS									X				See Tab F
92	38					X								
93	12BC					X								
94	16					X								
92	18A				X									

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-231

SYST/COMP. SI & CS PUMP SUCTION PROCEDURE ISI-11, REV.10 F.C.3

EXAMINER Paul J. Kaiglo III LEVEL II Timothy S. Balok I Robert A. Lupton I DATE 4-21-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
38		X			66° F°
16		X			64° F°
18A	X				66° F°
12BC		X			64° F°

Richard B. Weber 4/23/87
ANII 4-27-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-231

SYST/COMP SI + CS PUMP SUCTION PROCEDURE ISI-8, REV. 9

EXAMINER Joseph O. Furnjak II LEVEL II Paul J. Kovalle I DATE 4-22-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
B VT-3			X	FLASHLIGHT, MIRROR	LIGHT RUST ON STUDS SEE ATTACHED SKETCH FOR TACK WELDS.

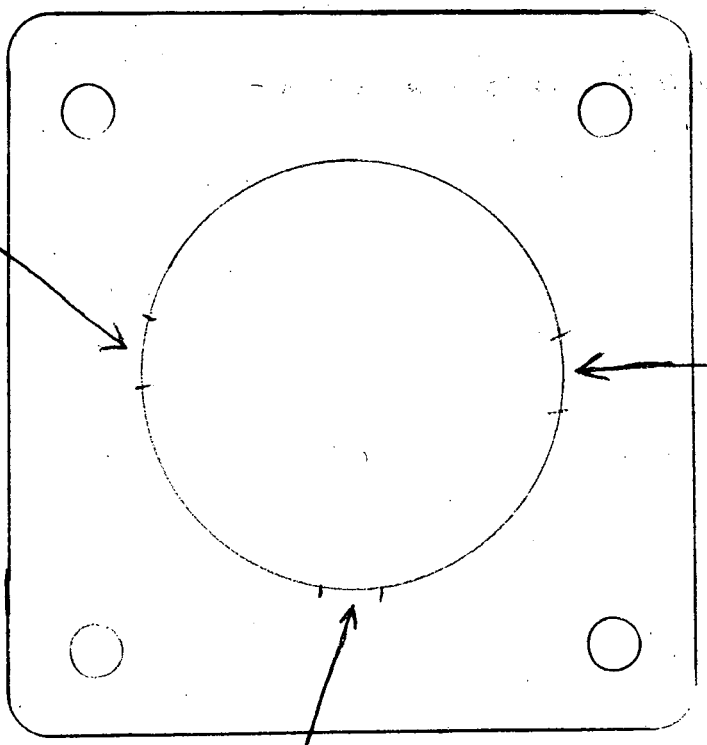
Richard B. Weber 4/23/87
ANII
4-23-87

FORM 45934B

SKETCH SHEET
WESTINGHOUSE FORM 2444D

WESTINGHOUSE ELECTRIC CORPORATION

TOP VIEW

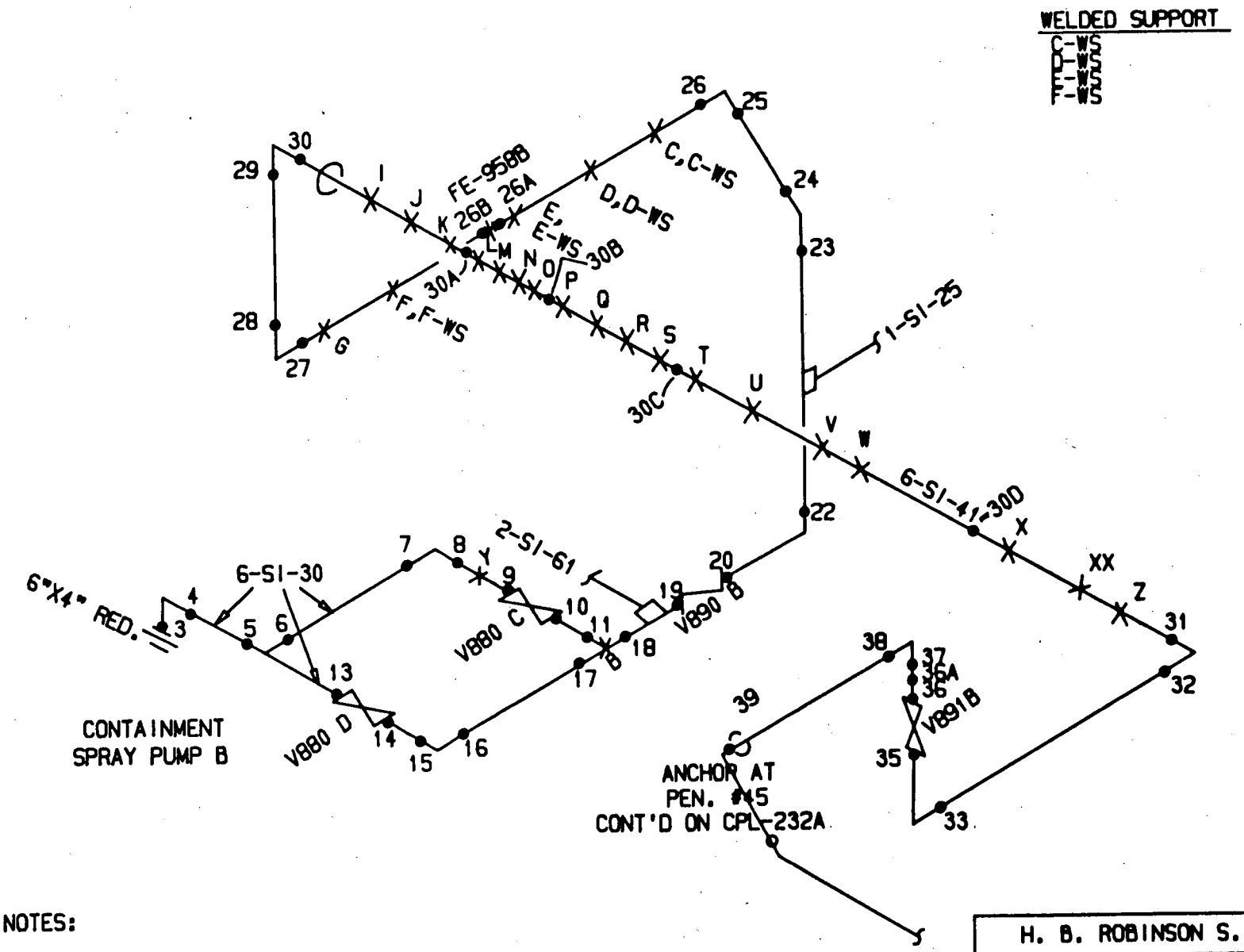


CPL-231
SUPPORT B

Joseph O. Furnyak II 4-22-87

Richard B. Hoher 4/23/87

John Hannaert ANII
4-23-87



NOTES:

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: CS PUMP B TO HEADERS		
LINE NO. 6-SI-41	CPL- 232 REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 232 223

EXAMINATION SUMMARY
FOR

_____

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
96-95	D-WS				X			X						
96	J							X						
96	K							X						
96	L							X						
96	M							X						
96	N							X						
96	O							X						
96	P							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-232

SYST/COMP. CS PUMP 'B' TO HEADERS PROCEDURE IST-11, REV.10 F.C. 3

EXAMINER Paul J. Kovallo II Timothy S. Baldwin I DATE 4-22-87
(LEVEL II) Robert W. Hughes I

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 85M039	EQUIPMENT	
PENETRANT	MAGNAFLUX 86J018		
DEVELOPER	MAGNAFLUX 85M035	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 85M039	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
D - WS		X		TOP LUGS WELDED ON 2 SIDES ONLY	70° F

Richard B. Weber 4/23/87
John Dawood ANII
4-23-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-232

SYST/COMP CS PUMP 'B' TO HEADERS PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II LEVEL II DATE 4-22-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D - VT-3	X			FLASHLIGHT	LUGS WELDED ON 2 SIDES ONLY

Richard B. Wilbur 4/23/87

John Jarrard ANII 4-23-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

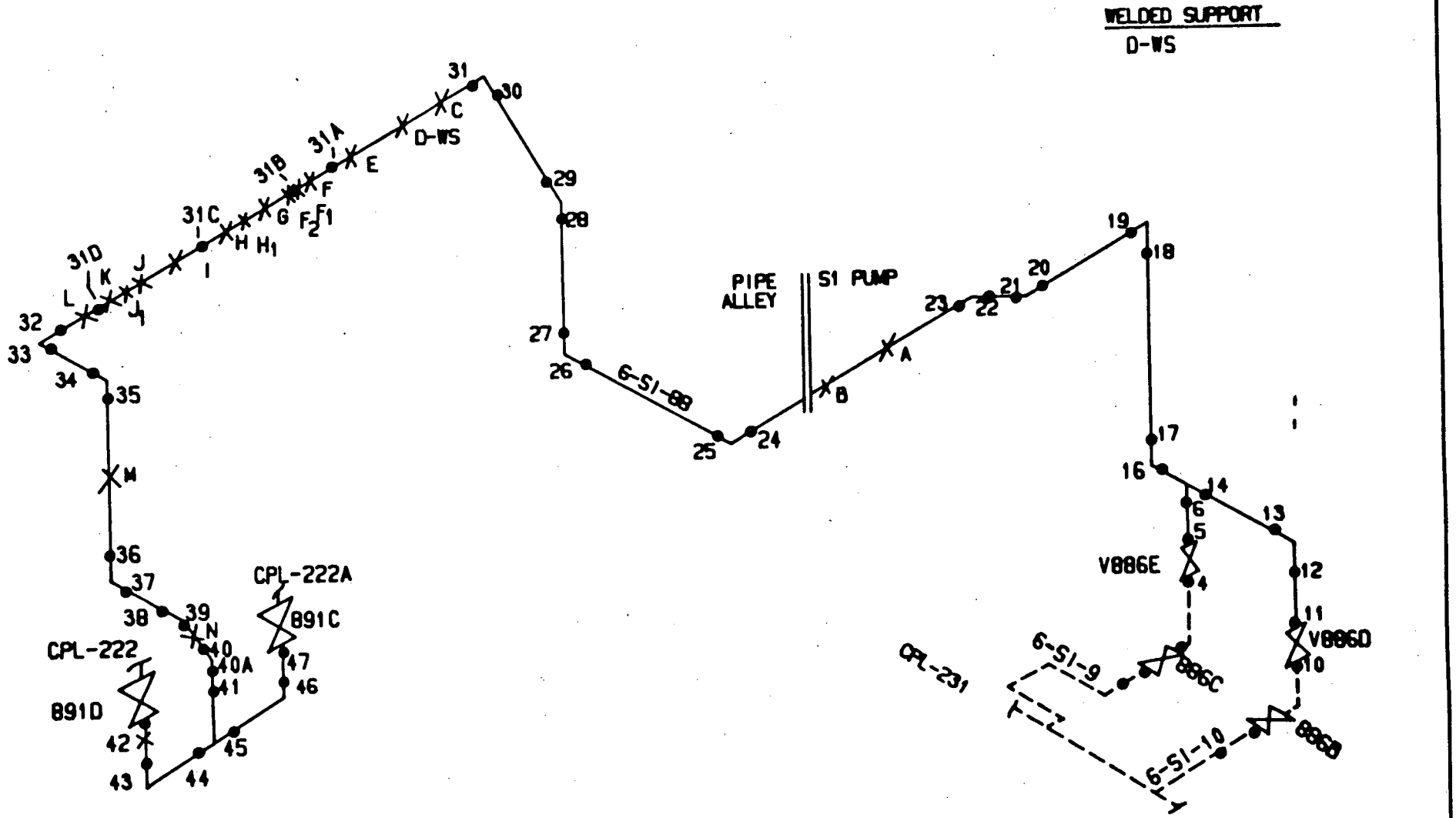
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-232

SYST/COMP CS PUMP B TO HEADERS PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Firmyak II DATE 4-18-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
J VT-3	X			FLASHLIGHT	
K VT-3	X			FLASHLIGHT	
L VT-3	X			FLASHLIGHT	
M VT-3	X			FLASHLIGHT	
N VT-3	X			FLASHLIGHT	
O VT-3	X			FLASHLIGHT	
P VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/18/87
					John Jarwood ANII 4-19-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT			C
UNIT NO. 2			P
DESCRIPTION: SAFETY INJECTION SYSTEM			&
LINE NO. 6-SI-88	CPL-233 REV.	2	L

WESTINGHOUSE FORM 46762

SKETCH CPL 233 228

EXAMINATION SUMMARY
FOR

1987

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
97	A							X						
97	B							X						
97	C								X					
97	J								X					
97	K								X					
97	L								X					
97	M								X					
97	N								X					
98	33					X								
98	35				X									
98	24						X							See Tab F
98	25					X								

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-233

SYST/COMP. SAFETY INJECTION SYSTEM PROCEDURE 151-11 Rev. 10 F.C.3

EXAMINER William G. Halley II LEVEL II Richard Hughes IT DATE 4-18-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85 M039
PENETRANT	MAGNAFLUX	86 J018
DEVELOPER	MAGNAFLUX	85 M035
REMOVER	MAGNAFLUX	85 M039

M/T	
EQUIPMENT	
EXAM. MEDIUM	
BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
33		X			82°F
35	X				82°F
				Richard B. Weber 4/18/87	
				ANII 4-19-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-233

SYST/COMP. SAFETY INJECTION SYSTEM PROCEDURE 151-11 Rev. 10 F.C. 3

EXAMINER William H. Halley II LEVEL II DATE 4-17-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
24			X	TOOLING MARK 4½" CLOCKWISE FROM 0° DATUM TO 4¾", 11/16" FROM TOE OF WELD 24 ON PIPE SIDE. BROWN RESIDUE FOUND ON WELD AND BASE METAL, 360° INTERMITTENT. CLEANERS WERE UNABLE TO REMOVE IT.	83°F
25		X		BROWN RESIDUE FOUND ON WELD AND BASE METAL, 360° INTERMITTENT. CLEANERS WERE UNABLE TO REMOVE IT. DID NOT INTERFER WITH EXAM. 24 & 25	83°F

Richard B. Weber 4/29/87
John J. Dwyer ANII
4-27-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-233

SYST/COMP SAFETY INJECTION SYSTEM PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-23-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/24/87
					John Jumonville ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

232

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-233

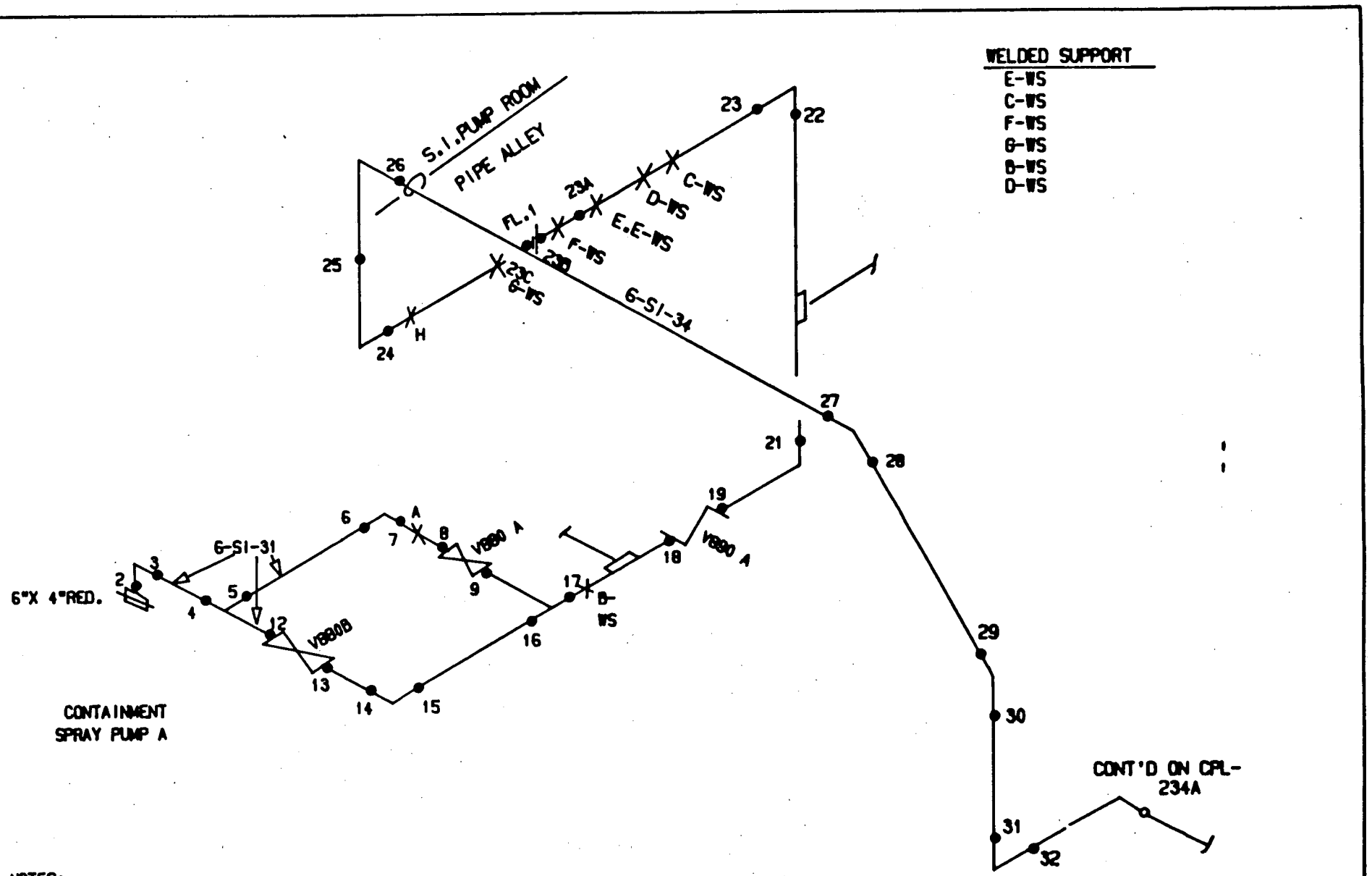
SYST/COMP SAFETY INJECTION SYSTEM PROCEDURE ISI-8 REV.9

EXAMINER [illegible] LEVEL II DATE 4-18-87

William G. Halley I

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
M VT-3		X		FLASHLIGHT	
L VT-3		X		FLASHLIGHT	
K VT-3		X		FLASHLIGHT, MIRROR	
J VT-3		X		FLASHLIGHT	
N VT-3		X		FLASHLIGHT	
C VT-3		X		FLASHLIGHT	
					Richard B. Weber 4/18/87
					ANII 4-19-87

FORM 459348



H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: CS PUMP "A" TO HEADERS			
LINE NO. 6-SI-34	CPL-234	REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 234 **234**

EXAMINATION SUMMARY
FOR

1987

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
99	G							X						
99	H							X						
100	15					X								
100	18				X									
100	21				X									
100	22					X								
100	23					X								
100	25				X									
100	26				X									
100	24					X								

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-234

SYST/COMP. CS PUMP "A" TO HEADERS PROCEDURE ISI-11, Rev 10 F.C.3

EXAMINER Joseph D. Furnyak II LEVEL II Kenneth Mixed I DATE 4-22-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
15		X		DRAIN LINE ½" FROM WELD AT 180° AS WELDED	68°F
18	X			WELDED LUG AT 180° 3/4" FROM WELD AS WELDED	68°F
21	X			AS WELDED	68°F
22		X		AS WELDED	68°F
23		X		AS WELDED	68°F
24		X		AS WELDED	68°F
25	X			AS WELDED	68°F
26	X			EXAMINED FROM 180° TO 360° CW ONLY. DUE	68°F
				TO PENETRATION AND WALL. WELD AND ELBOW	
				SIDE ONLY.	

Richard B. Neher 4/23/87
ANII
4-23-87

FORM 45935C

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-234

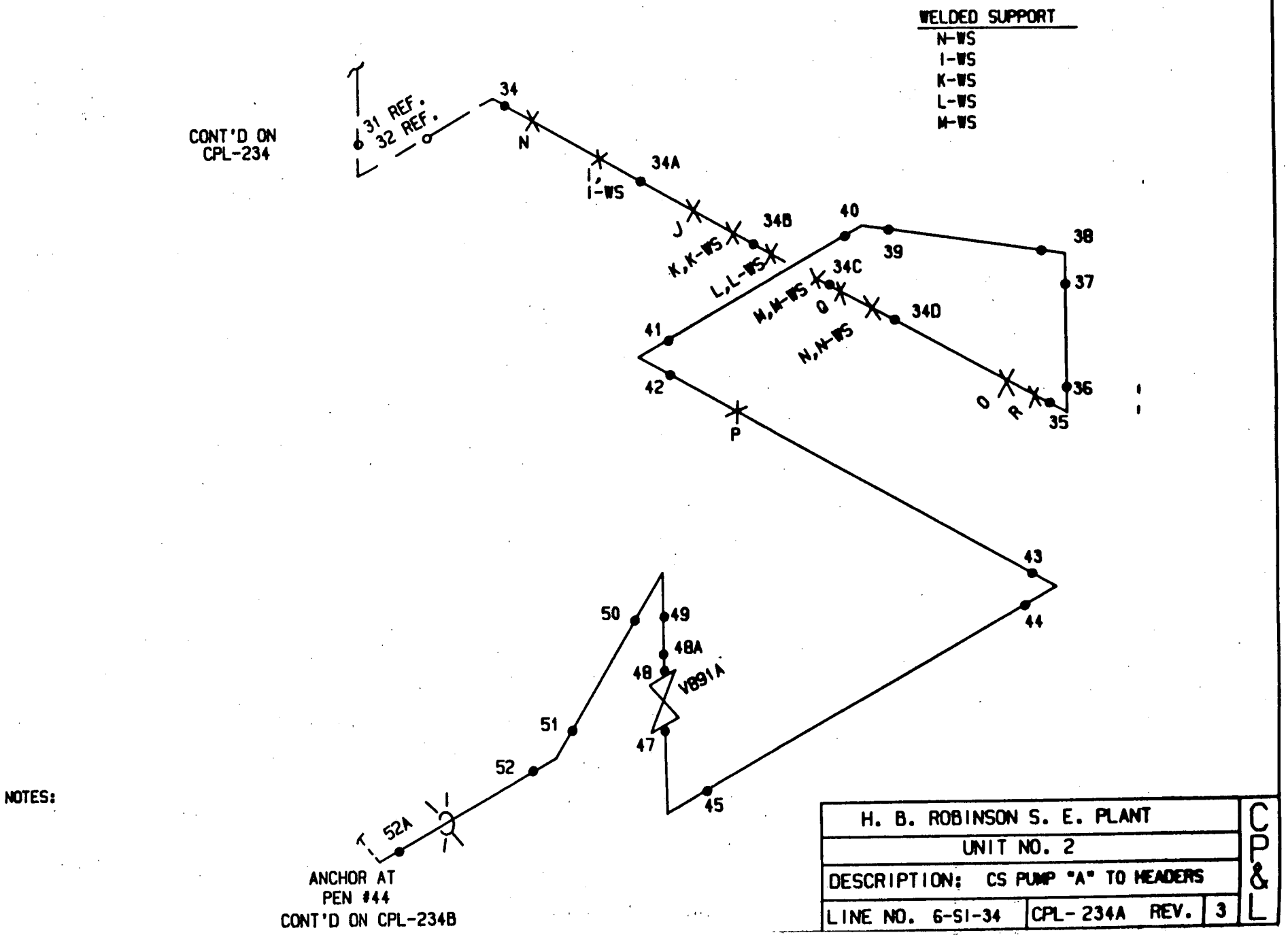
SYST/COMP CS PUMP "A" TO HEADERS PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II (LEVEL II) DATE 4-23-87

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
G-WS-VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	

Richard B. Weber 4/24/87
John Jusacol ANII
4-27-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: CS PUMP "A" TO HEADERS		
LINE NO. 6-SI-34	CPL-234A REV. 3	

SKETCH CPL 234A 238

EXAMINATION SUMMARY
FOR

1987

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
101	N-WS					*			X					PT Base Material less than 3/4"*
101	L									X				See Tab F
101	M									X				See Tab F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-234A

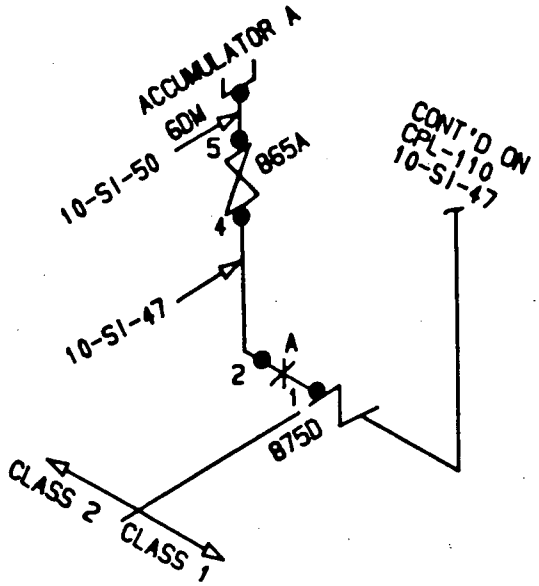
SYST/COMP CS PUMP "A" TO HEADERS PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II LEVEL II DATE 4-18-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
L VT-3			X	FLASHLIGHT	U-CLAMP IS LOOSE
M VT-3			X	FLASHLIGHT	U-CLAMP IS LOOSE
N VT-3		X		FLASHLIGHT	IT APPEARS THAT U-CLAMP IS MISSING

Richard B. Weber 4/18/87
John Durand AWII 4-19-87

FORM 45934B



NOTES:

H.B. ROBINSON S.E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: LOOP A-10" ACCUM.DISCHARGE		
LINE NO. 10-SI-50	CPL-235 REV. 1	

WESTINGHOUSE FORM 46762

SKETCH CPL 235 241

EXAMINATION SUMMARY FOR 1987

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
102	6DM				X									

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-235

SYST/COMP. LOOP "A" ACCUMULATOR DISCHARGE PROCEDURE ISI-11, REV.10 FC 3

EXAMINER Paul J. Kvalls-II LEVEL II Ralph L Churchfield-II 4-15-87 DATE 4-15-87

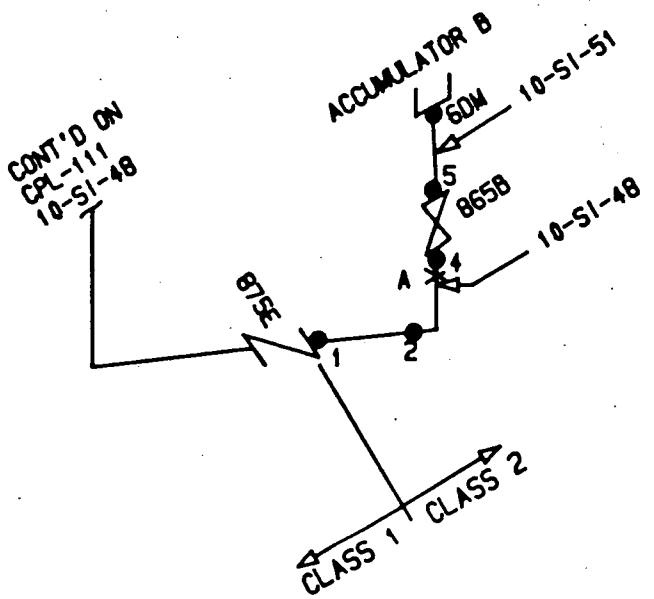
P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
6 DM	X				64°F

Richard B. Weber 4/18/87
ANII 4-19-87

FORM 45935C



NOTES:

H.B. ROBINSON S.E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: LOOP B-10" ACCUM.DISCHARGE			
LINE NO. 10-SI-51	CPL-236 REV.	1	

WESTINGHOUSE FORM 46762

SKETCH CPL 236 **244**

EXAMINATION SUMMARY
FOR

1987

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
103	2	X					X							See Tab F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION INSERVICE

PLANT: H. B. ROBINSON | UNIT: 2 | SKETCH: CPL-236

SYST/COMP.: LOOP B-10" ACCUM. DISCHARGE | PROCEDURE: 1SI-206 REV. 1

EXAMINER (LEVEL II): William G. Halley II, Timothy J Baloh I | DATE: 4-15-87

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 11221E	S/N	C16353		56761				56761				INITIAL TIME
	SIZE	0.25"		0.5"X0.5"				0.5"X0.5"				0°Ic: 0529
	FREQ.	5.0 MHz		2.25 MHz				2.25 MHz				
	ANGLE	0°		45°				45°				45°Ic: 0615
REP. RATE: 3K	CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SCRIBE/REF. LINE TO PEAK	DISTANCE FROM SCRIBE/REF. LINE TO 50% DAC LOCATIONS	W&H
REJECT: OFF	1/4T	80%	1.8									
DAMPING: 0°-8/45°-MIN	3/4T	30%	5.6									
FILTER: HI	1T		8.0	80%	2.0			80%	2.1			FINAL TIME W&H
LIN. CHECK: SAT	2T			40%	4.0			35%	4.1			0°Fc: 0559
SU CABLE: 0°-12' BNC-MCD 45°-18' BNC-BNC	3T			25%	6.0							45°Fc: 0649
COUPLANT: SONOTRACE 40 BATCH# 8558	CAL. GAIN	28dB		29dB				37dB				CAL. BLOCK CPL-32
												THICKNESS 1.048"
												TEMP. 75°F

WELD NUMBER	TEMP.	BASE METAL SCAN	SCAN DIRECTION 2	5	7/8	0	EXAMINATION LIMITATIONS	CROWN CONFIGURATION	RESULTS NI	NRI	RI	REMARKS
2	-9°F	PAR	PAR	PAR	PAR	PAR	90° FROM 0° DATUM A 2½" NOZZLE	AS WELDED	X			
							7/8" FROM TOE OF WELD 2 ON					
							PIPE SIDE, 180° FROM 0°					
							DATUM A 2¼" NOZZLE 1" FROM					
							TOE OF WELD 2 ON ELBOW					
							SIDE. WELD CROWN					

Richard B. Weber 4/18/87 ANII
4-19-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-236

SYST/COMP. LOOP "B" ACCUMULATOR DISC. PROCEDURE ISI-11, REV. 10 FC. 3

EXAMINER Paul L. Kovallo-II LEVEL II Ralph L. Churchfield-I LEVEL II DATE 4-14-87

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 85M039	EQUIPMENT	
PENETRANT	MAGNAFLUX 86J018		
DEVELOPER	MAGNAFLUX 85M035	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 85M039	BLACK-LIGHT CHECK TIME	

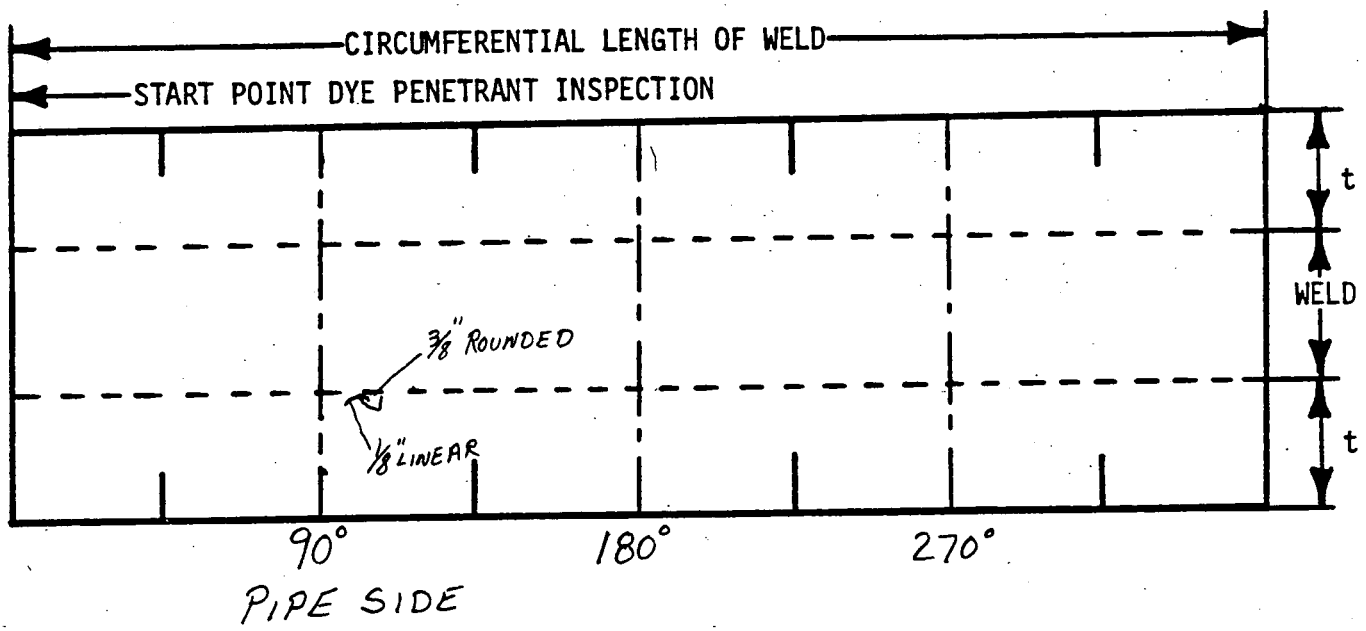
IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
2			X	1/8" LINEAR WITH 3/8" ROUNDED	66°
				INDICATION LOCATED AT 100°	
				PIPE SIDE AT TOE OF WELD	
				WELD SPATTER 1/16", 1/4" IN ON	
				WELD AT 0° PIPE SIDE	
				SEE ATTACHED INDICATION SHEET	
				Richard B. Weber 4/18/87	
				John Jaworski ANII	
				4-19-87	

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI-11, REV.10 FC.3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: Paul J. Kovalle-II DATE: 4-14-87



REMARKS: 1/8" LINEAR WITH 3/8" ROUNDED INDICATION LOCATED AT TOE OF WELD, 100° PIPE SIDE

COMPONENT/PIPING SYSTEM LOOP "B" ACCUMULATOR DISCHARGE

WELD NO. 2

ISO/SKETCH NO. CPL-236

Richard B. Weber 4/18/87
ANII
4-19-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-236

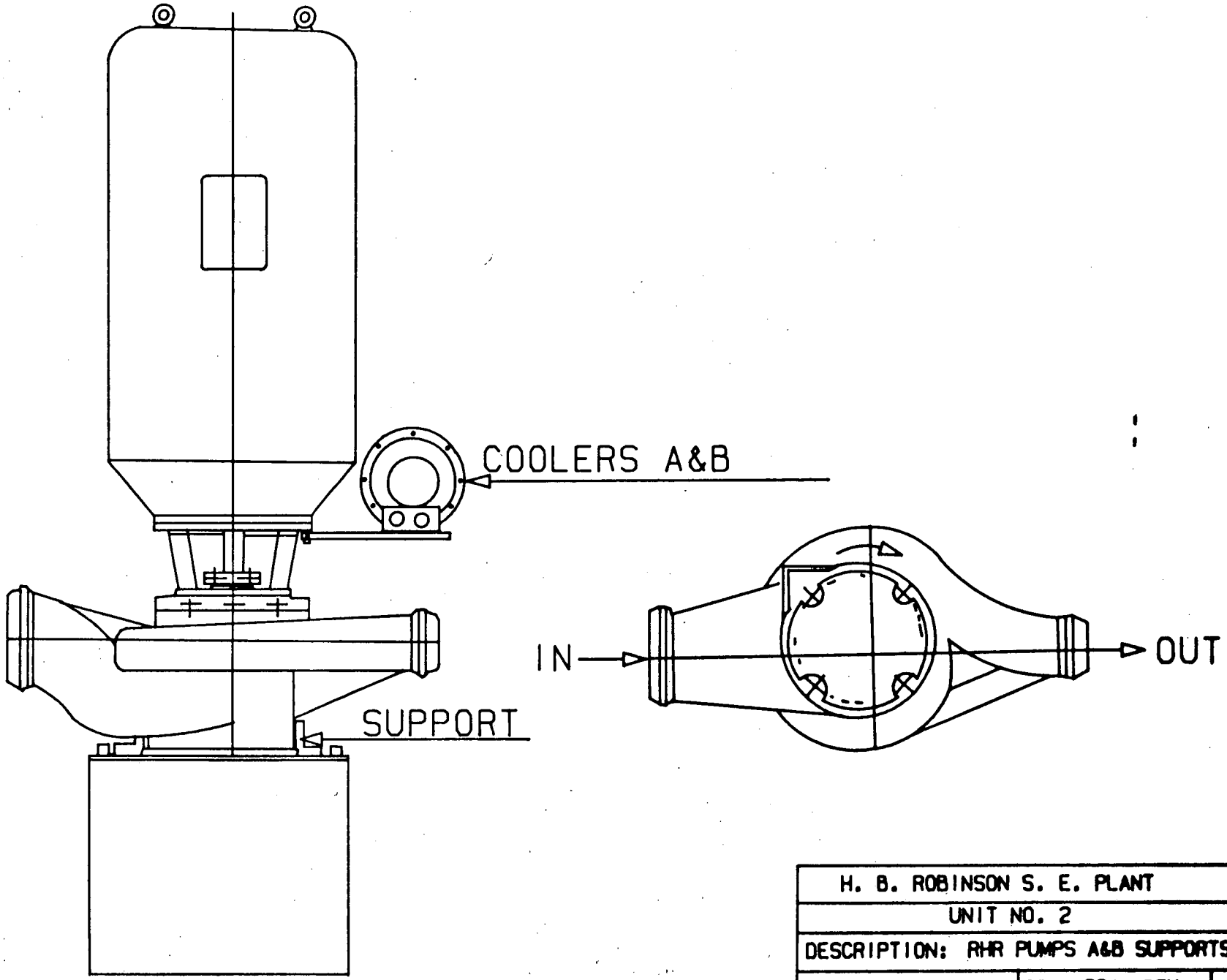
SYST/COMP. LOOP 'B' ACCUMULATOR DISCHARGE PROCEDURE ISI-11 REV.10 FC-3

EXAMINER John K Campbell II Ken Mica I DATE 4-26-87
LEVEL II

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX SKC-NF 84M062	EQUIPMENT	
PENETRANT	MAGNAFLUX SKL-HF/S 86J018		
DEVELOPER	MAGNAFLUX SKD-NF 85M035	EXAM. MEDIUM	
REMOVER	MAGNAFLUX SKC-NF 84M062	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
2		X		REWORK AREA AFTER REWORK	82°
				Richard B. Weber 4/26/87	
				John Jarrard ANII 4-27-87	

FORM 45935C



H. B. ROBINSON S. E. PLANT	
UNIT NO. 2	
DESCRIPTION: RHR PUMPS A&B SUPPORTS	
LINE NO. N/A	CPL- 224 REV. 1

CP&L

SKETCH CPL 224 250

EXAMINATION SUMMARY
FOR

1987

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
133	A								X					
133	B								X					

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

251

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-224

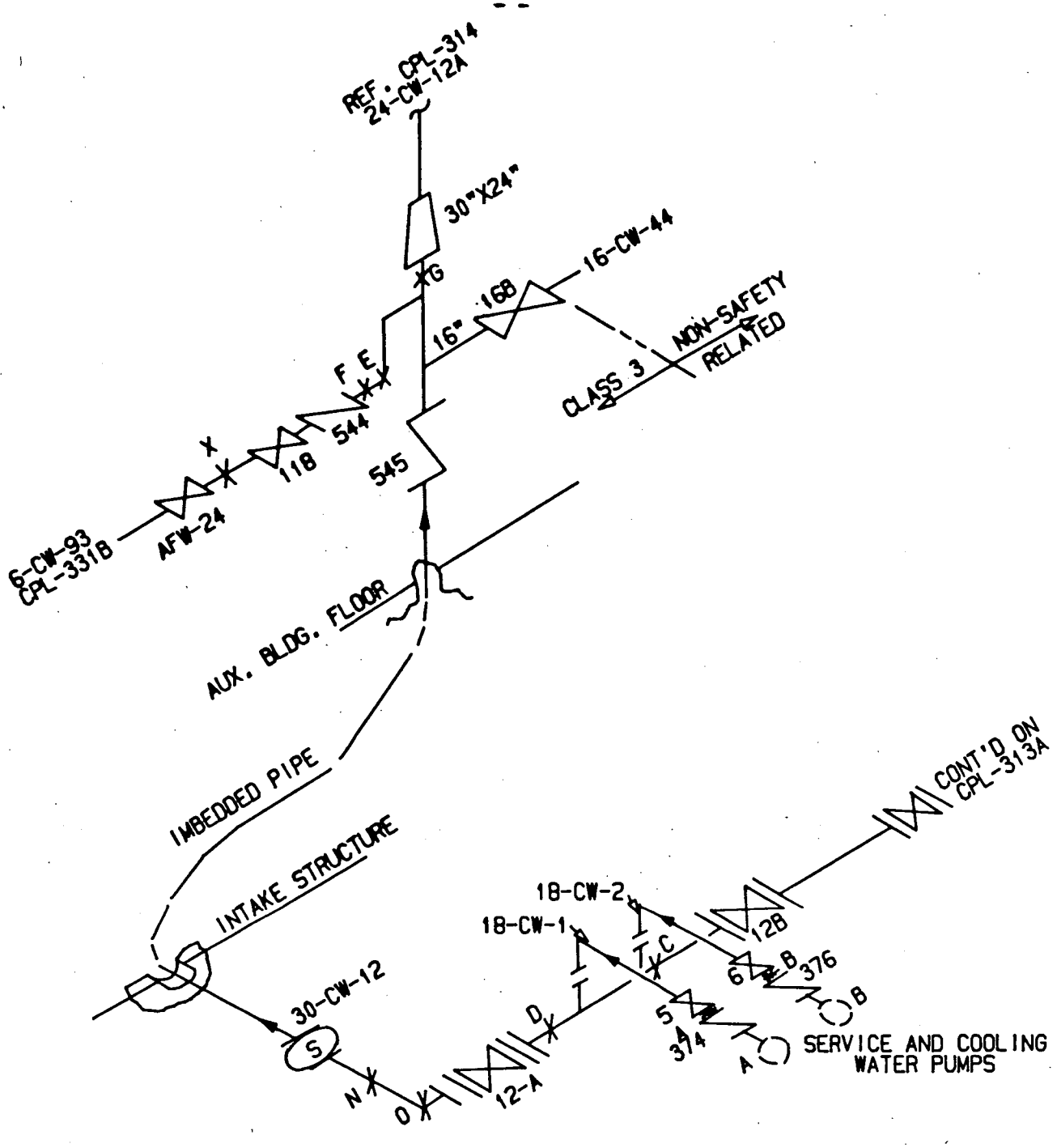
SYST/COMP RHR PUMPS A & B SUPPORTS PROCEDURE ISI-8 REV 9

EXAMINER Joseph D Fumyak II LEVEL II Tim E Bolch I DATE 4-24-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
PUMP A SUPPORT		X		FLASHLIGHT	MODERATE RUST VT3
PUMP B SUPPORT		X		FLASHLIGHT	MODERATE RUST VT3

Richard B. Weber 4/25/87
John Jancaal ANII
4-27-87

FORM 45934B



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 30-CW-12	CPL- 313 REV.	2

WESTINGHOUSE FORM 46762

SKETCH CPL 313 253

EXAMINATION SUMMARY FOR 1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
104	A							X						
104	B							X						
104	C									X				See Tab F
104	D									X				see tab F
104	O								X					
104	N								X					
104	G							X						
104	E							X						
104	F							X						
104	X							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

254

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-313

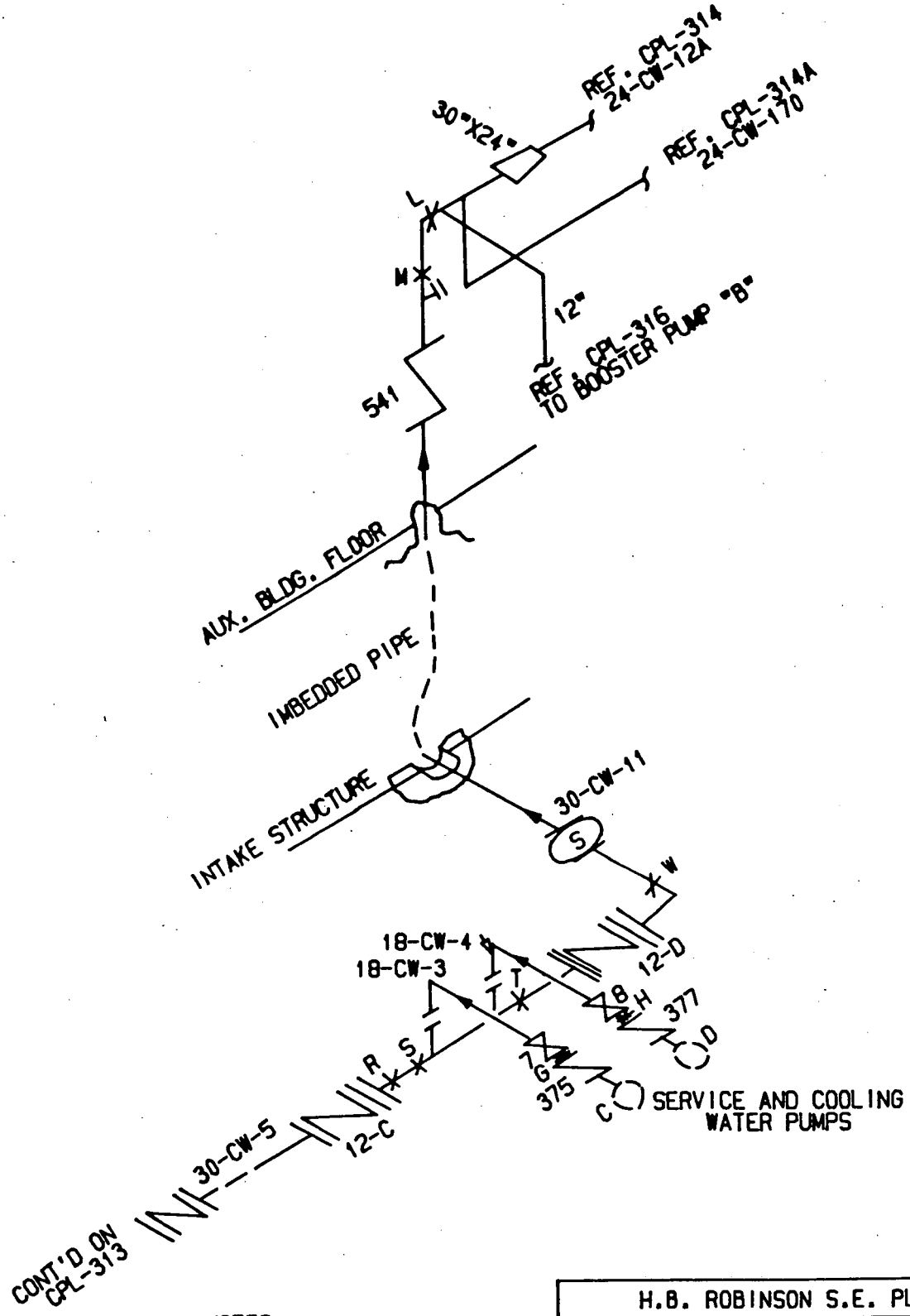
SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II (LEVEL II) DATE 4-22-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
C - VT-3			X	FLASHLIGHT	HEAVY RUST ON SUPPORT PLATE
D - VT-3			X	FLASHLIGHT	GROUT BROKEN AT BASE PL & RUST
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
N - VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PL
O - VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PL
X - VT-3	X			FLASHLIGHT	

Richard B. Weber 4/24/87
John Jungwirth ANII 4-24-87

FORM 459348



NOTES:

H.B. ROBINSON S.E. PLANT		
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 30-CW-11	CPL- 313A REV.	2

CP&L

WESTINGHOUSE FORM 46762

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF.	SKETCH REF.	UT			PT			VT						REMARKS
(SEE TAB C)	IDENT. NO.	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
105	L							X						
105	M							X						
105	G							X						
105	H							X						
105	R									X				See Tab F
105	S									X				See Tab F
105	T								X					
105	W									X				See Tab F

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SHEET 1 OF 2

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-313A

SYST/COMP SERVICE & COOLING WATER PROCEDURE IST-8 REV. 9

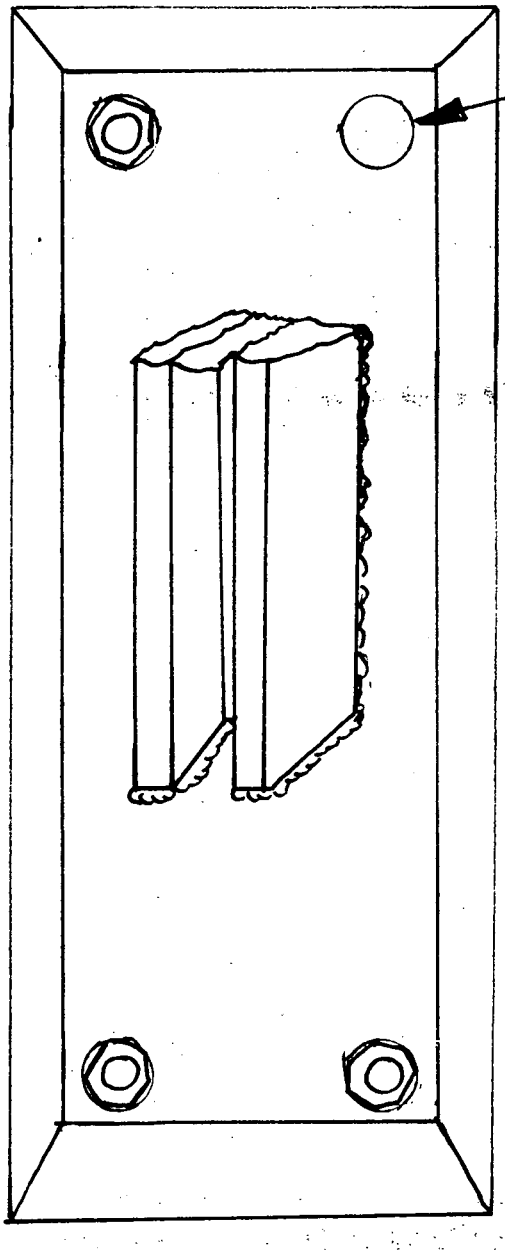
EXAMINER Robert Wm. Hughes II LEVEL II DATE 4-22-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
I - VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PLATE
M - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
R - VT-3			X	FLASHLIGHT	RUST ON SUPPORT PLATE
S - VT-3			X	FLASHLIGHT	1 BOLT MISSING (SEE SKETCH)
W - VT-3			X	FLASHLIGHT	COMPLETE SUPPORT MISSING (REMOVED BY CONSTRUCTION)

Richard B. Weber 4/24/87

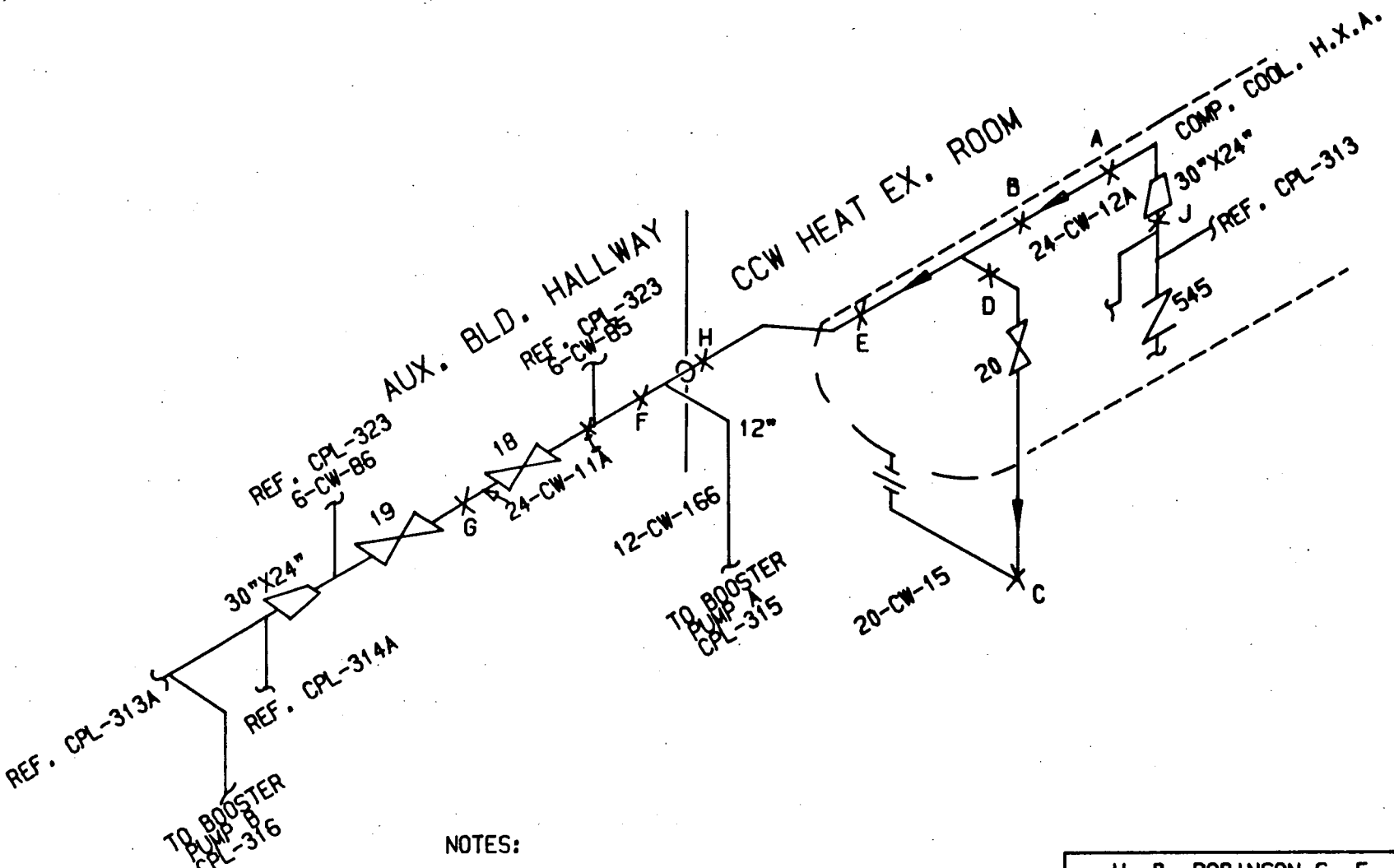
ANII 4-24-87

FORM 45934B



CPL- 313A

John J. Accarino ANII
4-24-87



NOTES:

H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 24-CW-12A	CPL-314	REV. 2

CP&L

SKETCH CPL 314 **260**

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
106	A							X						
106	B							X						
106	C							X						
106	D									X				see tab F
106	E							X						
106	F							X						
106	G							X						
106	H							X						
106	I							X						
106	J							X						

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-314

SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Humphreys II DATE 4-21-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X				
C - VT-3	X				
D - VT-3			X		2 LOOSE NUTS
E - VT-3	X				
F - VT-3	X				
G - VT-3	X				
H - VT-3	X				
I - VT-3	X				
J - VT-3	X				

Richard B. Weber 4/23/87

John Jaworski ANII 4-24-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

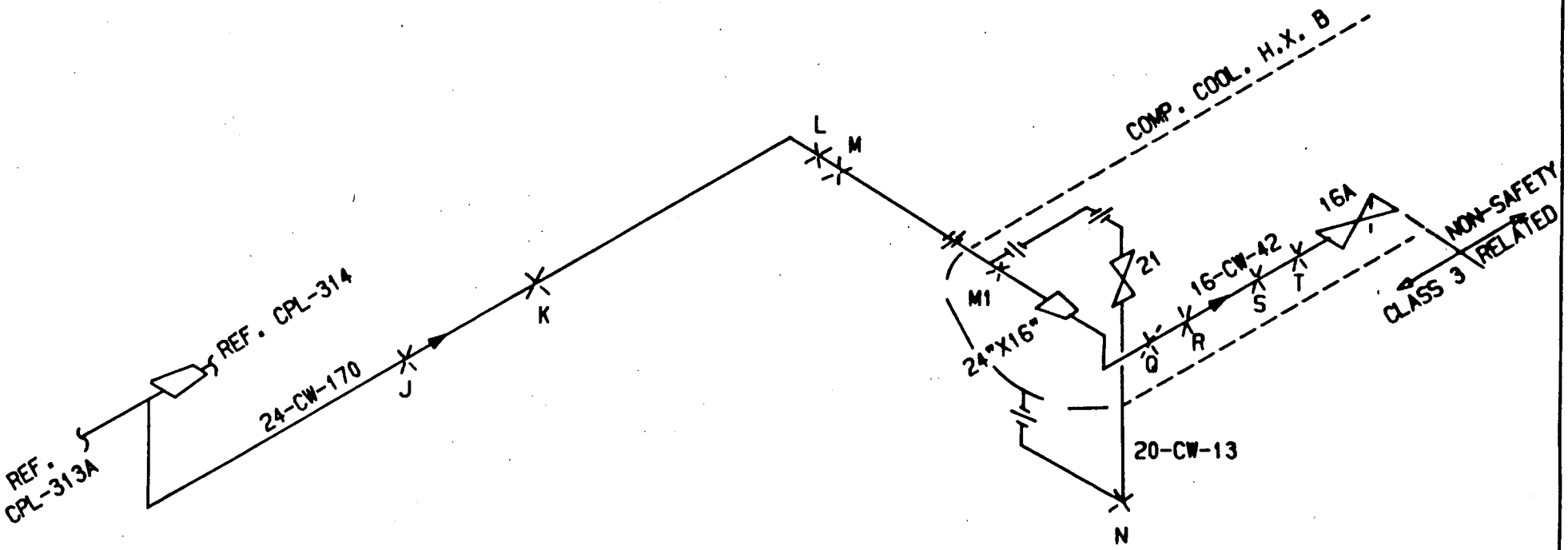
PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-314

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II LEVEL II DATE 4-26-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D - VT-3	X			FLASHLIGHT	RE-EXAM AFTER REWORK
					Richard B. Weber 4/28/87
					John Jamieson ANII 4-29-87

FORM 459348



NOTES:

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 24-CW-170	CPL- 314A REV. 2	

SKETCH CPL 314A 264

EXAMINATION SUMMARY
FOR
1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
107	J							X						
107	K							X						
107	L							X						
107	M							X						
107	N							X						
107	Q							X						
107	R							X						
107	S							X						
107	T							X						
	MI							X						

WESTINGHOUSE FORM 46762

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

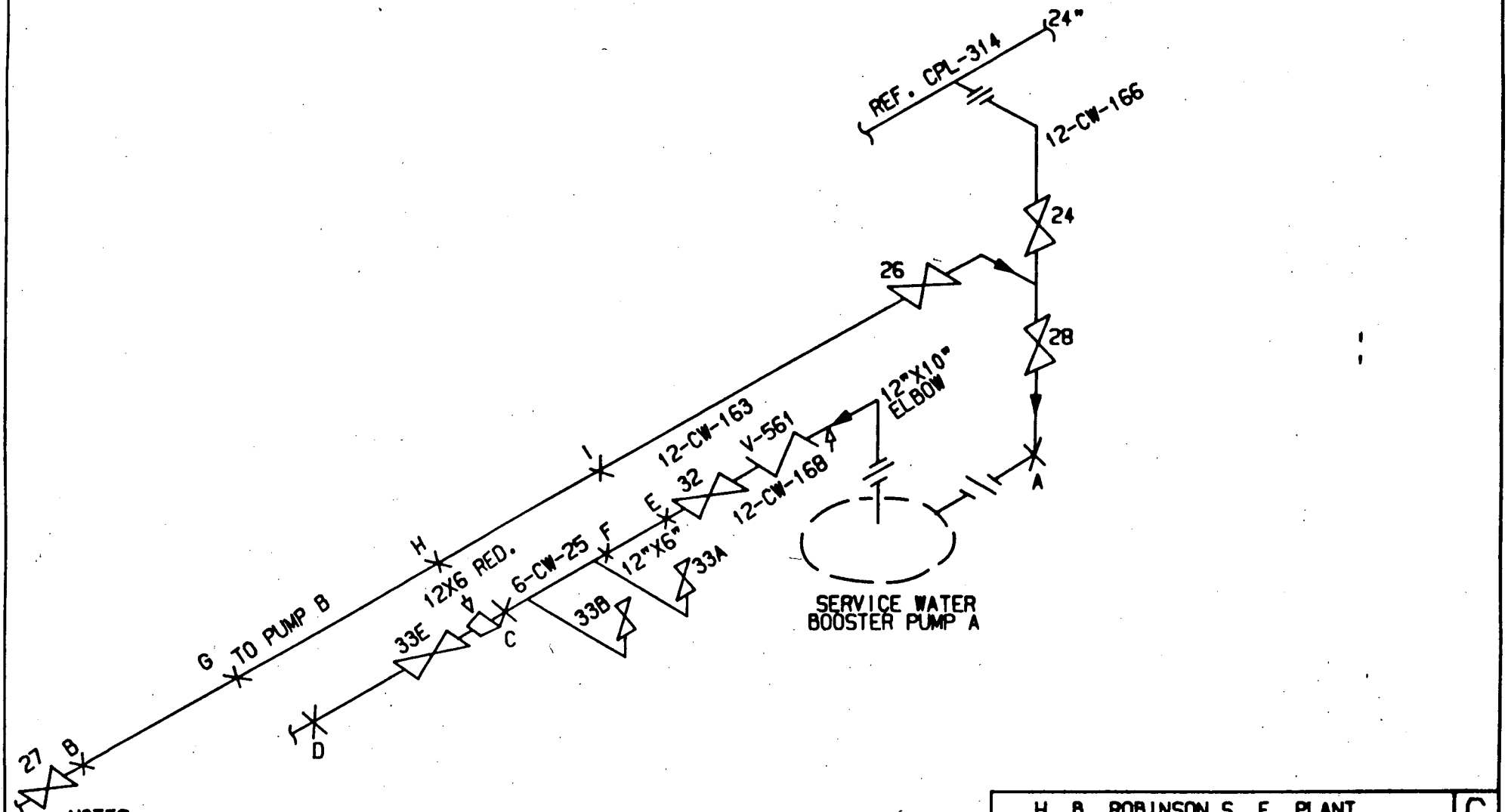
PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-314A

SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II LEVEL II DATE 4-21-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
N - VT-3	X			FLASHLIGHT	
M1 - VT-3	X			FLASHLIGHT	
M - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
K - VT-3	X			FLASHLIGHT	
Q - VT-3	X			FLASHLIGHT	
R - VT-3	X			FLASHLIGHT	
S - VT-3	X			FLASHLIGHT	
T - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/23/87
					[signature] ANII
					4-24-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 12-CW-168	CPL-315 REV.	3

CP&L

WESTINGHOUSE FOR. 62

SKETCH CPL 315 267

EXAMINATION SUMMARY
FOR

1987

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
108	A							X						
108	B							X						
108	C							X						
108	D							X						
108	E							X						
108	F							X						
108	G							X						
108	H							X						
108	I							X						

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

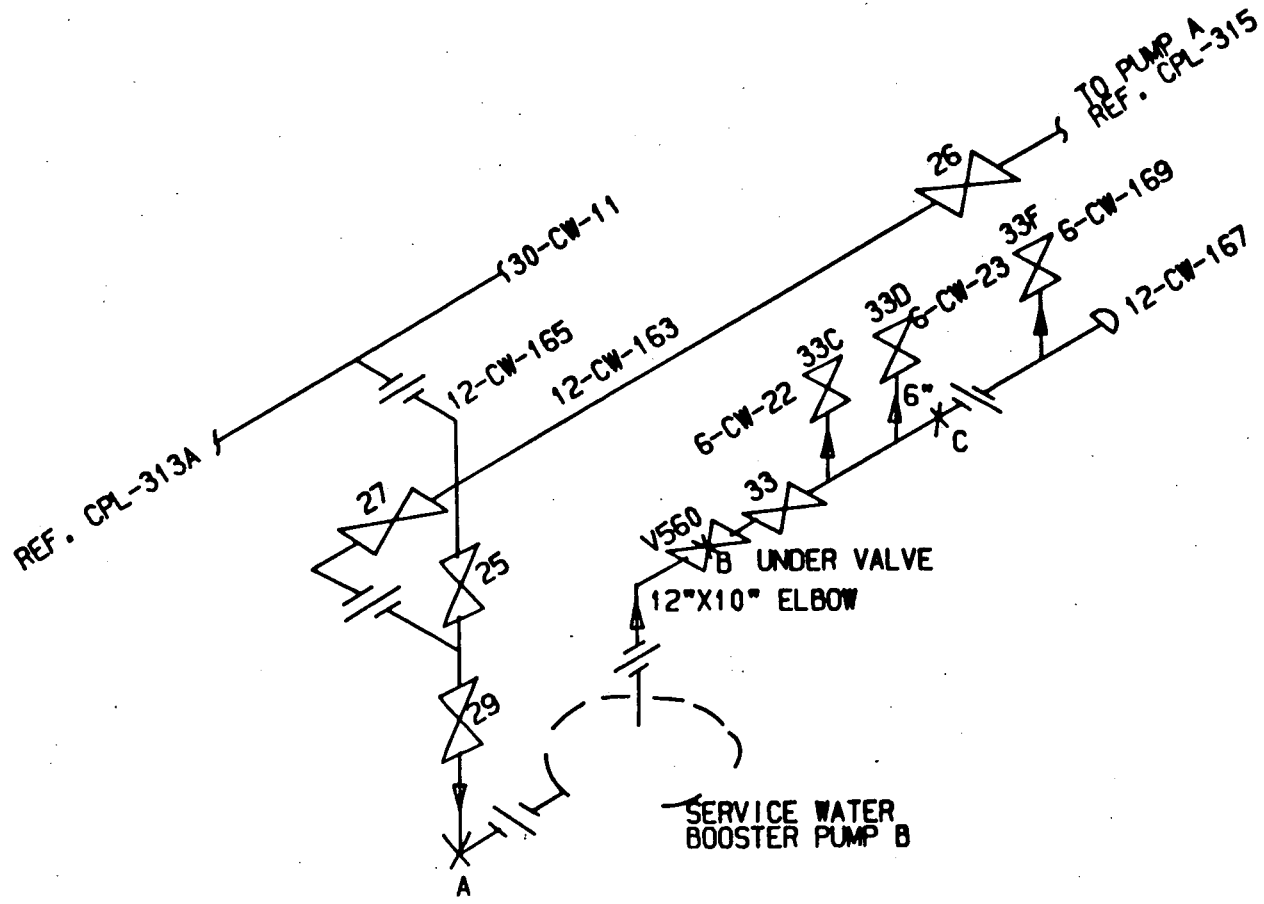
PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-315

SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Raleumt Wm. Hughes II (LEVEL II) DATE 4-21-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
C - VT-3	X			FLASHLIGHT	
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G VT-3	X			FLASHLIGHT	
H VT-3	X			FLASHLIGHT	
I VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/23/87
					John Juneau ANII
					4-23-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 12-CW-167	CPL- 316 REV.	2

CP&L

WESTINGHOUSE FORM 46762

SKETCH CPL 316 270

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
109	A							X						
109	B								X					
109	C							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-316

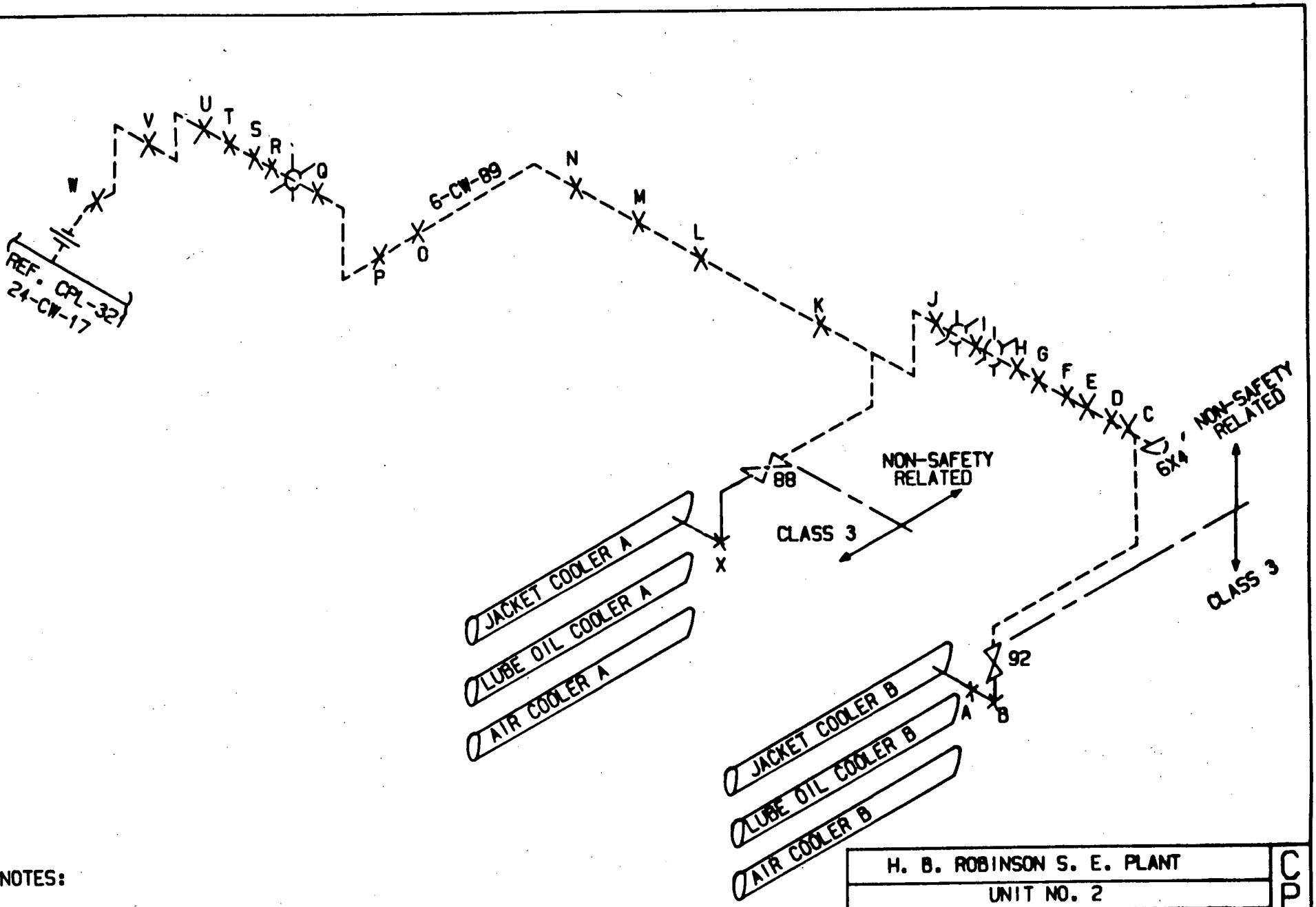
SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-21-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3		X		FLASHLIGHT	RUST ON 2 BOLTS
C - VT-3	X			FLASHLIGHT	

Richard B. Weber 4/23/87
ANII
4-23-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SERVICE AND COOLING WATER			
LINE NO. 6-CW-89	CPL-322	REV. 2	

SKETCH CPL 322 273

EXAMINATION SUMMARY
FOR

1987

WESTINGHOUSE FORM 46762

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
110	A							X						
110	B							X						
110	X							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

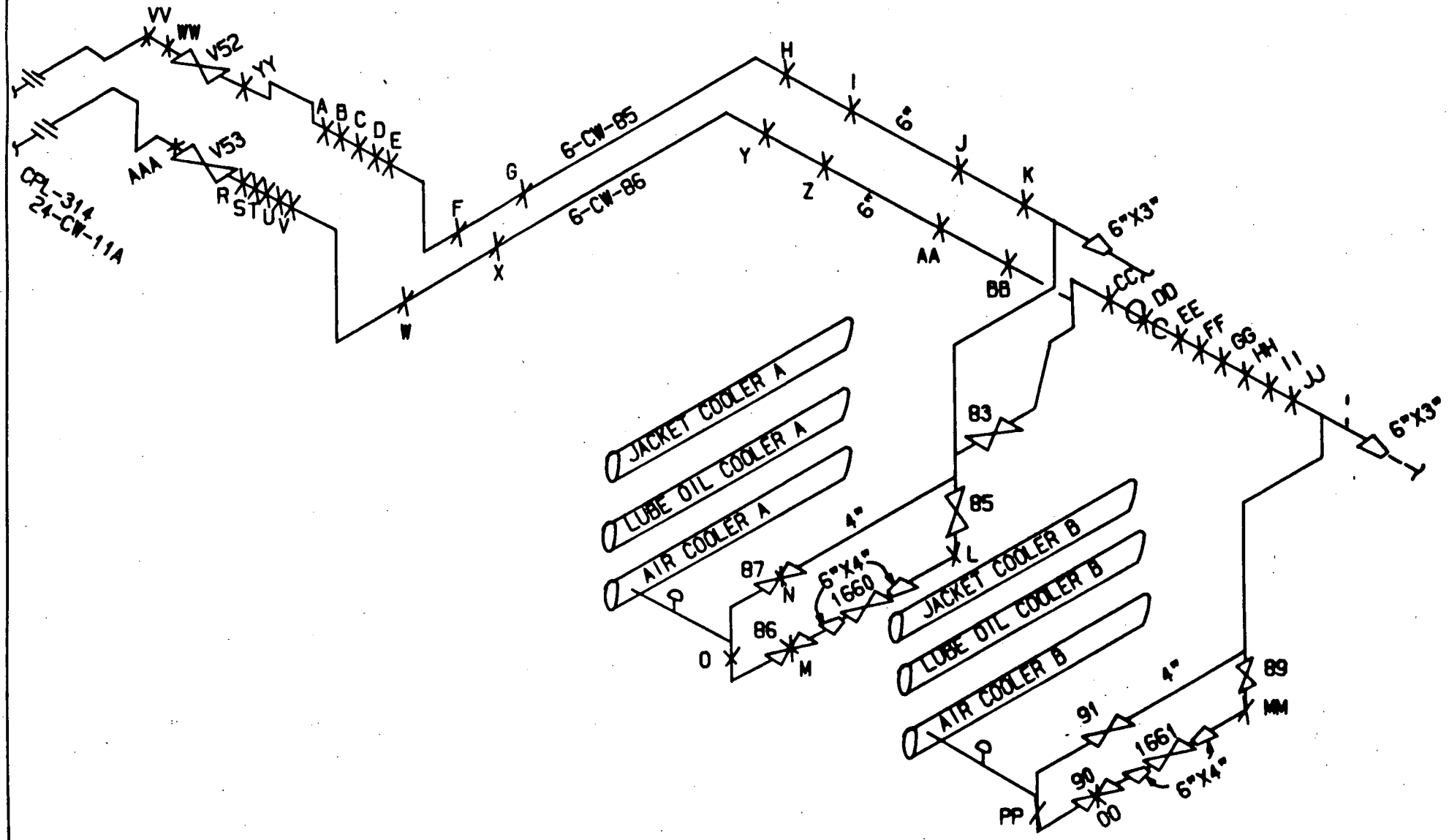
PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-322

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-25-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
X - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					John Howard ANII 4-29-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SERVICE AND COOLING WATER			
LINE NO. 6-CW-85	CPL-323	REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 323 276

EXAMINATION SUMMARY
FOR
1987

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
111	A							X						
111	B							X						
111	C							X						
111	D							X						
111	E									X				Tab F
111	F								X					
111	G								X					
111	H								X					
111	I								X					
111	J								X					
111	K								X					
111	L								X					
111	M								X					
111	N								X					
111	O								X					
111	R							X						
111	S									X				Tab F
111	T							X						
111	U							X						
111	V							X						
111	W								X					
111	X								X					
111	Y								X					
111	Z								X					
111	AA								X					
111	BB								X					

WESTINGHOUSE FORM 46762

SKETCH CPL 323 277

EXAMINATION SUMMARY
FOR
1987

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
111	CC								x					
111	DD								X					
111	EE								X					
111	FF								X					
111	GG								X					
111	HH								X					
111	II								X					
111	JJ								X					
111	MM								X					
111	OO								X					
111	PP								X					
111	VV							X						
111	WW							X						
111	AAA							X						
111	YY									X				Tab F

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-323

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Vaughn II LEVEL II DATE 4-23-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
F		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
G		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
H		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
I		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
J		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
K		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
M		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
N		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
O		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
L		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
W		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
X		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
Y		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
Z		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
AA		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
BB		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
CC		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
DD		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
EE		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
FF		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
GG		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
HH		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
II		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
JJ		X		FLASHLIGHT	INSULATED UNABLE TO DO VT-3
MM VT3	X			FLASHLIGHT	
OO VT3	X			FLASHLIGHT	
PP VT3	X			FLASHLIGHT	Richard B. Wiley 4/28/87
					ANII 4-28-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-323

SYST/COMP Service and Cooling Water PROCEDURE ISI-8 Rev. 9

EXAMINER W.D. Miller II LEVEL II Joseph D. Furnyak II DATE 4-26-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
VV	VT-3	X			Flashlight	
WW	VT-3	X			Flashlight	
YY	VT-3			X		Support Missing
A	VT-3	X			Flashlight	
B	VT-3	X			Flashlight	
C	VT-3	X			Flashlight	
D	VT-3	X			Flashlight	
E	VT-3			X	Flashlight	Loose Nut On Pipe Clamp
V	VT-3	X			Flashlight	
U	VT-3	X			Flashlight	
T	VT-3	X			Flashlight	
S	VT-3			X	Flashlight	Inadequate Thread Engagement
R	VT-3	X			Flashlight	
AAA	VT-3	X			Flashlight	

Richard B. Weber 4/28/87
John Hassard ANII 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-323

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV. 9

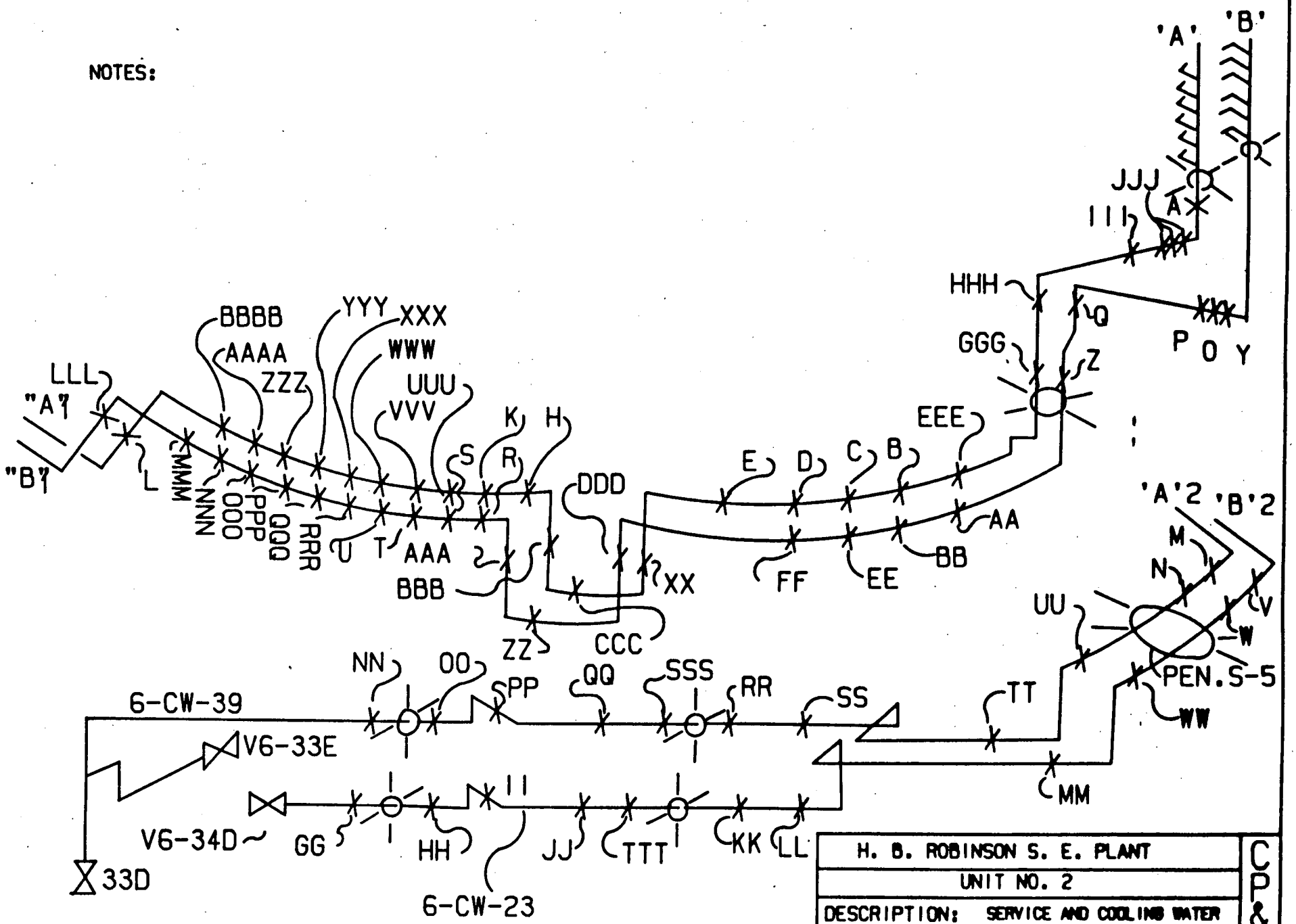
EXAMINER Joseph J Tumyak II DATE 4-30-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E - VT-3		X		FLASHLIGHT	CHIPPED PAINT AFTER REWORK
S - VT-3		X		FLASHLIGHT	CHIPPED PAINT AFTER REWORK

Richard B. Weber 4/29/87
ANII
4-29-87

FORM 459348

NOTES:



H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 6-CW-39	CPL- 324 REV. 2	

WESTINGHOUSE FORM 4[illegible]

SKETCH CPL 324 282

EXAMINATION SUMMARY
FOR

1987

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
112	A								X					
112	JJJ							X						
112	III							X						
112	HHH								X					
112	GGG							X						
112	EEE							X						
112	B							X						
112	C								X					
112	D								X					
112	E									X				Tab F
112	XX								X					
112	CCC							X						
112	BBB													HIGH RAD.
112	H													HIGH RAD
112	K													HIGH RAD
112	UUU							X						
112	VVV									X				see tab F
112	WWW							X						
112	XXX							X						
112	YYY								X					
112	ZZZ								X					
112	AAAA								X					
112	BBBB							X						
112	L								X					
112	Y							X						
112	O							X						

WESTINGHOUSE FORM 46762

SKETCH CPL 324 283

EXAMINATION SUMMARY
FOR
1987

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
112	P								X					
112	Q									X				Tab F
112	Z							X						
112	AA							X						
112	BB							X						
112	EE								X					
112	FF								X					
112	DDD								X					
112	ZZ							X						
112	AAA													HIGH RAD.
112	R													HIGH RAD.
112	S													HIGH RAD.
112	T							X						
112	U									X				see tab F
112	RRR									X				see tab F
112	QQQ								X					
112	PPP								X					
112	OOO								X					
112	NNN							X						
112	MMM								X					
112	M									X				see tab F
112	N								X					
112	UU									X				see tab F
112	TT								X					
112	SS								X					
112	RR								X					

WESTINGHOUSE FOR. -/62

SKETCH CPL 324 284

EXAMINATION SUMMARY
FOR
1987

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
112	SSS							X						
112	QQ							X						
112	PP							X						
112	OO							X						
112	NN							X						
112	V									X				See Tab F
112	W								X					
112	WW									X				See Tab F
112	MM								X					
112	LL								X					
112	KK									X				See Tab F
112	TTT							X						
112	JJ							X						
112	II							X						
112	HH							X						
112	GG							X						
112	LLL								X					

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-324

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Douglas II LEVEL II DATE 4-28-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
GG - VT-3	X			FLASHLIGHT	
HH - VT-3	X			FLASHLIGHT	
II - VT-3	X			FLASHLIGHT	
JJ - VT-3	X			FLASHLIGHT	
TTT - VT-3	X			FLASHLIGHT	
NN - VT-3	X			FLASHLIGHT	
OO - VT-3	X			FLASHLIGHT	
PP - VT-3	X			FLASHLIGHT	
QQ - VT-3	X			FLASHLIGHT	
SSS - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					John Jones ANII 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV.9

EXAMINER Joseph V. Furnyak II LEVEL II Paul J. Kovalle-I DATE 4-28-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
KK VT-3			X		SUPPORT IS MISSING
LL VT-3		X		FLASH LIGHT	LT. RUST
MM VT-3		X		FLASHLIGHT	LT. RUST
RR VT-3		X		FLASHLIGHT	LT RUST
SS VT-3		X		FLASHLIGHT	LT. RUST
TT VT-3		X		FLASHLIGHT	LT. RUST
UU VT-3			X	FLASH LIGHT	INADEQUATE THD. ENGAGEMENT BOTTOM LEFT
WW VT-3			X	FLASHLIGHT	STUD. NOTE: WW IS PART OF THE ABOVE
					Richard B. Weber 4/28/87
					John Inscoe ANII
					4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV.9

EXAMINER D.L. Mell II LEVEL II DATE 4-28-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A	VT-3		X		FLASHLIGHT, MIRROR	RUST, CHIPPED PAINT
JJJ	VT-3	X			FLASHLIGHT	REMOTE
III	VT-3	X			FLASHLIGHT	REMOTE
Y	VT-3	X			FLASHLIGHT	REMOTE
O	VT-3	X			FLASHLIGHT	REMOTE
P	VT-3		X		FLASHLIGHT	RUST - REMOTE
HHH	VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT - REMOTE
Q	VT-3			X	FLASHLIGHT	SUPPORT MISSING
GGG	VT-3	X			FLASHLIGHT	
Z	VT-3	X			FLASHLIGHT	
EEE	VT-3	X			FLASHLIGHT	
AA	VT-3	X			FLASHLIGHT	
B	VT-3	X			FLASHLIGHT	
BB	VT-3	X			FLASHLIGHT	
C	VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
EE	VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
D	VT-3		X		FLASHLIGHT	RUST - REMOTE
FF	VT-3		X		FLASHLIGHT	RUST - REMOTE
F	VT-3			X	FLASHLIGHT	SUPPORT MISSING
DDD	VT-3		X		FLASHLIGHT	RUST - REMOTE
XX	VT-3		X		FLASHLIGHT	RUST - REMOTE
CCC	VT-3	X			FLASHLIGHT	REMOTE
ZZ	VT-3	X			FLASHLIGHT	REMOTE
T	VT-3	X			FLASHLIGHT	
UUU	VT-3	X			FLASHLIGHT	
U	VT-3			X	FLASHLIGHT	LOOSE ROD
VVV	VT-3			X	FLASHLIGHT	LOOSE ROD, SAME AS "U"
WWW	VT-3	X			FLASHLIGHT	
XXX	VT-3	X			FLASHLIGHT	

Richard D. Weber 4/28/87

John Purcell ANII 4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV. 9

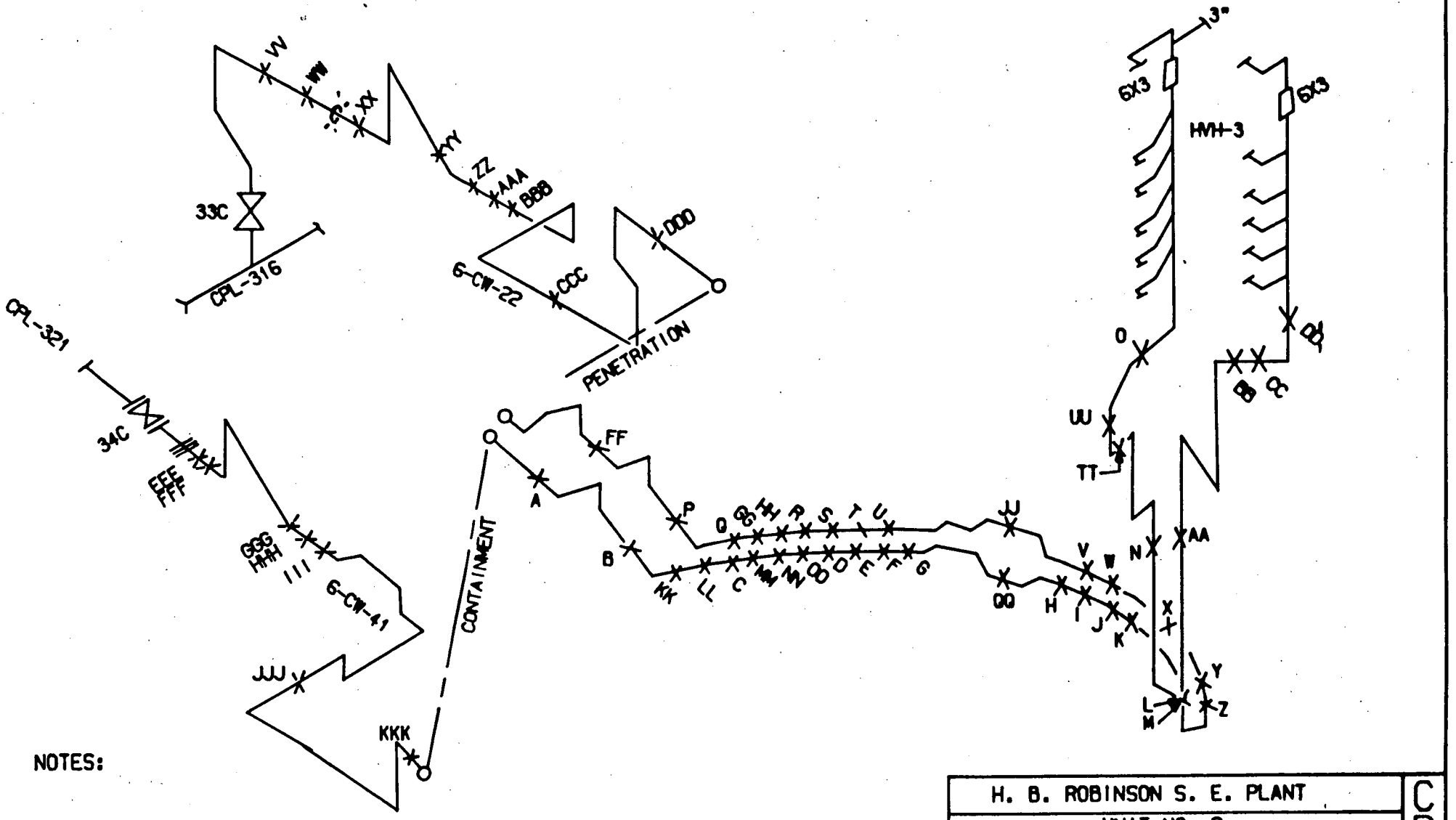
EXAMINER W.W. Mell II DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
RRR VT-3			X	FLASHLIGHT	SUPPORT MISSING
YYY VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
QQQ VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
ZZZ VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
PPP VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
AAAA VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
OOO VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
BBBB VT-3	X			FLASHLIGHT	
NNN VT-3	X			FLASHLIGHT	
MMM VT-3		X		FLASHLIGHT	RUST
LLL VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
L VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
M VT-3			X	FLASHLIGHT	MISALIGNMENT
V VT-3			X	FLASHLIGHT	MISALIGNMENT
N VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
W VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT

Richard B. Weber 4/28/87

ANII 4-29-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: SERVICE AND COOLING WATER		
LINE NO. 6-CW-41	CPL-324A REV. 1	

WESTINGHOUSE FOR 62

SKETCH CPL 324A 290

EXAMINATION SUMMARY
FOR
1987

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
113	EEE							X						
113	FFF							X						
113	GGG							X						
113	HHH							X						
113	III							X						
113	JJJ								X					
113	KKK								X					
113	A								X					
113	B								X					
113	KK								X					
113	LL								X					
113	C									X				See Tab F
113	MM									X				See Tab F
113	NN									X				See Tab F
113	OO									X				See Tab F
113	D									X				See Tab F
113	E								X					
113	F								X					
113	G								X					
113	QQ								X					
113	H								X					
113	I								X					
113	J								X					
113	K							X						
113	L								X					
113	M								X					

WESTINGHOUSE FOR: .162

SKETCH CPL 324A **291**

EXAMINATION SUMMARY
FOR
1987

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
113	N								X					
113	TT								X					
113	UU									X				See Tab F
113	O							X						
113	DD								X					
113	CC								X					
113	BB								X					
113	AA								X					
113	Z								X					
113	Y								X					
113	X									X				See Tab F
113	W								X					
113	V								X					
113	JJ							X						
113	U								X					
113	T								X					
113	S								X					
113	R									X				See Tab F
113	HH									X				See Tab F
113	GG								X					
113	Q								X					
113	P								X					
113	FF									X				See Tab F
113	CCC								X					
113	BBB							X						
113	AAA							X						

SKETCH CPL 324A 292

EXAMINATION SUMMARY
FOR
1987

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
113	ZZ							X						
113	YY							X						
113	XX							X						
113	WW							X						
113	VV							X						
	DDD								X					

WESTINGHOUSE FOR.. /62

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324A

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER [signature] LEVEL II DATE 4-27-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
O	VT-3	X			FLASHLIGHT	
UU	VT-3			X	FLASHLIGHT	LOOSE NUT ON PIPE CLAMP.
TT	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
N	VT-3		X		FLASHLIGHT	CHIPPED PAINT
DD	VT-3		X		FLASHLIGHT	LIGHT RUST
CC	VT-3		X		FLASHLIGHT	MODERATE RUST
BB	VT-3		X		FLASHLIGHT	MODERATE RUST
AA	VT-3		X		FLASHLIGHT	CHIPPED PAINT
L	VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
M	VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
Z	VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
Y	VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
X	VT-3			X	FLASHLIGHT	SUPPORT MISSING
K	VT-3	X			FLASHLIGHT	REMOTE
W	VT-3		X		FLASHLIGHT	LIGHT RUST - REMOTE
J	VT-3		X		FLASHLIGHT	LIGHT RUST - REMOTE
V	VT-3		X		FLASHLIGHT	MODERATE RUST - REMOTE
I	VT-3		X		FLASHLIGHT	MODERATE RUST - REMOTE
H	VT-3		X		FLASHLIGHT	RUST - REMOTE
JJ	VT-3	X			FLASHLIGHT	REMOTE
QQ	VT-3		X		FLASHLIGHT	RUST
G	VT-3		X		FLASHLIGHT	RUST - REMOTE
U	VT-3		X		FLASHLIGHT	RUST - REMOTE
T	VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
F	VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
S	VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT - REMOTE
E	VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT - REMOTE
R	VT-3			X	FLASHLIGHT	SUPPORT MISSING
D	VT-3			X	FLASHLIGHT	SUPPORT MISSING

[signature] 4/28/87

[signature] AN II 4-29-87

FORM 459348

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. Robinson UNIT 2 SKETCH CPL-324A

SYST/COMP Service And Cooling Water PROCEDURE ISI-8, Rev. 9

EXAMINER [signature] LEVEL II DATE 4-27-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
HH VT-3			X	Flashlight	Support Missing
OO VT-3			X	Flashlight	Support Missing
NN VT-3			X	Flashlight	Support Missing
MM VT-3			X	Flashlight	Support Missing
C VT-3			X	Flashlight	Support Missing
GG VT-3		X		Flashlight	Rust, Chipped Paint
LL VT-3		X		Flashlight	Rust, Chipped Paint
Q VT-3		X		Flashlight	Rust - Remote
KK VT-3		X		Flashlight	Rust - Remote
B VT-3		X		Flashlight	Moderate Rust
P VT-3		X		Flashlight	Moderate Rust
A VT-3		X		Flashlight	Chipped Paint, Rust
FF VT-3			X	Flashlight	Support Missing
DDD VT-3		X		Flashlight	Rust
CCC VT-3		X		Flashlight	Rust
KKK VT-3		X		Flashlight	Rust
JJJ VT-3		X		Flashlight	Rust

Richard B. Weber 4/28/87
[signature] ANII
4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

295

VISUAL EXAMINATION DATA

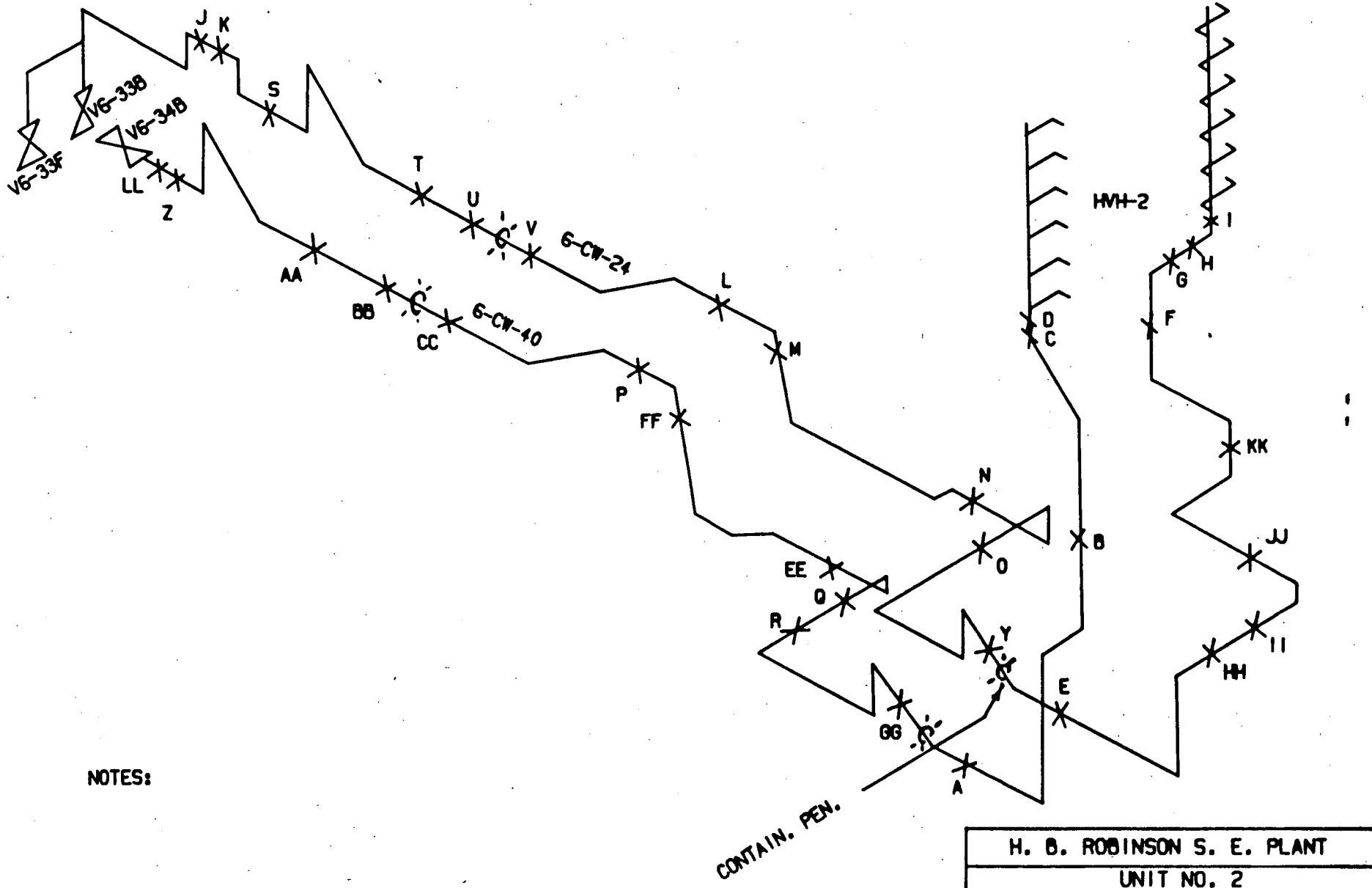
PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-324A

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
VV - VT-3	X			FLASHLIGHT	
WW - VT-3	X			FLASHLIGHT	
XX VT-3	X			FLASHLIGHT	
YY VT-3	X			FLASHLIGHT	
ZZ VT-3	X			FLASHLIGHT	
AAA VT-3	X			FLASHLIGHT	
BBB VT-3	X			FLASHLIGHT	
CCC VT-3	X			FLASHLIGHT	
DDD VT-3	X			FLASHLIGHT	
EEE VT-3	X			FLASHLIGHT	
FFF VT-3	X			FLASHLIGHT	
GGG VT-3	X			FLASHLIGHT	
HHH VT-3	X			FLASHLIGHT	
III VT-3	X			FLASHLIGHT	
JJJ VT-3	X			FLASHLIGHT	
KKK VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					John Jarrard ANII 4-29-87

FORM 459348



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SERVICE AND COOLING WATER			
LINE NO. 6-CW-40	CPL-3248 REV.	1	

WESTINGHOUSE FOR. 32

SKETCH CPL 324B 297

EXAMINATION SUMMARY
FOR

1987

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	REMARKS
114	C								X		
114	D								X		
114	B								X		
114	A							X			
114	GG								X		
114	R							X			
114	Q									X	See Tab F
114	EE							X			
114	FF							X			
114	P							X			
114	CC							X			
114	BB							X			
114	AA							X			
114	Z							X			
114	LL							X			
114	J									X	See Tab F
114	K									X	See Tab F
114	S							X			
114	T							X			
114	U							X			
114	V							X			
114	L							X			
114	M							X			
114	N							X			
114	O							X			
114	Y								X		

WESTINGHOUSE FORM 46762

SKETCH CPL 324B 298

EXAMINATION SUMMARY
FOR

1987

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
114	E							X						
114	HH								X					
114	II									X				See Tab F
114	JJ								X					
114	KK								X					
114	F								X					
114	G								X					
114	H								X					
114	I								X					

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-324B

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Frenyak II (LEVEL II) DATE 4-25-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT-3	X			FLASHLIGHT	
B VT-3		X		FLASHLIGHT	LT. RUST
C VT-3		X		FLASHLIGHT	LT. RUST
D VT-3		X		FLASHLIGHT	LT. RUST
E VT-3	X			FLASHLIGHT	
F VT-3		X		FLASHLIGHT	LT. RUST
G VT-3		X		FLASHLIGHT	LT. RUST
H VT-3		X		FLASHLIGHT	LT. RUST
I VT-3		X		FLASHLIGHT	LT. RUST
JJ VT-3		X		FLASHLIGHT	LT. RUST
KK VT-3		X		FLASHLIGHT	LT. RUST
HH VT-3	X			FLASHLIGHT	
II VT-3			X		SUPPORT IS MISSING
					Richard B. Weber 4/26/87
					John J. Jaworek ANII 4-27-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

300

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-324B

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furyak II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
O VT-3	X			FLASHLIGHT	
R VT-3	X			FLASHLIGHT	
Q VT-3			X	FLASHLIGHT	BOTTOM PART OF HANGER IS MISSING
Y VT-3		X		FLASHLIGHT	LIGHT RUST
GG VT-3		X		FLASHLIGHT	LIGHT RUST

Richard B. Nelson 4/28/87

ANII 4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

301

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-324B

SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
EE - VT-3	X			FLASHLIGHT	
N - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					John Hancock ANII 4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

302

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-324B

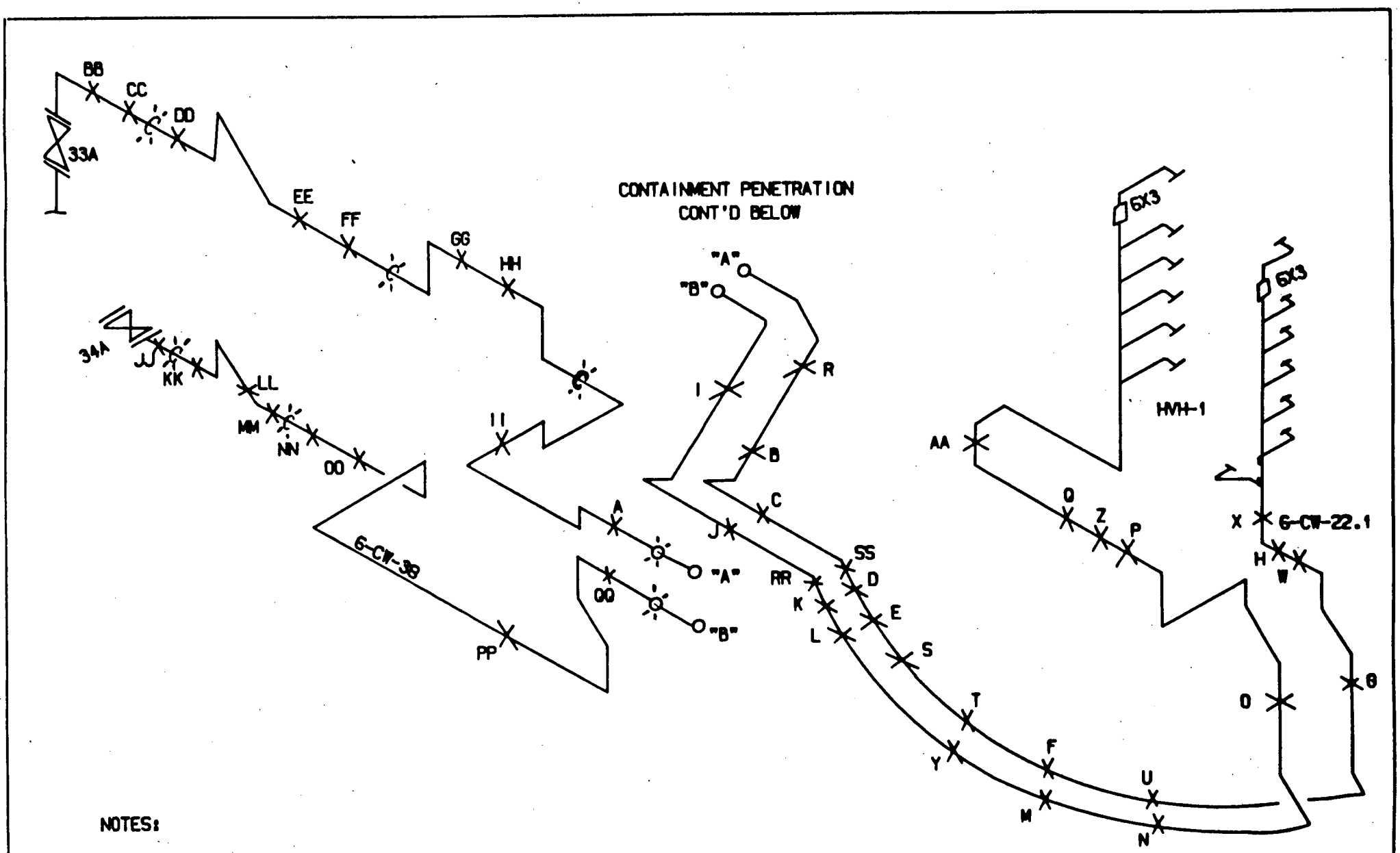
SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
J - VT-3			X	FLASHLIGHT	SUPPORTS MISSING
K - VT-3			X	FLASHLIGHT	SUPPORTS MISSING
S - VT-3	X			FLASHLIGHT	
T - VT-3	X			FLASHLIGHT	
U - VT-3	X			FLASHLIGHT	
V - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
M - VT-3	X			FLASHLIGHT	
LL - VT-3	X			FLASHLIGHT	
Z - VT-3	X			FLASHLIGHT	
AA - VT-3	X			FLASHLIGHT	
BB - VT-3	X			FLASHLIGHT	
CC - VT-3	X			FLASHLIGHT	
P - VT-3	X			FLASHLIGHT	
FF - VT-3	X			FLASHLIGHT	

Richard B. Weber 4/28/87
ANII
4-29-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SERVICE AND COOLING WATER			
LINE NO. 6-CW-38	CPL-324C	REV. 2	

WESTINGHOUSE FOR. 82

SKETCH CPL 324C **304**

EXAMINATION SUMMARY
FOR
1987

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
115	AA							X						
115	Q								X					
115	Z								X					
115	P									X				See Tab F
115	O								X					
115	U							X						
115	F							X						
115	T								X					
115	S									X				See Tab F
115	E									X				See Tab F
115	D								X					
115	SS								X					
115	C								X					
115	B								X					
115	R								X					
115	A								X					
115	II								X					
115	HH							X						
115	GG							X						
115	FF							X						
115	EE							X						
115	DD							X						
115	CC							X						
115	BB							X						
115	X								X					
115	H							X						

WESTINGHOUSE FOR. 762

SKETCH CPL 324C 305

EXAMINATION SUMMARY
FOR

1987

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
115	W								X					
115	G								X					
115	N									X				See Tab F
115	M							X						
115	Y								X					
115	L									X				See Tab F
115	K								X					
115	RR								X					
115	J								X					
115	I								X					
115	QQ								X					
115	PP								X					
115	OO							X						
115	NN							X						
115	MM							X						
115	LL							X						
115	KK							X						
115	JJ							X						
115	R1								X					New Support

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324C

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV.9

EXAMINER [signature] LEVEL II DATE 4-26-87 / 4-27-87

IDENT. NUMBER		RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
AA	VT-3	X			FLASHLIGHT	
Q	VT-3		X		FLASHLIGHT	LIGHT RUST
Z	VT-3		X		FLASHLIGHT	LIGHT RUST
P	VT-3			X		SUPPORT HAS BEEN REMOVED
O	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
U	VT-3	X			FLASHLIGHT	
F	VT-3	X			FLASHLIGHT	
T	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
S	VT-3			X		SUPPORT REMOVED
E	VT-3			X		SUPPORT REMOVED
D	VT-3		X		FLASHLIGHT	LIGHT RUST
SS	VT-3		X		FLASHLIGHT	LIGHT RUST
C	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
B	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
R	VT-3		X		FLASHLIGHT	LIGHT RUST
R1	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT. THIS SUPPORT IS NOT SHOWN ON SKETCH CPL-324C, IT IS LOCATED APPROX. 3 FT BEFORE LINE "A" ENTERS PENETRATION S-3.
A	VT-3		X		FLASHLIGHT	LT. RUST
II	VT-3		X		FLASHLIGHT	LIGHT RUST
X	VT-3		X		FLASHLIGHT	LIGHT RUST, REMOTE
H	VT-3	X			FLASHLIGHT	
W	VT-3		X		FLASHLIGHT	LIGHT RUST
G	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
N	VT-3			X	FLASHLIGHT	LOOSE CLAMP
M	VT-3	X			FLASHLIGHT	
Y	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
L	VT-3			X		SUPPORT REMOVED

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

307

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324C

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV.9

EXAMINER [signature] LEVEL II DATE 4-26-87 / 4-27-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
K VT-3		X		FLASHLIGHT	LIGHT RUST
RR VT-3		X		FLASHLIGHT	LIGHT RUST
J VT-3		X		FLASHLIGHT	LIGHT RUST
I VT-3		X		FLASHLIGHT	LIGHT RUST
QQ VT-3		X		FLASHLIGHT	LIGHT RUST, REMOTE
PP VT-3		X		FLASHLIGHT	LIGHT RUST, REMOTE
					Richard B. Webb 4/28/87
					John Jennewood ANII 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

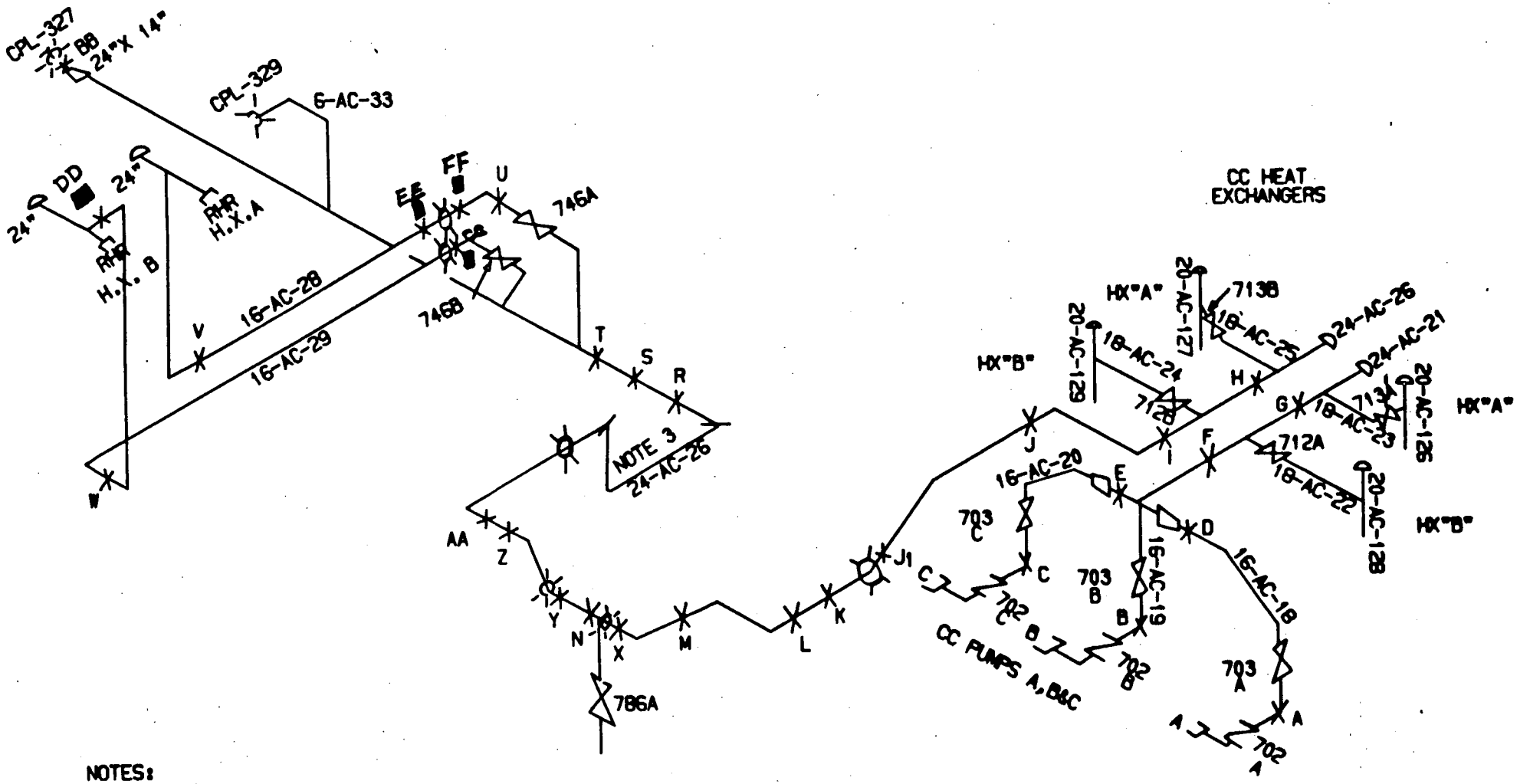
PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-324C

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Richard Wm. Vaughan II (LEVEL II) DATE 4-26-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
BB - VT-3	X			FLASHLIGHT	
CC - VT-3	X			FLASHLIGHT	
DD - VT-3	X			FLASHLIGHT	
EE - VT-3	X			FLASHLIGHT	
FF - VT-3	X			FLASHLIGHT	
GG - VT-3	X			FLASHLIGHT	
HH - VT-3	X			FLASHLIGHT	
JJ - VT-3	X			FLASHLIGHT	
KK - VT-3	X			FLASHLIGHT	
LL - VT-3	X			FLASHLIGHT	
MM - VT-3	X			FLASHLIGHT	
NN - VT-3	X			FLASHLIGHT	
OO - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					John Jaworski ANII 4-29-87

FORM 459348


CPL-327
BB
24"X 14"
CPL-329
6-AC-33
DD
24"
24"
RHR H.X.A
RHR H.X. B
16-AC-28
16-AC-29
V
W
EE
FF
U
746A
746B
T
S
R
NOTE 3
24-AC-26
AA
Z
Y
N
X
M
L
K
J1
786A
CC HEAT EXCHANGERS
HX"A"
HX"B"
20-AC-127
7138
18-AC-25
D24-AC-26
20-AC-129
18-AC-24
D24-AC-21
H
G
713A
18-AC-23
20-AC-125
HX"A"
J
I
F
712A
18-AC-22
20-AC-128
HX"B"
16-AC-20
E
703 C
D
16-AC-18
C
703 B
16-AC-19
B
CC PUMPS A,B&C
703 A
A
1
702 C
702 B
702 A
H. B. ROBINSON S. E. PLANT
UNIT NO. 2
DESCRIPTION: COMPONENT COOLANT SYSTEMS
LINE NO. 24-AC-26
CPL-325
REV. 2
CP&L

NOTES:

WESTINGHOUSE FORM 46762

SKETCH CPL 325 310

EXAMINATION SUMMARY
FOR

1987

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
116	G							X						
116	F							X						
116	E							X						
116	C							X						
116	D							X						
116	B							X						
116	A							X						
116	H							X						
116	I							X						
116	J							X						
116	J1							X						
116	K							X						
116	L							X						
116	M							X						
116	FF							X						
116	N							X						
116	DD							X						
116	EE							X						
116	AA							X						
116	R							X						
116	S							X						
116	T							X						
116	Z							X						
116	W							X						
116	CC							X						
116	U							X						

SKETCH CPL 325	311

EXAMINATION SUMMARY
FOR

1987

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
116	X							X						
116	Y							X						
116	V							X						
116	BB							X						

WESTINGHOUSE FORM 4...2

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

312

VISUAL EXAMINATION DATA

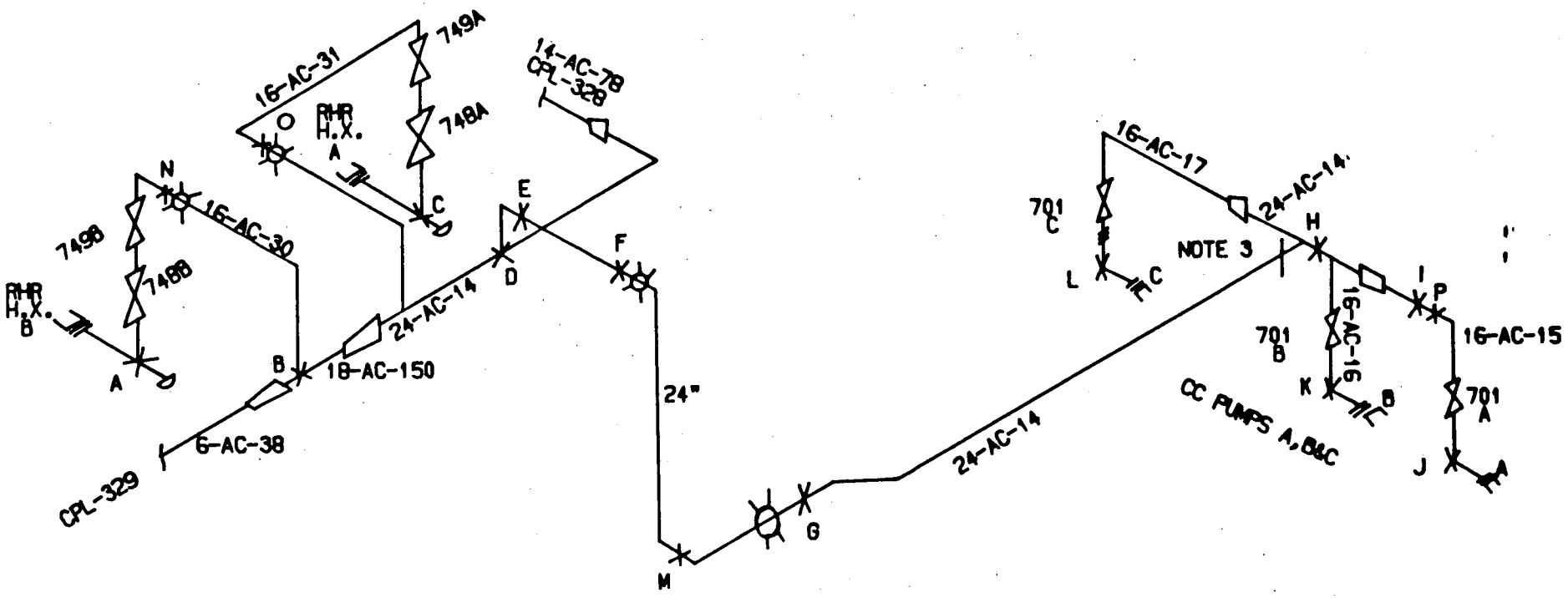
PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-325

SYST/COMP COMPONENT COOLING SYSTEMS PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-24-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
C - VT-3	X			FLASHLIGHT	
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
J1 - VT-3	X			FLASHLIGHT	
K - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
M - VT-3	X			FLASHLIGHT	
N - VT-3	X			FLASHLIGHT	
R - VT-3	X			FLASHLIGHT	
S - VT-3	X			FLASHLIGHT	
T - VT-3	X			FLASHLIGHT	
U - VT-3	X			FLASHLIGHT	
V - VT-3	X			FLASHLIGHT	
W - VT-3	X			FLASHLIGHT	
X - VT-3	X			FLASHLIGHT	
Y - VT-3	X			FLASHLIGHT	
Z - VT-3	X			FLASHLIGHT	
AA - VT-3	X			FLASHLIGHT	
BB - VT-3	X			FLASHLIGHT	
CC - VT-3	X			FLASHLIGHT	
DD - VT-3	X			FLASHLIGHT	Richard B. Weber 4/26/87
EE - VT-3	X			FLASHLIGHT	John Annaval ANII
FF - VT-3	X			FLASHLIGHT	4-27-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: COMPONENT COOLANT SYSTEMS			
LINE NO. 24-AC-14	CPL- 326 REV.	2	

WESTINGHOUSE FORM 46762

SKETCH CPL 326 314

EXAMINATION SUMMARY
FOR

1987

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
117	A							X						
117	N							X						
117	B							X						
117	C							X						
117	D							X						
117	E							X						
117	F							X						
117	M							X						
117	G							X						
117	H							X						
117	I							X						
117	L							X						
117	K							X						
117	J							X						
117	O							X						
117	P							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

315

VISUAL EXAMINATION DATA

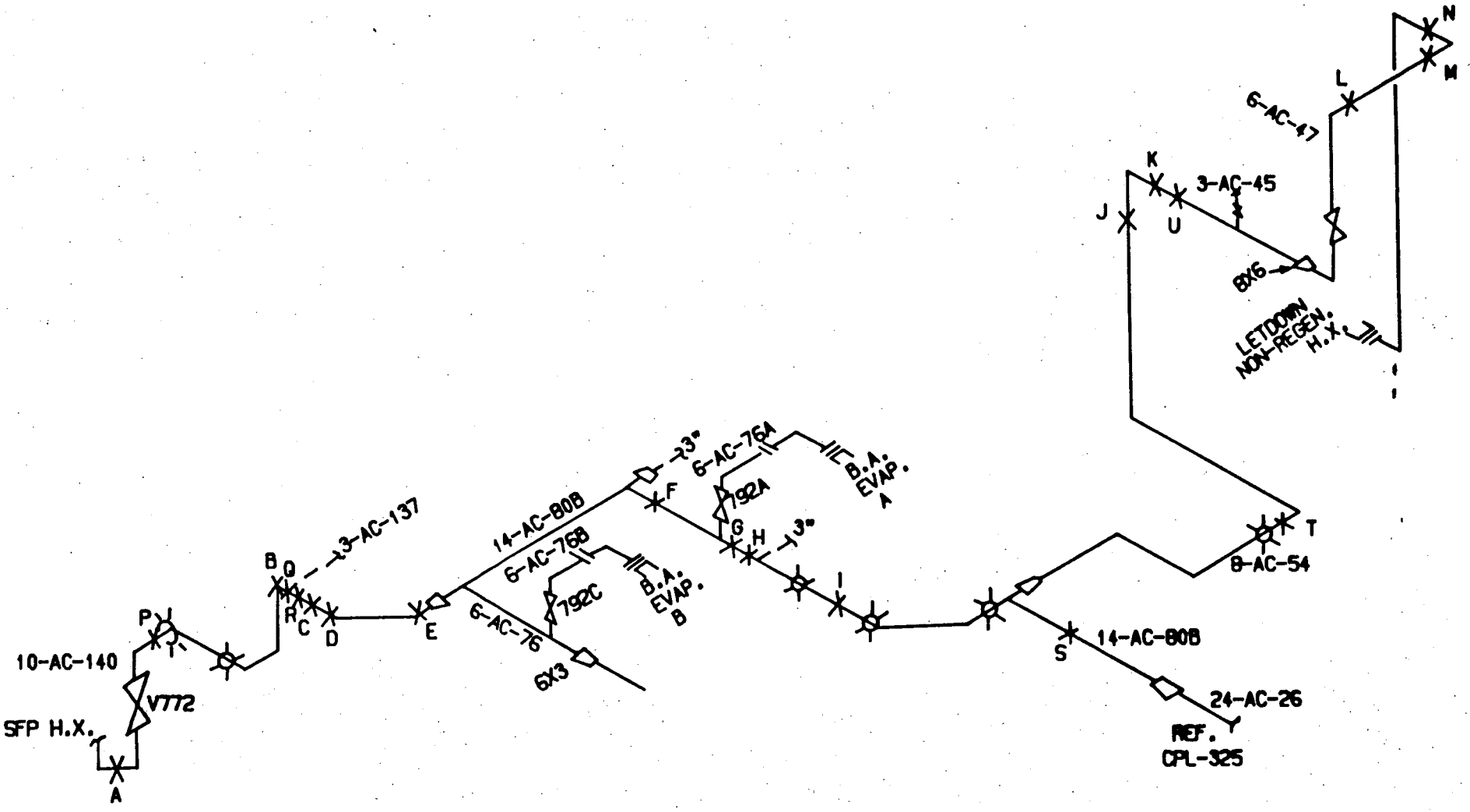
PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-326

SYST/COMP COMPONENT COOLING SYSTEM PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Vaughn II DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
C - VT-3	X			FLASHLIGHT	
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
K - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
M - VT-3	X			FLASHLIGHT	
N - VT-3	X			FLASHLIGHT	
O - VT-3	X			FLASHLIGHT	
P - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/29/87
					John Jurecka ANII 4-29-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: COMPONENT COOLANT SYSTEMS			
LINE NO. 14-AC-78	CPL- 327	REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 327 317

EXAMINATION SUMMARY
FOR

1987

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
118	A								X					
118	P							X						
118	B							X						
118	Q							X						
118	R							X						
118	C							X						
118	D							X						
118	E							X						
118	F							X						
118	G							X						
118	H							X						
118	I							X						
118	S							X						
118	T							X						
118	J							X						
118	K								X					
118	U							X						
118	L									X				See Tab F
118	M							X						
118	N							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

318

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-327

SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE ISI-8, REV. 9

EXAMINER Donald D. Fennyak II Will O Mc II DATE 4-26-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT-3		X		FLASHLIGHT	LIGHT RUST
J VT-3	X			FLASHLIGHT	REMOTE
K VT-3		X		FLASHLIGHT	LIGHT RUST
L VT-3			X	FLASHLIGHT	INADEQUATE THREAD ENGAGEMENT
M VT-3	X			FLASHLIGHT	
N VT-3	X			FLASHLIGHT	REMOTE
U VT-3	X			FLASHLIGHT	

Richard B. Weber 4/26/87
John Jamison ANII
4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-327

SYST/COMP COMPONENT COOLANT SYS. PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II (LEVEL II) DATE 4-29-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
P - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
Q - VT-3	X			FLASHLIGHT	
R - VT-3	X			FLASHLIGHT	
C - VT-3	X			FLASHLIGHT	
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
S - VT-3	X			FLASHLIGHT	
T - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					ANII 4-29-87

FORM 459348

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

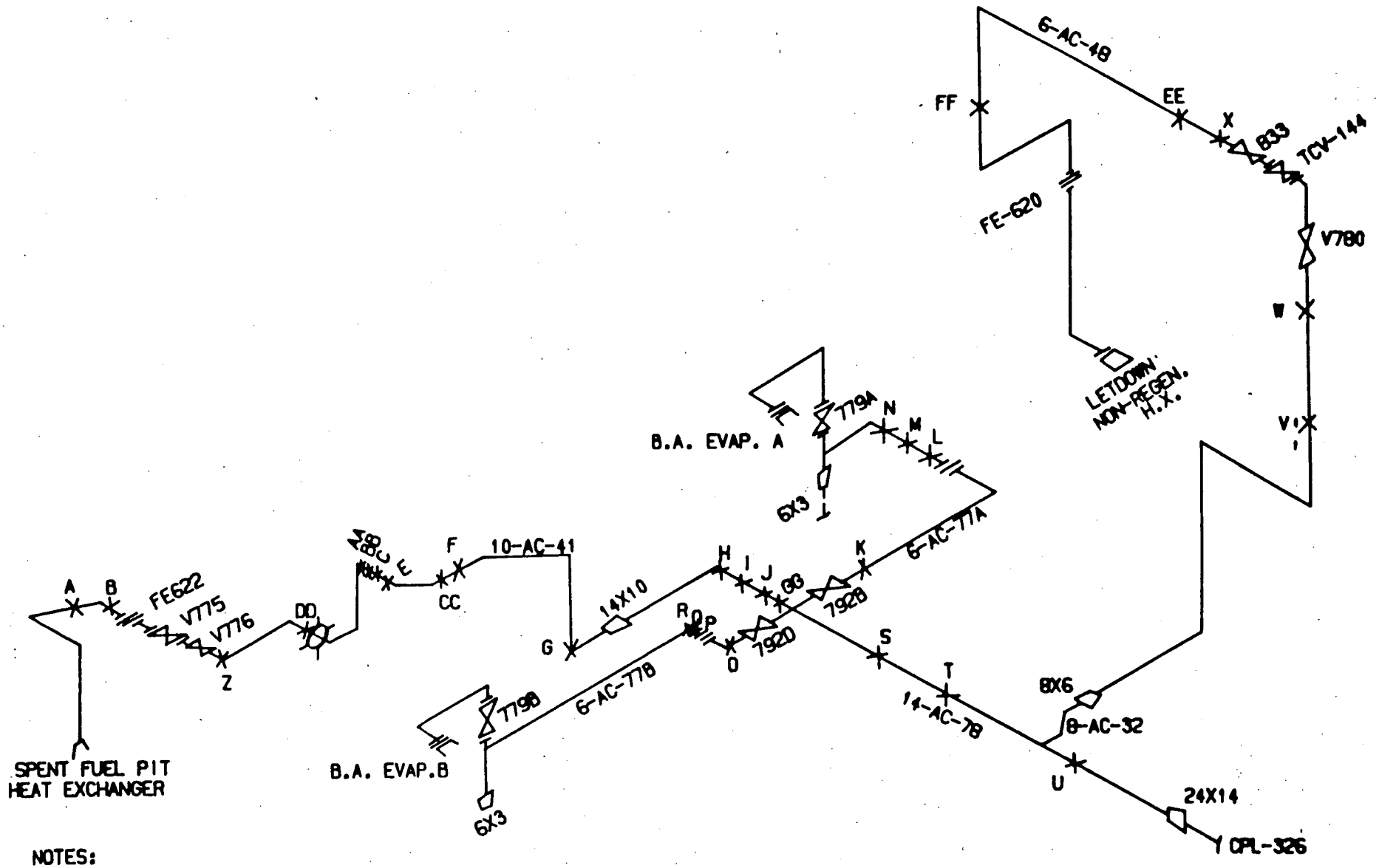
PLANT H. B. ROBINSON UNIT 2 SKETCH CPC-327

SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furyak II DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS			VISUAL AIDS	REMARKS
	NI	NRI	RI		
L-VT-3		X		FLASHLIGHT	CHIPPED PAINT, AFTER REWORK
					Richard B. Nelson 4/29/87
					John Hummel ANII 4-29-87

FORM 459348



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: COMPONENT COOLANT SYSTEMS			
LINE NO. 14-AC-78	CPL- 328	REV. 2	

WESTINGHOUSE FORM 46702

SKETCH CPL 328 322

EXAMINATION SUMMARY
FOR
1987

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
119	A							X						
119	B							X						
119	Z								X					
119	DD							X						
119	AA							X						
119	BB							X						
119	C							X						
119	E							X						
119	CC							X						
119	F							X						
119	G							X						
119	H							X						
119	I							X						
119	J							X						
119	GG							X						
119	K									X				See Tab F
119	L							X						
119	M							X						
119	N							X						
119	S							X						
119	T							X						
119	U							X						
119	V									X				See Tab F
119	W								X					
119	X							X						
119	EE							X						

WESTINGHOUSE FORM 46762

SKETCH CPL 328

EXAMINATION SUMMARY FOR 1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
119	FF							X						
119	R									X				See Tab F
119	Q							X						
119	P									X				See Tab F
119	O							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

324

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-328

SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE ISI-8, REV-9

EXAMINER Joseph D. Tuscyak II LEVEL II DATE 4-26-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT-3	X			FLASHLIGHT	
B VT-3	X			FLASHLIGHT	
V VT-3			X	FLASHLIGHT	INADEQUATE THREAD ENGAGEMENT
W VT-3		X		FLASHLIGHT	LIGHT RUST
X VT-3	X			FLASHLIGHT	
Z VT-3		X		FLASHLIGHT	CHIPPED PAINT
EE VT-3	X			FLASHLIGHT	
FF VT-3	X			FLASHLIGHT	REMOTE
					Richard B. Webster 4/26/87
					John Jarrard ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

325

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-328

SYST/COMP COMPONENT COOLANT SYSTEM PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II (LEVEL II) DATE 4-29-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
DD - VT-3	X			FLASHLIGHT	
AA - VT-3	X			FLASHLIGHT	
BB - VT-3	X			FLASHLIGHT	
C - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
CC - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
GG - VT-3	X			FLASHLIGHT	
R - VT-3			X	FLASHLIGHT	BORIC ACID ON 4 BOLTS
Q - VT-3	X			FLASHLIGHT	
P - VT-3			X	FLASHLIGHT	BORIC ACID ON FLOOR SUPPORT & 4 BOLT
O - VT-3	X			FLASHLIGHT	
S - VT-3	X			FLASHLIGHT	
T - VT-3	X			FLASHLIGHT	
U - VT-3	X			FLASHLIGHT	
K - VT-3			X	FLASHLIGHT	MISSING NUT ON HANGER ROD
M - VT-3	X			FLASHLIGHT	
N - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					John Johnson ANII 4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-328

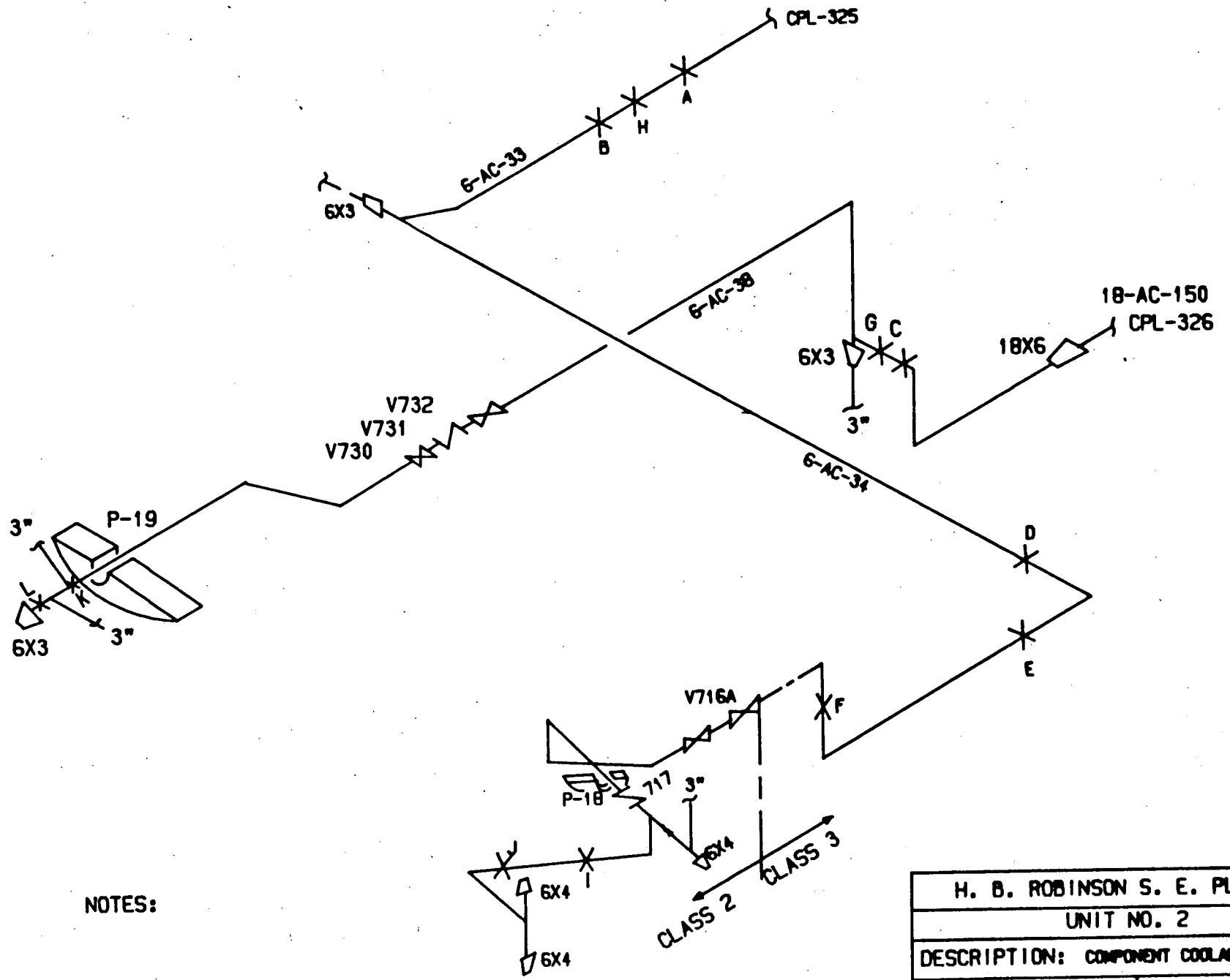
SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V - VT-3		X		FLASHLIGHT	LT. RUST AFTER REWORK

Richard B. Weber 4/29/87
4-29-87

FORM 459348



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: COMPONENT COOLANT SYSTEM			
LINE NO. 6-AC-38	CPL- 329	REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 329 328

EXAMINATION SUMMARY
FOR

1987

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
120	L							X						
120	F							X						
120	G								X					
120	C							X						
120	A									X				see tab F
120	H								X					
120	B								X					
120	D								X					
120	E								X					
120	K							X						
120	I							X						
120	J							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-329

SYST/COMP COMPONENT COOLANT SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Turnyak II LEVEL II Paul J. Kovalla-I DATE 4-27-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT-3			X	FLASHLIGHT	TOP OF SUPPORT IS MISSING
B VT-3		X		FLASHLIGHT	LT. RUST
C VT-3	X			FLASHLIGHT	
D VT-3		X		FLASHLIGHT	CHIPPED PAINT
E VT-3		X		FLASHLIGHT	CHIPPED PAINT
F VT-3	X			FLASHLIGHT	
G VT-3		X		FLASHLIGHT	LT. RUST
H VT-3		X		FLASHLIGHT	LT. RUST
					Richard B. Weber 4/28/87
					John Harwood ANII 4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

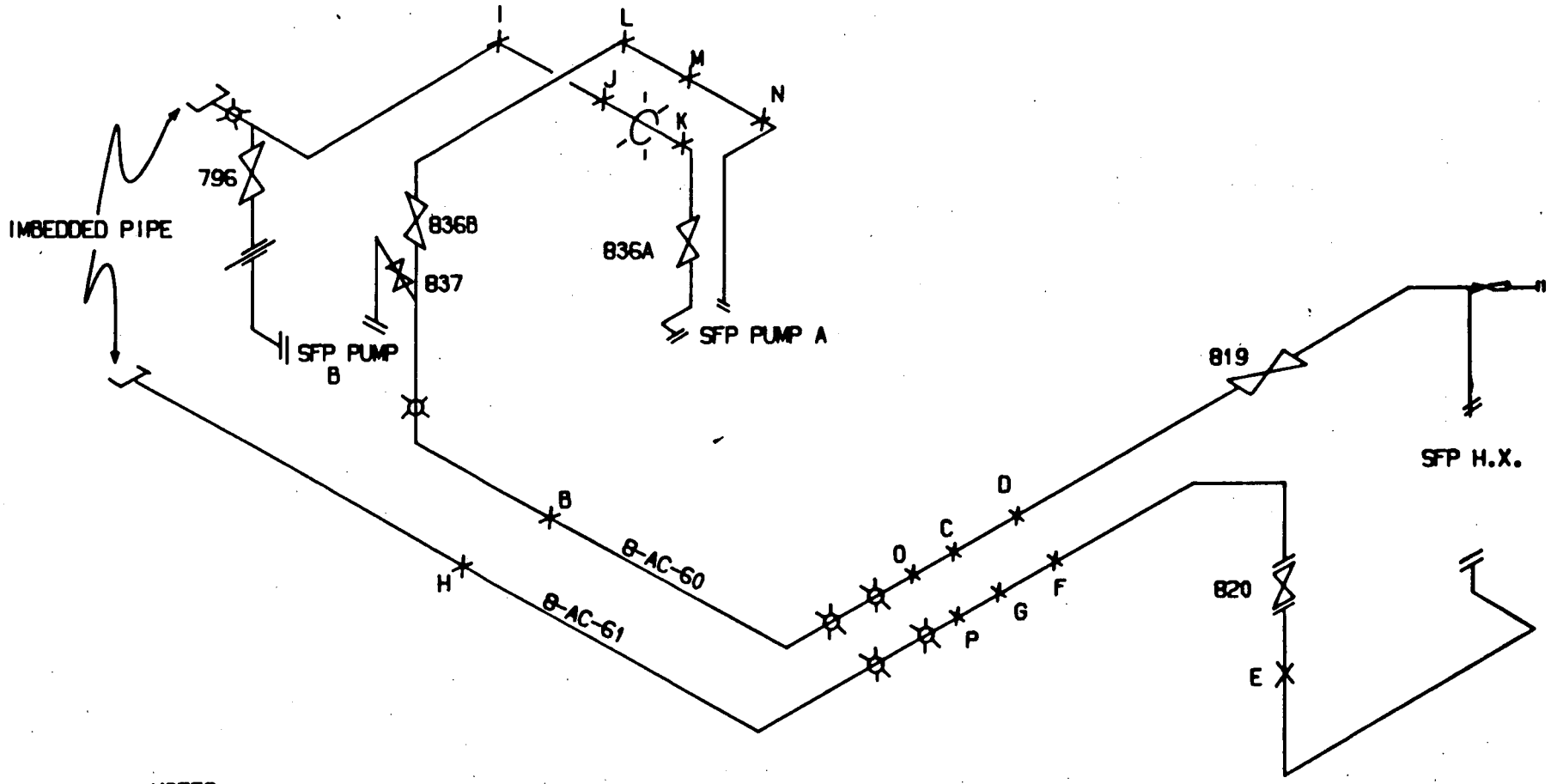
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-329

SYST/COMP COMPONENT COOLING SYSTEM PROCEDURE ISI 8 REV. 9

EXAMINER Josh B. Campbell III DATE 4-26-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
I VT3	X			FLASHLIGHT	
J VT3	X			FLASHLIGHT	
K VT3	X			FLASHLIGHT	
L VT3	X			FLASHLIGHT	
					Richard B. Weber 4/26/87
					John Jarrard ANII 4-27-87

FORM 45934B



NOTES:

H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: SPENT FUEL PIT COOLANT SYS.			
LINE NO. 8-AC-60	CPL- 330	REV. 2	

WESTINGHOUSE FORM 40732

SKETCH CPL 330 **332**

EXAMINATION SUMMARY
FOR
1987

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
121	N							X						
121	M								X					
121	L							X						
121	B								X					
121	O							X						
121	C							X						
121	D							X						
121	K									X				See Tab F
121	J							X						
121	I							X						
121	H								X					
121	P							X						
121	G							X						
121	F							X						
121	E							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

333

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT # 2 SKETCH CPL-330

SYST/COMP SPENT FUEL PIT COOLANT 545. PROCEDURE ISI-8 REV. 9

EXAMINER Richard Wm. Hughes II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
C - VT-3	X			FLASHLIGHT	
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
K - VT-3			X	FLASHLIGHT	INADEQUATE THREAD ENGAUGEMENT ON 2ND NUT ON U-BOLT
L - VT-3	X			FLASHLIGHT	
M - VT-3		X		FLASHLIGHT	LIGHT RUST and CHIPPED PAINT
N - VT-3	X			FLASHLIGHT	
O - VT-3	X			FLASHLIGHT	
P - VT-3	X			FLASHLIGHT	
					Richard D. Weber 4/28/87
					John Jancaid ANII 4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-330

SYST/COMP SPENT FUEL PIT COOLANT PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
B VT-3		X		FLASHLIGHT	LIGHT RUST
H VT-3		X		FLASHLIGHT	LIGHT RUST

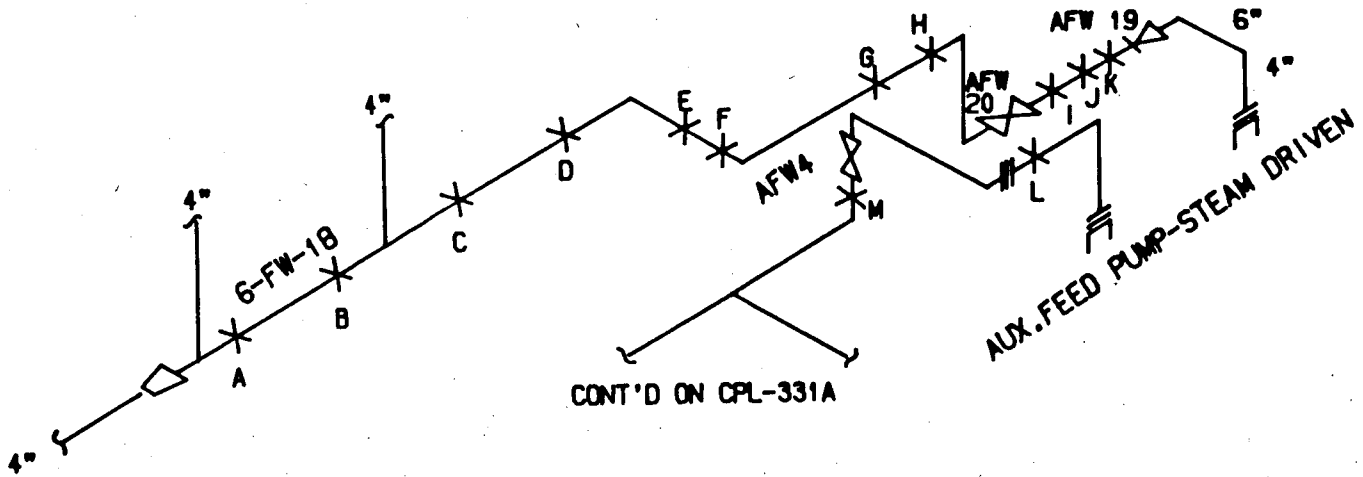
Richard B. Weber 4/28/87

John J. Innocenti ANII
4-29-87

FORM 45934B

SPRING HANGERS

B,C,E,G,J



NOTES:

H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: AUXY. FEED&CONDENSATE PIPE		
LINE NO. 6-FW-18	CPL- 331 REV.	1

CP&L

WESTINGHOUSE FORM 46762

SKETCH CPL 331 336

EXAMINATION SUMMARY
FOR

1987

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
122	A							X						
122	B							X						
122	C							X						
122	D							X						
122	E							X						
122	F							X						
122	G							X						
122	H							X						
122	I							X						
122	J							X						
122	K							X						
122	L							X						
122	M							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

337

VISUAL EXAMINATION DATA

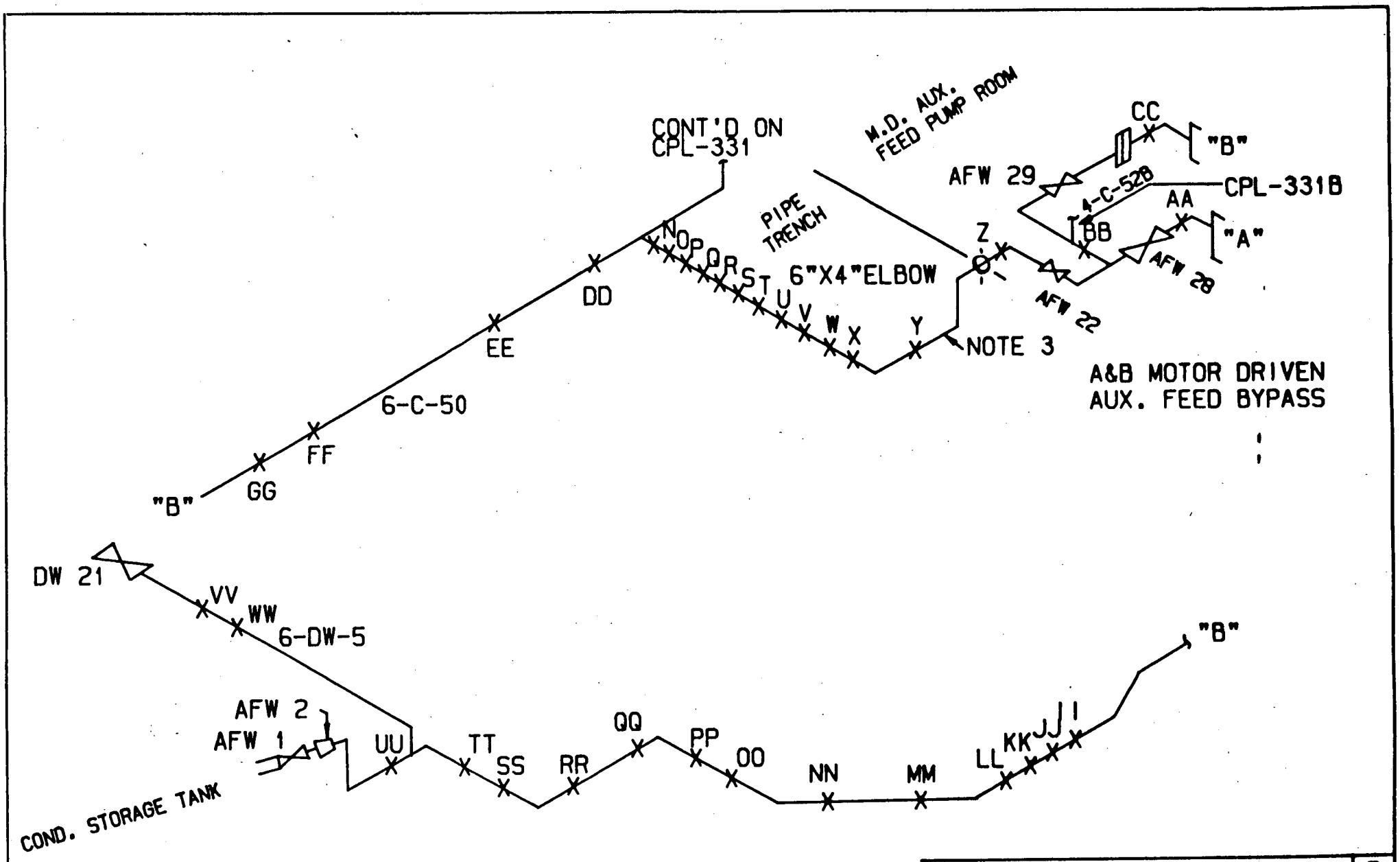
PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-331

SYST/COMP AUX'A. FEED & CONDENSATE PIPE PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-22-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	SETTING - 670
C - VT-3	X			FLASHLIGHT	SETTING - 616
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	SETTING - 560
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	SETTING - 670
H - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	SETTING - 2035
K - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
M - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/23/87
					John Jennard ANII 4-23-87

FORM 459348



NOTES:

H. B. ROBINSON S. E. PLANT		CP&L
UNIT NO. 2		
DESCRIPTION: AUXY. FEED & CONDENSATE PIPE		
LINE NO. 6-C-50	CPL-331A REV. 2	

WESTINGHOUSE FORM 40752

SKETCH CPL 331A 339

EXAMINATION SUMMARY
FOR

1987

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
123	CC							X						
123	AA							X						
123	BB							X						
123	Z							X						
123	Y							X						
123	X								X					See Tab F
123	W								X					See Tab F
123	V								X					See Tab F
123	U							X						
123	T								X					See Tab F
123	S								X					See Tab F
123	R								X					See Tab F
123	Q								X					See Tab F
123	P								X					See Tab F
123	O								X					See Tab F
123	N								X					See Tab F
123	DD							X						
123	EE							X						
123	FF							X						
123	GG							X						
123	VV							X						
123	WW							X						
123	UU							X						
123	TT								X					
123	SS							X						
123	RR								X					See Tab F

WESTINGHOUSE FORM 40762

EXAMINATION SUMMARY
FOR
1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
123	QQ							X						
123	PP								X					
123	OO							X						
123	NN							X						
123	MM							X						
123	LL							X						
123	KK							X						
123	JJ							X						
123	II							X						

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-331A

SYST/COMP AUXY. FEED & CONDENSATE PIPE PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II (LEVEL II) DATE 4-27-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
UU - VT-3	X			FLASHLIGHT	
TT - VT-3		X		FLASHLIGHT	LIGHT RUST
SS - VT-3	X			FLASHLIGHT	
RR - VT-3			X	FLASHLIGHT	HEAVY RUST
QQ - VT-3	X			FLASHLIGHT	
PP - VT-3		X		FLASHLIGHT	LIGHT RUST
OO - VT-3	X			FLASHLIGHT	
NN - VT-3	X			FLASHLIGHT	
MM - VT-3	X			FLASHLIGHT	
LL - VT-3	X			FLASHLIGHT	
KK - VT-3	X			FLASHLIGHT	
JJ - VT-3	X			FLASHLIGHT	
II - VT-3	X			FLASHLIGHT	
GG - VT-3	X			FLASHLIGHT	
FF - VT-3	X			FLASHLIGHT	
EE - VT-3	X			FLASHLIGHT	
DD - VT-3	X			FLASHLIGHT	NOTE: SUPPORT DD RELOCATED TO OTHER SIDE OF PIPE 'T'
N - VT-3			X	FLASHLIGHT	HEAVY RUST
O - VT-3			X	FLASHLIGHT	HEAVY RUST
P - VT-3			X	FLASHLIGHT	HEAVY RUST
Q - VT-3			X	FLASHLIGHT	HEAVY RUST
R - VT-3			X	FLASHLIGHT	HEAVY RUST
S - VT-3			X	FLASHLIGHT	HEAVY RUST
T - VT-3			X	FLASHLIGHT	HEAVY RUST
U - VT-3	X			FLASHLIGHT	
V - VT-3			X	FLASHLIGHT	HEAVY RUST
W - VT-3			X	FLASHLIGHT	HEAVY RUST
X - VT-3			X	FLASHLIGHT	HEAVY RUST
Y - VT-3	X			FLASHLIGHT	

Richard B. Weber 4/28/87

ANII 4-29-87

FORM 459348

SHEET 2 OF 2

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-331A

SYST/COMP AUX. FEED & CONDENSATE PIPE PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
VV - VT-3	X			FLASHLIGHT	
WW - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					[signature] ANII
					4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT # 2 SKETCH CPL-331A

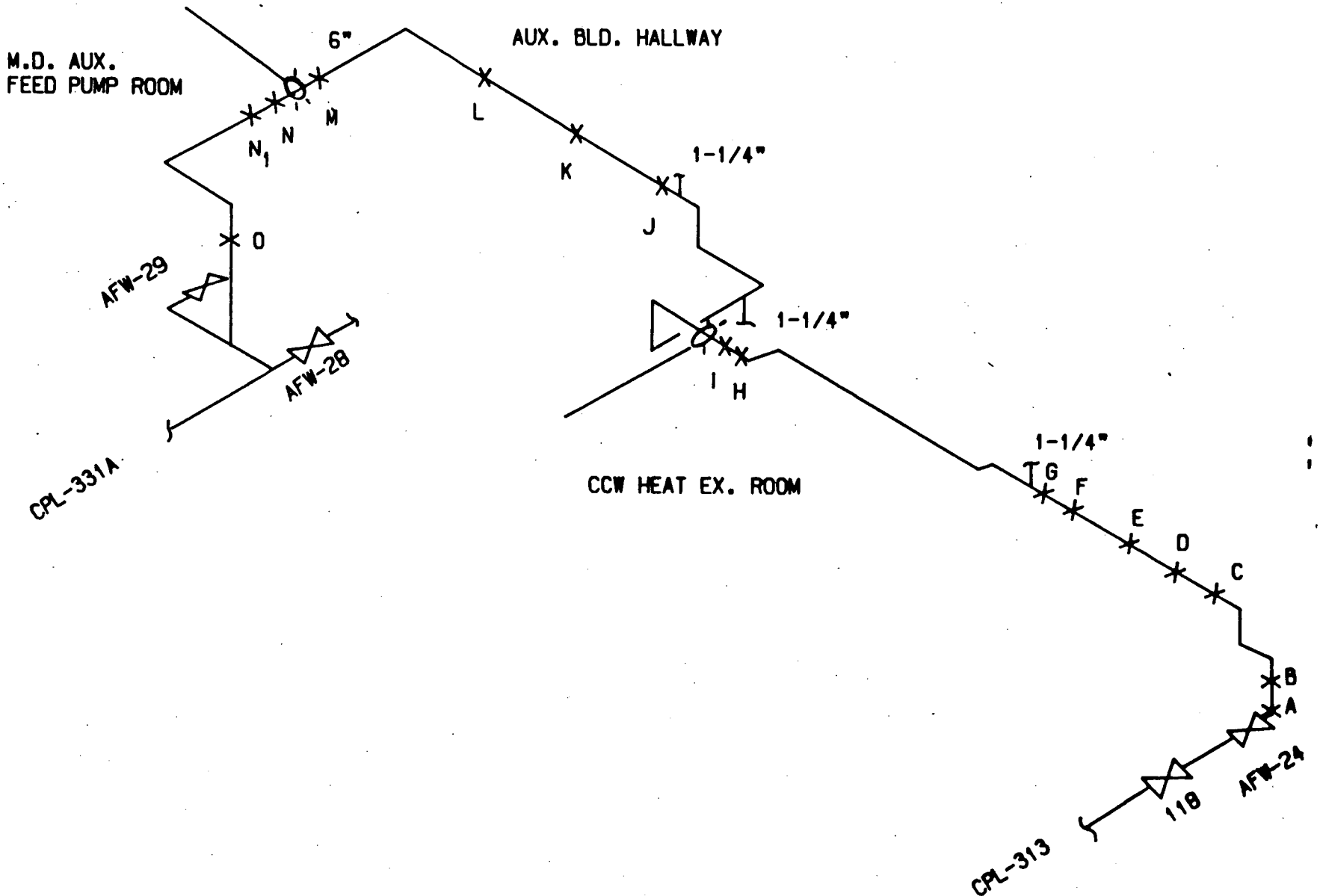
SYST/COMP AUX. FEED & CONDENSATE PIPE PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II LEVEL II DATE 4-21-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
AA - VT-3	X			FLASHLIGHT	
BB - VT-3	X			FLASHLIGHT	
CC - VT-3	X			FLASHLIGHT	
Z - VT-3	X			FLASHLIGHT	

Richard B. Weber 4/23/87
John Duncan ANII 4-23-87

FORM 45934B



H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: AUX. FEED & COND.		
LINE NO. 6-CW-93	CPL- 331B REV.	2

CP&L

WESTINGHOUSE FORM 46762

SKETCH CPL 331B 345

EXAMINATION SUMMARY
FOR

1987

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
124	A							X						
124	B							X						
124	C							X						
124	D							X						
124	E							X						
124	F							X						
124	G							X						
124	H							X						
124	I							X						
124	J							X						
124	K							X						
124	L							X						
124	M							X						
124	N							X						
124	N1							X						
124	O							X						

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-331B

SYST/COMP AUX. FEED & CONDENSATE PIPE PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II (LEVEL II) DATE 4-22-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
C - VT-3	X			FLASHLIGHT	
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
K - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
M - VT-3	X			FLASHLIGHT	
N - VT-3	X			FLASHLIGHT	
N1 - VT-3	X			FLASHLIGHT	
O - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/24/87
					John Hassard ANII 4-24-87

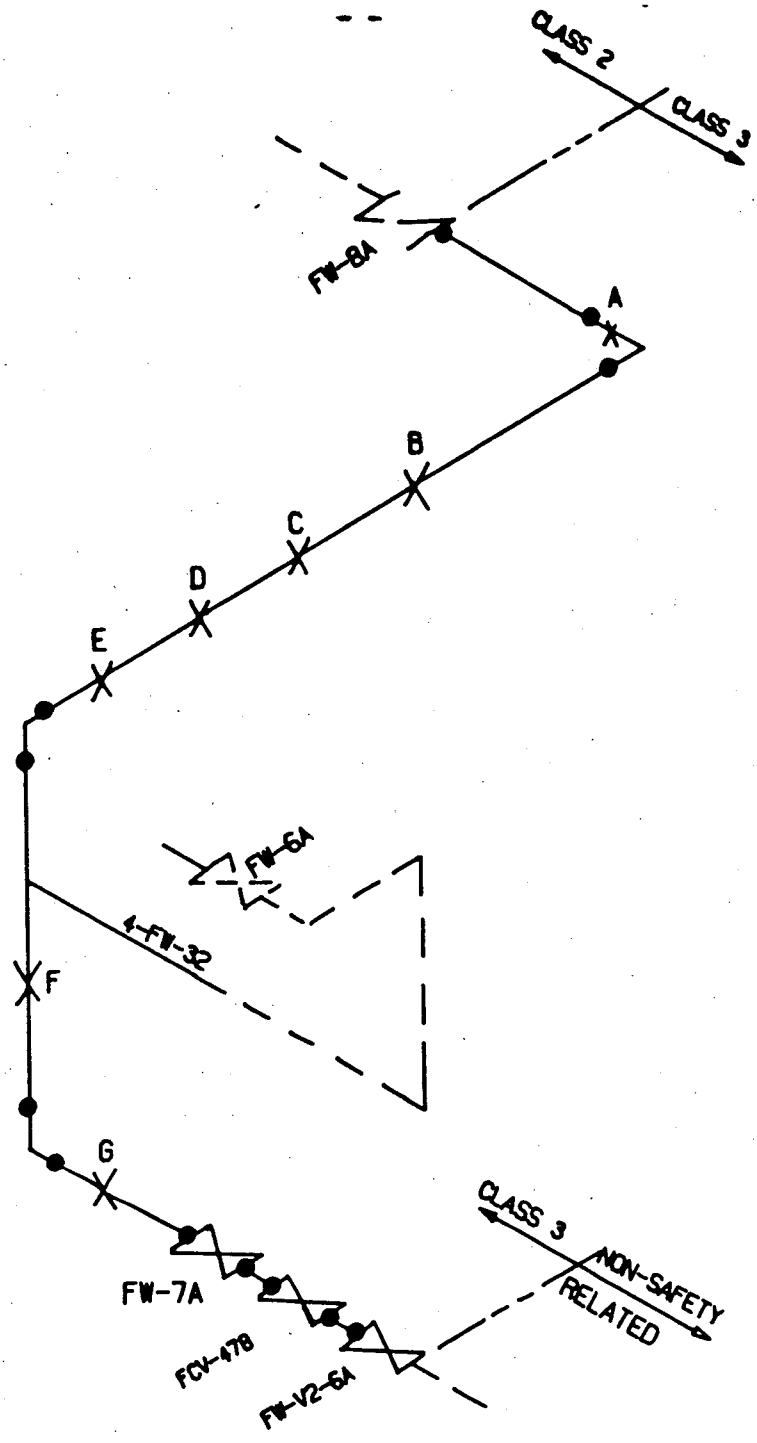
FORM 45934B

SPRING HANGERS

F

SNUBBERS

8



NOTES:

H.B. ROBINSON S.E. PLANT			
UNIT NO. 2			
DESCRIPTION: FEEDWATER SYSTEM			
LINE NO. 16-FW-9	CPL-332	REV.	1

WESTINGHOUSE FORM 46/62

SKETCH CPL 332 348

EXAMINATION SUMMARY
FOR

1987

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
125	A							X						Whip Rest.
125	B							X						
125	C							X						
125	D							X						
125	E									X				See Tab F
125	F							X						
125	G							X						

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-332

SYST/COMP FEED WATER SYSTEM PROCEDURE ISI-8, REV. 9

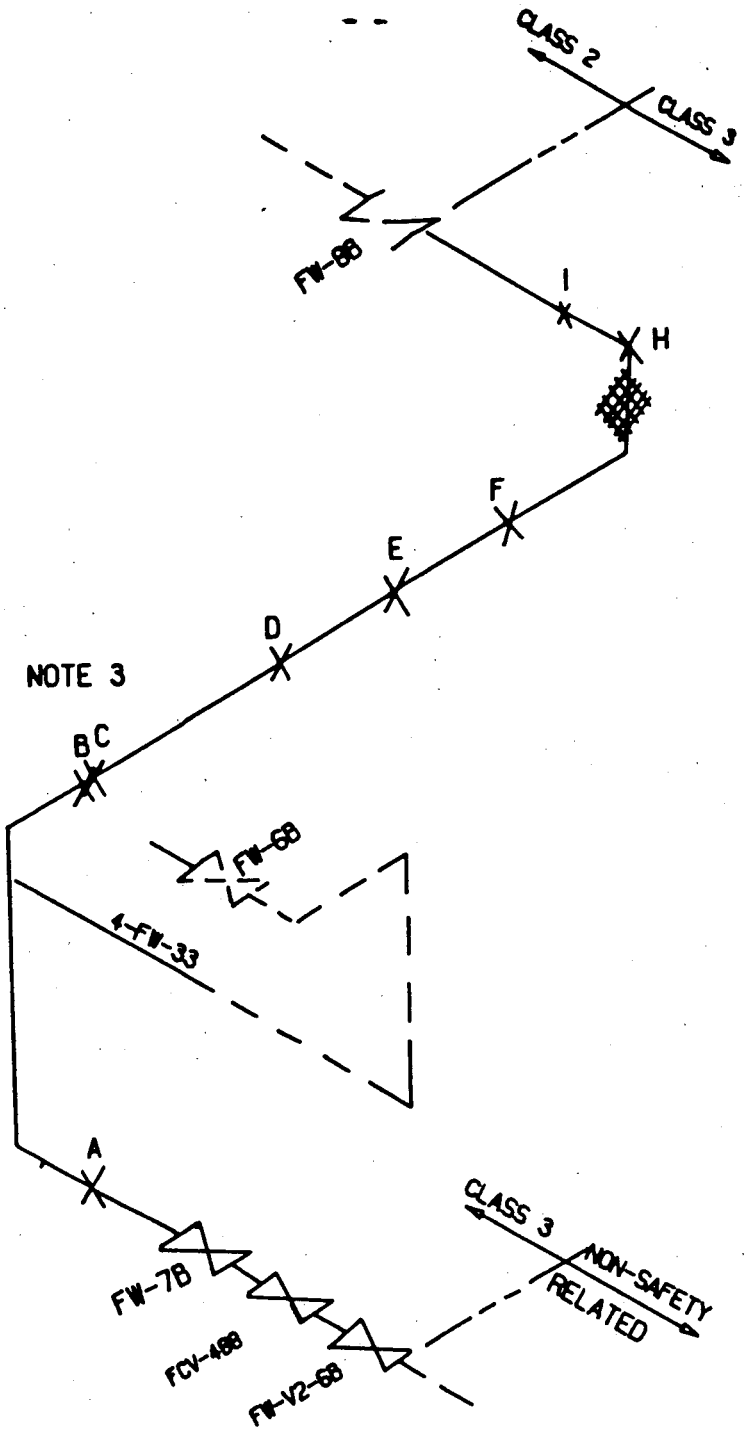
EXAMINER [signature] LEVEL II DATE 4-24-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A	VT3	X			FLASHLIGHT	WHIP RESTRAINT
B	VT3	X			FLASHLIGHT	NEW HYD. LAT. SNUBBER
C	VT3	X			FLASHLIGHT	
D	VT3	X			FLASHLIGHT	
E	VT3			X	FLASHLIGHT	PARTS MISSING FLAME CUT
F	VT3	X			FLASHLIGHT	2 SPRINGS BOTH 2700 LOAD SETTINGS
G	VT3	X			FLASHLIGHT	

Richard B. Weber 4/25/87
John Harwood ANII
4-27-87

FORM 45934B

SPRING HANGERS
B
SNUBBERS
F



NOTES:

H.B. ROBINSON S.E. PLANT			
UNIT NO. 2			
DESCRIPTION: FEEDWATER SYSTEM			
LINE NO. 16-FW-10	CPL-333	REV.	2

CP&L

WESTINGHOUSE FORM 46/62

SKETCH CPL 333 351

EXAMINATION SUMMARY FOR 1987

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
126	A							X						
126	B									X				See Tab F
126	C							X						
126	D							X						
126	E							X						
126	F							X						
126	H									X				See Tab F
116	I							X						Whip Rest

352

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL 333

SYST/COMP FEEDWATER SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER [signature] LEVEL II DATE 4-24-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A	VT3	X				
B	VT3			X		LOAD AT MID RANGE SCALE PAINTED
C	VT3	X				
D	VT3	X				
E	VT3	X				
F	VT3	X				NEW HYD. LAT. SNUBBER
H	VT3			X		LOOSE
I	VT3	X				WHIP RESTRAINT

Richard B. Weber 4/25/87
[signature] ANII 4-27-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-333

SYST/COMP FEEDWATER SYSTEM PROCEDURE ISI-8, REV.9

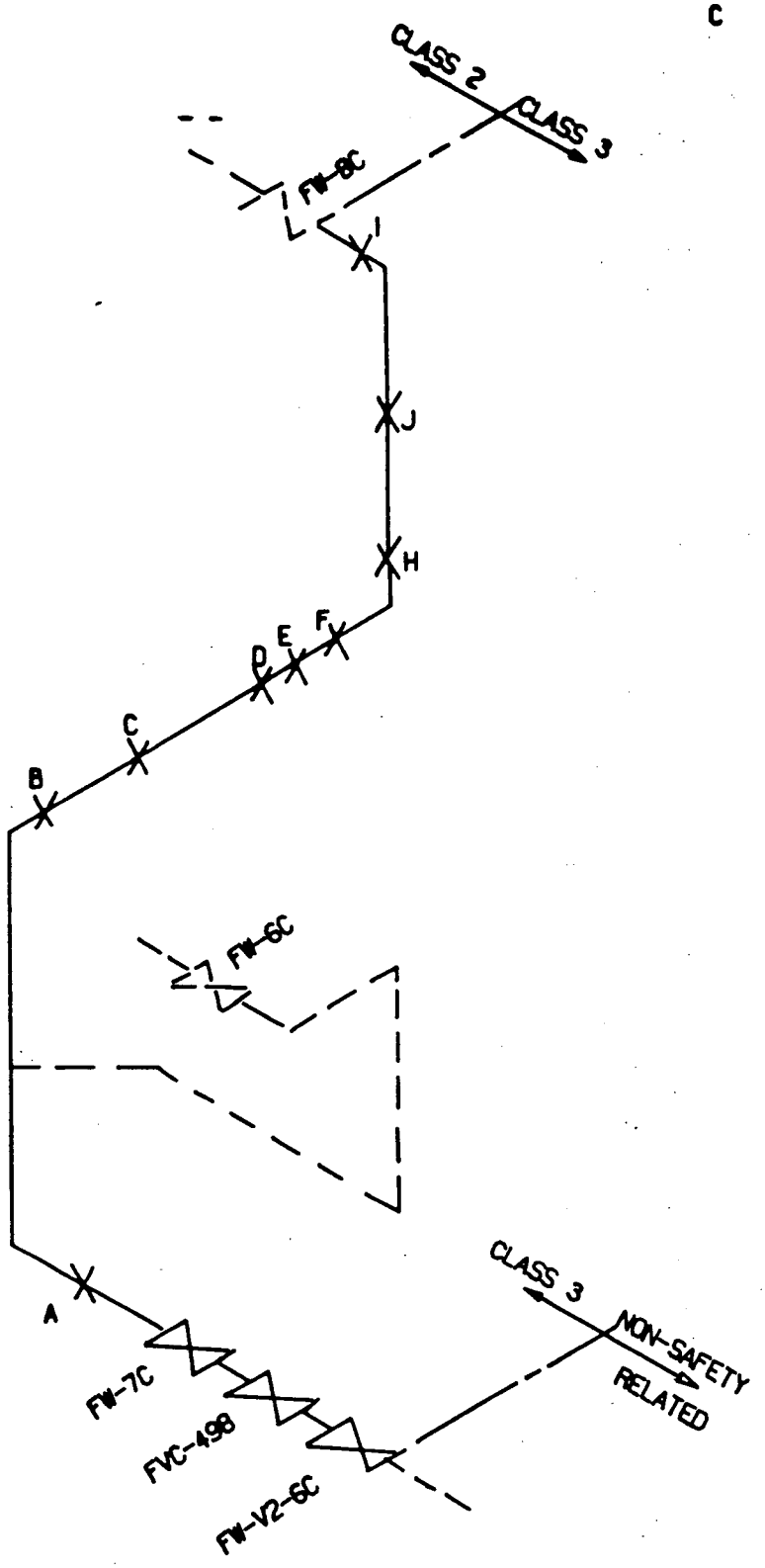
EXAMINER [signature] III DATE 4-25-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
H VT3	X			FLASHLIGHT	AFTER REPAIR
					Richard B. Weber 4/26/87
					John [signature] ANII 4-27-87

FORM 459348

SPRING HANGERS

C



NOTES:

H.B. ROBINSON S.E. PLANT			CF&L
UNIT NO. 2			
DESCRIPTION: FEEDWATER SYSTEM			
LINE NO. 16-FW-11	CPL- 334	REV. 2	

WESTINGHOUSE FORM 46762

SKETCH CPL 334 355

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
137	A							X						
137	B									X				See Tab F
137	C							X						
137	D							X						
137	E							X						
137	F							X						
137	H									X				See Tab F
137	J							X						
137	I							X						Whip Rest

356

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-334

SYST/COMP FEED WATER SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER [signature] LEVEL II DATE 4-24-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT3	X			FLASHLIGHT	
B VT3			X	FLASHLIGHT	NOT CONNECTED
C VT3	X			FLASHLIGHT	3300 LOAD SETTING
D VT3	X			FLASHLIGHT	
E VT3	X			FLASHLIGHT	
F VT3	X			FLASHLIGHT	
H VT3			X	FLASHLIGHT	RIGHT SIDE LOOSE
J VT3	X			FLASHLIGHT	
I VT3	X			FLASHLIGHT	WHIP RESTRAINT

Richard B. Weber 4/25/87

[signature] ANII 4-27-87

FORM 459348

-47

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

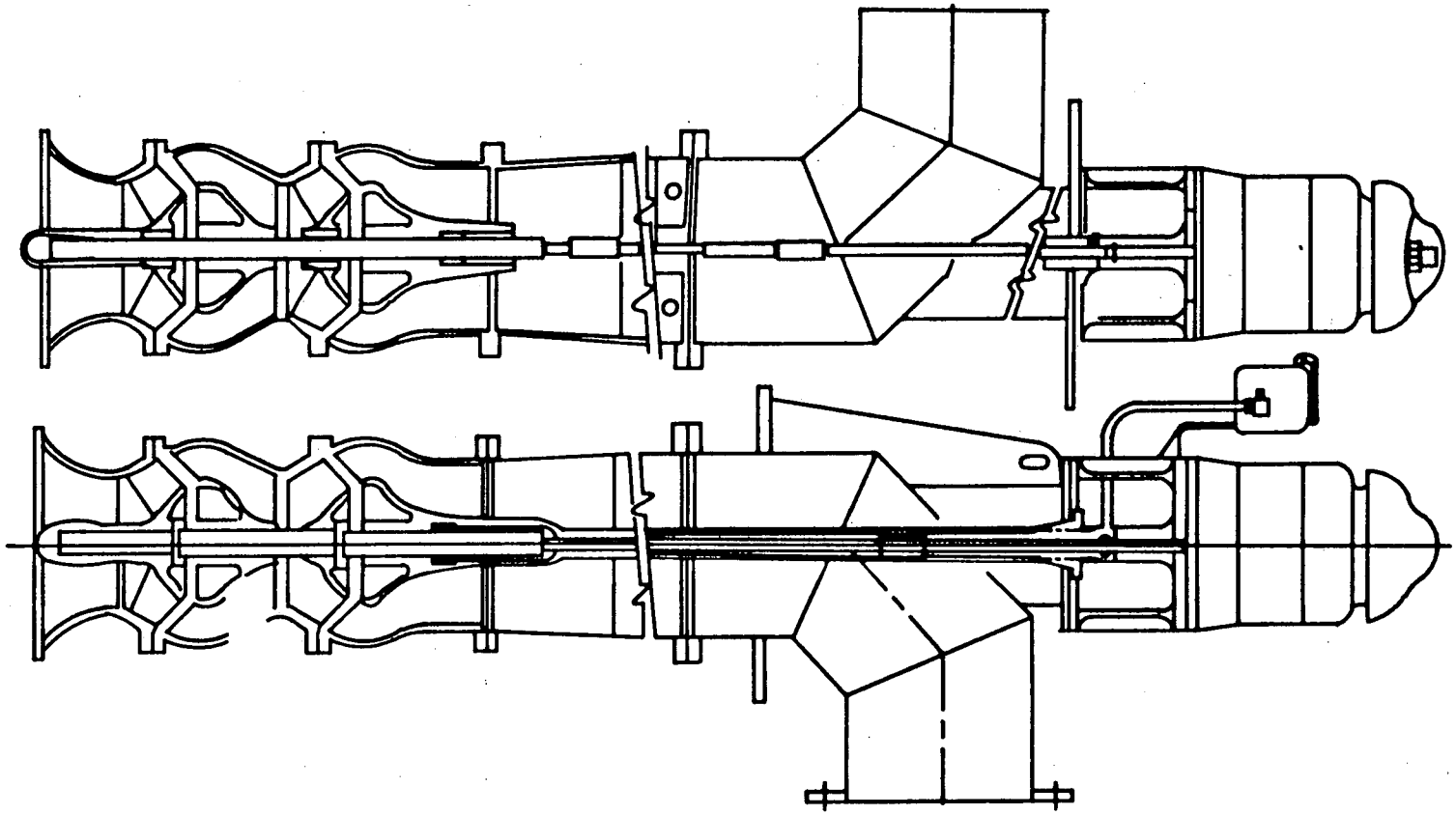
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-334

SYST/COMP FEEDWATER SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER [signature] III LEVEL II DATE 4-25-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
H VT3	X			FLASHLIGHT	AFTER REPAIR
					Richard B. Weber 4/26/87
					[signature] ANII 4-27-87

FORM 459348



H. B. ROBINSON S. E. PLANT		
UNIT NO. 2		
DESCRIPTION: SERVICE WATER PUMP (4)		
LINE NO. N/A	CPL-335 REV.	1

CP&L

WESTINGHOUSE FORM [illegible]

SKETCH CPL 335 359

EXAMINATION SUMMARY
FOR
1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
134	2C							X						

360

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

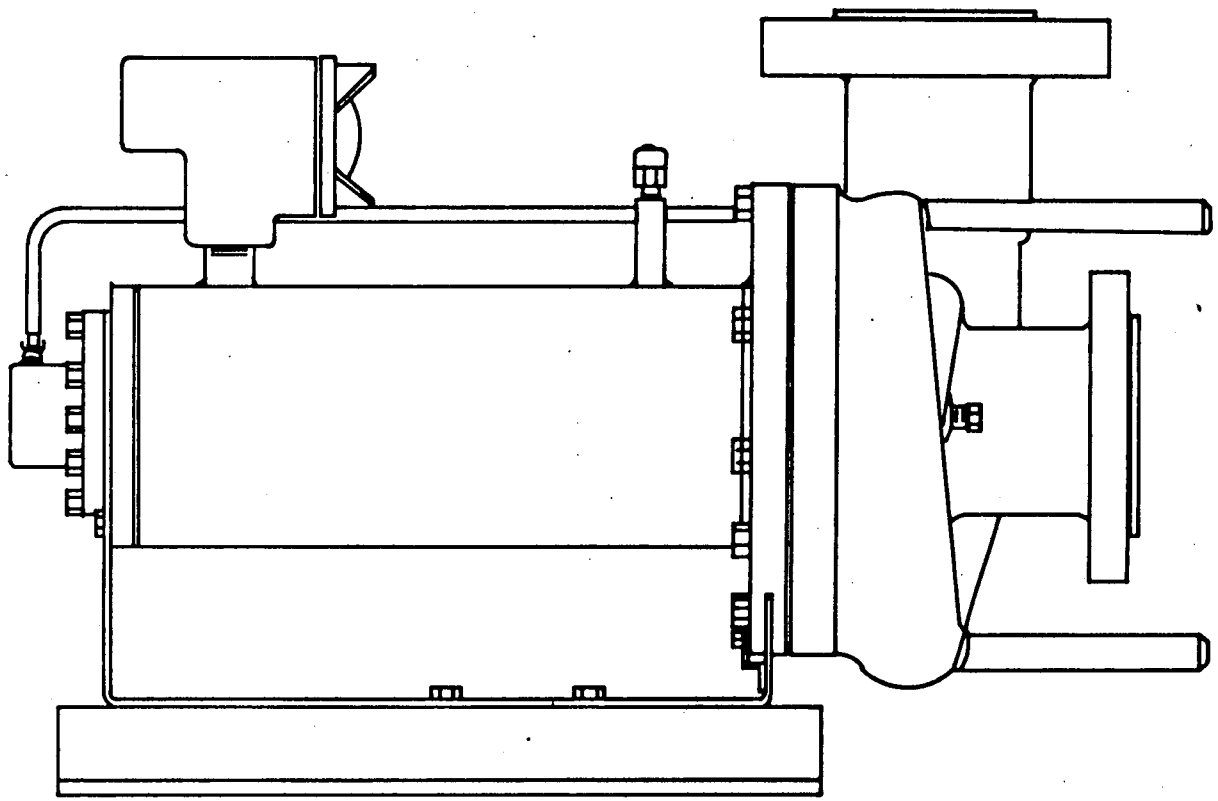
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-335

SYST/COMP SERVICE WATER PUMP 'C' SUPPORT PROCEDURE ISI-8, REV. 9

EXAMINER [signature] LEVEL II DATE 4-25-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
2C SUPPORT VT3	X			FLASHLIGHT	
					Richard B. Weber 4/26/87
					John [signature] ANII 4-27-87

FORM 45934B



H. B. ROBINSON S. E. PLANT			CP&L
UNIT NO. 2			
DESCRIPTION: BORIC ACID TRANSFER PUMP (2)			
LINE NO. N/A	CPL- 345 REV.	1	

WESTINGHOUSE FORM 46762

SKETCH CPL 345 362

EXAMINATION SUMMARY
FOR

1987

PROGRAM REF. (SEE TAB C)	SKETCH REF. IDENT. NO.	UT			PT			VT						REMARKS
		NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	NI	NRI	RI	
128	Pump A									X				
128	Pump B									X				

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-345

SYST/COMP BORIC ACID TRANSFER PUMPS PROCEDURE ISI-B REV. 9

EXAMINER [signature] III DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT 3			X	FLASHLIGHT	COVERED WITH THICK BORIC ACID
B VT 3			X	FLASHLIGHT	COVERED WITH THICK BORIC ACID

Richard B. Webb 4/29/87
[signature] ANII
4-29-87

FORM 459348

CP&L

Carolina Power & Light Company

REPORT NO. 1

PAGE 2 OF 2

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

PROJECT RNP JOB NO. M912 UNIT 1☐ 2☑ 3☐ 4☐

SYSTEM: Reactor Coolant	COMPONENT NAME: Valve	COMPONENT ID NO.: S/N-03003G-M99FNH02G00874C005
CLASS: I	LOCATION/ISOMETRIC: Westinghouse Dwg.: 1D99137	
PROCEDURE: NDEP-611 REV: 4	METHOD VT-1☑ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☑	DIRECT☑ REMOTE☐	VIDEO RECORDING NO: N/A

EQUIPMENT USED: (2) "D" cell Flashlight, 6x Magnafying glass, 18% Neutral Gray Card

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.	SAT. UNSAT
Stud & Nut #13		✓		✓		✓		✓		✓			✓	
Stud & Nut #14		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

None

1 EXAMINER:	John Comes	LEVEL:	II	DATE:	3-13-87
2 EXAMINER:	N/A	LEVEL	N/A	DATE	N/A
SATISFACTORY ☑			UNSATISFACTORY ☐		
NO REPORTABLE INDICATIONS ☑			REPORTABLE INDICATIONS ☐		
REVIEWED BY:	John W. Russ	LEVEL:	II	DATE:	3/17/87

REVIEWER COMMENTS/NOTES:

CP&L

Carolina Power & Light Company

REPORT NO. 1

PAGE 1 OF 2

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

PROJECT RNP JOB NO. M912 UNIT 1☐ 2☑ 3☐ 4☐

SYSTEM: Reactor Coolant	COMPONENT NAME: Valve	COMPONENT ID NO.: SN-03C03G-M99FNH02G-0S740005
CLASS: I	LOCATION/ISOMETRIC: Westinghouse Dwg: 1D99137	
PROCEDURE: NDEP-611 REV: 4	METHOD VT-1☑ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☑	DIRECT☑ REMOTE☐	VIDEO RECORDING NO: N/A

EQUIPMENT USED: (2) "D" Cell Flashlight, 6X Magnafying glass, 18% Neutral Gray Card

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.
Stud + Nut #1		✓		✓		✓		✓		✓			✓	
Stud + Nut #2		✓		✓		✓		✓		✓			✓	
Stud + Nut #3		✓		✓		✓		✓		✓			✓	
Stud + Nut #4		✓		✓		✓		✓		✓			✓	
Stud + Nut #5		✓		✓		✓		✓		✓			✓	
Stud + Nut #6		✓		✓		✓		✓		✓			✓	
Stud + Nut #7		✓		✓		✓		✓		✓			✓	
Stud + Nut #8		✓		✓		✓		✓		✓			✓	
Stud + Nut #9		✓		✓		✓		✓		✓			✓	
Stud + Nut #10		✓		✓		✓		✓		✓			✓	
Stud + Nut #11		✓		✓		✓		✓		✓			✓	
Stud + Nut #12		✓		✓		✓		✓		✓			✓	

*COMMENTS/NOTES:

NONE

1 EXAMINER:	John Carnes	LEVEL:	II	DATE:	3-13-87
2 EXAMINER:	N/A	LEVEL	N/A	DATE	N/A
SATISFACTORY ☑			UNSATISFACTORY ☐		
NO REPORTABLE INDICATIONS ☑			REPORTABLE INDICATIONS ☐		
REVIEWED BY:	John W. Russ	LEVEL:	II	DATE:	3/17/87

REVIEWER COMMENTS/NOTES:

CP&L

Carolina Power & Light Company

REPORT NO. 2

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

PROJECT RNP JOB NO. M912 UNIT 1☐ 2☑ 3☐ 4☐

SYSTEM: Reactor Coolant	COMPONENT NAME: Valve	COMPONENT ID NO.: S/N-03003GM99FNHC2G00S74004
CLASS: I	LOCATION/ISOMETRIC: Westinghouse Dwg.: 1D99137	
PROCEDURE: NDEP-611 REV: 4	METHOD VT-1☑ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☑	DIRECT☑ REMOTE☐	VIDEO RECORDING NO: N/A

EQUIPMENT USED: (2) "D" Cell Flashlight, 6X Magnifying glass, 18% Neutral Gray Card

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.	SAT. UNSAT.
Stud+Nut #13		✓		✓		✓		✓		✓		✓	✓	
Stud+Nut #14		✓		✓		✓		✓		✓	N/A		✓	

*COMMENTS/NOTES:

None

1 EXAMINER: John Cannon LEVEL: II DATE: 3-13-87

2 EXAMINER: N/A LEVEL N/A DATE N/A

SATISFACTORY☑ UNSATISFACTORY☐

NO REPORTABLE INDICATIONS☑ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Russ LEVEL: II DATE: 3/17/87

REVIEWER COMMENTS/NOTES:

CP&L

Carolina Power & Light Company

REPORT NO. 2

PAGE 1 OF 2

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

PROJECT RNP JOB NO. M912 UNIT 1☐ 2☑ 3☐ 4☐

SYSTEM: Reactor Coolant	COMPONENT NAME: Valve	COMPONENT ID NO.: S/N-03003GM99ENH02G005740004
CLASS: I	LOCATION/ISOMETRIC: Westinghouse Dwg.: 1D99137	
PROCEDURE: NDEP-611 REV: 4	METHOD VT-1☑ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☑	DIRECT☑ REMOTE☐	VIDEO RECORDING NO: N/A

EQUIPMENT USED: (2) "D" Cell Flashlight, 6X Magnafying glass, 18% Neutral Gray Card

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.
Stud+Nut #1		✓		✓		✓		✓		✓			✓	
Stud+Nut #2		✓		✓		✓		✓		✓			✓	
Stud+Nut #3		✓		✓		✓		✓		✓			✓	
Stud+Nut #4		✓		✓		✓		✓		✓			✓	
Stud+Nut #5		✓		✓		✓		✓		✓			✓	
Stud+Nut #6		✓		✓		✓		✓		✓			✓	
Stud+Nut #7		✓		✓		✓		✓		✓			✓	
Stud+Nut #8		✓		✓		✓		✓		✓			✓	
Stud+Nut #9		✓		✓		✓		✓		✓			✓	
Stud+Nut #10		✓		✓		✓		✓		✓			✓	
Stud+Nut #11		✓		✓		✓		✓		✓			✓	
Stud+Nut #12		✓		✓		✓		✓		✓			✓	

N/A

*COMMENTS/NOTES:

NONE

1 EXAMINER: [signature]	LEVEL: II	DATE: 3-13-87	
2 EXAMINER: N/A	LEVEL N/A	DATE N/A	
SATISFACTORY ☑		UNSATISFACTORY ☐	
NO REPORTABLE INDICATIONS ☑		REPORTABLE INDICATIONS ☐	
REVIEWED BY: John W. Russ	LEVEL: II	DATE: 3/17/87	

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 6-Q

PAGE 1 OF 1

PROJECT: H.B. Robinson JOB NO.: UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐ PSI ☐ ISI ☐

SYSTEM: Service Water	COMPONENT NAME: Supports for Line 6-CW-39	COMPONENT ID NO.: S, K, R & H	S/N: N/A
CLASS: 3	LOCATION/ISOMETRIC: CPL-324 Rev 2		
PROCEDURE: 613 REV.: 5	METHOD VT-1 ☐ VT-2 ☐ VT-3 ☒ VT-4 ☐		
REPLICATION: YES ☐ NO ☒	DIRECT ☒ REMOTE ☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: Flash Light	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER ☐ 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: DISPOSITION: REQUIRED:
FREEDOM OF MOTION N/A						SNUBBER SETTINGS N
RESISTANCE TO MOVEMENT N/A						PIN - TO - PIN A
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES:

1	EXAMINER: John W. Rivers	LEVEL: II	DATE: 5/6/87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY ☐ UNSATISFACTORY ☐ NO REPORTABLE INDICATIONS ☒ REPORTABLE INDICATIONS ☐

REVIEWED BY: W. H. Byrd LEVEL: II DATE: 5-12-87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 5-Q

PAGE 1 OF 1

PROJECT: H.B. Robinson JOB NO.: UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐ PSI ☐ ISI ☐

SYSTEM: Service Water	COMPONENT NAME: Line 6-CW-39 Support for	COMPONENT ID NO.: AAA & BBB
S/N: N/A		
CLASS: 3	LOCATION/ISOMETRIC: CPL - 324 Rev. 2	
PROCEDURE: 613 --- REV.: 5	METHOD VT-1 ☐ VT-2 ☐ VT-3 ☒ VT-4 ☐	
REPLICATION: YES ☐ NO ☒	DIRECT ☒ REMOTE ☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: Flash Light	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER ☐ 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	✓					PIN - TO - PIN N
CLEARANCE OF MOVING PARTS N/A						STROKE A
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES: Re-Examined to ensure tightness and tension was set properly.

1	EXAMINER: John W. Russ	LEVEL: II	DATE: 5/6/87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY ☐ UNSATISFACTORY ☐ NO REPORTABLE INDICATIONS ☒ REPORTABLE INDICATIONS ☐

REVIEWED BY: W. L. Byrd LEVEL: II DATE: 5-12-87

REVIEWER COMMENTS/NOTES:

CP&L

Carolina Power & Light Company

REPORT NO. 1

PAGE 1 OF 1

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

PROJECT HBR JOB NO. M-591 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: LETDOWN	COMPONENT NAME: VALVE FCV-460A	COMPONENT ID NO.: S/N-1916 (460A)
CLASS: 1	LOCATION/ISOMETRIC: DWG. HBR-2-9665	
PROCEDURE: 611 REV: 4	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: 18% NEUTRAL GRAY CARD, MIRROR, 2 "D" CELL FLASHLIGHT.		

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.
1		X		X		X		X		X			X	
2		X		X		X		X		X			X	
3		X		X		X		X		X			X	
4		X		X		X		X		X			X	
5		X		X		X		X		X			X	
6		X		X		X		X		X			X	

*COMMENTS/NOTES:

1 EXAMINER: W. H. Riggs LEVEL: II DATE: 3-12-87

2 EXAMINER: LEVEL: DATE:

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐

REVIEWED BY: John W. Russ LEVEL: II DATE: 3-12-87

REVIEWER COMMENTS/NOTES:

CP&L

Carolina Power & Light Company

REPORT NO. 1

PAGE 1 OF 1

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

PROJECT HBR JOB NO. M-891 UNIT 1☐ 2☒ 3☐ 4☐

SYSTEM: LETDOWN	COMPONENT NAME: VALVE FCV-460B	COMPONENT ID NO.: SW-1920 (460B)
CLASS: 1	LOCATION/ISOMETRIC: DWG. HBR-2-9665	
PROCEDURE: 611 REV: 4	METHOD: VT-1☒ VT-2☐ VT-3☐ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A

EQUIPMENT USED: 18% NEUTRAL GRAY CARD, MIRROR, 2 "D" CELL FLASHLIGHT.

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.
1		X		X		X		X		X			X	
2		X		X		X		X		X			X	
3		X		X		X		X		X			X	
4		X		X		X		X		X			X	
5		X		X		X		X		X			X	
6		X		X		X		X		X			X	

*COMMENTS/NOTES:

1 EXAMINER: W. H. Rippy LEVEL: II DATE: 3-12-87

2 EXAMINER: LEVEL: DATE:

SATISFACTORY ☑ UNSATISFACTORY ☐

NO REPORTABLE INDICATIONS ☑ REPORTABLE INDICATIONS ☐

REVIEWED BY: John W. Ross LEVEL: II DATE: 3-12-87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. _____

PAGE 1 OF 1

PROJECT: RNP JOB NO.: M-891 UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐ PSI ☐ ISI ☒

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
CVCS	LETDOWN	2" LETDOWN LINE	N/A

CLASS: 1 LOCATION/ISOMETRIC: CPL-125 REV. 3

PROCEDURE: 613 REV.: 5 METHOD VT-1 ☐ VT-2 ☐ VT-3 ☒ VT-4 ☐

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

EQUIPMENT USED: 2 "D" CELL FLASHLIGHT

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC ☐ CONSTANT LOAD
☐ MECHANICAL ☐ SHOCK ABSORBER
☐ SNUBBER ☒ 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	✓					ACTUAL: 3/4" 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: TIGHTEN NUT ON HANGER "D".

1	EXAMINER: W. H. Byrd	LEVEL: II	DATE: 5-19-87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY ☐ UNSATISFACTORY ☐ NO REPORTABLE INDICATIONS ☐ REPORTABLE INDICATIONS ☒

REVIEWED BY: John W. Rice LEVEL: II DATE: 5/19/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. _____

PAGE 1 OF 1

PROJECT: RNP JOB NO.: M-891 UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐ PSI ☐ ISI ☒

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
CVCS	LETDOWN	2" LETDOWN LINE	N/A

CLASS: 1 LOCATION/ISOMETRIC: CPL-125 REV. 3

PROCEDURE: 613 REV.: 5 METHOD VT-1 ☐ VT-2 ☐ VT-3 ☒ VT-4 ☐

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

EQUIPMENT USED: 2 "D" CELL FLASHLIGHT

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER
☐ 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: DISPOSITION: REQUIRED:
FREEDOM OF MOTION N/A						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT N/A						PIN - TO - PIN N/A
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES: SUPPORTS # L, K, I, F, G, C, B, A.

1	EXAMINER: W. L. Briggs	LEVEL: II	DATE: 5-18-87	
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A	

SATISFACTORY ☒ UNSATISFACTORY ☐ NO REPORTABLE INDICATIONS ☒ REPORTABLE INDICATIONS ☐

REVIEWED BY: John W. Russ LEVEL: II DATE: 5/18/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. _____

PAGE 1 OF 1

PROJECT: RNP JOB NO.: M-891 UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☒

SYSTEM: CVCS	COMPONENT NAME: LETDOWN	COMPONENT ID NO.: 2" LETDOWN LINE	S/N: N/A
CLASS: 1	LOCATION/ISOMETRIC: CPL-125 REV. 3		
PROCEDURE: 613 REV.: 5	METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐		
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: 2 "D" CELL FLASHLIGHT	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER ☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☒ SPRING LOADED		

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT	✓					SUPPORT "D".
DEBRIS		✓				
CORROSION	✓					
EROSION		✓				
STRUCTURAL INTEGRITY	✓					
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)	✓					SUPPORT "D".
SETTING OF COMPONENT SUPPORTS	✓					~~X~~ACTUAL: 3/4" DISPOSITION: REQUIRED:
FREEDOM OF MOTION N/A						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT	✓					PIN - TO - PIN
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES: SUPPORTS - "J, H, E, D.
* SUPPORT "D".

1	EXAMINER: W.H. Byars	LEVEL: II	DATE: 5-18-87	
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A	

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☐ REPORTABLE INDICATIONS☒

REVIEWED BY: John W. Rust LEVEL: II DATE: 5/18/87

REVIEWER COMMENTS/NOTES:

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PT

PROJECT H.B. Robinson JOB NO. UNIT 1☐ 2☒ 3☐ 4☐ DATE 4-17-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
CPL-125	CVCS LETDOWN	2-CH-17	SEE BELOW

DESIGN CLASS/CATEGORY: Class I

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☒B31.1 ☐AWSD1.1 ☐OTHER

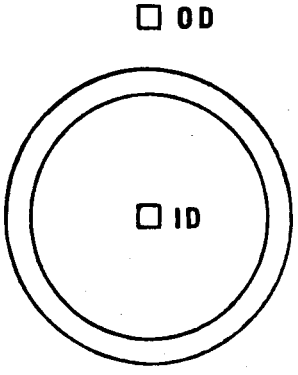
MTL. TYPE	MTL. THICKNESS	O.D. LENGTH	SURFACE FINISH	NDE PROCEDURE NO. / REV
S/S	.343	2"	☒AS-WELDED ☐GROUND ☐OTHER	201 REV 10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☒FINAL ☐INFO ☐REPAIR

JOINT DESIGN: ☐INS ☐OPN. BT ☒SOCKET ☐N/A ☐BRN ☐BKS ☐OTHER

PENETRANT	DWELL TIME
86A027	10 MIN.
CLEANER: 85K019	
DEVELOPER: 85K045	DEVELOPMENT TIME: 10 MIN.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
#21	NO RELEVANT INDICATIONS NOTED	X		
#22	" " " "	X		
#23	" " " "	X		
#24	" " " "	X		
#25	" " " "	X		
#26	" " " "	X		
#27	" " " "	X		

INSPECTOR John W. Ruy / Norman L Arnold CERTIFICATION LEVEL II / II DATE 4/17/87 / 4/17/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER — TITLE

REVIEW DATE / / — COMMENTS

IF APPLICABLE CP&L QA REVIEW — DATE / / — IF APPLICABLE A.N.I./A.I. — DATE / /

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PT

PROJECT HB Robinson JOB NO. UNIT 1☐ 2☒ 3☐ 4☐ DATE 4-17-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
CPL-125	CVCS LETDOWN	2-CH-17	SEE BELOW

DESIGN CLASS/CATEGORY: Class I

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☒B31.1 ☐AWSD1.1 ☐OTHER _____

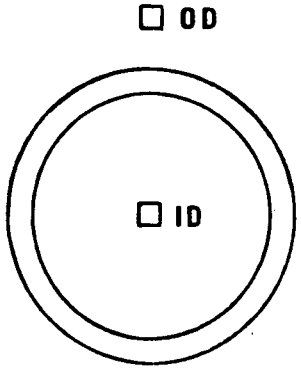
MTL. TYPE	MTL. THICKNESS	O.D. LENGTH	SURFACE FINISH	NDE PROCEDURE NO. / REV
S/S	.343	2"	☒AS-WELDED ☐GROUND ☐OTHER _____	201 / REV 10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☒FINAL ☐INFO ☐REPAIR

JOINT DESIGN: ☐INS ☐OPN. BT ☒SOCKET ☐N/A ☐BRN ☐BKS OTHER _____

PENETRANT	DWELL TIME
86 A027	10 MIN.
CLEANER: 85 K019	
DEVELOPER: 85 K045	DEVELOPMENT TIME: 10 MIN.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
#14	NO RELEVENT INDICATIONS NOTED	X		
#15	" " " "	X		
#16	" " " "	X		
#17	" " " "	X		
#18	" " " "	X		
#19	" " " "	X		
#20	" " " "	X		

INSPECTOR	CERTIFICATION LEVEL	DATE
John W. Ross Brennen K Arnold	II II	4/17/87 4/17/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE
REVIEW DATE / /	COMMENTS
IF APPLICABLE CP&L QA REVIEW	DATE / /
IF APPLICABLE A.N.I./A.I.	DATE / /

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PT

PROJECT HBR JOB NO. UNIT 1☐ 2☒ 3☐ 4☐ DATE 4-17-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
CPL-125	CVCS LETDOWN	2-CH-17	SEE BELOW

DESIGN CLASS/CATEGORY: Class 1

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☒B31.1 ☐AWS D1.1 ☐OTHER

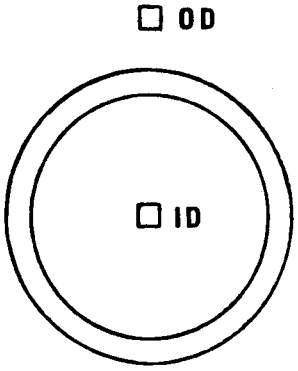
MTL. TYPE	MTL. THICKNESS	O.D./LENGTH	SURFACE FINISH	NDE PROCEDURE NO. / REV
S/S	.343	2"	☒AS-WELDED ☐GROUND ☐OTHER	201 / 10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☒FINAL ☐INFO ☐REPAIR

JOINT DESIGN: ☐INS ☐OPN. BT ☒SOCKET ☐N/A ☐BRN ☐BKS ☐OTHER

PENETRANT	DWELL TIME
86A027	10 min.
CLEANER: 85K019	
DEVELOPER: 85K045	DEVELOPMENT TIME: 10 min.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
#28	NO RELEVANT INDICATIONS NOTED	X		
#29		X		
#30		X		
#31		X		
#32		X		
#33		X		
#34		X		

INSPECTOR W. L. Byers B K Andrews CERTIFICATION LEVEL II / II DATE 4-17-87 / 4/17/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER | TITLE

REVIEW DATE / / | COMMENTS

IF APPLICABLE CP&L QA REVIEW | DATE / / | IF APPLICABLE A.N.I./A.I. | DATE / /

FORM NO. 80369
REV. 5/8/81

CP&L
Carolina Power & Light Company

PT

LIQUID PENETRANT NDE REPORT

PROJECT HBR JOB NO. UNIT 1☐ 2☒ 3☐ 4☐ DATE 4-17-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
CPL-125	CVCS LETDOWN	2-CH-17	SEE BELOW

DESIGN CLASS/CATEGORY: Class I

ACCEPTANCE STANDARD: ☐ASME III 1 ☐VIII ☒B31.1 ☐AWSD1.1 ☐OTHER

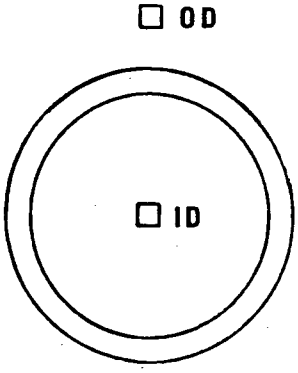
MTL. TYPE	MTL. THICKNESS	O.D.	LENGTH	SURFACE FINISH	NDE PROCEDURE NO.
S/S	.343	(O.D.)	2"	☐GROUND ☐OTHER ☒AS-WELDED	201 REV 10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☐REPAIR ☒FINAL ☐INFO

JOINT DESIGN: ☐INS ☐OPN. BT ☒SOCKET ☐N/A ☐BRN ☐BKS OTHER

PENETRANT	DWELL TIME
86A027	10 MIN.
CLEANER: 85K019	
DEVELOPER: 85K045	DEVELOPMENT TIME: 10 MIN.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
#35	NO RELEVANT INDICATIONS NOTED	X		
#36	〃 〃 〃	X		

INSPECTOR	CERTIFICATION LEVEL	DATE
W. H. Byers	II	4/17/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE
REVIEW DATE / /	COMMENTS
IF APPLICABLE CP&L QA REVIEW — DATE / /	IF APPLICABLE A.N.I./A.I. — DATE / /

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PAGE 1 OF 1

PROJECT HBR JOB NO. M-891 UNIT 1☐ 2☒ 3☐ 4☐ DATE 2-11-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
SK-891-M-2004	LETDOWN	2-CH-17	SEE BELOW

DESIGN CLASS/CATEGORY: B31.1-67

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☒B31.1 ☐AWS D1.1 ☐OTHER

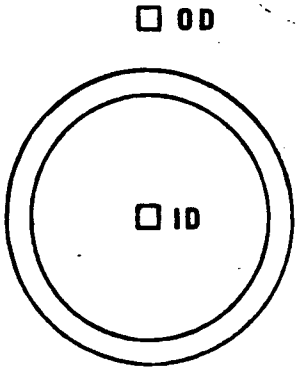
MTL. TYPE	MTL. THICKNESS	O.D/LENGTH	SURFACE FINISH	NDE PROCEDURE NO. / REV
S/S	.343	2"	☒AS-WELDED ☐GROUND ☐OTHER	201 / 10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☐REPAIR ☒FINAL

JOINT DESIGN: ☐INS ☐OPN. BT ☒SOCKET ☐N/A ☐BRN ☐BKS OTHER

PENETRANT	DWELL TIME
846015	15 MIN.
CLEANER: 84D092	
DEVELOPER: 846010	DEVELOPMENT TIME: 10 MIN.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
HBR-2-CH-106	NO INDICATIONS NOTED	X		
HBR-2-CH-107		X		
HBR-2-CH-108		X		
HBR-2-CH-109		X		
HBR-2-CH-110		X		
HBR-2-CH-111		X		

INSPECTOR W. H. Bryan CERTIFICATION LEVEL II DATE 2,11,87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER ____ TITLE ____

REVIEW DATE / / COMMENTS

IF APPLICABLE CP&L QA REVIEW DATE / / IF APPLICABLE A.N.I./A.I. DATE / /

QA FT-1, REV. 2,5/8/81

CP&L

Carolina Power & Light Company

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LIQUID PENETRANT NDE REPORT

PAGE 1 OF 1

PROJECT HBR JOB NO. M-891 UNIT 1☐ 2☒ 3☐ 4☐ DATE 2-4-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
SK-891-M-2004	LETDOWN	2-CH-17	SEE BELOW

DESIGN CLASS/CATEGORY: B31.1-67

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☒B31.1 ☐AWS D1.1 ☐OTHER

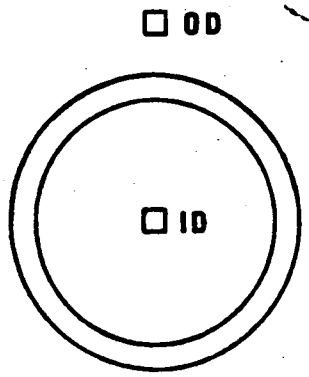
MTL. TYPE	MTL. THICKNESS	O.D./LENGTH	SURFACE FINISH	NDE PROCEDURE NO.
S/S	.343	2"	☒AS-WELDED ☐GROUND ☐OTHER	201 REV 10

STAGE OF MFG.: ☐ROOT ☐INFO ☐INTERMEDIATE ☐REPAIR ☒FINAL

JOINT DESIGN: ☐INS ☒OPN. BT ☐N/A ☐BRN ☐SOCKET ☐BKS OTHER

PENETRANT	DWELL TIME
84G015	15 MIN.
CLEANER: 84D092	
DEVELOPER: 846010	DEVELOPMENT TIME: 10 MIN

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
HBR-2-CH-112	NO INDICATIONS NOTED	X		
HBR-2-CH-102		X		
HBR-2-CH-115		X		
HBR-2-CH-126		X		

INSPECTOR W. L. Rigsby CERTIFICATION LEVEL II DATE 2/4/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE
REVIEW DATE / /	COMMENTS
IF APPLICABLE CP&L QA REVIEW	DATE / /
IF APPLICABLE A.N.I./A.I.	DATE / /

QA PT-1, REV. 2,5/8/81

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PT

PAGE 1 OF 1

PROJECT HBR JOB NO. M-891 UNIT 1☐ 2☒ 3☐ 4☐ DATE 1-29-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
SK-391-M-2004	LETDOWN	2-CH-17	HBR-2-CH-105

DESIGN CLASS/CATEGORY: B31.1-67

ACCEPTANCE STANDARD: ☐ASME III.1 ☐VIII ☒B31.1 ☐AWS D1.1 ☐OTHER

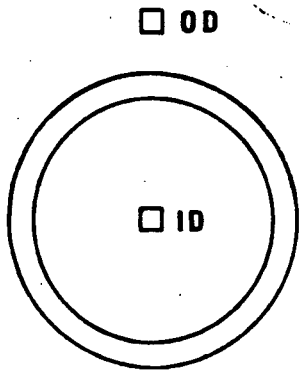
MTL. TYPE	MTL. THICKNESS	O.D. LENGTH	SURFACE FINISH	NDE PROCEDURE NO. / REV
S/S	.343	2"	☒AS-WELDED ☐GROUND ☐OTHER	301 REV 10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☐INFO ☐REPAIR ☒FINAL

JOINT DESIGN: ☐INS ☒OPN. BT ☐N/A ☐BRN ☐SOCKET ☐BKS ☐OTHER

PENETRANT	DWELL TIME
846015	15 MIN.
CLEANER: 84D092	
DEVELOPER: 846010	DEVELOPMENT TIME: 10 MIN.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
HBR-2-CH-105	NO INDICATIONS NOTED	X		

INSPECTOR W. B. Briggs | CERTIFICATION LEVEL II | DATE 1/29/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER | TITLE

REVIEW DATE / / | COMMENTS

IF APPLICABLE CP&L QA REVIEW | DATE / / | IF APPLICABLE A.N.I./A.I. | DATE / /

QA PT-1, REV. 2, 5/8/81

FORM NO. 80369
REV. 5/8/81

CP&L
Carolina Power & Light Company

PT

LIQUID PENETRANT NDE REPORT

PAGE 1 OF 1

PROJECT HBR JOB NO. M-891 UNIT 1☐ 2☒ 3☐ 4☐ DATE 1-27-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
SK-891-M-2004	LETDOWN	2-CH-17	SEE BELOW

DESIGN CLASS/CATEGORY: B31.1 - 1967

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☒B31.1 ☐AWSD1.1 ☐OTHER

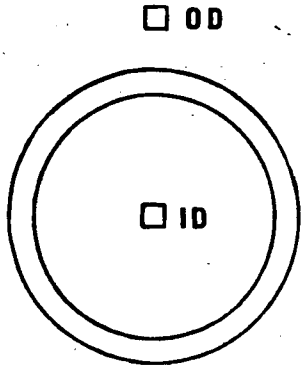
MTL. TYPE	MTL. THICKNESS	O.D/LENGTH	SURFACE FINISH	NDE PROCEDURE NO.	REV
S/S	.343	2"	☐GROUND ☐OTHER ☒AS-WELDED	201	10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☐INFO ☐REPAIR ☒FINAL

JOINT DESIGN: ☐INS ☒OPN. BT ☐N/A ☐SOCKET ☐BRN ☐BKS ☐OTHER

PENETRANT	DWELL TIME
84G015	15 MIN.
CLEANER: 84D092	
DEVELOPER: 84G010	DEVELOPMENT TIME: 10 MIN.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
HBR-2-CH-103	NO INDICATIONS NOTED	X		
HBR-2-CH-104		X		
HBR-2-CH-113		X		
HBR-2-CH-114		X		
HBR-2-CH-116		X		
HBR-2-CH-118		X		

INSPECTOR	CERTIFICATION LEVEL	DATE
W. H. Boggs	II	1-27-87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE
REVIEW DATE / /	COMMENTS
IF APPLICABLE CP&L QA REVIEW — DATE / /	IF APPLICABLE A.N.I./A.I. — DATE / /

QA PT-1, REV. 2,5/8/81

FORM NO. 80369
REV. 5/8/81

CP&L
Carolina Power & Light Company

PT

LIQUID PENETRANT NDE REPORT

PAGE 1 OF 1

PROJECT NBR JOB NO. MOD 891 UNIT 1☐ 2☑ 3☐ 4☐ DATE 4-11-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
SK-891-M2004	Let down 2CH17	2CH17	117 HBR-2CN-100,101,125

DESIGN CLASS/CATEGORY B31.1 - 1967

ACCEPTANCE STANDARD ☐ASME III ☐VIII ☑B31.1 ☐AWSD1.1 ☐OTHER

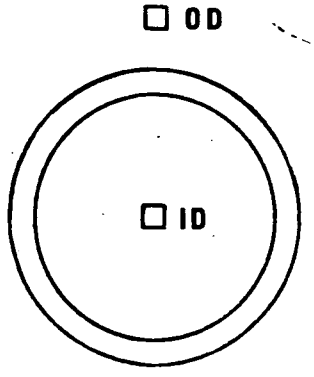
MTL. TYPE	MTL. THICKNESS	O.D./LENGTH	SURFACE FINISH	NDE PROCEDURE NO.
SS	.343	2"	☑AS-WELDED ☐GROUND ☐OTHER	201 REV 10

STAGE OF MFG. ☐ROOT ☐INFO ☐INTERMEDIATE ☐REPAIR ☑FINAL

JOINT DESIGN ☐INS ☐N/A ☐OPN. BT ☐BRN ☑SOCKET ☐BKS ☐OTHER

PENETRANT	DWELL TIME
SKL-NF/S 82G111	15
CLEANER SKC-NF/ZC7B 85K019	
DEVELOPER SKD-NF/ZP-9B 85K045	DEVELOPMENT TIME 10

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
HBR-2-CN-100	NO indications	✓		
HBR-2-CN101	NO indications	✓		
HBR2-CN-117	NO indications	✓		
HBR-2-CN-125	NO indications	✓		

INSPECTOR Bronwen K Arnold CERTIFICATION LEVEL II DATE 4/11/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER TITLE

REVIEW DATE / / COMMENTS

IF APPLICABLE CP&L QA REVIEW DATE / / IF APPLICABLE A.N.I./A.I. DATE / /

QA PT-1, REV. 2,5/8/81

FORM NO. 80369
REV. 3/81

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PAGE 1 OF 1

PROJECT HBR JOB NO. UNIT 1☐ 2☑ 3☐ 4☐ DATE 4-16-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
SK-891-M-2004	Chem. Volume Control	2-CH-17	HBR-2-CH 127, 123, 124

DESIGN CLASS/CATEGORY: AWST B31.1

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☑B31.1 ☐AWSD1.1 ☐OTHER

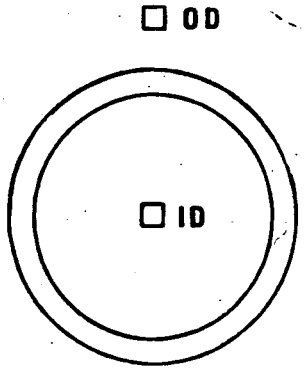
MTL. TYPE	MTL. THICKNESS	O.D. LENGTH	SURFACE FINISH	NDE PROCEDURE NO.	REV
SS	.343	2	☑AS-WELDED ☐GROUND ☐OTHER	201	10

STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☑FINAL ☐REPAIR ☐INFO

JOINT DESIGN: ☐INS ☐OPN. BT ☑SOCKET ☐N/A ☐BRN ☐BKS OTHER

PENETRANT	DWELL TIME
SKL-NF/S 86A027	15
CLEANER SKC-NF/ZC-2B 85K019	
DEVELOPER SKD-NF/ZP-9B 85K045	DEVELOPMENT TIME 10

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
HBR-2-CH-127	NO Relevant indications	✓		
HBR-2-CH-123	NO relevant indications	✓		
HBR-2-CH 124	NO relevant indications	✓		

INSPECTOR B L Arnold | CERTIFICATION LEVEL II | DATE 4/16/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE	
REVIEW DATE / /	COMMENTS	
IF APPLICABLE CP&L QA REVIEW	DATE / /	IF APPLICABLE A.N.I./A.I. DATE / /

QA PT-1, REV. 2,5/8/81

Form 244

CP&L

Carolina Power & Light Company

Company Correspondence

ROBINSON NUCLEAR PROJECT DEPARTMENT
POST OFFICE BOX 790
HARTSVILLE, SOUTH CAROLINA 29550

Robinson File No: 14506 Serial: RNPD/87-3728

MEMORANDUM TO: R. H. Chambers

FROM: R. B. Weber

SUBJECT: Report of Leak Inspection of
Code Class 1, 2, and 3 Systems

The forty (40) month program of leak inspections has been partially completed and is described in the attached report. The report details the code requirements, approach to testing, system boundaries, and test results. This report will be included in the NIS-1 form package that will certify the Inservice Inspection Report for the second refueling outage of the second forty (40) month period of the second ten-year interval.

Richard B. Weber

RBW:ac

Attachment

cc: J. M. Curley w/o attachment

CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON NUCLEAR PROJECT
UNIT 2

Report of the Second Ten-Year Interval, Second Forty (40) Month Period, Leak Inspection Program for Code Class 1, 2, and 3 Systems

August, 1987

Introduction:

From the period of 3/31/87 through 6/5/87, leak inspections were performed on certain Code Class 1, 2, and 3 Systems. These inspections are required by and were performed in accordance with the following sections of the 1977 Edition, Summer 1978 Addenda of Section XI ASME Code:

Paragraph IWA-5211
Table IWA-5210-1
Table IWB-2500-1, Category B-P
Paragraph IWB-5221
Table IWC-2500-1, Category C-H
Paragraph IWC-5221
Table IWD-2500-1, Items D.1.1, D.2.1, and D.3.1
Paragraph IWD-5221
Paragraph IWD-5222

All leakage observed during the testing was categorized as exceptions or deficiencies. Examples of leakage classified as exceptions were valve packing, pump seals, flanged joints, threaded connections, and other mechanical joint leakage. This type leakage was considered acceptable, but was evaluated to assess if the occurrence resulted in a potential degradation of the pressure boundary. If the mechanical joint leakage was excessive, the occurrence was classified as a deficiency. Deficiencies are defined as any throughwall (pipe, fittings, valves, vessels, welds, etc.) leakage. This report is prepared to meet the requirements of IWA-6220(b) and to reference the applicable inspection procedures that formed the basis for the Leak Inspection Program.

Class 1 Program:

For Class 1 Systems, the leak inspection requirements of Paragraph IWB-5221 are specified by Table IWA-5210-1 and Table IWB-2500-1, Examination Category B-P. The interval for this inspection is each refueling outage. The requirement for this testing as stated in IWB-5211(a) follows:

> "The system leakage test shall be conducted at a test pressure not less than the nominal operating pressure associated with 100% reactor power."

The inspection of the Class 1 Reactor Coolant System pressure boundary was performed using the instructions of EST-083. The inspection was conducted after the Reactor Coolant System had operated at a pressure of approximately 2335 psig for a minimum of four hours. The inspection noted several minor mechanical joint leaks, and these were categorized as exceptions. No deficiencies were noted during this inspection.

Class 2 Program:

For Class 2 Systems, the leak inspection requirements of Paragraph IWC-5221 are specified by Table IWA-5210-1, Paragraph IWC-5210(a)(1), and Table IWC-2500-1, Examination Category C-H. The interval for this inspection is once each inspection period (40 months). This inspection applies only to those Class 2 Systems not required to operate during normal reactor operation. Systems and major boundaries included in the inspection follow:

System	Major Boundaries	Inspection Procedure No.
Residual Heat Removal	From RHR-750 to SI-862B, SI-860A&B, RHR-706, SI-876A, B, and C, SI-863A, B, SI-891C&D. Included are RHR Pumps A&B and RHR Heat Exchangers A&B.	EST-080
Auxiliary Feedwater System	See Class 3 Program for Major Boundaries.	EST-082
Safety Injection	From P-43 to SI-874E, SI-849, SI-883R, FT-932, SI-866A, FT-933, and SI-866B. From P-48 to SI-859, SI-849, SI-850A, SI-850B, SI-895I, SI-850C SI-850D, SI-850E, and SI-850F. From P-62 to SI-873K, SI-873H, and SI-873E. From P-64 to SI-873L and SI-873D.	EST-090

Per the requirements of IWA-5213(a) these systems were pressurized to nominal operating pressure for a minimum of ten minutes prior to the inspection. Several mechanical joint leaks were identified in the walkdown. No deficiencies were noted.

Class 3 Program:

For Class 3 Systems, the leak inspection requirements of Paragraphs IWD-5221 and IWD-5222 are specified by Table IWA-5210-1, Paragraph IWD-5210(a)(1), Paragraph IWD-5210(a)(2), and Table IWD-2500-1, Items D.1.1, D.2.1, and D.3.1. Item D.1.1 components subject to test and examination are those:

> "Pressure retaining components within the boundary of systems or portions of systems required to operate in support of normal Plant safety functions of shutting down and maintaining the reactor in the cold shutdown condition."

Class 3 Program: (Continued)

Item D.1.2 components subject to test and examination are those:

> "Pressure retaining components within the boundary of systems or portions of systems required to operate in support of the post-accident safety functions of emergency core cooling, containment heat removal and atmosphere cleanup, and long-term residual heat removal from the reactor."

Item D.1.3 components subject to test and examination are those:

> "Pressure retaining piping, pumps, and valves within the boundary of systems or portions of systems required to operate in support of residual heat removal from the Spent Fuel Storage Pool."

Systems and major boundaries included in the inspection follow:

System	Major Boundaries	Inspection Procedure No.
Component Cooling Water	From P-18 to P-19 and P-20, including the Control Rod Drive Cooler, the Thermal Barriers for Reactor Coolant Pumps A, B, and C, and the Oil Coolers for Reactor Coolant Pumps, A, B, and C, P-21 and P-22. This includes the Excess Letdown Heat Exchanger.	EST-076
Service Water System	HVH-1: P-50 to P-56 & P-56A HVH-2: P-49 to P-53 & P-53A HVH-3: P-52 to P-54 & P-54A HVH-4: P-51 to P-55 & P-55A	EST-081
Auxiliary Feedwater System	From Condensate Storage Tank to: A&B Motor Driven Aux. Feed Pumps and the Steam Driven Aux. Feed Pump. Valves AFW-9, AFW-24, C-47, C-66, C-83, C-411, C-458, DW-19, and DW-285. From Pump "A" discharge to valves AFW-34, CF-47, Flow Orifice @ AFW-42. Valves AFW-47, 57, 60, 66, 69, 51, 56, 59, and 68. From Pump "B" discharge to valves AFW-35, CF-48, Flow Orifice @ AFW-43. Valves AFW-48, 58, 61, 67, and 70. From Steam Driven Pump to Flow Orifice @ AFW-17 and valves AFW-V2-14A, B, and C.	EST-082

Several mechanical joint leaks were identified in the walkdown. No deficiencies were noted.

In summary, numerous leak inspections remain to be performed prior to completion of the current forty (40) month period. This forty month period will end October 22, 1988.

Inspector Listing

The following VT-2 visual examiners performed these examinations:

John W. Russ - Carolina Power and Light Company
John Carnes - Carolina Power and Light Company
Joe A. Johnson - Carolina Power and Light Company
Bill Rippy - Carolina Power and Light Company

H. B. ROBINSON UNIT #2

SUMMARY OF
RECORDED INDICATIONS
1987

SKETCH REFERENCE	METHOD/ITEM IDENTIFICATION			Ⓝ EVALUATION *	UTILITY DISPOSITION			REFERENCE
	VOLUMETRIC	SURFACE	VISUAL		ACCEPT	CORRECT	MONITOR	
CPL116B			D	1A	X		X	IWF-1300
203		WS3		2-C			X	
204		WS2		1-A		X		WR/JO 87-AFIE1
215			L	1A	X		X	Data Sheets
218			N	1A		X		WR/JO 87-AFYP1
219 A			O	1A	X			
220		42		2C	X		X	IWB-3514-3
220		43		2C	X		X	IWB-3514-3
220			F	1A		X		WR/JO 87-AFRZ1
221A			K	1-A		X	X	WR/JO 87-AFDR1
221A			N	1-A		X	X	WR/JO 87-AFJS1
221A		95		1A		X		WR/JO 87-AFIJ1
221A		96		1A		X		WR/JO 87-AFIJ1
222B			H	1-A	X			
230			E	1-A		X		WR/JO 87-AFDS1
231			B	1-A		X		WR/JO 87-AFXU1
233		24		1A		X		Data Sheets
234A			L	1-A	X			
234A			M	1-A	X			
236		2		1A		X		
238			WS-1	1-A	X			
313			C	1-A		X		MOD-492
313			D	1-A		X		MOD-492
313A			R	1-A		X		MOD-492
313A			S	1-A		X		MOD-492
313A			W	2E		X		MOD-492
314			D	1A		X		WR/JO 87-AFDQ1
323			E	1-A		X		WR/JO 87-AFLC1
323			S	1-A		X		WR/JO 87-AFQS1
323			YY	2-E	X			
324			E	2-E	X			
324			VVV	1-A		X		WR/JO 87-AFRX1
324			Q	2E	X			
324			U	1-A		X		WR/JO 87-AFRX1

*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 E. Change
A. CORRECT
B. FURTHER INVESTIGATION Sketc
C. FUTURE MONITORING
D. SUPPLEMENTARY EXAMINATION

NOTE: UTILITY MUST REVIEW ALL Ⓝ EVALUATIONS TO DETERMINE NECESSARY DISPOSITION

Ⓝ/COORD./DESIGNEE L. E. Blackwell 4-30-87
DATE

Richard B. Fisher 7/6/87
FOR UTILITY DATE

FORM 48494A

H. B. ROBINSON UNIT #2

SUMMARY OF RECORDED INDICATIONS

1987

SKETCH REFERENCE	METHOD/ITEM IDENTIFICATION			⊛ EVALUATION	UTILITY DISPOSITION			REFERENCE
	VOLUMETRIC	SURFACE	VISUAL		ACCEPT	CORRECT	MONITOR	
324			RRR	2E	X			
324			M	1-A	X			
324			UU	1-A		X		WR/JO 87-AFRW1
324			V	1-A	X			
324			WW	1-A		X		WR/JO 87-AFRW1
324			KK	2E	X			
324A			C	2E	X			
324A			MM	2E	X			
324A			NN	2E	X			
324A			OO	2-E	X			
324A			D	2-E	X			
324A			UU	1-A		X		WR/JO 87-AFKY1
324A			X	2-E	X			
324A			R	2-E	X			
324A			HH	2E	X			
324A			FF	2E	X			
324B			Q	2E	X			
324B			J	2E	X			
324B			K	2E	X			
324B			II	2E	X			
324C			P	2E	X			
324C			S	2E	X			
324C			E	2E	X			
324C			N	1A		X		WR/JO 87-AFRU1
324C			L	2E	X			
327			L	1A		X		WR/JO 87-AFQR1
328			V	1A		X		WR/JO 87-AFQQ1
328			R	1A		X		WR/JO 87-AFQN1
328			P	1A		X		WR/JO 87-AFQM1
328			K	1A		X		WR/JO 87-AFQL1
329			A	2E	X	X	X	To Be Removed
330			K	1A	X			
331A			RR	1A		X		WR/JO 87-AFKN1
331A			N	1A		X		WR/JO 87-AFKN1
331A			O	1A		X		WR/JO 87-AFKN1

*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 E-Change
A. CORRECT
B. FURTHER INVESTIGATION Sketc
C. FUTURE MONITORING
D. SUPPLEMENTARY EXAMINATION

NOTE: UTILITY MUST REVIEW ALL ⊛ EVALUATIONS TO DETERMINE NECESSARY DISPOSITION

⊛/COORD./DESIGNEE Jim Campbell 4-30-87 DATE

Richard B. Weber 7/17/87 FOR UTILITY DATE

FORM 48494A

H. B. ROBINSON UNIT #2

SUMMARY OF
RECORDED INDICATIONS
1987

SKETCH REFERENCE	METHOD/ITEM IDENTIFICATION			⑧ EVALUATION *	UTILITY DISPOSITION			REFERENCE
	VOLUMETRIC	SURFACE	VISUAL		ACCEPT	CORRECT	MONITOR	
331A			P	1A		X		WR/JO 87-AFKN1
331A			Q	1A		X		WR/JO 87-AFKN1
331A			R	1A		X		WR/JO 87-AFKN1
331A			S	1A		X		WR/JO 87-AFKN1
331A			T	1A		X		WR/JO 87-AFKN1
331A			V	1A		X		WR/JO 87-AFKN1
331A			W	1A		X		WR/JO 87-AFKN1
331A			X	1A		X		WR/JO 87-AFKN1
332			E	2E	X			
333			B	1A	X		X	WR/JO 87-AFII1
333			H	1A		X		WR/JO 87-AFIG1
334			B	2E	X			
334			H	1A		X		WR/JO 87-AFIH1
345			A	1A		X		WR/JO 87-AGDA1
345			B	1A		X		WR/JO 87-AGDA1
221B			G	1A		X		WR/JO 87-AFRY1

*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 E-Change
A. CORRECT
B. FURTHER INVESTIGATION Sketc
C. FUTURE MONITORING
D. SUPPLEMENTARY EXAMINATION

NOTE: UTILITY MUST REVIEW ALL ⑧ EVALUATIONS TO DETERMINE NECESSARY DISPOSITION

⑧/COORD./DESIGNEE Jim Blankenship 4-30-87
DATE

Richard B. Wilson 7/17/87
FOR UTILITY DATE

FORM 48494A

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

016

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-116B

SYST/COMP LOOPS B+C - 4" SPRAY LINE PROCEDURE ISI 8, REV. 4

EXAMINER Joseph D. Furnyak II LEVEL II DATE 4-24-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D VT-3			X	FLASHLIGHT	UNABLE TO DO VALID EXAM DUE TO INSULATION
					Richard B. Webb 4/26/87
					John Jurewicz ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

043

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-203

SYST/COMP. VOLUME CONTROL TANK PROCEDURE ISI-11, REV. 10 FC 3

EXAMINER Paul A. Kovalchik II LEVEL II Kenneth Wood I DATE 4-24-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	84M062
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	84M062

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
WS-3			X	3/32" LINEAR INDICATION FOUND ON VOLUME CONTROL TANK, LEFT SIDE OF WELD SUPPORT #3	78° F
				* SEE ATTACHED INDICATION SHEET.	

Richard B. Weber 4/25/87
John J. Russell 4-27-87
ANII

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

044

GENERAL – INDICATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-203

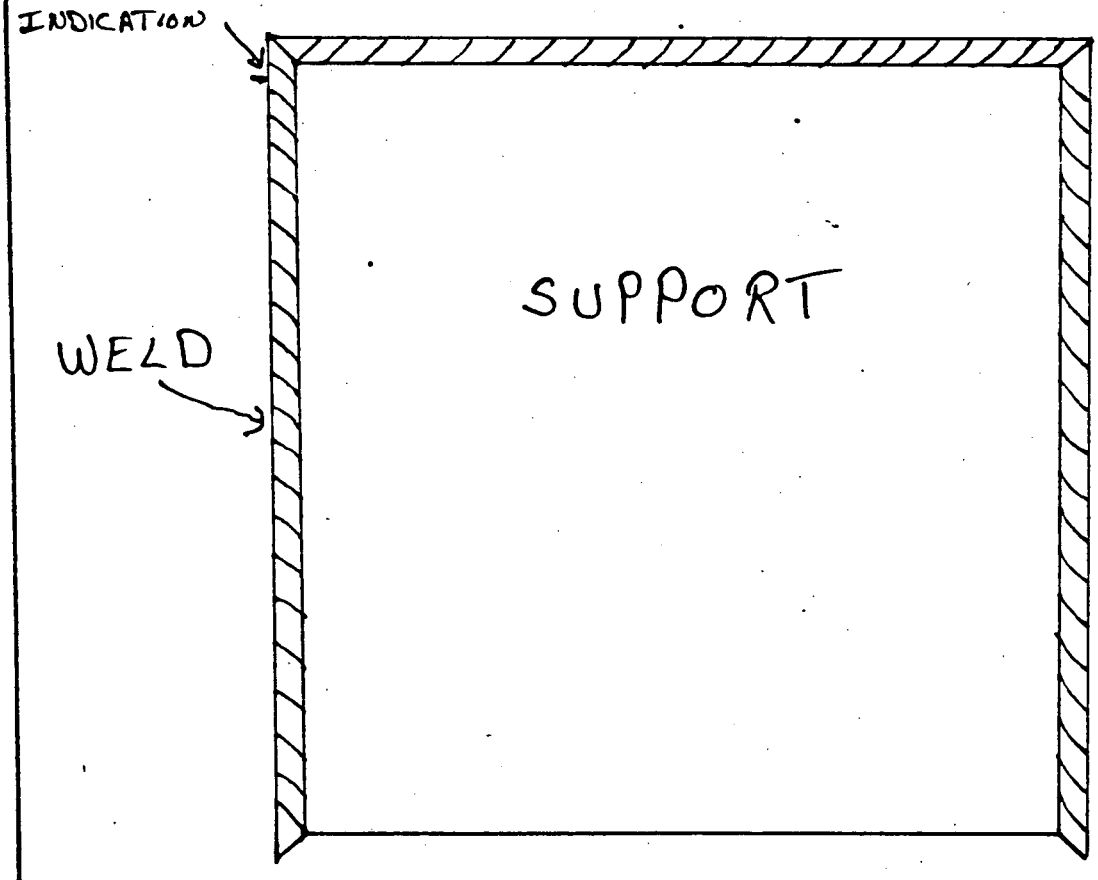
SYST/COMP VOLUME CONTROL TANK PROG. NO.

EXAMINER Paul J. Kovallo-II DATE 4-24-87 PROCEDURE ISI-11, REV. 10 FC 3

DETECTED BY U/T ____ P/T ✓ M/T ____ V/T ____ IDENT NO. WS-3

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.

INDICATION ¼" DOWN AND LOCATED ON VOLUME CONTROL TANK. LINEAR INDICATION 3/32" LONG.



Richard O. Weber 4/25/87
ANII 4-27-87

FORM 45936

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

049

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-204

SYST/COMP. RHR HEAT EXCHANGERS "A" PROCEDURE ISI 11 REV. 10 FC 3

EXAMINER [signature] LEVEL II [signature] LEVEL I DATE 4-19-87

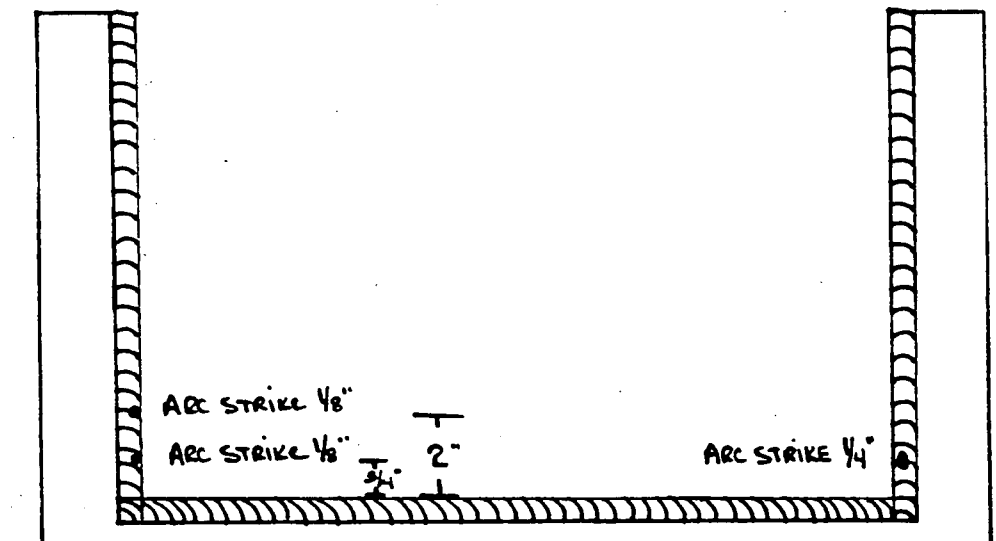
P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
REF. WELD 3 WELD 1		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
REF. WELD 3 WELD 2		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
REF. WELD 4 WELD 1		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
REF. WELD 4 WELD 2		X		AS WELDED, PARTIALLY GROUND TOP OF WELD.	74° F
WS-2			X	AS WELDED, ARC STRIKES 2@1/8", 1@1/4"	74° F
				SEE ATTACHED SKETCH.	
				Richard B. Weber 4/21/87	
				John Hammond ANII 4-22-87	

FORM 45935C

RHR HEAT EXCHANGERS "A" WS-2



4-19-87

4-22-87

127

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

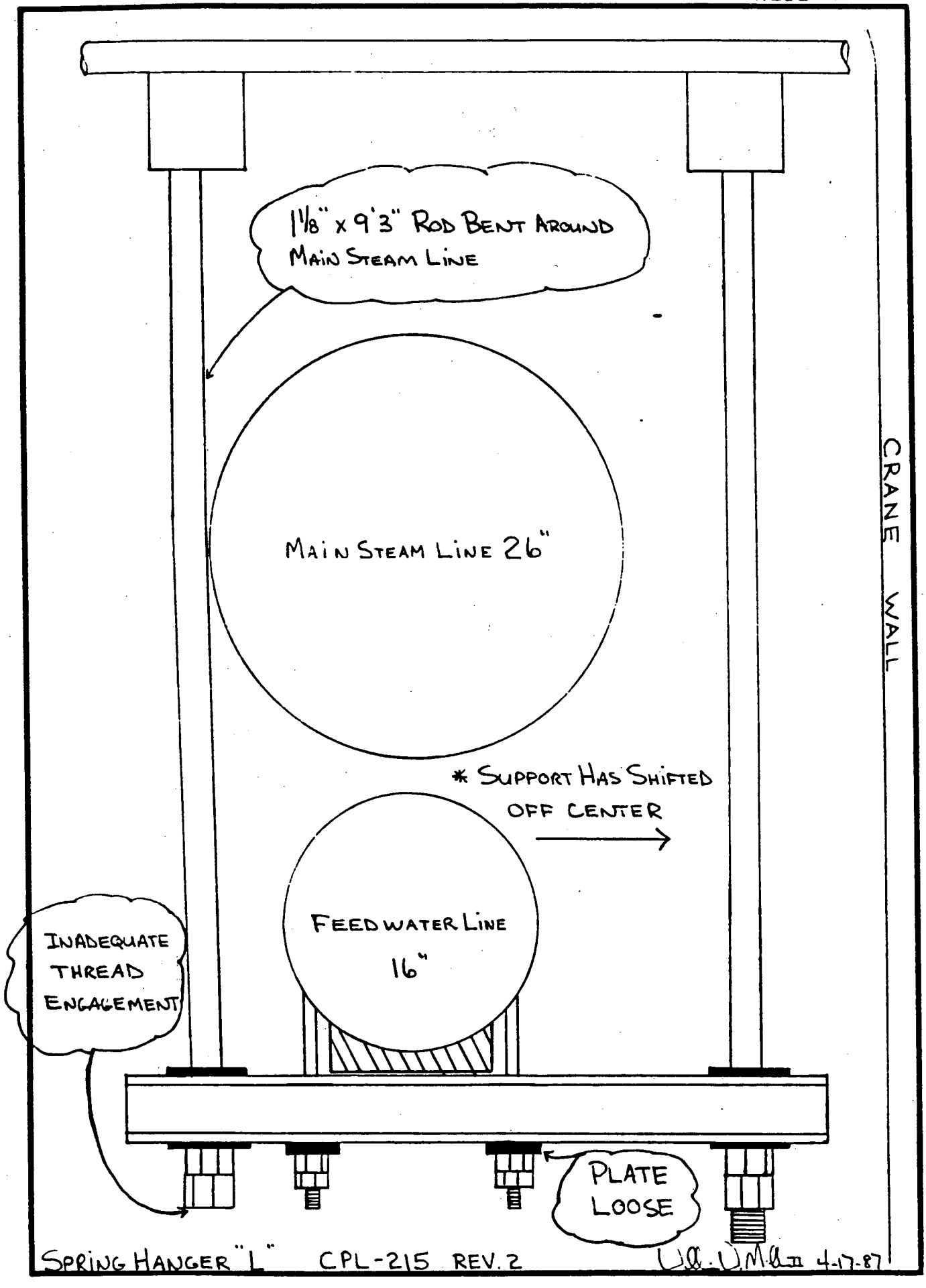
PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-215

SYST/COMP LOOP A 16" FEEDWATER PROCEDURE ISI-8, REV. 9

EXAMINER [signature] LEVEL II [signature] LEVEL II DATE 4-16-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
H VT-3	X			FLASHLIGHT	
L VT-3			X	FLASHLIGHT	SEE SKETCH
					SETTINGS: INSIDE 3200 2V8" OUTSIDE 2950 1V2"
					Richard B. Weber 4/18/87
					[signature] AN II 4-19-87

FORM 45934B



SPRING HANGER "L" CPL-215 REV. 2 4-17-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-217

SYST/COMP 14" RHR TAKE OFF PROCEDURE ISI-8, REV. 9

EXAMINER Joseph M. Furnyak II Kenneth Mead I DATE 4-28-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
N VT-3			X	FLASH LIGHT	LEFT NUT ON U-CLAMP IS LOOSE. THE WHOLE U-CLAMP IS LOOSE SETTINGS LEFT 1270 - 1" RIGHT 1270 - 1"
					Richard B. Webb 4/28/87
					John Dawood ANII 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-219A

SYST/COMP SIS + RHR RETURN PROCEDURE ISI 8, REV. 9

EXAMINER Joseph D. Fennyak II DATE 4-15-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
O VT-3			X	FLASHLIGHT	2 BOLTS WITH LOOSE WASHERS ARE NOT TIGHT AGAINST WALL PLATE
S VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/18/87
					John Hannagh ANII 4-19-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-220

SYST/COMP. LP. A 14" RESID. HEAT REMOVAL PROCEDURE ISI-11, REV 10 F.C. 3

EXAMINER Joseph D. Furnyak II TIR & Ball I DATE 4-24-87
LEVEL II

P/T	BATCH NOS.
CLEANER MAGNAFLUX	84M062
PENETRANT MAGNAFLUX	86J018
DEVELOPER MAGNAFLUX	85M035
REMOVER MAGNAFLUX	84M062

M/T

EQUIPMENT

EXAM. MEDIUM

BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
42			X	SEE INDICATION SHEET	70°F
43			X	SEE INDICATION SHEET	70°F

Richard B. Weber 4/25/87

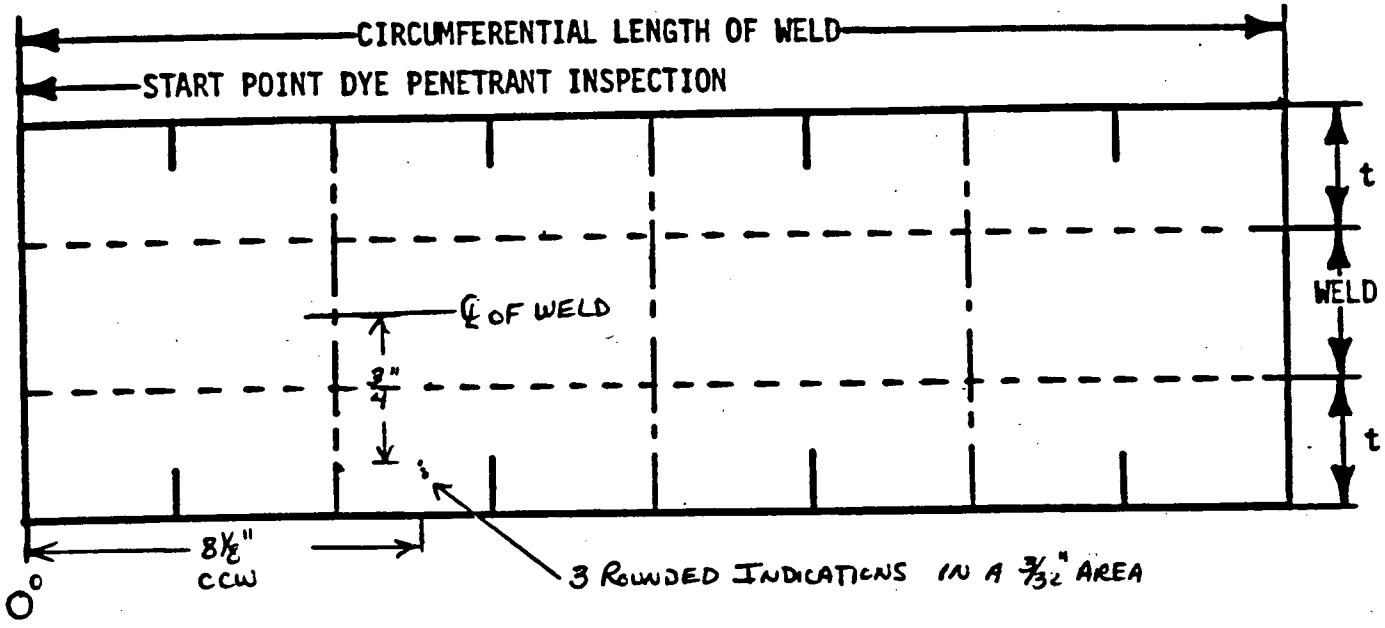
John Furnyak ANII 4-27-87

FORM 48935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI 16, REV. 10 EC. 3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: Joseph D Runyan II DATE: 4-24-87



REMARKS: 2 SIDE OF WELD

COMPONENT/PIPING SYSTEM LP-A 14" RESID. HEAT REMOVAL

WELD NO. 42

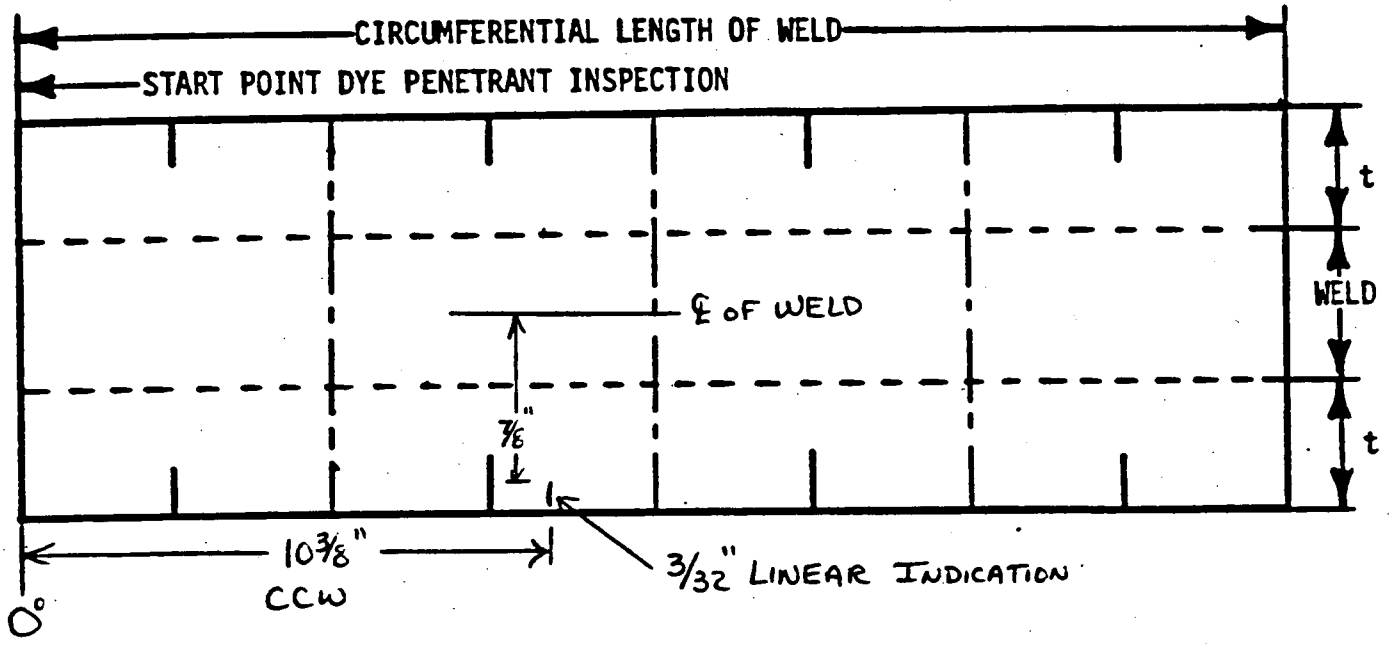
ISO/SKETCH NO. CPL-220

Richard B. Weber 4/25/87
John J Hansen ANII
4-27-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI 11, REV. 10 F.C. 3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: Joseph D. Furnyak II DATE: 4-24-87



REMARKS: 5 SIDE OF WELD

COMPONENT/PIPING SYSTEM LP-A 14" RESID. HEAT REMOVAL

WELD NO. 43

ISO/SKETCH NO. CPL-220

Richard B. Weber 4/25/87
AN II
4-27-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-220

SYST/COMP LP A-14" RESID. HEAT REMOVAL PROCEDURE ISI-8, REV.9

EXAMINER Joseph E Furnyak II DATE 4-24-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E VT-3	X			FLASHLIGHT	
F VT-3			X	FLASHLIGHT	BOTH SUPPORT ROD ARE LOOSE, NUTS ARE TIGHT.

Richard B. Weber 4/24/87

ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-22i

SYST/COMP LP. A-14" RESID. HEAT REMOVAL PROCEDURE ISI-E, REV. 9

EXAMINER Joseph C. Frampton II Tim J. Ball I DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
F VT-3		X		FLASHLIGHT	LIGHT RUST. AFTER REWORK
					Richard B. Wilson 4/29/87
					John J. Jansen ANII
					4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221A

SYST/COMP SIS+RHR RETURN PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Fennyak II LEVEL II DATE 4-17-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
I VT-3	X			FLASH LIGHT	
K VT-3			X	FLASHLIGHT	BOTTOM OF PIPE CLAMP NUT NOT FULLY ENGAGED. THE WHOLE SUPPORT IS LOOSE
L VT-3	X			FLASHLIGHT	
M VT-3	X			FLASHLIGHT	
N VT-3			X	FLASHLIGHT	BOTTOM OF PIPE CLAMP NOT NOT FULLY ENGAGED
O VT-3	X			FLASHLIGHT	

Richard B. Weber 4/23/87
ANII 4-23-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-221A

SYST/COMP. SIS & RHR RETURN PROCEDURE IST-11 REV. 10 F.C.3

EXAMINER [signature] LEVEL II [signature] LEVEL I DATE 4-19-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
95			X	① ARC STRIKE 4 3/4" CW, 9/16" FROM TOE OF WELD, 5/32" ROUNDED, ELBOW SIDE ② ARC STRIKE 5 1/4" CW, 3/8" FROM TOE OF WELD, 1/8" ROUNDED, ELBOW SIDE	86° F
96			X	① ARC STRIKE 6 3/4" CW, 5/8" FROM TOE OF WELD, 3/4" LONG, ELBOW SIDE ② ARC STRIKE 10 3/8" CW, 1/2" FROM TOE OF WELD, 1/8" ROUNDED, ELBOW SIDE	86° F

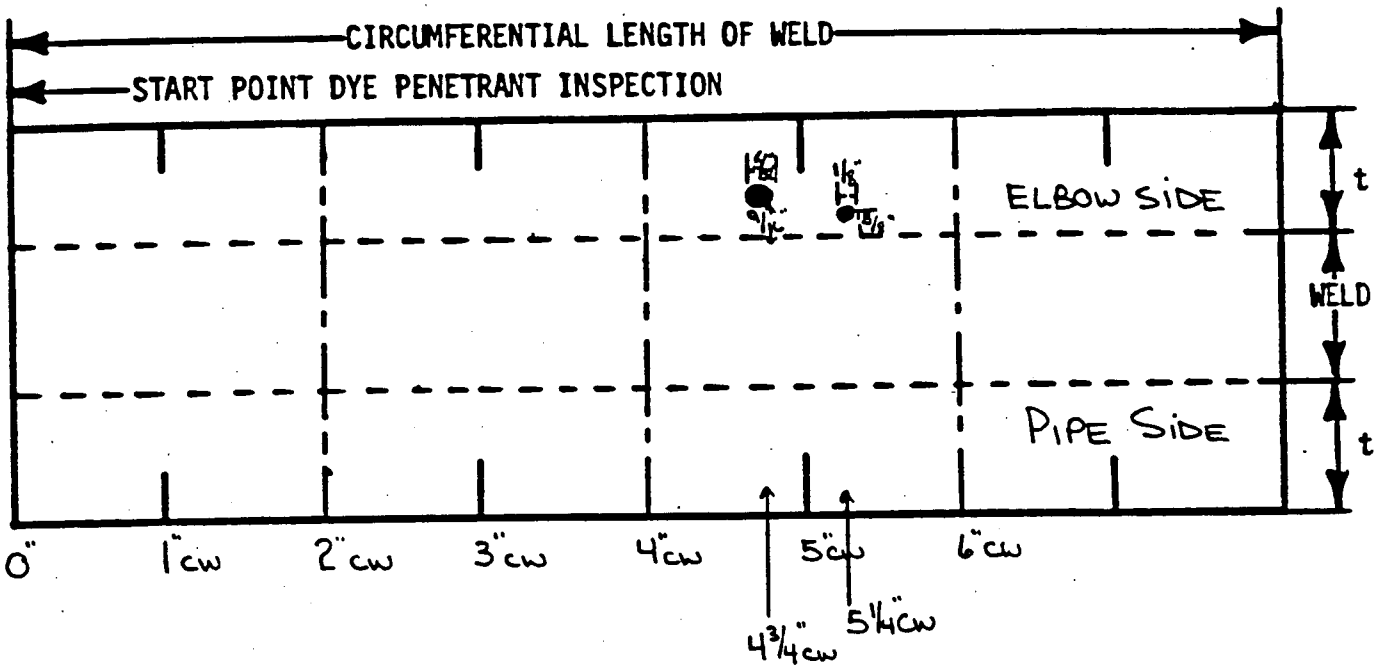
Richard B. Weber 4/23/87
[signature] ANII
4-23-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI-11 REV.10 F.C. 3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: [illegible] DATE: 4-19-87



REMARKS: ARC STRIKES

COMPONENT/PIPING SYSTEM SIS + RHR RETURN

WELD NO. 95

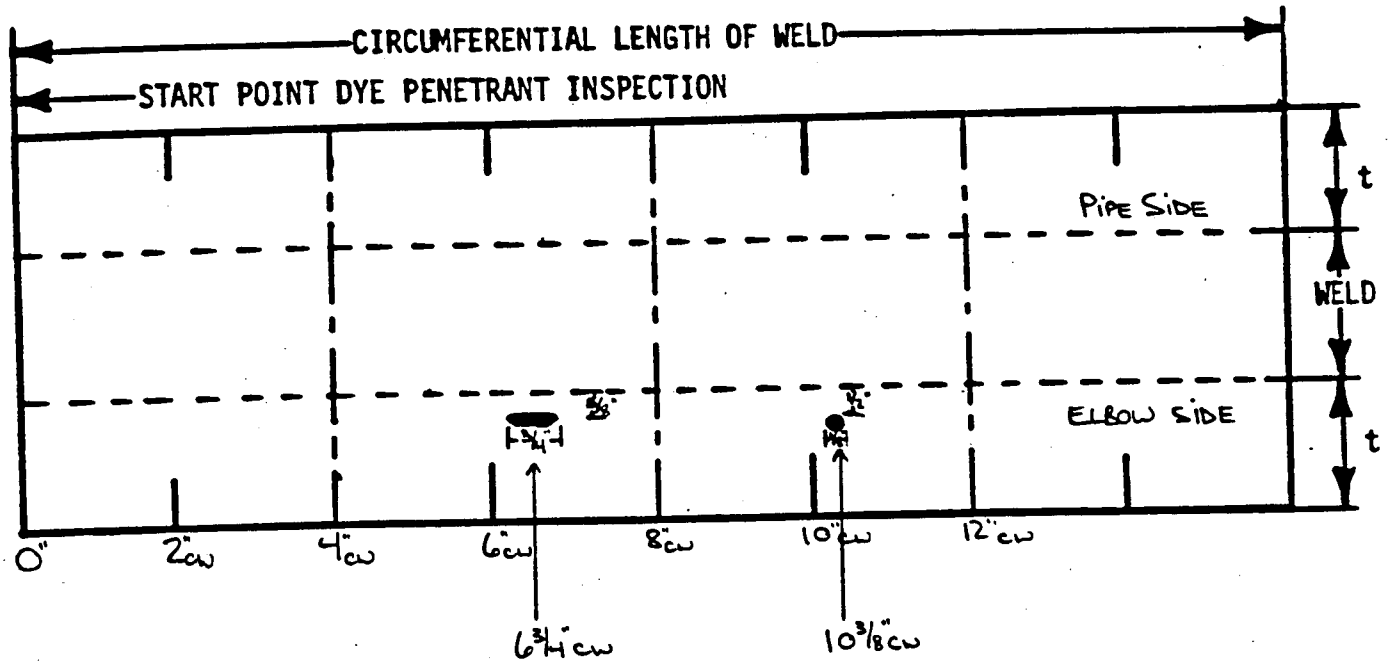
ISO/SKETCH NO. CPL-221A

Richard B. Weber 4/23/87
ANII
4-23-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: IST-11 REV 10 F.C. 3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: [illegible] DATE: 4-19-87



REMARKS: ARC STRIKES

COMPONENT/PIPING SYSTEM SIS-RHR RETURN

WELD NO. 96

ISO/SKETCH NO. CPL-221A

Richard B. Weber 4/23/87
ANII
4-23-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-222B

SYST/COMP SAFETY INJECTION PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D Farnyak II DATE 4-18-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E VT-3	X			FLASHLIGHT	
F VT-3	X			FLASHLIGHT	
G VT-3	X			FLASHLIGHT	
H VT-3			X	FLASHLIGHT	NUTS ARE NOT TIGHT AGAINST PLATES AN C-CLAMP
					NOTE: C-CLAMP IS A U-BOLT.

Richard B. Weber 4/18/87
John Hayward ANII
4-19-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-230

SYST/COMP RHR PUMPS TO RWS TANK PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furyak II William H. Dye, I DATE 4-18-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D VT-3	X			FLASHLIGHT	
E VT-3			X	FLASHLIGHT	GROUT IS MISSING ON 2 SIDES AND UNDER FLOOR SUPPORT
					Richard B. Weber 4/18/87
					John Jarrard ANII 4-19-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

220

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-231

SYST/COMP SI + CS Pump Suction PROCEDURE ISI-8, Rev. 9

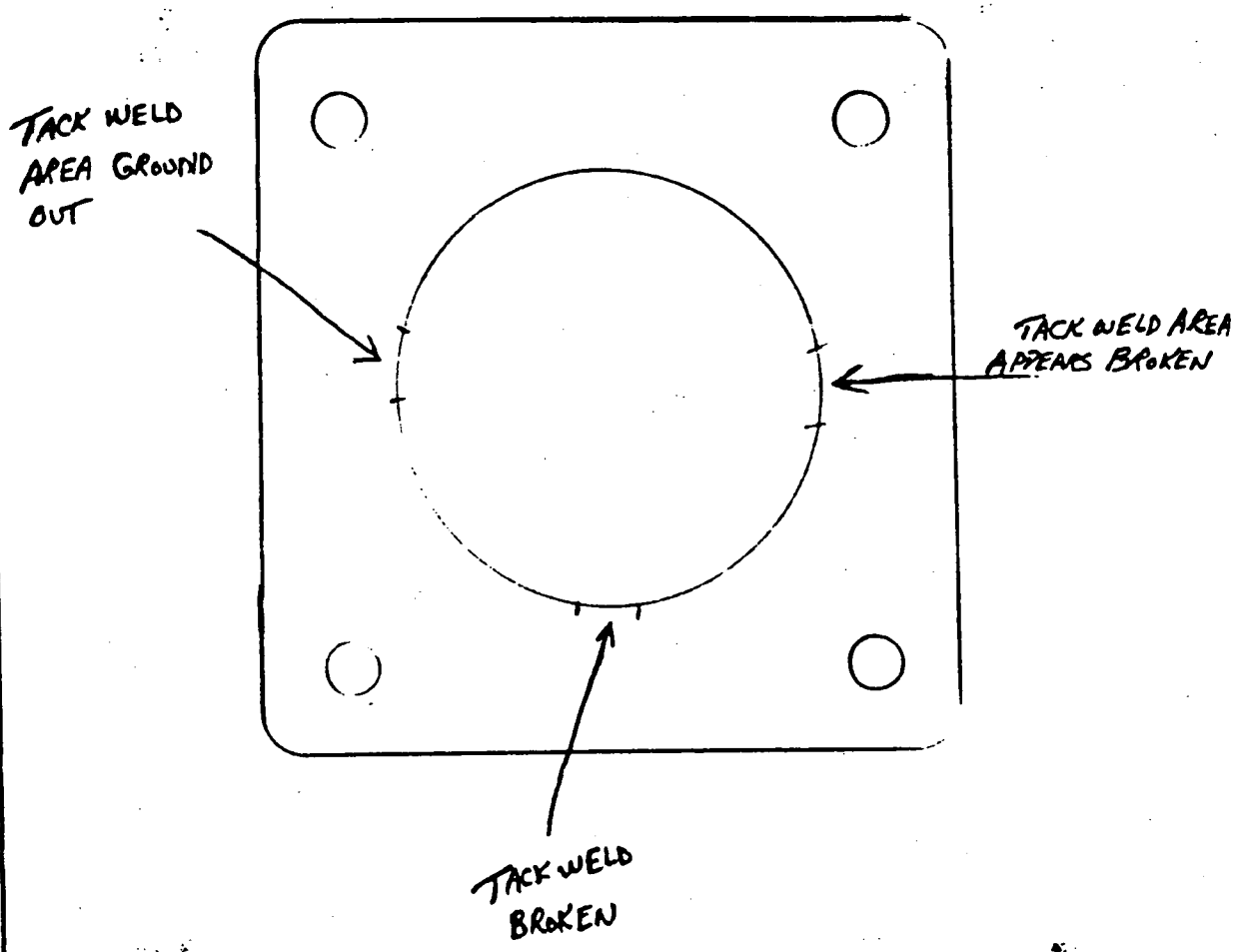
EXAMINER Joseph C. Furnyak II Level II Ralph Kendall I DATE 4-22-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
B VT3			X	Flashlight, Mirror	Light rust on studs See attached sketch for tack welds.
					Richard B. Weber 4/23/87
					John Isaacson ANII 4-23-87

FORM 45934B

WESTINGHOUSE ELECTRIC CORPORATION

TOP VIEW



CPL-231
SUPPORT B

Joseph C. Tunnyak II 4-22-87

Richard B. Hicks 4/23/87

John J. Jaworski ANII
4-23-87

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-233

SYST/COMP. SAFETY INJECTION SYSTEM PROCEDURE 151-11 Rev.10 F.C.3

EXAMINER William M. Halley II LEVEL II DATE 4-17-87

P/T		BATCH NOS.
CLEANER	MAGNAFLUX	85M039
PENETRANT	MAGNAFLUX	86J018
DEVELOPER	MAGNAFLUX	85M035
REMOVER	MAGNAFLUX	85M039

M/T
EQUIPMENT
EXAM. MEDIUM
BLACK-LIGHT CHECK TIME

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
24			X	Tooling Mark 4½" Clockwise From 0° Datum To 4¾", 11/16" From Toe Of Weld 24 On Pipe Side. Brown Residue Found On Weld And Base Metal, 360° Intermittent. Cleaners Were Unable To Remove It.	83°F
25		X		Brown Residue Found On Weld And Base Metal, 360° Intermittent. Cleaners Were Unable To Remove It. Did Not Interfer With Exam. 24+25	83°F

Richard B. Weber 4/29/87
John J. Jurcak ANII 4-27-87

FORM 48935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-234A

SYST/COMP CS PUMP "A" TO HEADERS PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-18-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
L VT-3			X	FLASHLIGHT	U-CLAMP IS LOOSE
M VT-3			X	FLASHLIGHT	U-CLAMP IS LOOSE
N VT-3		X		FLASHLIGHT	IT APPEARS THAT U-CLAMP IS MISSING
					Richard B. Weber 4/18/87
					John Jovanovic ANII 4-19-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-236

SYST/COMP. LOOP "B" ACCUMULATOR DISC. PROCEDURE ISI-11, REV. 10 FC. 3

EXAMINER Paul J. Kovallo-II LEVEL II Ralph W. Hirschfeld-I DATE 4-14-87

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX 85M039	EQUIPMENT	-
PENETRANT	MAGNAFLUX 86J018		
DEVELOPER	MAGNAFLUX 85M035	EXAM. MEDIUM	
REMOVER	MAGNAFLUX 85M039	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
2			X	1/8" LINEAR WITH 3/8" ROUNDED	66°
				INDICATION LOCATED AT 100°	
				PIPE SIDE AT TOE OF WELD	
				WELD SPATTER 1/16", 1/4" IN ON	
				WELD AT 0° PIPE SIDE	
				SEE ATTACHED INDICATION SHEET	

Richard B. Weber 4/18/87

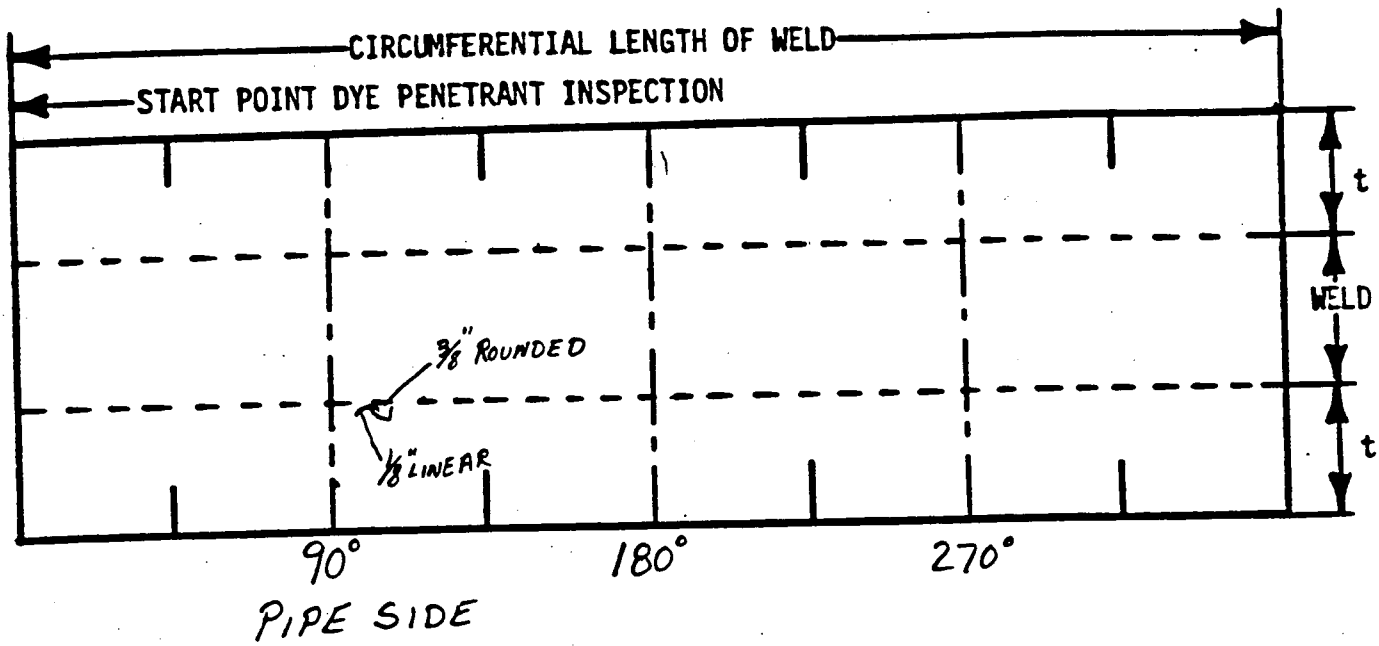
ANII 4-19-87

FORM 45935C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: ISI-11, REV.10 FC.3 PLANT: H.B. ROBINSON UNIT 2

OPERATOR: Paul J. Kovalle-II DATE: 4-14-87



REMARKS: 1/8" LINEAR WITH 3/8" ROUNDED INDICATION LOCATED AT TOE OF WELD, 100° PIPE SIDE

COMPONENT/PIPING SYSTEM LOOP "B" ACCUMULATOR DISCHARGE

WELD NO. 2

ISO/SKETCH NO. CPL-236

Richard B. Weber 4/18/87
ANII 4-19-87

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

SURFACE EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-236

SYST/COMP. LOOP 'B' ACCUMULATOR DISCHARGE PROCEDURE ISI-11 REV.10 EC-3

EXAMINER Lola K Campbell II Ken Mica I LEVEL II DATE 4-26-87

P/T	BATCH NOS.	M/T	
CLEANER	MAGNAFLUX SKC-NF 84M062	EQUIPMENT	
PENETRANT	MAGNAFLUX SKL-HF/S 86J018		
DEVELOPER	MAGNAFLUX SKD-NF 85M035	EXAM. MEDIUM	
REMOVER	MAGNAFLUX SKC-NF 84M062	BLACK-LIGHT CHECK TIME	

IDENT. NUMBER	RESULTS NI	NRI	RI	REMARKS	TEMP. F°
2		X		REWORK AREA AFTER REWORK	82°

Richard B. Weber 4/26/87
John Jarrard ANII
4-27-87

FORM 46938C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-238

SYST/COMP PULSATION DAMP A PROCEDURE ISI-8, REV. 9

EXAMINER [signature] LEVEL II [signature] LEVEL I DATE 4-22-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
WS-1			X	FLASHLIGHT, MIRROR	INADEQUATE THREAD ENGAGEMENT ON BOLTS ON BASE PLATE. (4 BOLTS)
					Richard B. Weber 4/24/87
					[signature] ANII 4-24-87

FORM 459348

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-313

SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II (LEVEL II) DATE 4-22-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X			FLASHLIGHT	
C - VT-3			X	FLASHLIGHT	HEAVY RUST ON SUPPORT PLATE
D - VT-3			X	FLASHLIGHT	GROUT BROKEN AT BASE PL & RUST
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
N - VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PL
O - VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PL
X - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/24/87
					John Dunnagan ANII 4-24-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-313A

SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

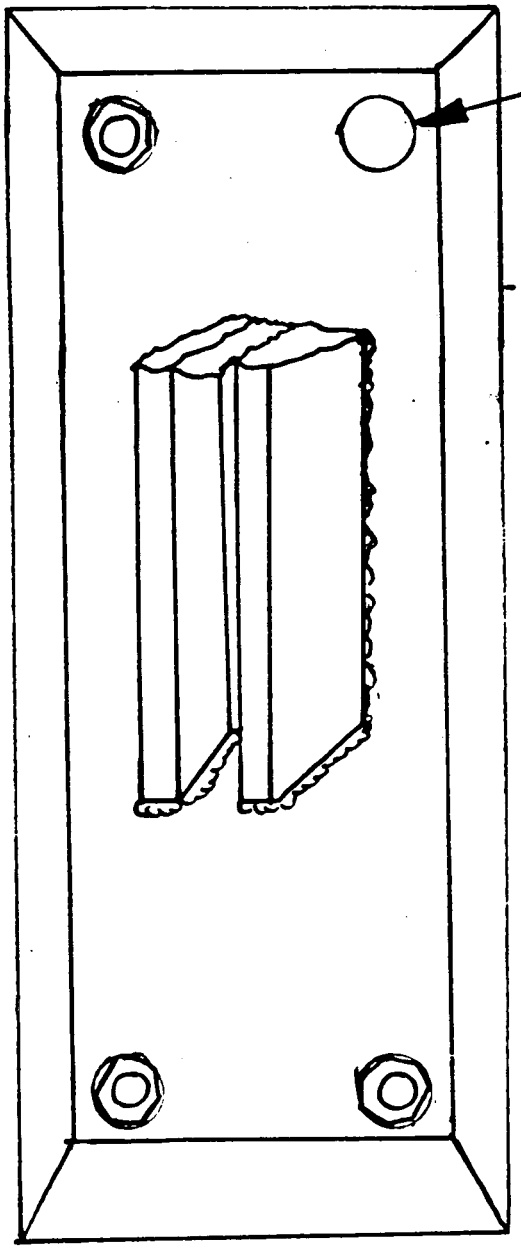
EXAMINER Robert Wm. Hughes II DATE 4-22-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
T - VT-3		X		FLASHLIGHT	LIGHT RUST ON SUPPORT PLATE
M - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
R - VT-3			X	FLASHLIGHT	RUST ON SUPPORT PLATE
S - VT-3			X	FLASHLIGHT	1 BOLT MISSING (SEE SKETCH)
W - VT-3			X	FLASHLIGHT	COMPLETE SUPPORT MISSING (REMOVED BY CONSTRUCTION)

Richard B. Weber 4/24/87

ANII 4-24-87

FORM 45934B



CPL-313A

4-24-57

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-314

SYST/COMP SERVICE & COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-21-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A - VT-3	X			FLASHLIGHT	
B - VT-3	X				
C - VT-3	X				
D - VT-3			X		2 LOOSE NUTS
E - VT-3	X				
F - VT-3	X				
G - VT-3	X				
H - VT-3	X				
I - VT-3	X				
J - VT-3	X				

Richard B. Weber 4/23/87
John Howard ANII
4-24-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-314

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-B REV. 9

EXAMINER Robert Wm. Hughes II LEVEL II DATE 4-26-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
D - VT-3	X			FLASHLIGHT	RE-EXAM AFTER REWORK
					Richard B. Weber 4/28/87
					John Jameson ANII 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-323

SYST/COMP Service and Cooling Water PROCEDURE ISI-8 Rev. 9

EXAMINER [signature] LEVEL II [signature] DATE 4-26-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
VV VT-3	X			FLASHLIGHT	
WW VT-3	X			FLASHLIGHT	
YY VT-3			X		Support Missing
A VT-3	X			FLASHLIGHT	
B VT-3	X			FLASHLIGHT	
C VT-3	X			FLASHLIGHT	
D VT-3	X			FLASHLIGHT	
E VT-3			X	FLASHLIGHT	Loose Nut On Pipe Clamp
V VT-3	X			FLASHLIGHT	
U VT-3	X			FLASHLIGHT	
T VT-3	X			FLASHLIGHT	
S VT-3			X	FLASHLIGHT	Inadequate Thread Engagement
R VT-3	X			FLASHLIGHT	
AAA VT-3	X			FLASHLIGHT	

Richard B. Weber 4/28/87
[signature] ANII
[signature] 4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-323

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8, REV. 9

EXAMINER Joseph J Tumyak II LEVEL II DATE 4-30-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
E - VT-3		X		FLASHLIGHT	CHIPPED PAINT AFTER REWORK
S - VT-3		X		FLASHLIGHT	CHIPPED PAINT AFTER REWORK
					Richard B. Walker 4/29/87
					John Hancock ANII
					4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-B, REV.9

EXAMINER Joseph U. Furnyak II LEVEL II Paul J. Kovalle-I DATE 4-28-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
KK VT-3			X		SUPPORT IS MISSING
LL VT-3		X		FLASH LIGHT	LT. RUST
MM VT-3		X		FLASHLIGHT	LT. RUST
RR VT-3		X		FLASHLIGHT	LT RUST
SS VT-3		X		FLASHLIGHT	LT. RUST
TT VT-3		X		FLASHLIGHT	LT. RUST
UU VT-3			X	FLASH LIGHT	INADEQUATE THD. ENGAGEMENT BOTTOM LEFT
WW VT-3			X	FLASHLIGHT	STUD. NOTE: WW IS PART OF THE ABOVE
					Richard B. Weber 4/28/87
					John Juncosa ANII 4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-324

SYST/COMP Service and Cooling Water PROCEDURE ISI-8, Rev. 9

EXAMINER D.L. Mell II (LEVEL II) DATE 4-28-87

IDENT. NUMBER		RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A	VT-3		X		Flashlight, Mirror	Rust, Chipped Paint
JJJ	VT-3	X			Flashlight	Remote
III	VT-3	X			Flashlight	Remote
Y	VT-3	X			Flashlight	Remote
O	VT-3	X			Flashlight	Remote
P	VT-3		X		Flashlight	Rust - Remote
HHH	VT-3		X		Flashlight	Rust, Chipped Paint - Remote
Q	VT-3			X	Flashlight	Support Missing
GGG	VT-3	X			Flashlight	
Z	VT-3	X			Flashlight	
EEE	VT-3	X			Flashlight	
AA	VT-3	X			Flashlight	
B	VT-3	X			Flashlight	
BB	VT-3	X			Flashlight	
C	VT-3		X		Flashlight	Rust, Chipped Paint
EE	VT-3		X		Flashlight	Rust, Chipped Paint
D	VT-3		X		Flashlight	Rust - Remote
FF	VT-3		X		Flashlight	Rust - Remote
F	VT-3			X	Flashlight	Support Missing
DDD	VT-3		X		Flashlight	Rust - Remote
XX	VT-3		X		Flashlight	Rust - Remote
CCC	VT-3	X			Flashlight	Remote
ZZ	VT-3	X			Flashlight	Remote
T	VT-3	X			Flashlight	
UUU	VT-3	X			Flashlight	
U	VT-3			X	Flashlight	Loose Rod
VVV	VT-3			X	Flashlight	Loose Rod, Same As "U"
WWW	VT-3	X			Flashlight	
XXX	VT-3	X			Flashlight	

John Jaccard ANII 4-29-87

Richard J. Weber 4/28/87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324

SYST/COMP SERVICE AND COOLING WATER PROCEDURE IST-8, REV.9

EXAMINER W.W. Mell II (LEVEL II) DATE 4-28-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
RRR VT-3			X	FLASHLIGHT	SUPPORT MISSING
YYY VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
QQQ VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
ZZZ VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
PPP VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
AAAA VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
OOO VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
BBBB VT-3	X			FLASHLIGHT	
NNN VT-3	X			FLASHLIGHT	
MMM VT-3		X		FLASHLIGHT	RUST
LLL VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
L VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
M VT-3			X	FLASHLIGHT	MISALIGNMENT
V VT-3			X	FLASHLIGHT	MISALIGNMENT
N VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
W VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT

Richard B. Weber 4/28/87

John Jaccard ANII 4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324A

SYST/COMP SERVICE AND COOLING WATER PROCEDURE IST-8 REV. 9

EXAMINER [signature] LEVEL II DATE 4-27-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
O VT-3	X			FLASHLIGHT	
UU VT-3			X	FLASHLIGHT	LOOSE NUT ON PIPE CLAMP.
TT VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
N VT-3		X		FLASHLIGHT	CHIPPED PAINT
DD VT-3		X		FLASHLIGHT	LIGHT RUST
CC VT-3		X		FLASHLIGHT	MODERATE RUST
BB VT-3		X		FLASHLIGHT	MODERATE RUST
AA VT-3		X		FLASHLIGHT	CHIPPED PAINT
L VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
M VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
Z VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
Y VT-3		X		FLASHLIGHT	CHIPPED PAINT - REMOTE
X VT-3			X	FLASHLIGHT	SUPPORT MISSING
K VT-3	X			FLASHLIGHT	REMOTE
W VT-3		X		FLASHLIGHT	LIGHT RUST - REMOTE
J VT-3		X		FLASHLIGHT	LIGHT RUST - REMOTE
V VT-3		X		FLASHLIGHT	MODERATE RUST - REMOTE
I VT-3		X		FLASHLIGHT	MODERATE RUST - REMOTE
H VT-3		X		FLASHLIGHT	RUST - REMOTE
JJ VT-3	X			FLASHLIGHT	REMOTE
QQ VT-3		X		FLASHLIGHT	RUST
G VT-3		X		FLASHLIGHT	RUST - REMOTE
U VT-3		X		FLASHLIGHT	RUST - REMOTE
T VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
F VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT
S VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT - REMOTE
E VT-3		X		FLASHLIGHT	RUST, CHIPPED PAINT - REMOTE
R VT-3			X	FLASHLIGHT	SUPPORT MISSING
D VT-3			X	FLASHLIGHT	SUPPORT MISSING

[signature] 4-28-87

[signature] 4-29-87

FORM 45934B

294

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. Robinson UNIT 2 SKETCH CPL-324A

SYST/COMP Service And Cooling Water PROCEDURE ISI-8, Rev. 9

EXAMINER [signature] LEVEL II DATE 4-27-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
HH VT-3			X	Flashlight	Support Missing
OO VT-3			X	Flashlight	Support Missing
NN VT-3			X	Flashlight	Support Missing
MM VT-3			X	Flashlight	Support Missing
C VT-3			X	Flashlight	Support Missing
GG VT-3		X		Flashlight	Rust, Chipped Paint
LL VT-3		X		Flashlight	Rust, Chipped Paint
Q VT-3		X		Flashlight	Rust - Remote
KK VT-3		X		Flashlight	Rust - Remote
B VT-3		X		Flashlight	Moderate Rust
P VT-3		X		Flashlight	Moderate Rust
A VT-3		X		Flashlight	Chipped Paint, Rust
FF VT-3			X	Flashlight	Support Missing
DDD VT-3		X		Flashlight	Rust
CCC VT-3		X		Flashlight	Rust
KKK VT-3		X		Flashlight	Rust
JJJ VT-3		X		Flashlight	Rust

Richard B. Weber 9/28/87
[signature] ANII 4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324B

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISE-8, REV. 9

EXAMINER Joseph D. Furnyak II LEVEL II DATE 4-25-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A VT-3	X			FLASHLIGHT	
B VT-3		X		FLASHLIGHT	LT. RUST
C VT-3		X		FLASHLIGHT	LT. RUST
D VT-3		X		FLASHLIGHT	LT. RUST
E VT-3	X			FLASHLIGHT	
F VT-3		X		FLASHLIGHT	LT. RUST
G VT-3		X		FLASHLIGHT	LT. RUST
H VT-3		X		FLASHLIGHT	LT. RUST
I VT-3		X		FLASHLIGHT	LT. RUST
JJ VT-3		X		FLASHLIGHT	LT. RUST
KK VT-3		X		FLASHLIGHT	LT. RUST
HH VT-3	X			FLASHLIGHT	
II VT-3			X		SUPPORT IS MISSING
					Richard B. Weber 4/26/87
					John J. Jacobs ANII
					4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324B

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-2, REV.9

EXAMINER Joseph D. Furyak II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
O VT-3	X			FLASHLIGHT	
R VT-3	X			FLASHLIGHT	
Q VT-3			X	FLASHLIGHT	BOTTOM PART OF HANGER IS MISSING
Y VT-3		X		FLASHLIGHT	LIGHT RUST
GG VT-3		X		FLASHLIGHT	LIGHT RUST
					Richard B. Weber 4/28/87
					ANII 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-324B

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
J - VT-3			X	FLASHLIGHT	SUPPORTS MISSING
K - VT-3			X	FLASHLIGHT	SUPPORTS MISSING
S - VT-3	X			FLASHLIGHT	
T - VT-3	X			FLASHLIGHT	
U - VT-3	X			FLASHLIGHT	
V - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
M - VT-3	X			FLASHLIGHT	
LL - VT-3	X			FLASHLIGHT	
Z - VT-3	X			FLASHLIGHT	
AA - VT-3	X			FLASHLIGHT	
BB - VT-3	X			FLASHLIGHT	
CC - VT-3	X			FLASHLIGHT	
P - VT-3	X			FLASHLIGHT	
FF - VT-3	X			FLASHLIGHT	

Richard C. Weber 4/28/87
ANII
4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-324C

SYST/COMP SERVICE AND COOLING WATER PROCEDURE ISI-8 REV.9

EXAMINER [signature] LEVEL II DATE 4-26-87 / 4-27-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
AA	VT-3	X			FLASHLIGHT	
Q	VT-3		X		FLASHLIGHT	LIGHT RUST
Z	VT-3		X		FLASHLIGHT	LIGHT RUST
P	VT-3			X		SUPPORT HAS BEEN REMOVED
O	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
U	VT-3	X			FLASHLIGHT	
F	VT-3	X			FLASHLIGHT	
T	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
S	VT-3			X		SUPPORT REMOVED
E	VT-3			X		SUPPORT REMOVED
D	VT-3		X		FLASHLIGHT	LIGHT RUST
SS	VT-3		X		FLASHLIGHT	LIGHT RUST
C	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
B	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
R	VT-3		X		FLASHLIGHT	LIGHT RUST
R1	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT. THIS SUPPORT IS NOT SHOWN ON SKETCH CPL-324C, IT IS LOCATED APPROX. 3 FT BEFORE LINE "A" ENTERS PENETRATION S-3.
A	VT-3		X		FLASHLIGHT	LT. RUST
II	VT-3		X		FLASHLIGHT	LIGHT RUST
X	VT-3		X		FLASHLIGHT	LIGHT RUST, REMOTE
H	VT-3	X			FLASHLIGHT	
W	VT-3		X		FLASHLIGHT	LIGHT RUST
G	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
N	VT-3			X	FLASHLIGHT	LOOSE CLAMP
M	VT-3	X			FLASHLIGHT	
Y	VT-3		X		FLASHLIGHT	LIGHT RUST, CHIPPED PAINT
L	VT-3			X		SUPPORT REMOVED

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-327

SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE ISI-8, REV. 9

EXAMINER Donald D. Turnipseed II Will C. Mills II DATE 4-26-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT-3		X		FLASHLIGHT	LIGHT RUST
J VT-3	X			FLASHLIGHT	REMOTE
K VT-3		X		FLASHLIGHT	LIGHT RUST
L VT-3			X	FLASHLIGHT	INADEQUATE THREAD ENGAGEMENT
M VT-3	X			FLASHLIGHT	
N VT-3	X			FLASHLIGHT	REMOTE
U VT-3	X			FLASHLIGHT	

Richard B. Weber 4/26/87
John Jamison ANII
4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPC-327

SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Funyak II LEVEL II DATE 4-29-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
L-VT-3		X		FLASHLIGHT	CHIPPED PAINT, AFTER REWORK
					Richard B. Weber 4/29/87
					John [illegible] ANII 4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

324

VISUAL EXAMINATION DATA

PLANT H B ROBINSON UNIT 2 SKETCH CPL-328

SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE IST-8, REV-9

EXAMINER Joseph D. Tumpak II LEVEL II DATE 4-26-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT-3	X			FLASHLIGHT	
B VT-3	X			FLASHLIGHT	
V VT-3			X	FLASHLIGHT	INADEQUATE THREAD ENGAGEMENT
W VT-3		X		FLASHLIGHT	LIGHT RUST
X VT-3	X			FLASHLIGHT	
Z VT-3		X		FLASHLIGHT	CHIPPED PAINT
EE VT-3	X			FLASHLIGHT	
FF VT-3	X			FLASHLIGHT	REMOTE

Richard O. Weber 4/26/87

John Jacobs ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-328

SYST/COMP COMPONENT COOLANT SYSTEM PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes III LEVEL II DATE 4-29-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
DD - VT-3	X			FLASHLIGHT	
AA - VT-3	X			FLASHLIGHT	
BB - VT-3	X			FLASHLIGHT	
C - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
CC - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
H - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
GG - VT-3	X			FLASHLIGHT	
R - VT-3			X	FLASHLIGHT	BORIC ACID ON 4 BOLTS
Q - VT-3	X			FLASHLIGHT	
P - VT-3			X	FLASHLIGHT	BORIC ACID ON FLOOR SUPPORT & 4 BOLTS
O - VT-3	X			FLASHLIGHT	
S - VT-3	X			FLASHLIGHT	
T - VT-3	X			FLASHLIGHT	
U - VT-3	X			FLASHLIGHT	
K - VT-3			X	FLASHLIGHT	MISSING NUT ON HANGER ROD
M - VT-3	X			FLASHLIGHT	
N - VT-3	X			FLASHLIGHT	
L - VT-3	X			FLASHLIGHT	
					Richard B. Weber 4/28/87
					John Johnson ANII
					4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-322

SYST/COMP COMPONENT COOLANT SYSTEMS PROCEDURE ISI-E, REV. 9

EXAMINER Joseph D. Furnyak II DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
V - VT-3		X		FLASHLIGHT	LT. RUST AFTER REWORK

Richard B. Weber 4/29/87
4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

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VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-329

SYST/COMP COMPONENT COOLANT SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER Joseph D. Tumyak II LEVEL II Paul J. Kovalla-I DATE 4-27-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT-3			X	FLASHLIGHT	TOP OF SUPPORT IS MISSING
B VT-3		X		FLASHLIGHT	LT. RUST
C VT-3	X			FLASHLIGHT	
D VT-3		X		FLASHLIGHT	CHIPPED PAINT
E VT-3		X		FLASHLIGHT	CHIPPED PAINT
F VT-3	X			FLASHLIGHT	
G VT-3		X		FLASHLIGHT	LT. RUST
H VT-3		X		FLASHLIGHT	LT. RUST
					Richard B. Weber 4/28/87
					John Howard ANII 4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT # 2 SKETCH CPL-330

SYST/COMP SPENT FUEL PIT COOLANT SYS. PROCEDURE ISI-8 REV. 9

EXAMINER Robert Wm. Hughes II DATE 4-27-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
C - VT-3	X			FLASHLIGHT	
D - VT-3	X			FLASHLIGHT	
E - VT-3	X			FLASHLIGHT	
F - VT-3	X			FLASHLIGHT	
G - VT-3	X			FLASHLIGHT	
I - VT-3	X			FLASHLIGHT	
J - VT-3	X			FLASHLIGHT	
K - VT-3			X	FLASHLIGHT	INADEQUATE THREAD ENGAUGEMENT ON 2ND NUT ON U-BOLT
L - VT-3	X			FLASHLIGHT	
m - VT-3		X		FLASHLIGHT	LIGHT RUST and CHIPPED PAINT
N - VT-3	X			FLASHLIGHT	
O - VT-3	X			FLASHLIGHT	
P - VT-3	X			FLASHLIGHT	

Richard O. Weber 4/28/87
ANII
4-29-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT #2 SKETCH CPL-331A

SYST/COMP AUXY. FEED & CONDENSATE PIPE PROCEDURE IST-8 REV. 9

EXAMINER Robert Wm. Vaughan II (LEVEL II) DATE 4-27-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
UU - VT-3	X			FLASHLIGHT	
TT - VT-3		X		FLASHLIGHT	LIGHT RUST
SS - VT-3	X			FLASHLIGHT	
RR - VT-3			X	FLASHLIGHT	HEAVY RUST
QQ - VT-3	X			FLASHLIGHT	
PP - VT-3		X		FLASHLIGHT	LIGHT RUST
OO - VT-3	X			FLASHLIGHT	
NN - VT-3	X			FLASHLIGHT	
MM - VT-3	X			FLASHLIGHT	
LL - VT-3	X			FLASHLIGHT	
KK - VT-3	X			FLASHLIGHT	
JJ - VT-3	X			FLASHLIGHT	
II - VT-3	X			FLASHLIGHT	
GG - VT-3	X			FLASHLIGHT	
FF - VT-3	X			FLASHLIGHT	
EE - VT-3	X			FLASHLIGHT	
DD - VT-3	X			FLASHLIGHT	NOTE: SUPPORT DD RELOCATED TO OTHER SIDE OF PIPE 'T'
N - VT-3			X	FLASHLIGHT	HEAVY RUST
O - VT-3			X	FLASHLIGHT	HEAVY RUST
P - VT-3			X	FLASHLIGHT	HEAVY RUST
Q - VT-3			X	FLASHLIGHT	HEAVY RUST
R - VT-3			X	FLASHLIGHT	HEAVY RUST
S - VT-3			X	FLASHLIGHT	HEAVY RUST
T - VT-3			X	FLASHLIGHT	HEAVY RUST
U - VT-3	X			FLASHLIGHT	
V - VT-3			X	FLASHLIGHT	HEAVY RUST
W - VT-3			X	FLASHLIGHT	HEAVY RUST
X - VT-3			X	FLASHLIGHT	HEAVY RUST
Y - VT-3	X			FLASHLIGHT	

Richard B. Weber 4/28/87

ANII 4-29-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-332

SYST/COMP FEED WATER SYSTEM PROCEDURE IST-8, REV. 9

EXAMINER [signature] LEVEL II DATE 4-24-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A	VT3	X			FLASHLIGHT	WHIP RESTRAINT
B	VT3	X			FLASHLIGHT	NEW HYD. LAT. SNUBBER
C	VT3	X			FLASHLIGHT	
D	VT3	X			FLASHLIGHT	
E	VT3			X	FLASHLIGHT	PARTS MISSING FLAME CUT
F	VT3	X			FLASHLIGHT	2 SPRINGS BOTH 2700 LOAD SETTINGS
G	VT3	X			FLASHLIGHT	

Richard B. Weber 4/25/87
[signature] ANII
4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL333

SYST/COMP FEEDWATER SYSTEM PROCEDURE ISI-8, Rev. 9

EXAMINER Luke B Coghill III LEVEL II DATE 4-24-87

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A VT3	X				
B VT3			X		LOAD AT MID RANGE SCALE PAINTER
C VT3	X				
D VT3	X				
E VT3	X				
F VT3	X				NEW HYD. LAT. SNUBBER
H VT3			X		LOOSE
I VT3	X				WHIP RESTRAINT
					Richard B. Weber 4/25/87
					John Durand ANII 4-27-87

FORM 45934B

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT 2 SKETCH CPL-333

SYST/COMP FEEDWATER SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER [signature] III LEVEL II DATE 4-25-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
H VT3	X			FLASHLIGHT	AFTER REPAIR
					Richard B. Weber 4/26/87
					John [signature] ANII 4-27-87

FORM 459348

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WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-334

SYST/COMP FEED WATER SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER [signature] LEVEL II DATE 4-24-87

IDENT. NUMBER		RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
A	VT3	X			FLASHLIGHT	
B	VT3			X	FLASHLIGHT	NOT CONNECTED
C	VT3	X			FLASHLIGHT	3300 LOAD SETTING
D	VT3	X			FLASHLIGHT	
E	VT3	X			FLASHLIGHT	
F	VT3	X			FLASHLIGHT	
H	VT3			X	FLASHLIGHT	RIGHT SIDE LOOSE
J	VT3	X			FLASHLIGHT	
I	VT3	X			FLASHLIGHT	WHIP RESTRAINT
						Richard B. Weber 4/25/87
						John Jarrard ANII
						4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-334

SYST/COMP FEEDWATER SYSTEM PROCEDURE ISI-8, REV. 9

EXAMINER John B. Campbell III DATE 4-25-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
H VT3	X			FLASHLIGHT	AFTER REPAIR
					Richard B. Weber 4/26/87
					John Jarrard ANII 4-27-87

FORM 45934B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H.B. ROBINSON UNIT #2 SKETCH CPL-345

SYST/COMP BORIC ACID TRANSFER PUMPS PROCEDURE ISI-8 REV.9

EXAMINER [signature] III LEVEL II DATE 4-29-87

IDENT. NUMBER	RESULTS NI	NRI	RI	VISUAL AIDS	REMARKS
A VT3			X	FLASHLIGHT	COVERED WITH THICK BORIC ACID
B VT3			X	FLASHLIGHT	COVERED WITH THICK BORIC ACID

Richard B. Weber 4/29/87
[signature] ANII
4-29-87

FORM 459348

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

VISUAL EXAMINATION DATA

PLANT H. B. ROBINSON UNIT 2 SKETCH CPL-221B

SYST/COMP SIS + RHR RETURN PROCEDURE ISI-8, REV. 9

EXAMINER Joseph J Furnyak II DATE 4-29-87
LEVEL II

IDENT. NUMBER	RESULTS NI	RESULTS NRI	RESULTS RI	VISUAL AIDS	REMARKS
G VT-3			X	FLASHLIGHT	SUPPORT ROD IS LOOSE. UNABLE TO GET TO SPRING CAN TO TAKE SETTINGS
					Richard B. Weber 4/29/87
					John Hancock ANII 4-29-87

FORM 45934B

FORM NO. 80395
REV. 4/83

QA UT-8
REV. 1

CP&L
Carolina Power & Light Company

UT

PAGE 1 OF 1

ULTRASONIC THICKNESS NDE REPORT

PROJECT H.B. ROBINSON JOB NO. NA UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐ DATE 5-7-87

DRAWING	SYSTEM	LINE	WELD ITEM NUMBER
CPL-221A R.2 CPL-233 R.2	SIS / SIS & RHR	6-SI-88 / 10-AC-1	BASE METAL

DESIGN CLASS/~~CATEGORY~~: 2

ACCEPTANCE STANDARD: ☐ ASME III ☐ VIII ☐ B31.1 ☐ AWSD1.1 ☒ OTHER NA

MTL. TYPE	MTL. THICKNESS	O.D./~~LENGTH~~	SURFACE FINISH	NDE PROCEDURE
SS	.134" - .365"	6" - 10"	☒ GROUND ☐ ROUGH ☐ OTHER ____	NO. 408 REV. 4

UNIT S/N	TRANSDUCER S/N	TRANSDUCER TYPE	TRANSDUCER FREQUENCY
CPL-5175B	C25414	☒ DUAL ☐ SINGLE	☒ 5.0 MHZ ☐ 2.25 MHZ ☐ OTHER

COUPLANT	CALIBRATION/REFERENCE STND.	TRANSDUCER DIA.
EXOSEN	☐ IIW BLOCK S/N ____ ☒ STEP BLOCK S/N 84-39616 ☐ TEST ITEM ☐ MIC/CALIPER NO. ____	1/4"

SKETCH/REMARKS

* THE FOLLOWING THICKNESS MEASUREMENTS WERE TAKEN BEFORE PENETRANT INDICATIONS WERE REMOVED AND AFTER TO ASSURE MINIMUM WALL WAS NOT VIOLATED.

ISO.	WELD NO.	BEFORE	AFTER	NOMINAL
CPL-233 R.2	FW-24	.155"	.150"	.134"
CPL-221A R.2	FW-95	.496"	.492"	.365"
CPL-221A R.2	FW-96	.500"	.493"	.365"

INSPECTOR Gregory N. Tucker CERTIFICATION LEVEL II DATE 5/7/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE
REVIEW DATE	COMMENTS
IF APPLICABLE CP&L QA REVIEW DATE / /	IF APPLICABLE A.N.I. / A.I. DATE ANI 5/7/87

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PT

PROJECT H.B. ROBINSON JOB NO. NA UNIT 1☐ 2☒ 3☐ 4☐ DATE 5/7/87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
CPL-221AR.2 / CPL-233R.2	SIS / SI&RHR	6-SI-88 / 10-AC-1	BASE METAL

DESIGN CLASS/~~CATEGORY~~: 2

ACCEPTANCE STANDARD: ☐ASME I:1 ☐VIII ☐B31.1 ☐AWS D1.1 ☒OTHER ASME XI

MTL TYPE	MTL THICKNESS	O.D/~~LENGTH~~	SURFACE FINISH	NDE PROCEDURE NO. / REV
SS	.134" / .365"	6" / 10"	☒GROUND ☐AS-WELDED ☐OTHER	201 / REV 10

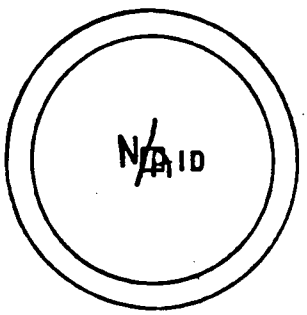
STAGE OF MFG.: ☐ROOT ☐INTERMEDIATE ☐INFO ☒REPAIR ☒FINAL

JOINT DESIGN: ☐INS ☐OPN. BT ☐N/A ☐SOCKET ☐BRN ☐BKS ☒OTHER BASE METAL

PENETRANT	DWELL TIME
MAGNAFLUX SKL-HF/S BAT. NO. 86A027	15 min.
CLEANER: MAGNAFLUX SKC-NF/ZC-7B BAT. NO. 85K019	
DEVELOPER: MAGNAFLUX SKD-NF/ZP-9B BAT. NO. 84G010	DEVELOPMENT TIME: 10 min.

SKETCH & REMARKS

☒ OD



Fw-24 86° F.
Fw-95 93° F.
Fw-96 95° F.

WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
CPL-233 R2 FW-24	PT 100% OF REPAIR AREA - NO INDICATIONS NOTED	X	N/A	N/A
CPL-221A R.2 FW-95	PT 100% OF REPAIR AREA - NO INDICATIONS NOTED	X	N/A	N/A
CPL-221A R.2 FW-96	PT 100% OF REPAIR AREA - NO INDICATIONS NOTED.	X	N/A	N/A

INSPECTOR	CERTIFICATION LEVEL	DATE
Gregory N. Tucker	II	5.7.87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE	
REVIEW DATE / /	COMMENTS	
IF APPLICABLE CP&L QA REVIEW	DATE / /	IF APPLICABLE A.N.I./A. [signature] DATE ANII 5 7 87

CAROLINA POWER & LIGHT COMPANY
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: RHR	COMPONENT NAME: Double Spring Can	COMPONENT ID NO.: N"	S/N: N/A
CLASS: 2	LOCATION/ISOMETRIC: CPL - 218		
PROCEDURE: 613 — REV.: 5	METHOD VT-1 ☐ VT-2 ☐ VT-3 ☒ VT-4 ☐		
REPLICATION: YES ☐ NO ☒	DIRECT ☒ REMOTE ☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: AMBIENT LIGHTING	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☐ MECHANICAL ☐ SNUBBER ☐ 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)	✓ Sat.					
SETTING OF COMPONENT SUPPORTS						ACTUAL: DISPOSITION: REQUIRED:
FREEDOM OF MOTION						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT						PIN - TO - PIN N/A
CLEARANCE OF MOVING PARTS						STROKE
ARC STRIKES/GOUGES						OTHER

COMMENTS/NOTES: Re-examined to verify tighting of u-bolt

1	EXAMINER: John Cames	LEVEL: II	DATE: 5-20-87	
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A	

SATISFACTORY ☐ UNSATISFACTORY ☐ NO REPORTABLE INDICATIONS ☒ REPORTABLE INDICATIONS ☐

REVIEWED BY: John W. Rees LEVEL: II DATE: 5/20/87

REVIEWER COMMENTS/NOTES:

GROUT PLACEMENT CARD

PREPARED BY:	DATE	JOB NO.	☑ Q-LIST ☐ RADWASTE-Q ☑ SEISMIC
Warren Lane	5/6/87	WR/JO 87-AFDS1	

ITEM(S) TO BE GROUTED: 1 BASEPLATE CPL-230 PT. E

REFERENCE DRAWING(S)/REV. —

BUILDING AUX. ELEVATION 1ST LOCATION PIPE ALLEY

SHIMS TO BE: ☑ LEFT IN PLACE ☐ REMOVED ESTIMATED QUANTITY: < 1 CUBIC FEET

TEST CUBES: ☑ NOT REQUIRED ☐ REQUIRED (SPECIFY TEST PROCEDURE BELOW)

TYPE OF GROUT: ☐ MASTERFLOW 713 ☑ EMBECO ☐ OTHER

GROUT METHOD: ☑ DRYPACK ☐ FLOWABLE ☐ FLUID (20-30 SEC.)

CURING: ☐ MOIST ___ DAYS ☐ MEMBRANE

ACCEPTANCE SIGNOFFS	ENGR	DATE	QC	DATE	REMARKS
SURFACE PREPARATION			J.C.	5.5.87	
FORMWORK			N/A	N/A	
CLEANUP			JC	5.5.87	
PRESOAK STARTED			J.C	5-5-87	TIME 1400 hrs DATE 5.5.87
PRESOAK ENDED			JC.	5.7.87	TIME 0830 hrs DATE 5.7.87
BATCHING OPERATION-EQUIPMENT, TOOLS, ETC.			N/A	N/A	
GROUT TEMPERATURE			N/A	N/A	
CONSISTENCY			J.C.	5.7.87	
PLACEMENT			J.C.	5.7.87	
CURING			J.C.	5.7.87	

LOCATION SKETCH/INSTRUCTIONS

PLACEMENT ACCEPTABLE Warren Lane ENGINEER 5/18/87 DATE

John Cornes QA/QC 5.7.87 DATE

FORM WP-5-1 (7-21-84)

ATTACHMENT 6.1

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 11-Q

PAGE 1 OF 1

PROJECT: HBR JOB NO.: 87-AFNF-1 UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☒

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
CVCS	BARUMP "A" SUPPORT	SUPPORT "A"	N/A

CLASS: 3 LOCATION/ISOMETRIC: CPL-345 REV. 1

PROCEDURE: 613 REV.: 5 METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐

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

EQUIPMENT USED: 2 "D" CELL FLASHLIGHT

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC ☐ CONSTANT LOAD
☒ MECHANICAL ☐ SHOCK ABSORBER
☐ SNUBBER ☐ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT N/A						
DEBRIS		✓				
CORROSION		✓				
EROSION		✓				
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 N/A
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES:

1	EXAMINER: W. H. Bugg	LEVEL: II	DATE: 5-15-87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY☒ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Rust LEVEL: II DATE: 5/18/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 9-Q

PAGE 1 OF 1

PROJECT: RNP JOB NO.: N/A UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☐

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
CVCS	Boric Acid Transfer Pump	"B" Pump support	N/A

CLASS: 3 LOCATION/ISOMETRIC: CPL-345 Rev. 1

PROCEDURE: 617 REV.: 5 METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐

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

EQUIPMENT USED: 2"D" Cell Flashlight

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC ☐ CONSTANT LOAD
☐ MECHANICAL ☐ SHOCK ABSORBER
☐ SNUBBER ☐ SPRING LOADED

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT N/A						
DEBRIS N/A						
CORROSION		✓				
EROSION		✓				
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 N/A
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES:
Base Plate for "B" Boric Acid Transfer Pump

1	EXAMINER: W. H. Bypp	LEVEL: II	DATE: 5-12-87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Russ LEVEL: II DATE: 5/13/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
DATA SHEET FOR
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REPORT NO. 8-Q

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PROJECT: H.B. Robinson JOB NO.: UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐ PSI ☐ ISI ☐

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
service water	Support for Line 6"-CW-38	N	N/A

CLASS: 3 | LOCATION/ISOMETRIC: CPL 324 C Rev. 2

PROCEDURE: 613 REV.: 5 | 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 ☒ MECHANICAL ☐ SNUBBER
☐ 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						ACTUAL: DISPOSITION: / REQUIRED:
FREEDOM OF MOTION						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT						PIN - TO - PIN N/A
CLEARANCE OF MOVING PARTS						STROKE
ARC STRIKES/GOUGES						OTHER

COMMENTS/NOTES: Re-examined to ensure hanger was tightened and carrying required pipe load.

1	EXAMINER: John W. Russ	LEVEL: II	DATE: 5/12/87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY ☐ UNSATISFACTORY ☐ NO REPORTABLE INDICATIONS ☒ REPORTABLE INDICATIONS ☐

REVIEWED BY: W. H. Byars LEVEL: II DATE: 5-12-87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

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PROJECT: H.B. Robinson JOB NO.: UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐ PSI ☐ ISI ☐

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
Service Water	Support for Line 6-CH-24	UU	N/A

CLASS:	LOCATION/ISOMETRIC:
3	CPL-324A Rev. 1

PROCEDURE: 613 ---- REV.: 5	METHOD VT-1 ☐ VT-2 ☐ VT-3 ☒ VT-4 ☐
REPLICATION: ~~YES ☒~~ June 5/6/87 NO ☑	DIRECT ☒ REMOTE ☐ VIDEO RECORDING NO: N/A
EQUIPMENT USED: ~~N/A~~ June 5/6/87 Flash Light	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER ☐ 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						ACTUAL: DISPOSITION: / REQUIRED:
FREEDOM OF MOTION						SNUBBER SETTINGS N
RESISTANCE TO MOVEMENT						PIN - TO - PIN A
CLEARANCE OF MOVING PARTS						STROKE
ARC STRIKES/GOUGES						OTHER

COMMENTS/NOTES: Re-examined to ensure strap hanger was tightened properly

1	EXAMINER: John W. Rust	LEVEL: II	DATE: 5/6/87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY ☐ UNSATISFACTORY ☐ NO REPORTABLE INDICATIONS ☒ REPORTABLE INDICATIONS ☐

REVIEWED BY: W.H. Rigg LEVEL: II DATE: 5-12-87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

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COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 2-Q

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PROJECT: H.B. Robinson JOB NO.: N/A UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☐

SYSTEM: RHR	COMPONENT NAME: Spring CAN HGR	COMPONENT ID NO.: "G"	S/N: N/A
CLASS: ~~1~~ 2	LOCATION/ISOMETRIC: CPL-221B REV. 2		
PROCEDURE: 613 REV.: 5	METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐		
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: Flash Light	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☐ MECHANICAL ☐ SNUBBER ☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☒ SPRING LOADED		

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION		✓				
EROSION		✓				
STRUCTURAL INTEGRITY		✓				SATISFACTORY
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				
SETTING OF COMPONENT SUPPORTS	✓					ACTUAL: ≥3300 DISPOSITION: REQUIRED:
FREEDOM OF MOTION N/A						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT N/A						PIN - TO - PIN N/A
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES:

1	EXAMINER: W. H. Biggs	LEVEL: II	DATE: 5-12-87	
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A	

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Rust LEVEL: II DATE: 5/12/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

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PROJECT: H.B. Robinson JOB NO.: N/A UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☒

SYSTEM:	COMPONENT-SUPPORTS NAME:	COMPONENT ID NO.:	S/N:
Aux. Feed & Condensate	for Line 6-C-50	See Comments	N/A

CLASS: 3 LOCATION/ISOMETRIC: CPL-331A Rev. 2

PROCEDURE: 613 ---- REV.: 5 METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐

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

EQUIPMENT USED: 2 "D" Cell Flashlight

TYPE OF COMPONENT SUPPORT:
☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER
☐ 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						ACTUAL: N/A DISPOSITION: N/A REQUIRED: N/A
FREEDOM OF MOTION						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT						PIN - TO - PIN N
CLEARANCE OF MOVING PARTS						STROKE A
ARC STRIKES/GOUGES						OTHER

COMMENTS/NOTES: Support No's CPL-331A RR, N, O, P, Q, R, S, T, U, V, W, X
Re-Examined after painting & Cleaning.

1	EXAMINER: W. H. Ross	LEVEL: II	DATE: 5-12-87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Russ LEVEL: II DATE: 5/12/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
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COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 3-Q

PAGE 1 OF 1

PROJECT: H.B. Robinson JOB NO.: N/A UNIT 1☐ 2☒ 3☒ 4☐ PSI☐ ISI☐

SYSTEM:	COMPONENT NAME:	COMPONENT ID NO.:	S/N:
Service water	Support	UU & WW	N/A

CLASS:	LOCATION/ISOMETRIC:
3	CPL-324 Rev. 2

PROCEDURE:	METHOD	VIDEO RECORDING NO:
613 ---- REV.: 5	VT-1☐ VT-2☐ VT-3☒ VT-4☐	
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	N/A

EQUIPMENT USED: 2 "D" CELL FLASHLIGHT

TYPE OF COMPONENT SUPPORT:
- ☐ HYDRAULIC
- ☒ MECHANICAL
- ☐ SNUBBER
- ☐ 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 N
CLEARANCE OF MOVING PARTS N/A						STROKE A
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES: Re-examined to ensure Bottom Left Nut was tightened and secure

1	EXAMINER: W. E. Biggs	LEVEL: II	DATE: 5-12-87
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Rum LEVEL: II DATE: 5/12/87

REVIEWER COMMENTS/NOTES:

FORM NO. 80369
REV. 5/8/81

CP&L

Carolina Power & Light Company

LIQUID PENETRANT NDE REPORT

PT

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PROJECT RNP JOB NO. 87-AFTE-1 UNIT 1☐ 2☒ 3☐ 4☐ DATE 5-10-87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
CPL-204	RHR HT. EXCH.	N/A	WS-2

DESIGN CLASS/CATEGORY: CLASS 2

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☐B31.1 ☐AWSD1.1 ☒OTHER Asme XI

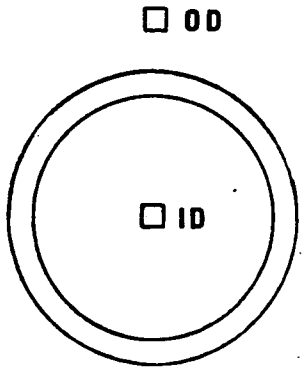
MTL. TYPE	MTL. THICKNESS	O.D/LENGTH	SURFACE FINISH	NDE PROCEDURE NO.
S/S	N/A		☐AS-WELDED ☒GROUND ☐OTHER	201 REV/ C

STAGE OF MFG. ☐INFO ☐REPAIR ☒FINAL ☐ROOT ☐INTERMEDIATE

JOINT DESIGN ☒N/A ☐BRN ☐BKS ☐INS ☐OPN. BT ☐SOCKET OTHER

PENETRANT	DWELL TIME
86A027	10 min.
CLEANER: 85L030	
DEVELOPER: 85K045	DEVELOPMENT TIME: 10 min.

SKETCH & REMARKS



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
SUPPORT WS-2	NO RELEVENT INDICATIONS NOTED (SEE ATTACHED SKETCH).	X		

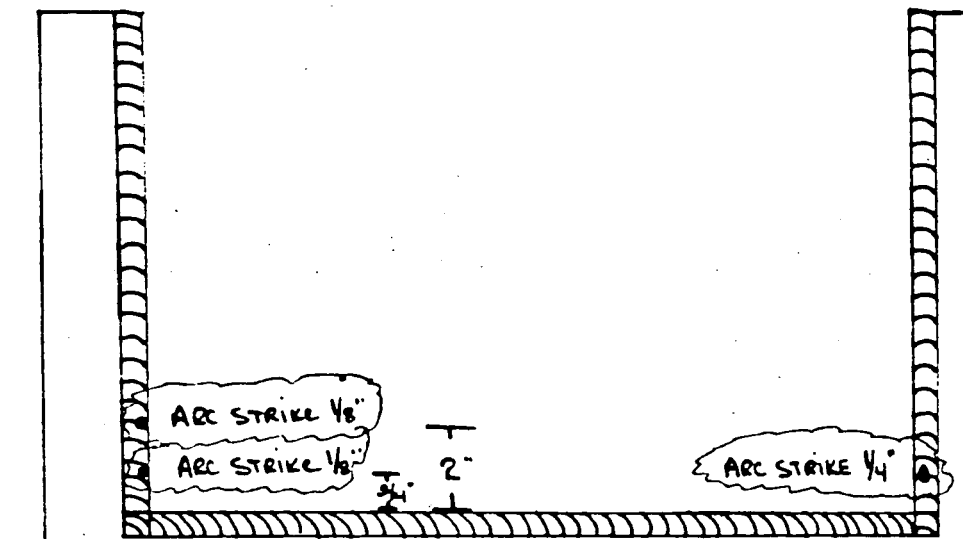
INSPECTOR	CERTIFICATION LEVEL	DATE
W. H. Ryan	II	5/10/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE
REVIEW DATE / /	COMMENTS
IF APPLICABLE CP&L QA REVIEW John W. Rivers DATE 5/11/87	IF APPLICABLE A.N.I./A.I. DATE / /

QA PT-1, REV. 2,5/8/81

RHR HEAT EXCHANGERS "A" WS-2



4-19-87

4-22-87

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
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REPORT NO. 10-2

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PROJECT: RNP JOB NO.: 87-AFQN-1 UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☒

SYSTEM: BAE / CVCS	COMPONENT NAME: BAE EVAP.	COMPONENT SUPPORT ID NO.: "R" & "P"	S/N: N/A
CLASS: 3	LOCATION/ISOMETRIC: CPL-328 REV. 2		
PROCEDURE: 613 REV.: 5	METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐		
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: 2 "D" CELL FLASHLIGHT	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER ☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☐ SPRING LOADED		

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT N/A						
DEBRIS N/A						
CORROSION		✓				
EROSION		✓				
STRUCTURAL INTEGRITY	✓	~~X~~ 5-14-87				Satisfactory
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING) N/A						
SETTING OF COMPONENT SUPPORTS N/A						ACTUAL: DISPOSITION: REQUIRED:
FREEDOM OF MOTION N/A						SNUBBER SETTINGS N
RESISTANCE TO MOVEMENT N/A						PIN - TO - PIN N/A
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES:

1	EXAMINER: W. H. Byers	LEVEL: II	DATE: 5-14-87	
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A	

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Dunn LEVEL: II DATE: 5/14/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
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COMPONENTS AND COMPONENT SUPPORTS

REPORT NO. 11-Q

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PROJECT: RNP JOB NO.: 82AFQL-1 UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☒

SYSTEM: CVCS	COMPONENT NAME: BAE EVAP.	COMPONENT SUPPORT ID NO.: "K"	S/N: N/A
CLASS: 3	LOCATION/ISOMETRIC: CPL-328 REV. 2		
PROCEDURE: 613 REV.: 5	METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐		
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: AMBIENT LIGHTING	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER ☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☐ SPRING LOADED		

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT N/A						
DEBRIS N/A						
CORROSION		✓				
EROSION		✓				
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 N/A
CLEARANCE OF MOVING PARTS N/A						STROKE
ARC STRIKES/GOUGES N/A						OTHER

COMMENTS/NOTES:

1	EXAMINER: W. H. Briggs	LEVEL: II	DATE: 5-14-87	
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A	

SATISFACTORY☒ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: John W. Runs LEVEL: II DATE: 5/14/87

REVIEWER COMMENTS/NOTES:

CAROLINA POWER & LIGHT COMPANY
MATERIALS QUALITY SECTION

VISUAL EXAMINATION
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REPORT NO. 4-Q

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PROJECT: JOB NO.: UNIT 1☐ 2☒ 3☐ 4☐ PSI☐ ISI☐

SYSTEM: Service Water	COMPONENT NAME: Support for Line 6-CW-39	COMPONENT ID NO.: VVV-U	S/N: N/A
CLASS: 3	LOCATION/ISOMETRIC: CPL-3274 Rev. 2		
PROCEDURE: 613 REV.: 5	METHOD VT-1☐ VT-2☐ VT-3☒ VT-4☐		
REPLICATION: YES☐ NO☒	DIRECT☒ REMOTE☐	VIDEO RECORDING NO: N/A	
EQUIPMENT USED: Flash Light	TYPE OF COMPONENT SUPPORT: ☐ HYDRAULIC ☒ MECHANICAL ☐ SNUBBER ☐ CONSTANT LOAD ☐ SHOCK ABSORBER ☐ SPRING LOADED		

CONDITION	YES	NO	BOLTS	WELDS	COMPON	COMMENTS
MISALIGNMENT		✓				
DEBRIS		✓				
CORROSION		✓				
EROSION	N/A					
STRUCTURAL INTEGRITY	✓					Satisfactory
LOSS OF INTEGRITY AT CONNECTIONS (CRACKS TIGHTNESS OF BOLTING)		✓				
SETTING OF COMPONENT SUPPORTS						ACTUAL: N/A DISPOSITION: N/A REQUIRED:
FREEDOM OF MOTION						SNUBBER SETTINGS
RESISTANCE TO MOVEMENT	N/A					PIN - TO - PIN N/A
CLEARANCE OF MOVING PARTS						STROKE N/A
ARC STRIKES/GOUGES						OTHER

COMMENTS/NOTES:

1	EXAMINER: John W. Russ	LEVEL: II	DATE: 5-6-87	
2	EXAMINER: N/A	LEVEL: N/A	DATE: N/A	

SATISFACTORY☐ UNSATISFACTORY☐ NO REPORTABLE INDICATIONS☒ REPORTABLE INDICATIONS☐

REVIEWED BY: LEVEL: DATE:

REVIEWER COMMENTS/NOTES:

CP&L

Carolina Power & Light Company

REPORT NO. _____

PAGE 1 OF 1

VISUAL EXAMINATION DATA SHEET FOR EXTERNAL OR INTERIOR SURFACES

PROJECT RNP JOB NO. 87-AFXU1 UNIT 1 ☐ 2 ☑ 3 ☐ 4 ☐

SYSTEM: Safety Injection	COMPONENT NAME: SI Suction	COMPONENT ID NO.: 12-SI-2 Support # B
CLASS: II	LOCATION/ISOMETRIC: S. wall, SI Pump room / Sketch # CPL-231	
PROCEDURE: NDEP-613 REV: 5	METHOD: VT-1 ☐ VT-2 ☐ VT-3 ☑ VT-4 ☐	
REPLICATION: YES ☐ NO ☑	DIRECT ☑ REMOTE ☐	VIDEO RECORDING NO: N/A
EQUIPMENT USED: Flashlight & Mirror		

CONDITION	COMPONENT EXTERIOR SURFACE YES	COMPONENT EXTERIOR SURFACE NO	COMPONENT INTERIOR SURFACE YES	COMPONENT INTERIOR SURFACE NO	CLADDING YES	CLADDING NO	LOCATION OF INDICATION
CRACK		✓					
LINEAR INDICATION		✓					
SURFACE ROUGHNESS		✓					
WEAR		✓					
CORROSION		✓					
GOUGES		✓		NA		NA	
OTHER LIST							
Arc Marks	✓						on surface 12" pipe JC 5-8-87

COMMENTS/NOTES: Series of small arc marks on surface of JC 5-8-87 12" S.I line, approx. 1" to 1½" from pipe to support interface where tack weld was filed off.

1 EXAMINER: John Cannon		LEVEL: II		DATE: 5-8-87
2 EXAMINER: N/A		LEVEL: N/A		DATE: N/A
SATISFACTORY ☐		UNSATISFACTORY ☑		
NO REPORTABLE INDICATIONS ☐		REPORTABLE INDICATIONS ☑		
REVIEWED BY: John W. Russ		LEVEL: II		DATE: 5/8/87

REVIEWER COMMENTS/NOTES:

FORM NO. 80369
REV. 5/8/81

CP&L
Carolina Power & Light Company

PT

LIQUID PENETRANT NDE REPORT

PAGE 1 OF 1

PROJECT RNP JOB NO. 87-AFXU1 UNIT 1☐ 2☒ 3☐ 4☐ DATE 5/9/87

DRAWING	SYSTEM	LINE	WELD/ITEM NUMBER
Sketch # OM-231	Safety Injection	12-SI-2	Support #B

DESIGN CLASS/CATEGORY: B31.1 - 67 / Class II

ACCEPTANCE STANDARD: ☐ASME III ☐VIII ☒B31.1 ☐AWSD1.1 ☐OTHER _____

MTL. TYPE	MTL. THICKNESS	O.D/LENGTH	SURFACE FINISH	NDE PROCEDURE NO.
S.S.		12"	☒GROUND ☐AS-WELDED ☐OTHER _____	201 REV 10

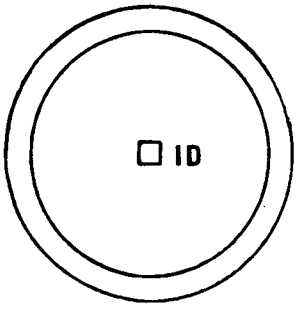
STAGE OF MFG. ☒INFO ☐REPAIR ☒FINAL ☐ROOT ☐INTERMEDIATE

JOINT DESIGN ☒N/A ☐BRN ☐BKS ☐INS ☐OPN. BT ☐SOCKET OTHER _____

PENETRANT	86A027	DWELL TIME 10 min.
CLEANER	85K019	
DEVELOPER	85K045	DEVELOPMENT TIME 10 min.

SKETCH & REMARKS

☐ OD



WELD/ITEM NUMBER	REMARKS	ACC.	REJ.	INFO ONLY
Support #B	PT insp. of area on 12 in. pipe at support #B after arc marks were filed off.	X		

INSPECTOR	CERTIFICATION LEVEL	DATE
John Cannon	II	5/9/87

(TO BE COMPLETED AS INDICATED)

IF APPLICABLE CONTRACTOR REVIEWER	TITLE	
REVIEW DATE / /	COMMENTS	
IF APPLICABLE CP&L QA REVIEW John W. Russ	DATE 5/11/87	IF APPLICABLE A.N.I./A.I. DATE / /

QA PT-1, REV. 2,5/8/81

Rxx-xxx-DE-A041 NED-R-1943

MEMORANDUM

5·4 1987

TO: DICK WEBER / WARREN FARMER

FROM: LEE WILLIAMS / VANN STEPHENSON

SUBJECT: BROKEN TACK WELD BETWEEN PIPE AND PIPE SUPPORT FOR SI-20-1071, AC-6-H4 (DELETION OF)

Ref. CPL-231 Support B, B-WS PER LATEST SUPPORT SKETCH FOR SI-20-1071 A NOTE STATES THAT THE 12" PIPE SHOULD NOT BE WELDED TO THE 4" SUPPORT TRUNNION. BASED ON THIS THE TACK WELD SERVED NO SUPPORT PURPOSE AND ~~SH~~ THE BROKEN WELD SHOULD BE REMOVED FROM THE PIPE TO INSURE FLUSH SUPPORT CONTACT.

Ref. CPL-329 Support 'A' AC-6-H4 SHOULD BE REMOVED FROM LINE 6-AC-33. PER THE LATEST STRESS ANALYSIS THE SUPPORT IS NOT NEEDED AND THEREFORE SHOULD BE REMOVED

L. WILLIAMS

CC: J. HOLOGA
V. STEPHENSON
~~EBE~~
FILE

(SIGNED) Vann K Steph FOR LW

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

EXAMINATION PERSONNEL

001

PLANT H. B. ROBINSON UNIT II YEAR 1987

EXAMINER	Eye Date	U/T	P/T	V/T	M/T	R/T
T. J. Baloh	9/1/86	I	I	I	I	
J. B. Campbell	1/9/87	II	II	III	II	II
R. Churchfield	6/9/86	T	T	I	I	
J. D. Funyak	2/19/87	II	II	II	II	
W. G. Halley	2/18/87	II	II	I	II	
R. W. Hughes	7/21/86	II	T	II	T	
P. J. Kovallo	2/6/87	I	II	I	I	
W. W. McCabe	6/6/86	II	II	II	II	
K. Mical	6/9/86	T	T	I	I	

F49244

NSID

002

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: T. J. Baloh
SS#: 167-46-8262

_____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
MT - Trainee	N/A	2/1/89	2/3/86
UT - Trainee	N/A	1/31/89	2/3/86
VT-1/2/3/4-I	N/A	9/13/88	2/3/86

3. EDUCATION & EXPERIENCE:

Graduated Jeannette H.S., 6/73.
U.S. Steel - 3 years.
More than 3 years experience on nuclear plant visual examination related services including split pin replacement, eddy current fixture installation, etc.

4. STATEMENT OF TRAINING:

W NDE TI: UT, 12/13/85, 80 hours
MT, 9/20/85, 40 hours
VT-1/2/3/4, 9/13/85, 40 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
MT	75 x .3	75 x .3	96 x .4	83.4%	2/1/86
UT	87.5 x .3	85 x .3	98 x .4	90.9%	1/31/86
VT-1/2/3/4	76 x 1/3	80 x 1/3	92 x 1/3	82.6%	9/13/85

7. CERTIFICATION LIMITATION:

None.

Certified By: _____
NDE Level III Examiner

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
T. J. Baloh	UT/Level I

Education & Experience:

1) Graduated Jeannette HS, 1973

2) Performed UT in Trainee capacity since 2/86

Statement of Training:

1) Westinghouse NDE TI, 80 hours training in UT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
1/30 & 31/86	87.5 x .3	85 x .3	98 x .4	90.9

Certification Limitation:

None

Remarks:

Certification/~~Recert~~ Date:	Expiration Date:
2/5/87	1/31/89

Certified By:

[signature] ESSD NDE Level III

Westinghouse
Form PD0541 (183)

004

NDE CERTIFICATION RECORD

Name: T. J. Baloh	Method/Level: MT / Level I

Education & Experience:

1) Graduated Jeanette, HS, 1973

2) Performed MT in Trainee capacity since 2/86

Statement of Training:

Westinghouse NDE TI, 40 hours training in MT

EXAM DATE	GENERAL XWT.	SPECIFIC XWT.	PRACTICAL XWT.	COMP. GRADE
1/30/86	75 X .3	75 X .3	96 X .4	83.4%

Certification Limitation:

NONE

Remarks:

Certification/Recert. Date:	Expiration Date:
7/7/86	1/30/89

Certified By:

ESSO NDE Level III

Westinghouse
Form PD0541 (183)

005

NDE CERTIFICATION RECORD

Name:	Method/Level:
T. J. Baloh	PT / Level I

Education & Experience:

1) Graduated Jeanette HS, 1973

2) Performed PT in Trainee capacity since 5/86

Statement of Training:

Westinghouse NDE TI, 40 hours training in PT

EXAM DATE	GENERAL XWT.	SPECIFIC XWT.	PRACTICAL XWT.	COMP. GRADE
7/18/86	77.5 X .3	85 X .3	95 X .4	86.7

Certification Limitation:

NONE

Remarks:

Certification/Recert. Date:	Expiration Date:
7/18/86	7/18/89

Certified By:

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
Timothy J. Baloh	167-46-8262	07-01-55

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 9-1-86

APPLICANT'S SIGNATURE Timothy J Baloh

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

Robert L. Jensen MD
MEDICAL EXAMINER

9-1-86
DATE

006

Westinghouse Electric Corporation
Water Reactor Divisions

Nuclear Services Integration Division
Support Service

81 Arona Road
North Huntingdon Pennsylvania 15642

This document is to certify that the individual named below has received satisfactory radiation worker physical examination and is medically qualified to wear a Respirator.

The following are the physical requirements recommended by the Power Systems Medical Department.

A. History and physical examination
B. Chemical profile including complete blood count and differential.
C. Routine urine analysis
D. Visual accuity test including color.
E. Audiometic screen test.
F. Pulmonary Function test.
G. Electrocardiogram.

Radiation workers receive regular radiation workers physical examination every two (2) years. This examination includes the Pulmonary Function Test with a physician's review and approval for the individual to wear a respirator.

On each intervening year, these workers receive a Pulmonary Function Test, review of the workers' medical history by the physician and a personal conference with the physician. The physician determines if additional tests are required for approval.

Date of Physical Examination September 1, 1986

Date of Pulmonary Function Test September 1, 1986

CERTIFICATION:

TIMOTHY BALOH (Name), 167-46-8262 (SSN)

is approved to work with radioactive material and to use respiratory protection devices.

Issued By: [signature]

Physician, Humana MedFirst (412)864-7720

NSID

008

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: J. B. Campbell SSN 207-24-3126 _____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
UT-II	N/A	11-15-87	1-2-85

3. EDUCATION & EXPERIENCE:

Graduated Edgewood H.S., 1949
More than 20 years NDE experience on UT, PT, MT, RT & VT methods.

4. STATEMENT OF TRAINING:

W NDETI UT Training, 10-31-84, 80 hours.

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
UT	92.5 x .4	92 x .3	87 x .3	90%	11-20-84

7. CERTIFICATION LIMITATION: None

Certified By: _____
NDE Level III Examiner

NSID 1037 11-15-83

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: J. B. Campbell
SSN 207-24-3162

ASME BPVC III ____ X ____ ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
MT-II	3-7-85	2-28-88	10-9-80

3. EDUCATION & EXPERIENCE:
Graduated Edgewood H.S., 1949
More than 20 years NDE experience on UT, PT, MT and VT.

4. STATEMENT OF TRAINING:
W Bettis Atomic Lab., 320 hours on RT, MT, PT, UT, 1956
W Bettis Atomic Lab., 160 hours, RT, MT, PT, UT, 1960
W APD, 160 hours, PT, MT, PT, 1967.

5. PHYSICAL EXAMINATION RECORD ATTACHED: Yes ____ No X

6. ACTUAL GRADE(S) AND PERCENTILE WEIGHTS FOR EXAMINATIONS:

Method	Gen. X Wt.	Spec. X Wt.	Prac. X Wt.	Comp. Grade	Examination Date
MT	75 x .4	80 x .3	98 x .3	83.4%	2-28/3-7-85

7. CERTIFICATION LIMITATION:
None

Certified By: James Gen
NDE Level III Examiner

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

NAME: J.B.Campbell, SSN 207-24-3162 ____ ASME BPVC III ___X___ ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
PT-II	5/16/85	5/16/88	1/3/68
RT-II	5/17/85	5/17/88	1/3/68

3. EDUCATION & EXPERIENCE:
Graduated Edgewood H.S., 1949.
More than 20 years continuous NDE experience on PT, RT, UT, MT, and VT.

4. STATEMENT OF TRAINING:

W Bettis Atomic Lab, 320 hrs., RT, PT, MT, & UT, 1956.
W Bettis Atomic Lab, 160 hrs., RT, PT, MT, & UT, 1960.
W APT, 160 hrs., RT, PT, & MT, 1967.

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	92.5% x .4	84% x .3	90% x .3	89.2%	5/16/85
RT	72.5% x .4	96% x .3	95% x .3	86.5%	5/17/85

7. CERTIFICATION LIMITATION: NONE

Certified By: _____

NSID

011

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	.5	85.7	.25	82.5	.25	86.2	4/4/86

7. CERTIFICATION LIMITATION:

NONE

Certified By: Raymond J Lessard 4/4/86
NDE Level III Examiner

012

NDE PERSONNEL VISION TEST REPORT
FORM 55262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
John B. 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 1-7-87

APPLICANT'S SIGNATURE John B Campbell

CORRECTIVE LENSES REQUIRED ☒ YES ☐ NO for near vision only

ACCEPTABLE ☒ YES ☐ NO

M Habelyak — MEDICAL EXAMINER

1/9/87 — DATE

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: 202-40-4284 Ralph Chruchfield _____ 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 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	98.6	.3	98	.4	97.64	3/7/86

7. CERTIFICATION LIMITATION:

Certified By: Raymond J Leach
NDE Level III Examiner

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 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 June 9, 1986

APPLICANT'S SIGNATURE Ralph Churchfield

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

MEDICAL EXAMINER

6/9/86
DATE

Westinghouse Electric Corporation
Water Reactor Divisions

Nuclear Services Integration Division
Support Service

81 Arona Road
North Huntingdon Pennsylvania 15642

This document is to certify that the individual named below has received a satisfactory radiation worker physical examination and is medically qualified to wear a Respirator.

The following are the physical requirements recommended by the WRD Medical Department.

A. History and physical examination
B. Blood profile including complete blood count and differential
C. Routine and microscopic urine analysis
D. Visual accuity test including color
E. Audiometric screen test
F. Pulmonary Function Test

Radiation workers receive this regular radiation workers physical examination every two (2) years. This examination includes the Pulmonary Function Test with a physician's review and approval for the individual to wear a respirator.

On each intervening year, these workers receive a Pulmonary Function Test, review of the worker's medical history by the physician and a personal conference with the physician. The physician determines if additional tests are required for approval.

Date of Physical Examination June 9, 1986

Date of Pulmonary Function Test June 9, 1986

CERTIFICATION:

Ralph L. Churchfield (Name), 202-40-4284 (SSN)

is approved to work with radioactive material and to use respiratory protection devices.

Signed _____ M.D.
Humana MedFirst
(412)864-7720

Humana - MedFirst
9337 Lincoln Highway
Irwin, PA 15642
(412) 863-7700

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: J.D. Funyak SSN: 190-42-2224 ____ ASME BPVC III __X__ ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

	Method-Level	Recert. Date	Expiration Date	Original Cert. Date
	UT-I	N/A	1/9/87	10/5/84
	MT-II	N/A	1/9/87	1/9/84
✓	PT-II	N/A	8/19/88	8/26/85
	VT-1/2/3/4-II	N/A	12/9/86	7/29/85

3. EDUCATION & EXPERIENCE:

Graduated Scott H.S., 1974
NDE experience up to 7/29/85: MT, more than 1,000 hours
VT, 5511 hours
PT, more than three months
UT, 1335 hours

4. STATEMENT OF TRAINING:
W NDETI: UT, 11/11/83, 80 hours; PT, 10/7/83, 40 hours; MT, 10/14/83, 40 hours; VT-1/2/3/4, 12/9/83, 40 hours; Welding Inspection, 10/21/83, 40 hours.
USS Corp: MT, 9/15/82, 20 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
UT	100 x .3	100 x .3	98 x .4	99.2%	1/4-6/84
MT	85 x .4	95 x .3	100 x .3	92.5%	1/4-5/84
PT	92.5 x .4	95 x .3	98 x .3	94.9%	8/19/85
VT-1/2/3/4	93.3 x 1/3	85.3 x 1/3	93 x 1/3	90.5%	12/9/83

7. CERTIFICATION LIMITATION:

None

8. Remark: Certification upgraded on 8/26/85

Certified By: J.D. Funyak
NDE Level III Examiner

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
J. D. Funyak	UT/Level II

Education & Experience:

1) Graduated Scott HS, 1974

2) Performed UT in Level I capacity since 10/84

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
11/17,18 21/86	97.5 x .4	90 x .3	90 x .3	93

Certification Limitation:

None

Remarks:

Certification/~~Recert~~. Date:	Expiration Date:
11/21/86	11/21/89

Certified By:

ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
J. D. Funyak	MT/Level II

Education & Experience:

1) Graduated Scott HS, 1974

2) Performed MT in Level II capacity 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)

3) United States Steel, 20 hours training in MT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
11/17/86	93.3 x .4	85 x .3	99 x .3	92.5

Certification Limitation:

None

Remarks:

[redacted]/Recert. Date:	Expiration Date:
11/17/86	11/17/89

Certified By: [signature] ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
J. D. Funyak	VT1,VT2,VT3,VT4/Level II

Education & Experience:

1) Graduated Scott HS, 1974

2) Performed VT1, VT2, VT3, VT4 in Level II capacity since 7/85

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
11/19 & 21/86	82.7 x 1/3	85 x 1/3	94.2 x 1/3	87.3

Certification Limitation:

None

Remarks:

~~Cert~~ Recert. Date:	Expiration Date:
11/21/86	11/21/89

Certified By: ESSO 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
Joseph D. Funyak	190-42-2224	11-09-56

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 2-19-87

APPLICANT'S SIGNATURE Joseph D. Funyak

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

MEDICAL EXAMINER

2/19/87
DATE

020

Westinghouse Electric Corporation
Water Reactor Divisions

Nuclear Services Integration Division
Support Service

81 Arona Road
North Huntingdon Pennsylvania 15642

This document is to certify that the individual named below has received satisfactory radiation worker physical examination and is medically qualified to wear a Respirator.

The following are the physical requirements recommended by the Power Systems Medical Department.

A. History and physical examination
B. Chemical profile including complete blood count and differential.
C. Routine urine analysis
D. Visual accuity test including color.
E. Audiometic screen test.
F. Pulmonary Function test.
G. Electrocardiogram.

Radiation workers receive regular radiation workers physical examination every two (2) years. This examination includes the Pulmonary Function Test with a physician's review and approval for the individual to wear a respirator.

On each intervening year, these workers receive a Pulmonary Function Test, review of the workers' medical history by the physician and a personal conference with the physician. The physician determines if additional tests are required for approval.

Date of Physical Examination February 19, 1987

Date of Pulmonary Function Test February 19, 1987

CERTIFICATION:

Joseph Dennis Funyak (Name), 190-42-2224 (SSN)

is approved to work with radioactive material and to use respiratory protection devices.

Issued By:

Physician, Humana MedFirst (412)864-7720
9337 Lincoln Highway, Irwin, PA 15642

Authorized Signature/Date

Date

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
W. G. Halley	MT/Level II

Education & Experience:

1) Graduated South Allegheny HS, 1973

2) Performed MT in Level I capacity since 12/85

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
11/17/86	90 x .4	90 x .3	97 x .3	92.1

Certification Limitation:

None

Remarks:

Certification/~~Recert~~ Date:	Expiration Date:
4/1/87	11/17/89

Certified By: ESSD NDE Level III

Westinghouse Electric Corporation

Nuclear Energy Systems Nuclear Technology Division

Nondestructive Examination Technical Institute

This is to verify that

WILLIAM G. HALLEY

has completed 80 *hours of formal training in*

ULTRASONIC TESTING

LEVEL II COMPETENCY

a part of the total nondestructive examination training program

This certificate is awarded and attested this 11th *day of* NOVEMBER, 1983

P. B. Haga
Manager, Product Integrity and Design Assurance

B. R. Johnson
Director, NDT Technical Institute

Raymond J. Lesesky
NDT Level III (Inspector/Examiner)

023

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
W. G. Halley	MT/Level II

Education & Experience:

1) Graduated South Allegheny HS, 1973

2) Performed MT in Level I capacity since 12/85

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
11/17/86	90 x .4	90 x .3	97 x .3	92.1

Certification Limitation:

None

Remarks:

Certification/~~RXXX~~. Date:	Expiration Date:
4/1/87	11/17/89

Certified By: ESSD NDE Level III

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

SS#: 183-46-5685

1. NAME: W. G. Halley X ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
UT-II	N/A	8/19/88	8/19/85

3. EDUCATION & EXPERIENCE:

Graduated South Allegheny H.S., 1973.
UT Experience up to 4/26/86: 2130 hours.

4. STATEMENT OF TRAINING:

UT, 11/11/83, ~~40~~ 80 hours. 80 Hrs.

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
UT	90 x .4	84 x .3	95 x .3	89.7%	8/19/85

7. CERTIFICATION LIMITATION:

None.

8. REMARK: Certification upgraded on 4/25/86, based on additional accumulated experience.

Certified By: B. J. Lyle 4-25-86
NDE Level III Examiner

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
W. G. Halley	MT/Level I

Education & Experience:

1) Graduated South Allegheny HS, 1973

2) Performed MT in Level I capacity since 12/85

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
11/17/86	90 x .3	90 x .3	97 x .4	92.8

Certification Limitation:

None

Remarks:

[redacted]/Recert. Date:	Expiration Date:
11/17/86	11/17/89

Certified By: [signature] ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
W. G. Halley	VT1,VT2,VT3,VT4/Level I

Education & Experience:

1) Graduated South Allegheny HS, 1973

2) Performed VT1,VT2,VT3,VT4 in Level I capacity since 8/85

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 (refresher training)

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
11/19 & 21/86	85.2 x 1/3	92 x 1/3	90 x 1/3	89

Certification Limitation:

None

Remarks:

~~Recert.~~/Recert. Date:	Expiration Date:
11/21/86	11/21/89

Certified By: ESSO NDE Level III

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

SS#: 183-46-5685

1. NAME: W. G. Halley _____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

	Method-Level	Recert. Date	Expiration Date	Original Cert. Date
	UT-I	N/A	1/9/87	1/2/85
✓	PT-II	N/A	8/19/88	12/9/85
	MT-I	N/A	1/9/87	12/9/85
	VT-1/2/3/4-I	N/A	12/9/86	8/1/85

3. EDUCATION & EXPERIENCE:
Graduated South Allegheny High School, 1973
NDE experience up to 12/9/85: UT - 1568 hours; PT - 556 hours;
MT - 185 hours; VT - 2127 hours

4. STATEMENT OF TRAINING:
W NDETI: UT, 11/11/83, 40 hours; PT, 10/7/83, 40 hours;
MT, 10/14/83, 40 hours; VT-1/2/3/4, 12/9/83, 40 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
UT	92.5 x .3	95 x .3	95 x .4	94.2%	1/4-5/84
PT	90 x .4	95 x .3	98 x .3	93.9%	8-19-85
MT	87.5 x .3	90 x .3	90 x .4	89.2%	1/4-6/84
VT-1/2/3/4	92 x 1/3	89.3 x 1/3	97 x 1/3	92.7%	12/9/83

7. CERTIFICATION LIMITATION:
None.

8. Remark: Certification upgraded on 12/9/85.

Certified By: _____
NDE Level III Examiner

NDE PERSONNEL VISION TEST REPORT
FORM 55262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
William G. Halley	183-46-5685	08-11-55

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 2/11/87

APPLICANT'S SIGNATURE William G. Halley

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

M Negahi MD
MEDICAL EXAMINER

2-18-87
DATE

029

Westinghouse Electric Corporation
Water Reactor Divisions

Nuclear Services Integration Division
Support Service

81 Arona Road
North Huntingdon Pennsylvania 15642

This document is to certify that the individual named below has received satisfactory radiation worker physical examination and is medically qualified to wear a Respirator.

The following are the physical requirements recommended by the Power Systems Medical Department.

A. History and physical examination
B. Chemical profile including complete blood count and differential.
C. Routine urine analysis
D. Visual accuity test including color.
E. Audiometic screen test.
F. Pulmonary Function test.
G. Electrocardiogram.

Radiation workers receive regular radiation workers physical examination every two (2) years. This examination includes the Pulmonary Function Test with a physician's review and approval for the individual to wear a respirator.

On each intervening year, these workers receive a Pulmonary Function Test, review of the workers' medical history by the physician and a personal conference with the physician. The physician determines if additional tests are required for approval.

Date of Physical Examination 2/11/87

Date of Pulmonary Function Test 2/11/87

CERTIFICATION:

William George Halley (Name), 183-46-5685 (SSN)

is approved to work with radioactive material and to use respiratory protection devices.

Issued By: Dr. Regel

Physician, Humana MedFirst (412)864-7720
9337 Lincoln Highway, Irwin, PA 15642

Authorized Signature/Date

2-18-87
Date

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
R. W. Hughes	PT/Trainee

Education & Experience:

1) Graduated Penn Hills HS, 1955

2) Graduated West Penn Tech., Dpl, Mechanical Drafting, 1958

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in PT

2) Westinghouse NDE TI, 4 hours training in PT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
12/5/86	97.5 x .3	95 x .3	95 x .4	95.7

Certification Limitation:

None

Remarks:

Certification/~~Recert~~ Date:	Expiration Date:
12/5/86	12/5/89

Certified By:

ESSD NDE Level III

NSID

032

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

1. NAME: R. W. Hughes SSN 209-28-1451 ____ ASME BPVC III __X__ ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
UT-II	N/A	11-15-87	1-3-85

3. EDUCATION & EXPERIENCE:

Graduated Penn Hills H.S., 1955
More than 4 years NDE experience on UT and VT.

4. STATEMENT OF TRAINING:

W NTD UT Training, 8-15-80, 40 hours.
W NDETI UT Training, 10-25-82, 40 hours.

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
UT	90 x .4	92 x .3	88 x .3	90%	11-20-84

7. CERTIFICATION LIMITATION: None

Certified By: James Coyle
NDE Level III Examiner

NSID 1337 11-15-83

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
R. W. Hughes	MT/Trainee

Education & Experience:

1) Graduated Penn Hills HS, 1955

2) Graduated West Penn Tech., Dpl, Mechanical Drafting, 1958

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in MT

2) Westinghouse NDE TI, 4 hours training in MT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
12/5/86	96.6 x .3	100 x .3	95 x .4	96.9

Certification Limitation:

None

Remarks:

Certification/~~Recert~~ Date:	Expiration Date:
12/5/86	12/5/89

Certified By:

ESSO NDE Level I III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

034

Name:	Method/Level:
R. W. Hughes	VT1,VT2,VT3,VT4 / Level II

Education & Experience:

1) Graduated Penn Hills HS, 1955

2) Graduated West Penn Tech, Dpl Mech. Drafting, 1958

3) Performed VT1, VT2, VT3, VT4 in Level I and II capacities since 7/81

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
8/5/86	90.7 X .3	84 X .3	93 X .3	89.2

Certification Limitation:

NONE

Remarks:

~~Certification~~/Recert. Date:	Expiration Date:
8/5/86	8/5/89

Certified By:

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
Robert Hughes	209-28-1451	7/11/37

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 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 7/21/86

APPLICANT'S SIGNATURE Robert Wm. Hughes

CORRECTIVE LENSES REQUIRED ☒ YES ☐ NO for near vision only

ACCEPTABLE ☒ YES ☐ NO

J.J. Binstock, M.D. — MEDICAL EXAMINER

7-21-86 — DATE

035

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
P. J. Kovallo	UT/Level I

Education & Experience:

1) Graduated South Allegheny H.S., 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 .3	85 x .3	94 x .4	87.8

Certification Limitation:

None

Remarks:

~~Last~~ Recert. Date:	Expiration Date:
12/8/86	12/8/89

Certified By:

ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level:
P. J. Kovallo	MT/Level I

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 .3	100 x .3	96 x .4	98.4

Certification Limitation:

None

Remarks:

~~Recert.~~ Date:	Expiration Date:
12/5/86	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 .3	90 x .3	90 x .4	90

Certification Limitation:

None

Remarks:

Certification/~~Recert~~ Date:	Expiration Date:
1/5/87	1/5/90

Certified By:

[signature] 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

Remarks:

~~Original~~/Recert. Date:	Expiration Date:
12/8/86	12/8/89

Certified By: 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 J. 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 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 2-5-87

APPLICANT'S SIGNATURE X Paul J. Kovallo

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

MEDICAL EXAMINER

DATE

040

From : NSID Support Services-Irwin-Nuclear Services Integration Division
WIN : 412-864-3000
Date :
Subject: Radiation Workers Physical Examination

To : Westinghouse Advanced Energy Systems Division
P. O. Box 158
Madison, PA 15663
c/o IH&S Department

This document is to certify that the individual named below is medically qualified to wear a Respirator.

The following are the physical requirements recommended by A. A. Spritzer, M. D., WRD Medical Department.

A. History and physical examination
B. Blood Profile including Complete Blood Count and Differential
C. Routine and microscopic urine analysis
D. Visual Accuity test including color
E. Audiometric screen test
F. Pulmonary Function test

Radiation workers shall receive this regular radiation workers physical examination every two (2) years. This examination must include the Pulmonary Function Test with a physician's review and approval for the individual to wear a respirator.

On each intervening year, these workers shall receive a Pulmonary Function Test, review of the worker's medical history by the physician and a personal conference with the physician. The physician shall determine if additional tests are required for approval.

CERTIFICATION

Paul Kovallo (Name), is [X] approved [ ] disapproved

(Employed By)

for use of respirator devices as of February 28, 1986 (Date)

Signed [signature] Medical Physician — February 28, 1986 (Date)

Discard Date:

Humana - MedFirst
9337 Lincoln Highway
Irwin, PA 15642
(412) 864-3000

NSID

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

SS#: 203-38-9149

1. NAME: W. W. McCabe _____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
UT-II	N/A	8/19/88	1/2/86
MT-II	N/A	1/4/87	1/9/84
PT-II	N/A	8/19/88	8/26/85
VT-1/2/3/4-II	N/A	12/9/86	7/29/85

3. EDUCATION & EXPERIENCE:

Graduated McKeesport H.S., 1972
NDE experience up to 7/29/85: MT-4232 hours; PT-562 hours; VT-7949 hours
UT experience up to 12/30/85: 2402 hours

4. STATEMENT OF TRAINING:

W NDETI: UT, 11/11/83, 80 hours; PT, 10/7/83, 40 hours; MT, 10/14/83, 40 hours; VT-1/2/3/4, 12/9/83, 40 hours; Welding Inspection, 10/21/83, 40 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
UT	82.5 x 4	84 x .3	90 x .3	85.2%	8/19-21/85
MT	77.5 x .4	100 x .3	75 x .3	83.5%	1/4/84
PT	85 x .4	80 x .3	98 x .3	91.4%	8/19/85
VT-1/2/3/4	84 x 1/3	82.7 x 1/3	93 x 1/3	86.6%	12/9/83

7. CERTIFICATION LIMITATION:

None.

8. Remark: Certification upgraded on 1/2/86.

Certified By: James C Yeh
NDE Level III Examiner

Form PD05[illegible] (1/83)

NDE CERTIFICATION RECORD

Name:	Method/Level:
W. W. McCabe	MT/Level II

Education & Experience:

1) Graduated McKeesport HS, 1972

2) Performed MT in Level II capacity since 1/84

Statement of Training:

1) Westinghouse NDE TI, 40 hours training in MT

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
3/9/87	93 x .4	85 x .3	88 x .3	89.1

Certification Limitation:

None

Remarks:

~~Recert.~~ Date:	Expiration Date:
3/9/87	3/9/90

Certified By:

[signature] ESSD NDE Level III

Westinghouse
Form PD0541 (183)

NDE CERTIFICATION RECORD

Name:	Method/Level
W. W. McCabe	VT1,VT2,VT3,VT4/Level II

Education & Experience:

1) Graduated McKeesport HS, 1972

2) Performed VT1,VT2,VT3,VT4 in Level II capacity since 7/85

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

EXAM DATE	General XWT.	Specific XWT.	Practical XWT.	COMP. GRADE
3/10,11/87	81 X 1/3	81 X 1/3	93 X 1/3	85

Certification Limitation:

None

Remarks:

Certification Recert. Date:	Expiration Date:
3/11/87	3/11/90

Certified By:

ESSO 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
William W. McCabe	203-38-9149	09-14-54

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 June 6, 1986

APPLICANT'S SIGNATURE William W. McCabe

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

[signature] MEDICAL EXAMINER

6/6/86 DATE

045

Westinghouse Electric Corporation
Water Reactor Divisions

Nuclear Services Integration Division
Support Service

81 Arona Road
North Huntingdon Pennsylvania 15642

This document is to certify that the individual named below has received a satisfactory radiation worker physical examination and is medically qualified to wear a Respirator.

The following are the physical requirements recommended by the WRD Medical Department.

A. History and physical examination
B. Blood profile including complete blood count and differential
C. Routine and microscopic urine analysis
D. Visual accuity test including color
E. Audiometric screen test
F. Pulmonary Function Test

Radiation workers receive this regular radiation workers physical examination every two (2) years. This examination includes the Pulmonary Function Test with a physician's review and approval for the individual to wear a respirator.

On each intervening year, these workers receive a Pulmonary Function Test, review of the worker's medical history by the physician and a personal conference with the physician. The physician determines if additional tests are required for approval.

Date of Physical Examination June 6, 1986

Date of Pulmonary Function Test June 6, 1986

CERTIFICATION:

William McCabe (Name), 203-38-9149 (SSN)

is approved to work with radioactive material and to use respiratory protection devices.

Signed [signature] M.D.
Humana MedFirst
(412)864-7720

Humana - MedFirst
9337 Lincoln Highway
Irwin, PA 15642
(412) 863-7700

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR SERVICES INTEGRATION DIVISION
NDE CERTIFICATION RECORD

171-42-3810

1. NAME: Kenneth Mical _____ ASME BPVC III X ASME BPVC XI

2. LEVEL(S) OF CERTIFICATION:

Method-Level	Recert. Date	Expiration Date	Original Cert. Date
MT-I	N/A	6/11/89	6/12/86
VT-1-2-3-4-I	N/A	6/11/89	6/12/86
PT Trainee	N/A	N/A	6/12/86 (Tested)
UT Trainee	N/A	N/A	6/12/86 (Tested)

3. EDUCATION & EXPERIENCE:
Bishop McCort High School - 1972
Bethelem Steel - 1973-1985
Experience up to certification date:
MT 240 + hrs, VT 4000 + hrs

4. STATEMENT OF TRAINING:
Westinghouse NDE TI: MT 3/14/86, 40 hrs.
VT 3/7/86, 40 hrs.
PT 5/2/86, 40 hrs.
UT 1/19/86, 80 hrs.

5. PHYSICAL EXAMINATION RECORD ATTACHED: Yes _____ 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	98 x .4	94.7	6/10/86
MT	90 x .3	90 x .3	100 x .4	94.0	6/11/86
UT	92.5 x .3	100 x .3	95 x .4	95.75	6/12/86
VT-1-2-3-4	94.4 x .3	85.3 x .3	96 x .4	92.2	3/7/86

7. CERTIFICATION LIMITATION:

Certified By: Raymond J. Leach
NDE Level III Examiner

NDE PERSONNEL VISION TEST REPORT
FORM 55262 E

WESTINGHOUSE ELECTRIC CORPORATION

WATER REACTOR DIVISIONS (WRD)

NAME	SOCIAL SECURITY NO.	DATE OF BIRTH
Kenneth Mical	171-42-3810	5-17-54

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 June 9, 1986

APPLICANT'S SIGNATURE Kenneth Mical

CORRECTIVE LENSES REQUIRED ☐ YES ☒ NO

ACCEPTABLE ☒ YES ☐ NO

MEDICAL EXAMINER

6/9/86
DATE

FORM NC 31045
REV. 2 86

CP&L
MEDICAL EVALUATION REPORT
FOR
POWER PLANT WORKERS

JOHNSON, JOSEPH A
247-70-5605
QA/QC TECHNICIAN I
OPERS QA/QC
ROBINSON PLT

RESPIRATOR USER

This individual has been screened for physical and mental conditions requi for wearing respiratory protection equipment in accordance with 10 (20.103 and 29 CFR 1910.134.
MY EVALUATION IS:

QUALIFIED

CRANE OPERATOR

This individual has been screened for physical and mental conditions requir for operating cranes in accordance with ANSI standard B30.2.0-1976. Secti 2-3.1.2.
MY EVALUATION IS:

QUALIFIED
For Information Only

NON-DESTRUCTIVE AND/OR VISUAL EXAMINERS

This individual has been screened for near and distant visual acuity and colc vision in accordance with ANSI/ASME BPV-XI, IWA-2300, 1983.
MY EVALUATION IS:

	NEAR ACUITY	DISTANT ACUITY	COLOR VISION
UNCORRECTED	PASS	PASS	
CORRECTED	NOT EVALUATED	NOT EVALUATED	PASS

LIMITATIONS/COMMENTS: _____

NOTE: You may want to contact your personal physician to determine the significance of the following abnormal findings revealed by your health testing.

OTHER PERSONAL COMMENTS: _____

Julia D. Craft, RN
JULIA D. CRAFT, R.N.

09/23/86
DATE

DOUGLAS I. HAMMER, M.D.
P.O. BOX 1551
RALEIGH, NC 27602

QA PQ-6
Rev. 1 1/79

CP&L
Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

ISI Visual Examination METHOD-LEVEL VT-2, Level II

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME			SSN
Johnson, Joseph A.			247-70-5605
DEPARTMENT	ORGANIZATION		DATE EMPLOYED/ASSIGNED
Corporate QA	OQA - HBR		8-2-82
HIGH SCHOOL			DATE GRADUATED
GED - Columbia, SC			GED 1982
COLLEGE	COURSE	DEGREE	YEAR
N/A	N/A	N/A	N/A

2. TRAINING

Training Completed 80 (Hours) Direction of EPRI NDE Center

☒ Training Requirements Satisfied

Remarks: Per NDEP-20

3. WORK TIME EXPERIENCE

Years 41+ ~~XXXXXX~~ Under Direction of CP&L
(over 4 mos) Hours

Remarks: For Information Only

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	EPRI	7-13-84	83.0	.3	24.90
SPECIFIC	EPRI & VT-ISI-S-1	11-21-84	86.25	.3	25.88
PRACTICAL	EPRI	7-13-84	86.0	.4	34.40
				COMPOSITE GRADE:	85.18

Completed Examinations:
☒ Retained/Maintained by ~~XXXXXX~~ Corp. NDE, New Hill, NC & EPRI NDE Center, Charlotte, NC
☐ Sent To _____ for retention.

Remarks: EPRI & CP&L Specific added & averaged

5. CERTIFICATION

This ☒ Initial Certification ☐ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975) and the requirements of ☐ ASME Sections I, III, V, VIII ☐ ANSI B31.1 ☐ AWS D1.1 ☒ NDEP-20 & ASME XI for the qualification and certification of NDE personnel

Level II Qualifications Certified by: _____, Level III
VT-2 Examiner
QC Supervisor - NDE
Corp. NDE, New Hill, NC

Certifications Reviewed/Accepted by: _____
(When Applicable)

DATE OF CERTIFICATION 11/22/84 DATE CERTIFICATION EXPIRES 11/21/87

FORM NO. 80384
REV. 1/79

CP&L

Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

QA PQ-6
REV. 1

ISI VT-1 & VT-3 Examination METHOD-LEVEL II (Limited)

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME		SSN
Johnson, Joseph A.		247-70-5605
DEPARTMENT: Corporate QA	ORGANIZATION: OQA/QC - HBR	DATE EMPLOYED/ASSIGNED: 8-2-82
HIGH SCHOOL: GED - Columbia, S.C.		DATE GRADUATED: 1982

COLLEGE	COURSE	DEGREE	YEAR
N/A	N/A	N/A	N/A

2. TRAINING

Training Completed 80 (Hours) Direction of EPRI NDE Center

☒ Training Requirements Satisfied

Remarks: Per NDEP-20

3. WORK TIME EXPERIENCE

____ Years 77½Hrs~~Months~~ (over 1½ years) Under Direction of CP&L

For Information Only

Remarks:

~~For Information Only~~

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	EPRI	7-13-84	83.0	.3	24.90
SPECIFIC	EPRI & VT-ISI-S-1	11-21-84	86.25	.3	25.88
PRACTICAL	EPRI	7-13-84	86.0	.4	34.40
				COMPOSITE GRADE:	85.18

Completed Examinations:

☒ Retained/Maintained by ~~CP&L~~ Corp. NDE, New Hill, NC & EPRI NDE Center, Charlotte, NC

☐ Sent To _____ for retention.

Remarks: EPRI & CP&L Specific added & averaged.

5. CERTIFICATION

This ☒ Initial Certification ☐ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975) and the requirements of ☐ ASME Sections I, III, V, VIII ☐ ANSI B31.1 ☐ AWS D1.1 ☒ NDEP-20 & ASME XI for the qualification and certification of NDE personnel

Level II Qualifications Certified by: _____, Level III

(Limited-VT-1 & VT-3 Examination) QC Supervisor - NDE

Corp. NDE, New Hill, NC

Certifications Reviewed/Accepted by:
(When Applicable)

DATE OF CERTIFICATION 12/31/85 DATE CERTIFICATION EXPIRES 12/30/88

FORM NO. 31045
REV. 2 86

CP&L
MEDICAL EVALUATION REPORT
FOR
POWER PLANT WORKERS

RIPPY, WILLIAM H
243-76-1279
QA/QC TECHNICIAN I
OPERS QA/QC
ROBINSON PLT

RESPIRATOR USER

This individual has been screened for physical and mental conditions required for wearing respiratory protection equipment in accordance with 10 CFR 20.103 and 29 CFR 1910.134.
MY EVALUATION IS:

QUALIFIED WITH CORRECTIVE LENS

CRANE OPERATOR

This individual has been screened for physical and mental conditions required for operating cranes in accordance with ANSI standard B30.2.0-1976, Section 2-3.1.2.
MY EVALUATION IS:

NOT QUALIFIED

For Information Only

NON-DESTRUCTIVE AND/OR VISUAL EXAMINERS

This individual has been screened for near and distant visual acuity and color vision in accordance with ANSI/ASME BPV-XI, IWA-2300, 1983.
MY EVALUATION IS:

	NEAR ACUITY	DISTANT ACUITY	COLOR VISION
UNCORRECTED	PASS	FAIL	PASS
CORRECTED	PASS	PASS	

LIMITATIONS/COMMENTS: _____

NOTE: You may want to contact your personal physician to determine the significance of the following abnormal findings revealed by your health testing.

OTHER PERSONAL COMMENTS: _____

Douglas I. Hammer, M.D.
DOUGLAS I. HAMMER, M.D. / BWW

10/06/86
DATE

DOUGLAS I. HAMMER, M.D.
P.O. BOX 1551
RALEIGH, NC 27602

FORM NO. 80384
REV. 1/79

CP&L

Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

QA PQ-6
REV. 1

ISI VT-1,2&3 Examiner METHOD-LEVEL II (Limited)

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME			SSN
Rippy, William H.			243-76-1279
DEPARTMENT	ORGANIZATION		DATE EMPLOYED/ASSIGNED
Corporate QA	OQA/QC HBR		2-20-78
HIGH SCHOOL			DATE GRADUATED
Northern H.S., Durham, NC			1965
COLLEGE	COURSE	DEGREE	YEAR
N/A	N/A	N/A	N/A

2. TRAINING

Training Completed 80 (Hours) Direction of EPRI Charlotte, NC

☒ Training Requirements Satisfied

Remarks: Per NDEP-20

3. WORK TIME EXPERIENCE

4 Years ---- Months Under Direction of CP&L

For Information Cnly

Remarks: *Combination of "Construction" and operating plant experience and ISI OJT.

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	EPRI	7-12-85	86	.3	25.80
* SPECIFIC	EPRI & VT-ISI	9-17-85	86.5	.3	25.95
PRACTICAL	EPRI	7-12-85	94	.4	37.60
				COMPOSITE GRADE:	89.35

Completed Examinations:

☒ Retained/Maintained by ~~XXXXXX~~ Corp. NDE Unit, New Hill, NC & EPRI NDE Center, Charlotte, NC

☐ Sent To _____ for retention.

Remarks: *EPRI & CP&L Specific Exams added and averaged.

5. CERTIFICATION

This ☒ Initial Certification ☐ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975) and the requirements of ☐ ASME Sections I, III, V, VIII ☐ ANSI B31.1 ☐ AWS D1.1 ☒ NDEP-20 & ASME XI for the qualification and certification of NDE personnel

Level II Qualifications Certified by: _____, Level III

Limited-ISI VT-1,2&3 Examiner Only

QC Supervisor - NDE

Corp. NDE Unit, New, Hill, NC

Certifications Reviewed/Accepted by: (When Applicable)

DATE OF CERTIFICATION 9/17/85 DATE CERTIFICATION EXPIRES 9/16/88

FORM NO 31045
REV. 2-86

CP&L
MEDICAL EVALUATION REPORT
FOR
POWER PLANT WORKERS

RUSS, JOHN W
247-72-9891
SR QA/QC SPECIALIST
OPERS QA/QC
ROBINSON PLT

RESPIRATOR USER

This individual has been screened for physical and mental conditions required for wearing respiratory protection equipment in accordance with 10 CFR 20.103 and 29 CFR 1910.134.
MY EVALUATION IS:

QUALIFIED

CRANE OPERATOR

This individual has been screened for physical and mental conditions required for operating cranes in accordance with ANSI standard B30.2.0-1976, Section 2-3.1.2.
MY EVALUATION IS:

QUALIFIED

For Information Only

NON-DESTRUCTIVE AND/OR VISUAL EXAMINERS

This individual has been screened for near and distant visual acuity and color vision in accordance with ANSI/ASME BPV-XI, IWA-2300, 1983.
MY EVALUATION IS:

	NEAR ACUITY	DISTANT ACUITY	COLOR VISION
UNCORRECTED	PASS	PASS	PASS
CORRECTED	NOT EVALUATED	NOT EVALUATED	

LIMITATIONS/COMMENTS: _____

NOTE: You may want to contact your personal physician to determine the significance of the following abnormal findings revealed by your health testing.

OTHER PERSONAL COMMENTS: _____

Julia D. Craft, RN
JULIA D. CRAFT, R.N.

09/29/86
DATE

DOUGLAS I. HAMMER, M.D.
P.O. BOX 1551
RALEIGH, NC 27602

FORM NO. 80384
REV. 1/79

CP&L

Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

QA PQ-6
REV. 1

ISI VISUAL EXAMINER METHOD-LEVEL II

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME			SSN
Russ, John W.			247-72-9891
DEPARTMENT	ORGANIZATION		DATE EMPLOYED/ASSIGNED
Corporate QA	OQA/QC HBR		10/73
HIGH SCHOOL			DATE GRADUATED
Hartsville High School, Hartsville, SC			1963
COLLEGE	COURSE	DEGREE	YEAR
University of South Carolina	Business	N/A	1963

2. TRAINING

Training Completed 160 (Hours) Direction of EPRI

GE at BSEP

☒ Training Requirements Satisfied

Remarks: Per NDEP-20

3. WORK TIME EXPERIENCE

8 Years - Months Under Direction of CP&L

For Information Cnly

Remarks:

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	EPRI	6-16-86	94.00	3	28.20
SPECIFIC	EPRI & *CP&L	10-17-86	86.66	3	26.00
PRACTICAL	EPRI	6-20-86	94.00	4	37.60
				COMPOSITE GRADE:	91.80

Completed Examinations:

☒ Retained/Maintained by ~~OQA~~ Materials Quality Section, New Hill, NC

☐ Sent To _____ for retention.

Remarks: EPRI & CP&L Specific Exams added and averaged.

*ISI-VT1-S-1,R:0
ISI-VT2-S-1,R:0
ISI-VT3-S-1,R:0
ISI-VT4-S-2,R:0

5. CERTIFICATION

This ☐ Initial Certification ☒ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975) and the requirements of ☐ ASME Sections I, III, V, VIII ☐ ANSI B31.1 ☐ AWS D1.1 ☒ NDEP-20 & ASME XI for the qualification and certification of NDE personnel Level II Qualifications Certified by: _____, Level III Examiner

Principle NDE Specialist

Materials Quality Section,

New Hill, NC

Certifications Reviewed/Accepted by: (When Applicable)

DATE OF CERTIFICATION 10/17/86 DATE CERTIFICATION EXPIRES 10/16/89

FORM NO. 31045
REV. 2 86

CP&L
MEDICAL EVALUATION REPORT
FOR
POWER PLANT WORKERS

CARNES, JOHNNY L
251-90-8445
QA/QC TECHNICIAN I
OPERS QA/QC
ROBINSON PLT

RESPIRATOR USER

This individual has been screened for physical and mental conditions required for wearing respiratory protection equipment in accordance with 10 CFR 20.103 and 29 CFR 1910.134.
MY EVALUATION IS:

QUALIFIED

CRANE OPERATOR

This individual has been screened for physical and mental conditions required for operating cranes in accordance with ANSI standard B30.2.0-1976, Section 2-3.1.2.
MY EVALUATION IS:

QUALIFIED WITH CORRECTIVE LENS

For Information Only

NON-DESTRUCTIVE AND/OR VISUAL EXAMINERS

This individual has been screened for near and distant visual acuity and color vision in accordance with ANSI/ASME BPV-XI, IWA-2300, 1983.
MY EVALUATION IS:

	NEAR ACUITY	DISTANT ACUITY	COLOR VISION
UNCORRECTED	FAIL	FAIL	PASS
CORRECTED	PASS	PASS	

LIMITATIONS/COMMENTS: _____

NOTE: You may want to contact your personal physician to determine the significance of the following abnormal findings revealed by your health testing.

OTHER PERSONAL COMMENTS: _____

Douglas I. Hammer, M.D.
DOUGLAS I. HAMMER, M.D. / JDC

10/06/86
DATE

DOUGLAS I. HAMMER, M.D.
P.O. BOX 1551
RALEIGH, NC 27602

FORM NO. 80384
REV. 1/79

CP&L

Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

QA PQ-6
REV. 1

ISI VT-1 & VT-3 METHOD-LEVEL II (Limited) 4/18/86

*Corrected Copy

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME			SSN
Carnes, Johnny L.			251-90-8445
DEPARTMENT	ORGANIZATION		DATE EMPLOYED/ASSIGNED
Corporate QA	QQA/QC - HBR		11/2/81
HIGH SCHOOL			DATE GRADUATED
St. Johns H.S., Darlington, SC			1970
COLLEGE	COURSE	DEGREE	YEAR
Sumter Tech. Coll., Sumter, SC	Basic Elect.	Diploma	1978

2. TRAINING

Training Completed 80 (Hours) Direction of EPRI NDE Center

☒ Training Requirements Satisfied

Remarks: Per NDEP-20

3. WORK TIME EXPERIENCE

5 Years 9 Months Under Direction of CP&L

For Information Only Daniel Const. Co.

Remarks: *90 hrs. directly related OJT in VT-1 & VT-3 methods. Overall 5 yrs. 9 months indirectly related visual experience. Mr. Carnes is considered more than adequately qualified to perform VT-1 & VT-3 based on this cumulative experience.

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	EPRI	5/23/84	83.00	.3	24.90
SPECIFIC	EPRI&VT-ISI-S-1	6/14/84	84.25	.3	25.27
PRACTICAL	EPRI	4/6/84	94.00	.4	37.60
				COMPOSITE GRADE:	87.77

Completed Examinations:

☒ Retained/Maintained by ~~CP&L QA~~ NDE Unit, New Hill, NC & EPRI NDE Center, Charlotte, N.C.

☐ Sent To _____ for retention.

Remarks: EPRI & CP&L Specific added and averaged

5. CERTIFICATION

This ☒ Initial Certification ☐ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975) and the requirements of ☐ ASME Sections I, VII, V, VIII ☐ ANSI B31.1 ☐ AWS D1.1 ☒ NDEP-20 & ASME XI for the qualification and certification of NDE personnel

Level II Qualifications Certified by: _____, Level III

(Limited VT-1 & VT-3 Examination)

QC Supervisor - NDE

NDE Unit, New Hill, NC

*Corrected Copy - 4/18/86

Certifications Reviewed/Accepted by: (When Applicable)

DATE OF CERTIFICATION 12/31/85 DATE CERTIFICATION EXPIRES 12/30/88

QA PQ-6
Rev. 1 1/79

CP&L
Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

ISI Visual Examination METHOD-LEVEL VT-2, Level II

(corrected copy 9/12/84)

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME			SSN
Carnes, Johnny L.			251-90-8445
DEPARTMENT	ORGANIZATION		DATE EMPLOYED/ASSIGNED
Corp. QA	OQA-HBR		11/2/81
HIGH SCHOOL			DATE GRADUATED
St. Johns H.S., Darlington, SC			1970
COLLEGE	COURSE	DEGREE	YEAR
Sumter Tech. College, Sumter, SC	Basic Electronics	Diploma	1978

2. TRAINING

Training Completed 80 (Hours) Direction of EPRI NDE Center

☒ Training Requirements Satisfied

Remarks: Per NDEP-20

3. WORK TIME EXPERIENCE

-- Years 1/4 + Months Under Direction of CP&L

For Information Only

Remarks:

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	EPRI	5/23/84	83.00	.3	24.90
SPECIFIC	EPRI & VT-ISI-S-1	6/14/84	84.25	.3	25.27
PRACTICAL	EPRI	4/6/84	94.00	.4	37.60
				COMPOSITE GRADE:	87.77

Completed Examinations:

☒ Retained/Maintained by Corp NDE Unit, New Hill, NC and EPRI NDE CEnter, Charlot
☐ Sent To _____ for retention. NC.

Remarks: EPRI & CP&L Specific added and averaged

5. CERTIFICATION

This ☒ Initial Certification ☐ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975) and the requirements of ☐ ASME Sections I, III, V, VIII ☐ ANSI B31.1 ☐ AWS D1.1 ☒ NDEP-20 & ASME XI for the qualification and certification of NDE personnel

Level II Qualifications Certified by: _____, Level III

VT-2 Examiner

QC Supervisor - NDE

Corp. NDE Unit, New Hill, NC
(Corrected copy 9/12/84)

Certifications Reviewed/Accepted by:
(When Applicable)

DATE OF CERTIFICATION 9/6/84 DATE CERTIFICATION EXPIRES 9/5/87

QA PQ-6
Rev. 1 1/79

CP&L
Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

ULTRASONIC METHOD-LEVEL II

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME		SSN
Tucker, Gregory N.		408-04-3295
DEPARTMENT: Corporate QA	ORGANIZATION (NDE): Materials Quality Section	DATE EMPLOYED/ASSIGNED: 2/7/83
HIGH SCHOOL: Gatlinburg Pittman, Gatlinburg, TN		DATE GRADUATED: 6/74

COLLEGE	COURSE	DEGREE	YEAR
N/A	N/A	N/A	N/A

2. TRAINING

Training Completed 200 (Hours) Direction of EPRI NDE Center
TAT (ORAU) Oakridge, TN

☒ Training Requirements Satisfied C.R. Osmon

Remarks: Per NDEP-10

3. WORK TIME EXPERIENCE

4 Years 5 Months Under Direction of CP&L
E. Systems
McEvoy

Remarks:

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	UT-II-G-1,R:0	1/29/89	95.00	.3	28.50
SPECIFIC	UT-II-S-5,R:0	1/30/89	94.50	.3	28.35
PRACTICAL	UT-II-P-1,R:0	1/30/89	95.00	.4	38.00
				COMPOSITE GRADE:	94.85

Completed Examinations:
☒ Retained/Maintained by ~~CP&L~~, Materials Quality Section, New Hill, NC
☐ Sent To _____ for retention.

Remarks:

5. CERTIFICATION

This ☐ Initial Certification ☑ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975)* and the requirements of ☒ ASME Sections I, III, V, VIII ☐ ANSI B31.1 ☒ AWS D1.1 ☐ NDEP-10 for the qualification and certification of NDE personnel

Level II Qualifications Certified by: Carl R. Osmon, Level III
Principal NDE Specialist
Materials Quality Section,
New Hill, NC

*and SNT-TC-1A (1980)

Certifications Reviewed/Accepted by:
(When Applicable)

DATE OF CERTIFICATION 1/30/87 DATE CERTIFICATION EXPIRES 1/29/90

FORM NO. 80384
REV. 1/79

CP&L

Carolina Power & Light Company

CERTIFICATE OF NDE PERSONNEL QUALIFICATION

QA PO-6
REV. 1

LIQUID PENETRANT METHOD-LEVEL II

1. ADMINISTRATIVE/EDUCATIONAL INFORMATION

NAME		SSN
Tucker, Gregory N.		408-04-3295
DEPARTMENT	**ORGANIZATION (NDE Unit)**	**DATE EMPLOYED/ASSIGNED**
Corporate QA	QA/QC Harris Plant	2/7/83
HIGH SCHOOL		**DATE GRADUATED**
Gatlinburg-Pittman, Gatlinburg, Tenn		1974

COLLEGE	COURSE	DEGREE	YEAR
N/A	N/A	N/A	N/A

2. TRAINING

Training Completed 30 (Hours) Direction of O.R.A.U.

☒ Training Requirements Satisfied

Remarks: Per NDEP-10

3. WORK TIME EXPERIENCE

3 Years 10 Months Under Direction of McEvoy
E-Systems
CP&L

Remarks:

4. QUALIFICATION EXAMINATIONS

	EXAM NO.	DATE COMPLETED	RAW SCORE	WEIGHT	WEIGHTED GRADE
GENERAL	PT-II-G-1,R:Ø	2/7/86	93.33	.3	28.00
SPECIFIC	PT-II-S-1,R:1	2/7/86	98.00	.3	29.40
PRACTICAL	PT-II-P-1,R:1	2/7/86	95.00	.4	38.00
				COMPOSITE GRADE:	95.40

Completed Examinations:

☒ Retained/Maintained by ~~XXXXXX~~ NDE Unit, New Hill, NC

☐ Sent To _____ for retention.

Remarks:

5. CERTIFICATION

This ☐ Initial Certification ☒ Recertification meets ☒ ASNT Recommended Practice SNT-TC-1A(1975) and the requirements of ☒ ASME Sections I, III, V, VIII ☒ ANSI B31.1 ☒ AWS D1.1 ☒ NDEP-10 for the qualification and certification of NDE personnel

Level II Qualifications Certified by: _____, Level III
QC Supervisor - NDE
NDE Unit, New Hill, N.C.

Certifications Reviewed/Accepted by: _____
(When Applicable)

DATE OF CERTIFICATION 2/8/86 DATE CERTIFICATION EXPIRES 2/7/89

FORM NO. 31025
REV. 2 86

CP&L
MEDICAL EVALUATION REPORT
FOR
POWER PLANT WORKERS

TUCKER, GREGORY N
408-04-3295
NDE TECH I
MAT QUALITY
HARRIS E&EC

RESPIRATOR USER

This individual has been screened for physical and mental conditions required for wearing respiratory protection equipment in accordance with 10 CFR 20.103 and 29 CFR 1910.134.
MY EVALUATION IS:

QUALIFIED

CRANE OPERATOR

This individual has been screened for physical and mental conditions required for operating cranes in accordance with ANSI standard B30.2.0-1976, Section 2-3.1.2.
MY EVALUATION IS:

QUALIFIED

NON-DESTRUCTIVE AND/OR VISUAL EXAMINERS

This individual has been screened for near and distant visual acuity and color vision in accordance with ANSI/ASME BPV-XI, IWA-2300, 1983.
MY EVALUATION IS:

	NEAR ACUITY	DISTANT ACUITY	COLOR VISION
UNCORRECTED	PASS	PASS	PASS
CORRECTED	NOT EVALUATED	NOT EVALUATED	

LIMITATIONS/COMMENTS: _____

NOTE: You may want to contact your personal physician to determine the significance of the following abnormal findings revealed by your health testing.

OTHER PERSONAL COMMENTS: _____

Betty W. Wilder R.N.
BETTY W. WILDER, R.N.

12/30/86
DATE

DOUGLAS I. HAMMER, M.D.
P.O. BOX 1551
RALEIGH, NC 27602

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EQUIPMENT (INSTRUMENTS)

PLANT H.B. ROBINSON UNIT II YEAR 1987

INSTRUMENT NO.	MANUFACTURER	MODEL	SERIAL NO.
1	SONIC	MARK I	07853E
2	SONIC	MARK I	06209E
3	SONIC	MARK I	05939E
4	SONIC	MARK I	11221E

FORM 49215

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. Robinson UNIT 2 DATE 4-13-87

EXAMINER Joseph O. Furnyak LEVEL II PROCEDURE ISI-10 REV 6

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	.75"
MODEL	MARK 1	FREQ.	2.25 MHZ
SERIAL NO.	07853E	SERIAL NO.	P45882
COUPLANT	SONOTRACE BATCH # 8558	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	50%	45%	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	22%	16% - 24%
40% FSH	+6DB	84%	64% - 96%
20% FSH	+12DB	72%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

Reviewed By Robert W. Hayler II

FORM 45951E

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	50	50	51	51	51	51	51	50	50	50

dB	22	24	26	28	30	32	34	36	38	40
Amp	50	51	50	50	50	50	50	51	51	50

dB	42	44	46	48	50	52	54	56	58	60
Amp.	51	51	50	51	51	51	50	50	51	51

INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 07853E

TRANSDUCER: MFR. PANAMETRICS SIZE .75" FREQ 2.25 MHZ S/N P4588A

TEST PERFORMED BY Paul J. Kovalo REVIEWED BY Robert W. Haughton III

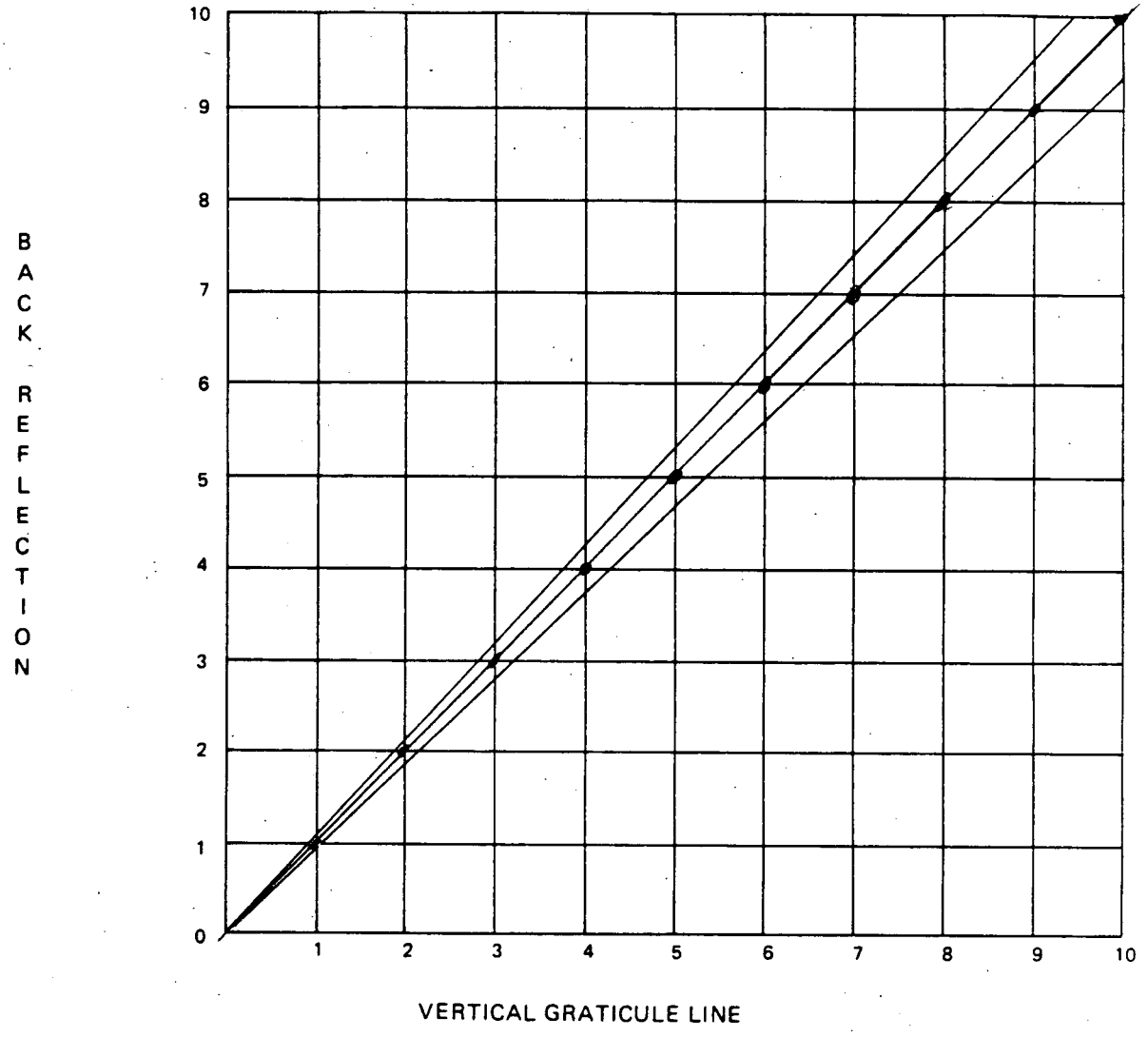
LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-13-87

REMARKS

F49005

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 07653E

TRANSDUCER: MFR. PANAMETRICS SIZE .75" FREQ. 2.25MHZ S/N P4588R

TEST PERFORMED BY Paul J. Kovallo REVIEWED BY Richard W. Hughes II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-13-87

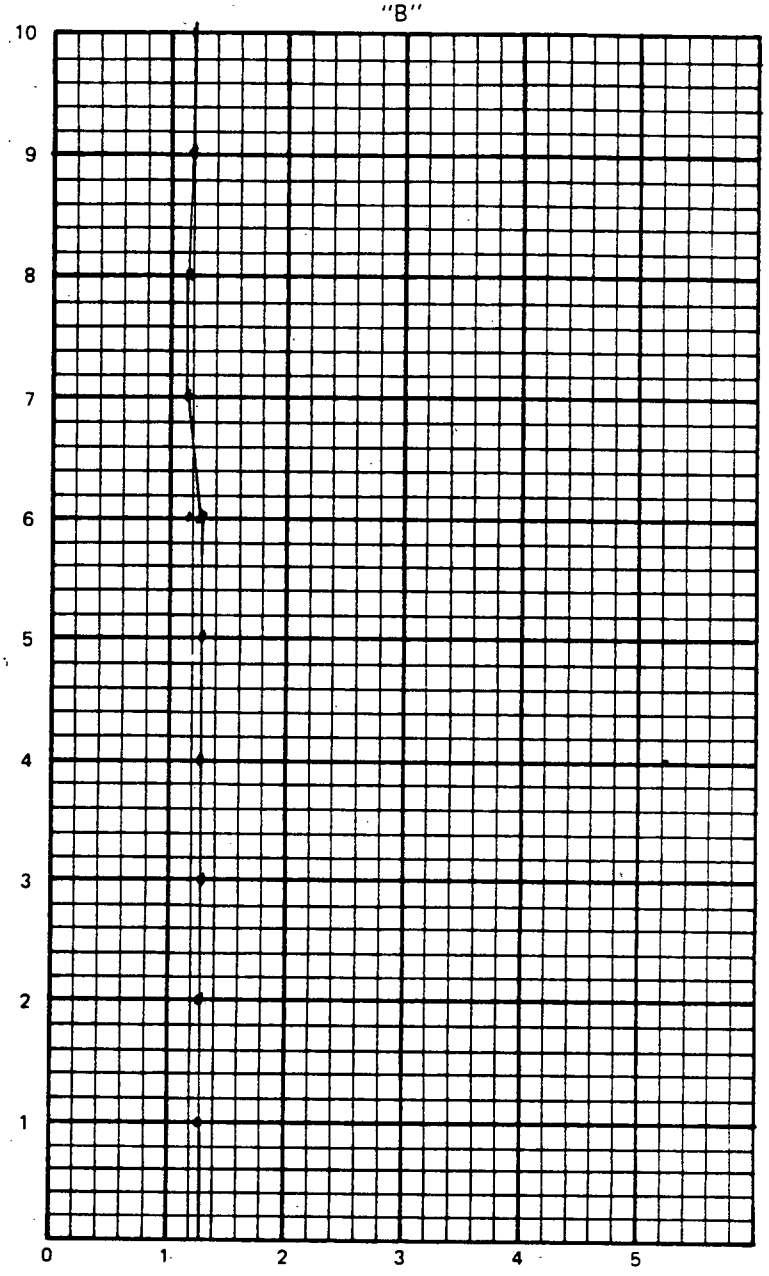
REMARKS: _____

F 49006

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
8.2	10	1.21
7.5	9	1.20
6.8	8	1.17
5.9	7	1.18
5.0	6	1.20
4.1	5	1.21
3.3	4	1.20
2.4	3	1.25
1.6	2	1.25
.8	1	1.25
9	8	8 ÷ 9



INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 07853E

TRANSDUCER: MFR. PANAMETRICS SIZE .75" FREQ. 2.25 MHZ S/N P45882

TEST PERFORMED BY Paul J. Kovalle REVIEWED BY Robert W. Hughes II

LINEARITY IS: ☒ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-13-87

REMARKS:

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. Robinson UNIT 2 DATE 4-13-87

EXAMINER Joseph W. Furnyak LEVEL II PROCEDURE ISI-10 REV 6

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	.75"
MODEL	MARK 1	FREQ.	2.25 MHZ
SERIAL NO.	06209E	SERIAL NO.	P45882
COUPLANT	SONOTRACE 40 BATCH # 8558	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	50%	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	39%	32% - 48%
80% FSH	-12DB	18%	16% - 24%
40% FSH	+6DB	83%	64% - 96%
20% FSH	+12DB	91%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

Reviewed by Robert W. Hughes II

FORM 45951E

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	50	51	50	50	50	50	51	50	51	50

dB	22	24	26	28	30	32	34	36	38	40
Amp.	50	50	50	50	50	50	51	50	50	51

dB	42	44	46	48	50	52	54	56	58	60
Amp.	50	50	51	50	51	50	50	50	50	50

INSTRUMENT: MFR. SONIC MODEL MARK I S/N 06209E

TRANSDUCER: MFR. PANAMETRICS SIZE .75" FREQ. 2.25 MHz S/N P45883

TEST PERFORMED BY Timothy J Baloh REVIEWED BY Robert W. Hughes II

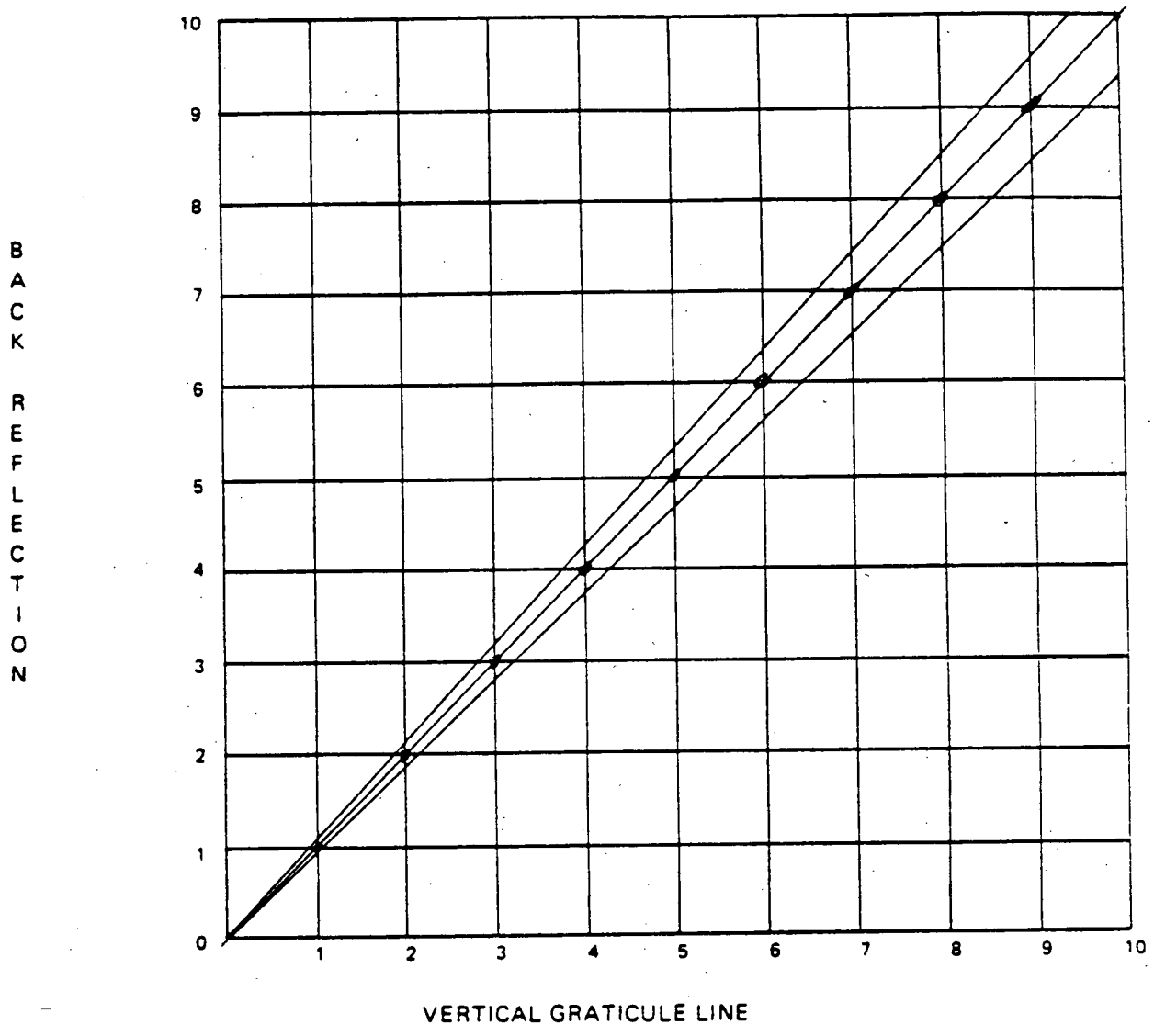
LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-13-87

REMARKS:

F49005

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 06209E

TRANSDUCER: MFR. PANAMETRICS SIZE .75 FREQ. 2.25 S/N P45882

TEST PERFORMED BY Fred J. Baker REVIEWED BY Robert W. Hughes II

LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-13-87

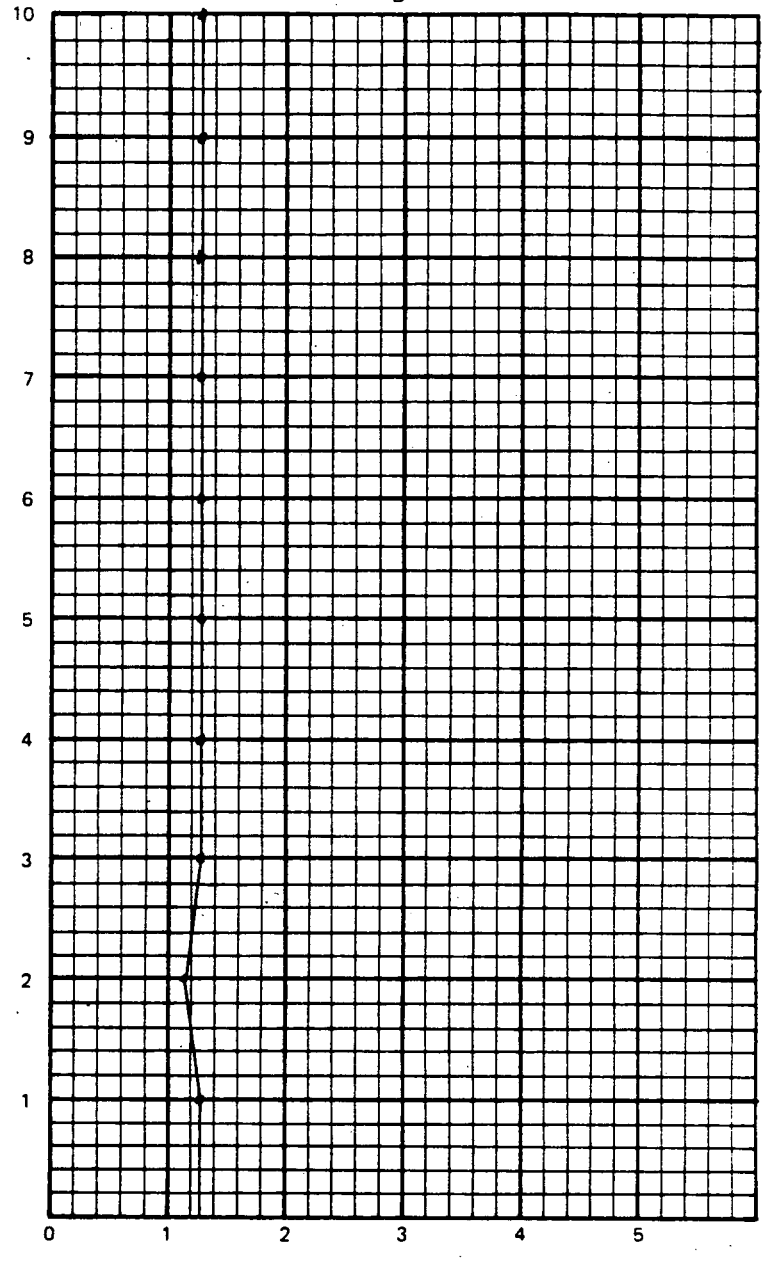
REMARKS: _____

F 49006

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
8.0	10	1.25
7.2	9	1.25
6.5	8	1.23
5.8	7	1.21
4.9	6	1.22
4.1	5	1.22
3.2	4	1.25
2.4	3	1.25
1.7	2	1.18
.8	1	1.25
9	8	8÷9



INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 06209E

TRANSDUCER: MFR. PANAMETRICS SIZE .75" FREQ. 2.25 MHz S/N P45882

TEST PERFORMED BY T. [illegible] & Ralph REVIEWED BY Robert W. Hughes II

LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-13-87

REMARKS:

F49004

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 4-10-87

EXAMINER Joseph D. Tunyak LEVEL II PROCEDURE ISI 10 REV.6

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	1"
MODEL	MARK 1	FREQ.	2.25
SERIAL NO.	11221E	SERIAL NO.	H09565
COUPLANT	SONOTRACE 40 BATCH-8558	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	50%	45%	40%	35%	30%	24%	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	39%	32% - 48%
80% FSH	-12DB	20%	16% - 24%
40% FSH	+6DB	82%	64% - 96%
20% FSH	+12DB	82%	64% - 96%

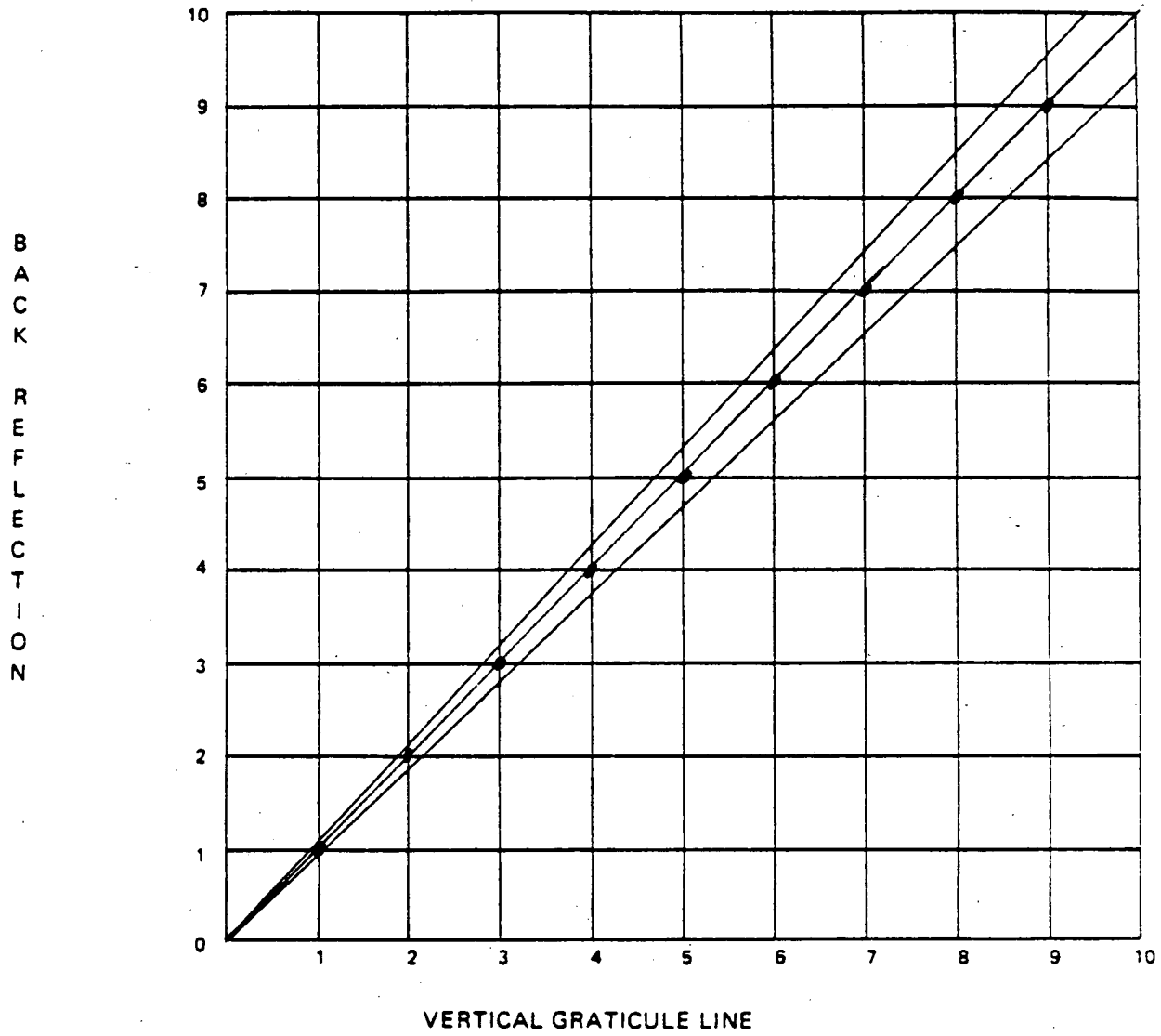
NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

Reviewed By: Robert W. Hayden II

FORM 45951E

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT MFR. SONIC MODEL MARK 1 S/N 11221E

TRANSDUCER: MFR. AEROTEACH SIZE 1" FREQ. 2.25 S/N H09565

TEST PERFORMED BY Timothy & Baloh REVIEWED BY Robert W. Hughes II

LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-10-87

REMARKS:

F 49006

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	51	51	50	51	51	51	50	50	50	51

dB	22	24	26	28	30	32	34	36	38	40
Amp.	51	50	50	51	50	51	50	51	51	50

dB	42	44	46	48	50	52	54	56	58	60
Amp.	51	50	51	50	51	50	51	50	50	51

INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 11221E

TRANSDUCER: MFR. AEROTEACH SIZE 1" FREQ. 2.25 S/N H09565

TEST PERFORMED BY Timothy J Balch REVIEWED BY Robert W. Bruckner II

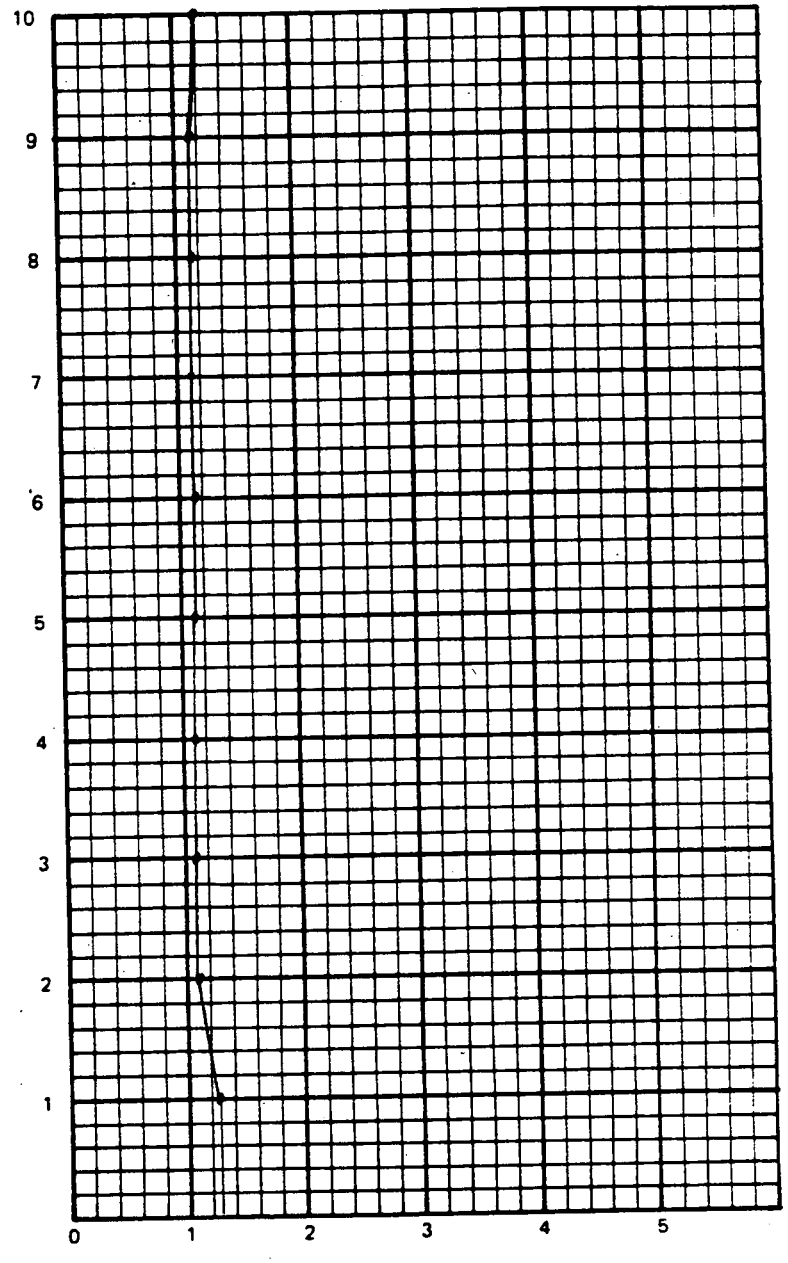
LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-10-87

REMARKS:

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
8.5	10	1.18
7.8	9	1.15
7.0	8	1.14
6.1	7	1.15
5.2	6	1.15
4.5	5	1.11
3.6	4	1.11
2.7	3	1.11
1.8	2	1.11
.8	1	1.25
9	8	8 ÷ 9



INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 1122IE

TRANSDUCER: MFR. AEROTECH SIZE 1" FREQ. 2.25 S/N H09565

TEST PERFORMED BY Timothy & Baloh REVIEWED BY Robert W. Hayhurst II

LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-10-87

REMARKS:

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT H.B. ROBINSON UNIT 2 DATE 4-10-87

EXAMINER Joseph D. Furnish LEVEL II PROCEDURE ISI 10 REV. 6

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	SONIC	SIZE	.75
MODEL	MARK 1	FREQ.	2.25
SERIAL NO.	05939E	SERIAL NO.	P45882
COUPLANT	SONOTRACE 40 BATCH-8558	ANGLE	0°

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	90%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL	50%	45%	40%	35%	30%	24%	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	39%	32% - 48%
80% FSH	-12DB	19%	16% - 24%
40% FSH	+6DB	86%	64% - 96%
20% FSH	+12DB	80%	64% - 96%

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTES INCREASE.

Reviewed By Robert W. Hughes II

FORM 45951E

ULTRASONIC INSTRUMENTATION DATA SHEET

ATTENUATOR/SENSITIVITY CONTROL

dB	2	4	6	8	10	12	14	16	18	20
Amp.	50	50	50	50	50	51	51	50	50	50

dB	22	24	26	28	30	32	34	36	38	40
Amp.	50	50	51	51	51	50	51	51	50	50

dB	42	44	46	48	50	52	54	56	58	60
Amp.	50	50	50	50	50	50	51	50	51	51

INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 05939E

TRANSDUCER: MFR. PANAMETRICS SIZE .75 FREQ. 2.25 S/N P4588P

TEST PERFORMED BY Paul J. Kovallo REVIEWED BY Robert W. Douglass II

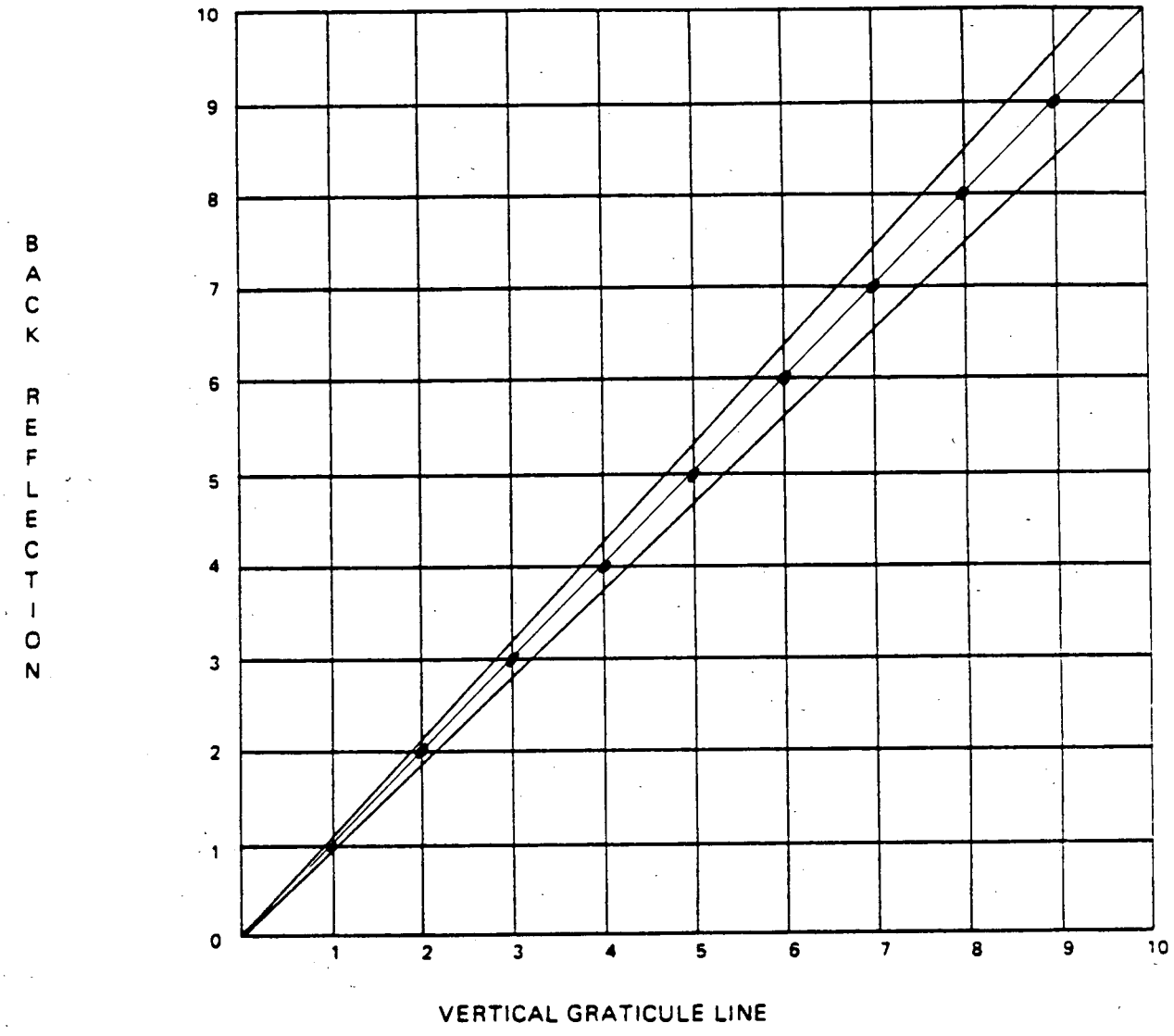
LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-10-87

REMARKS:

F49005

ULTRASONIC INSTRUMENTATION DATA SHEET

HORIZONTAL LINEARITY



INSTRUMENT: MFR. SONIC MODEL MARK I S/N 05939E

TRANSDUCER: MFR. PANAMETRICS SIZE .75 FREQ. 2.25 S/N P4588Q

TEST PERFORMED BY Paul J. Kovallo REVIEWED BY Robert Wm. Vaughn II

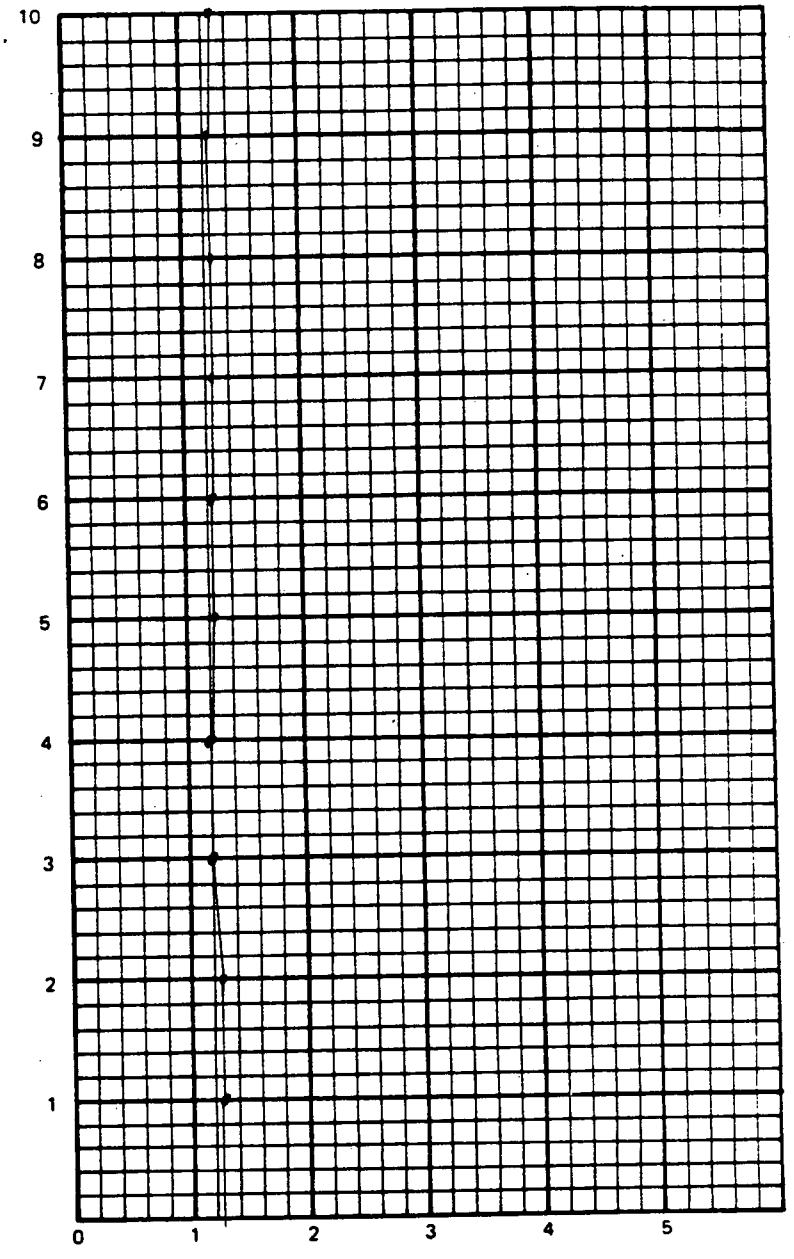
LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-10-87

REMARKS:

ULTRASONIC INSTRUMENTATION DATA SHEET

VERTICAL LINEARITY

"A"		"B"
8.0	10	1.25
7.3	9	1.23
6.4	8	1.25
5.7	7	1.23
4.9	6	1.22
4.1	5	1.22
3.3	4	1.2
2.5	3	1.2
1.6	2	1.25
.8	1	1.25
9	8	8 ÷ 9



INSTRUMENT: MFR. SONIC MODEL MARK 1 S/N 05939E

TRANSDUCER: MFR. PANAMETRICS SIZE .75 FREQ. 2.25 S/N P45882

TEST PERFORMED BY Paul J. Kovalko REVIEWED BY Robert Wm. Hughes II

LINEARITY IS: ☑ ACCEPTABLE ☐ UNACCEPTABLE DATE 4-10-87

REMARKS:

F49004

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

ULTRASONIC EQUIPMENT (TRANSDUCERS)

PLANT H.B.ROBINSON UNIT II YEAR 1987

TRANSDUCER NUMBER	MANUFACTURER	SIZE	FREQUENCY	SERIAL NO.
1	K/B	0.25	2.25	20176
2	PANAMETRICS	0.5X1	2.25	35716
3	PANAMETRICS	0.5X1	2.25	49297
4	PANAMETRICS	0.5X0.5	2.25	56761
5	PANAMETRICS	0.5X0.5	5.0	57433
6	PANAMETRICS	0.375	5.0	59450
7	K/B	0.25	5.0	61735
8	PANAMETRICS	0.25	2.25	62410
9	PANAMETRICS	0.5	5.0	62422
10	PANAMETRICS	0.5	5.0	62427
11	K/B	0.375	5.0	75190
12	K/B	0.5	2.25	B07655
13	K/B	0.375	2.25	C03620
14	K/B	0.25	5.0	C16353
15	K/B	0.5	5.0	E10460
16	K/B	0.375	5.0	F16315
17	K/B	1.0	2.25	H09565
18	K/B	1.0	2.25	J03267
19	K/B	0.25	2.25	K29508
20	PANAMETRICS	0.75	2.25	P45882

FORM 49217

Transducer Description

Series GAMMA

Frequency 2.25 MHz Size .25"

Serial No. 20176

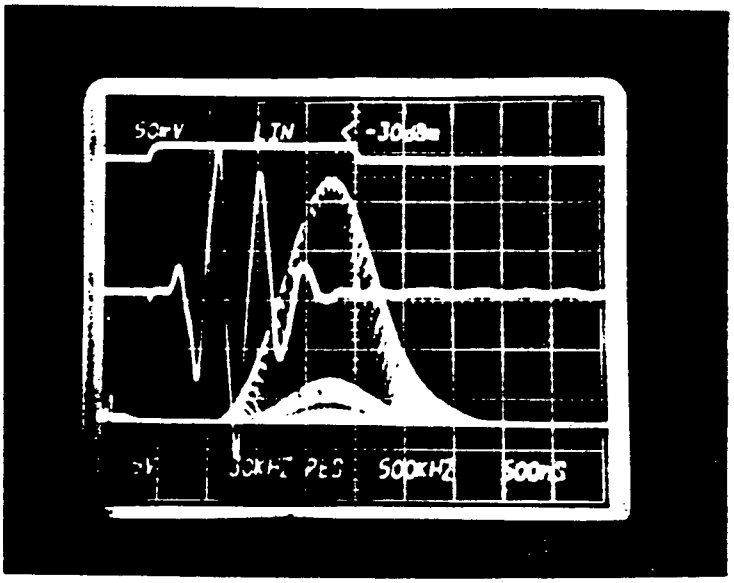
☒ Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
_____ ☐ Cylindrical

Style MSWQC Connector MD

Relative Sensitivity 28 DB

Energy Setting 2 Impedance 50Ω

Inspector MK Date 8-3-83



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 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
P. O. Box 350
Lewistown, PA 17044

MODEL # - 113-222-590 MSWQC

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS

CONTACT TRANSDUCER ANALYSIS

Part No. A403-S Serial No. 35716. Frequency 2.25 MHz

Size: — " diameter; .50 " by 1.0 ". Cable: RG-58/U, length 4 ft

Echo from back surface of: _____ " thick fused silica.
1.0 " thick lucite.
_____ " thick polystyrene.
_____ "

TEST INSTRUMENTATION

___ Panametrics 5052(PR,G) Pulser and Gate # ___

___ Panametrics 5052UA or 5030A # ___ UA # 3

Tektronix 7704A Oscilloscope System

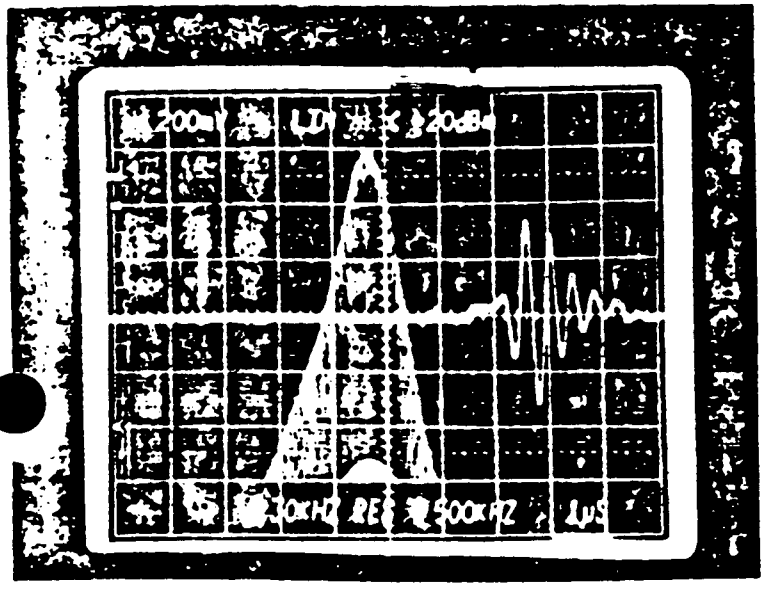
with 7A26 Dual Trace Amplifier

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.

1 3 6



Waveform

Pulser Receiver Settings:

Energy Setting 1.

Receiver Attenuation 42 dB.

Receiver Damping 50 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 K Arnold

Date 2/29/80

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02154 / 617 899-2719 TELEX: 923406

CONTACT TRANSDUCER ANALYSIS

RT NO. A403-S SERIAL NO. 49297 FREQUENCY 2.25 MHz

ZE: — " DIAMETER: .5 " by 1.0 " CABLE: RG-58/U LENGTH 4 ft.

HO FROM BACK SURFACE OF: _____ " THICK FUSED SILICA.

1.0 " THICK LUCITE.

_____ " THICK POLYSTYRENE.

_____ "

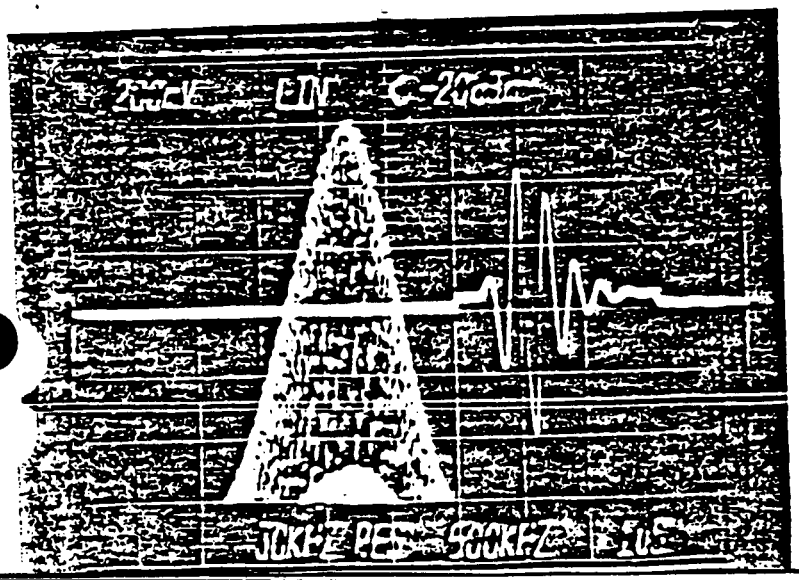
TEST INSTRUMENTATION

ANAMETRICS 5052(PR,G) PULSER AND GATE #_____

NAMETRICS 5052UA OR 5030A # 1

KT....IX	7704A	OSCILLOSCOPE-SYSTEM
with	7A26	DUAL TRACE AMPLIFIER
	7B53A	DUAL TIME BASE
	7L12	SPECTRUM ANALYZER

nter frequency is determined by ltiplying the horizontal scan width) by the number of divisions to the ectrum peak., 1 3 6



WAVEFORM

PULSER RECEIVER SETTINGS:

ENERGY SETTING 1.

RECEIVER ATTENUATION 40 dB.

RECEIVER DAMPING 50 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 8-4-81

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX: 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. A404S SERIAL NO. 56761 FREQUENCY 2.25 MHz

SIZE: .50 " DIAMETER: N/A " by N/A " CABLE: RG- 58/U, LENGTH 4 ft.

ECHO FROM BACK SURFACE OF: _____ " THICK FUSED SILICA.

1.0 " THICK LUCITE.

_____ " THICK POLYSTYRENE.

_____ "

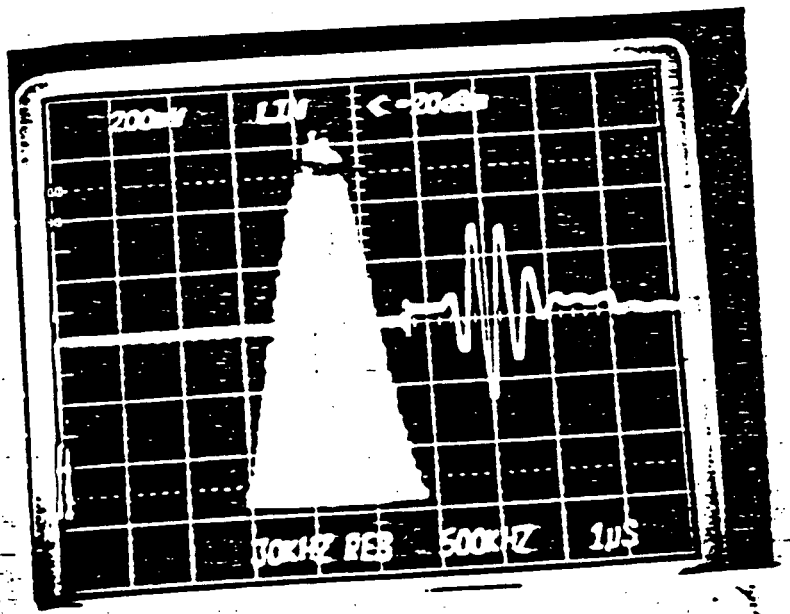
TEST INSTRUMENTATION

_____ 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 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 44 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 C. Gendreau

DATE 4/23/82

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX: 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. A126S SERIAL NO. 59450 FREQUENCY 5.0 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.

_____ "

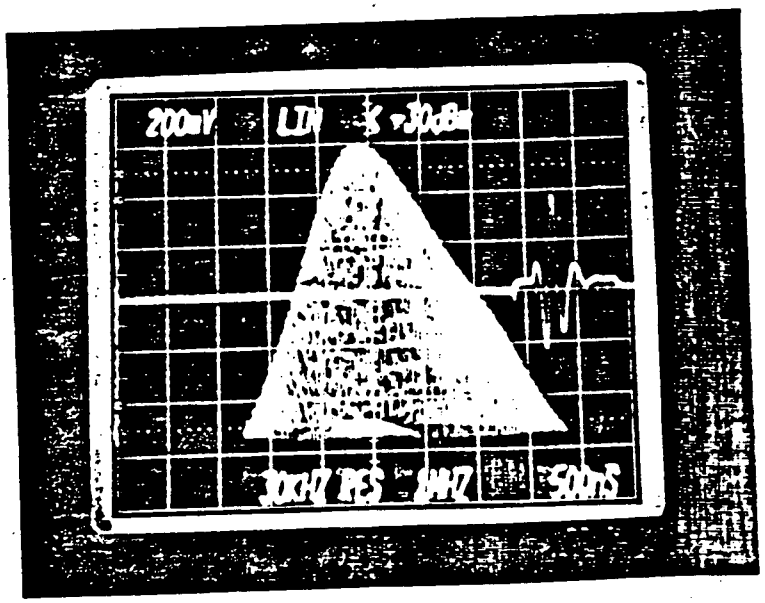
TEST INSTRUMENTATION

____ PANAMETRICS 5052(PR,G) PULSER AND GATE #_____

✓ PANAMETRICS 5052UA OR 5030A # 4

RONIX	7704A	OSCILLOSCOPE SYSTEM
th	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 60 dB.

RECEIVER DAMPING 50 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 Greg McCabe

DATE 7/15/82

TRANSDUCER CERTIFICATION

Transducer Description

Series GAMMA S/N 61735

Frequency 5.0 MHz Size .25

Style MSWQC Connector MQ

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path N/A ☐ Spherical

Target 1.0" P/EX ☐ Cylindrical

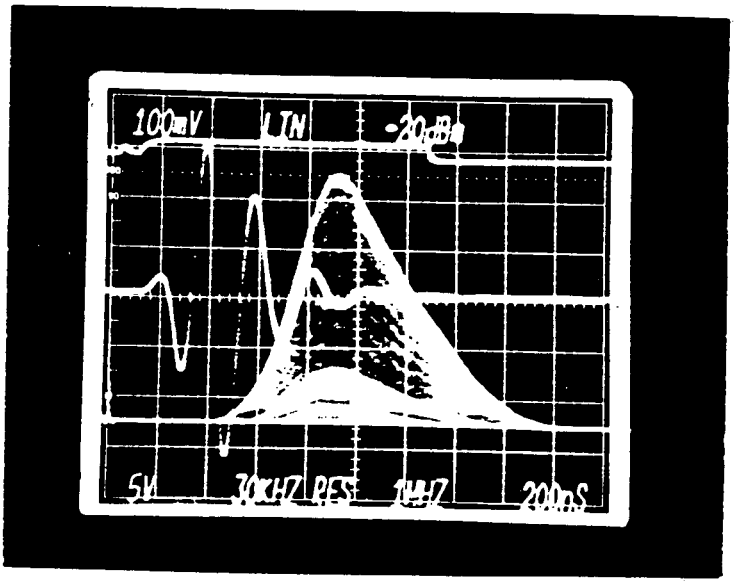
Relative Sensitivity 27 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 4.6 MHz

Inspector SCD Date 2-26-86

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 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

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX: 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. A 406 S SERIAL NO. 57433 FREQUENCY 5.0 MHz

SIZE: .50 " DIAMETER: N/A " by N/A " CABLE: RG- 58/U, LENGTH 4 ft.

ECHO FROM BACK SURFACE OF: _____ " THICK FUSED SILICA.

_____ " THICK LUCITE.

.5 " THICK POLYSTYRENE.

_____ "

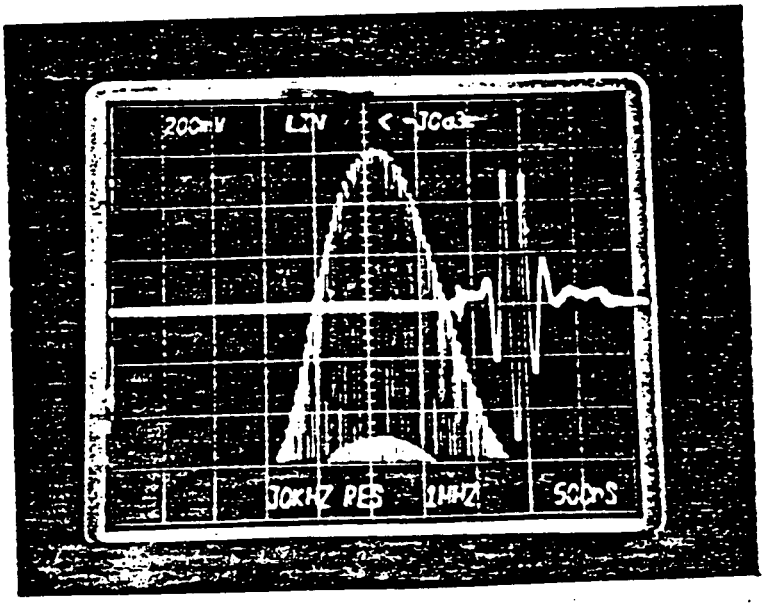
TEST INSTRUMENTATION

_____ 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 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 56 dB.

RECEIVER DAMPING 50 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 _____

DATE 5/12/82

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. 4513 S SERIAL NO. 62410 FREQUENCY 2.25 MHz

SIZE: .25 " DIAMETER: N/A " by N/A " CABLE: RG- 174/u, LENGTH 4 0 ft

ECHO FROM BACK SURFACE OF: N/A " THICK FUSED SILICA.
N/A " THICK LUCITE.
0.5 " THICK POLYSTYRENE.
N/A "

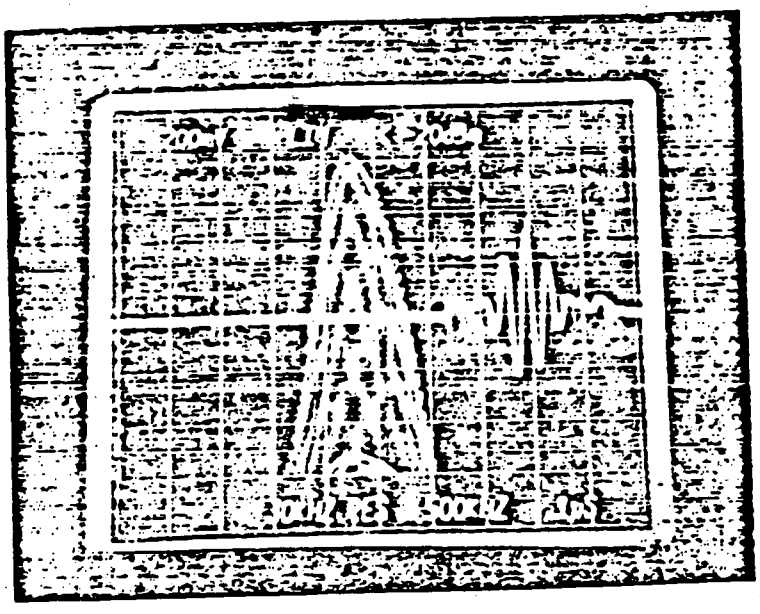
TEST INSTRUMENTATION

____ 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



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. A 516 S SERIAL NO. 62442 FREQUENCY 5.0 MHz

SIZE: .50 " DIAMETER: N/A " by N/A " CABLE: RG- 174/ , LENGTH 4 ft.

ECHO FROM BACK SURFACE OF: N/A " THICK FUSED SILICA.

N/A " THICK LUCITE.

0.5 " THICK POLYSTYRENE.

N/A "

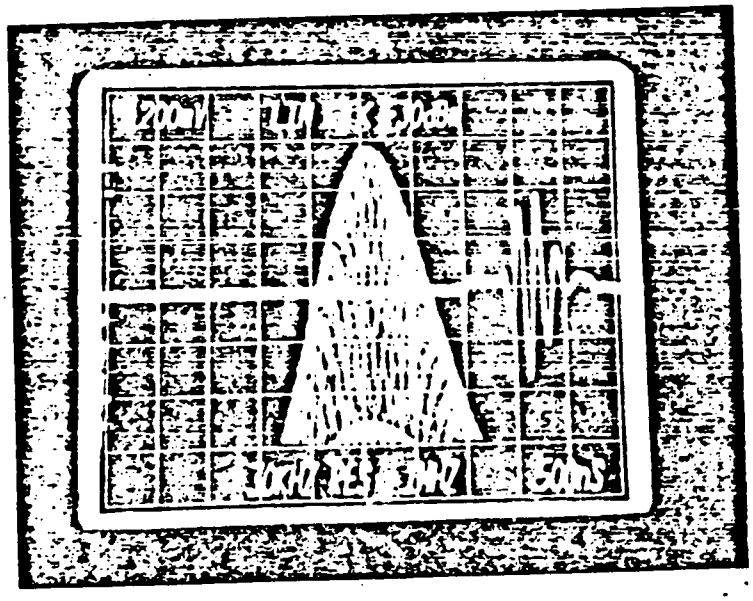
TEST INSTRUMENTATION

____ PANAMETRICS 5052(PR,G) PULSER AND GATE # ____

✓ PANAMETRICS 5052UA OR 5030A # 1

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 50 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 11/2/82

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02254 / 617 899-2719 TELEX 923406

CONTACT TRANSDUCER ANALYSIS

PART NO. A 516 S SERIAL NO. 12427 FREQUENCY 5.0 MHz

SIZE: .50 " DIAMETER: N/A " by N/A " CABLE: RG- 174/ , LENGTH 4 ft.

ECHO FROM BACK SURFACE OF: N/A " THICK FUSED SILICA.

N/A " THICK LUCITE.

0.5 " THICK POLYSTYRENE.

N/A "

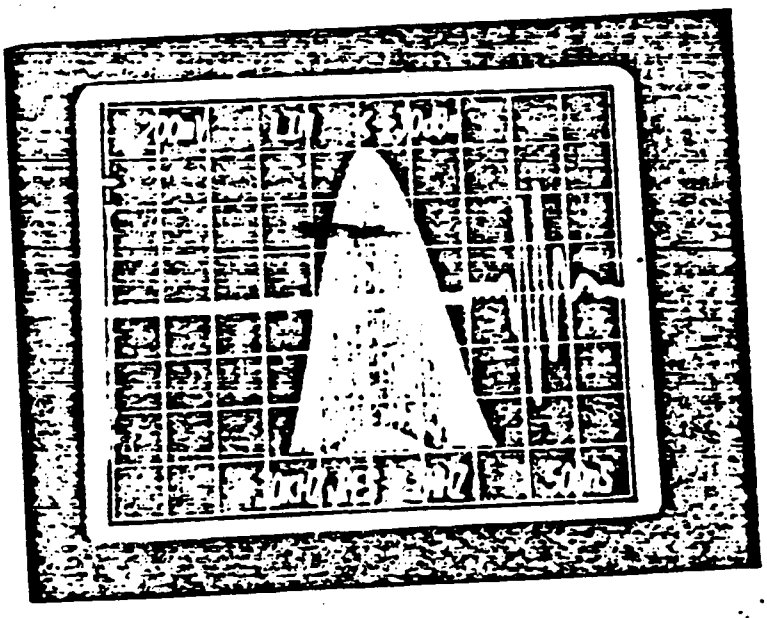
TEST INSTRUMENTATION

___ PANAMETRICS 5052(PR,G) PULSER AND GATE #_____

✓ PANAMETRICS 5052UA OR 5030A # 1

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 50 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 11/2/82

TRANSDUCER CERTIFICATION

077

Transducer Description

Series GAMMA S/N 75190

Frequency 5.0 MHz Size .375

Style MSWGC Connector MD

☒ Contact ☐ Immersion ☐ Nonfocused

Water Path 1.0A ☐ Spherical

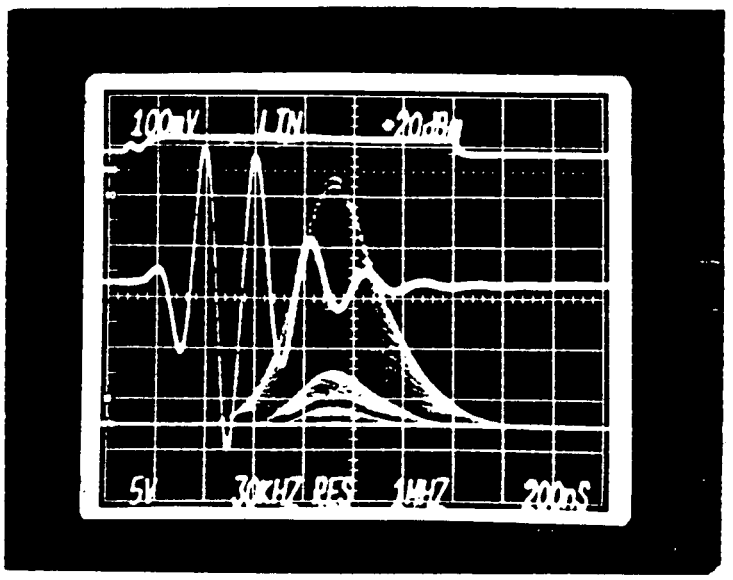
Target 1.0" PLEX ☐ Cylindrical

Relative Sensitivity 26 dB

Energy Setting 2 Impedance 50

☒ Peak or ☐ Center Frequency 4.6 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

078

Transducer Description

Series GAMMA HP S/N B07655

[redacted] ency 225 MHz Size .50

Style F Connector MD

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path N/A ☐ Spherical

Target 3.0" STEEL ☐ Cylindrical

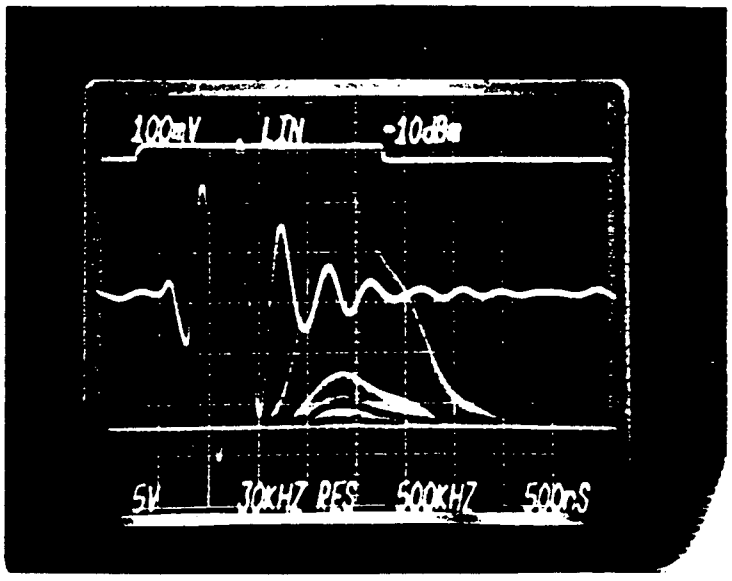
Relative Sensitivity 66 dB

Energy Setting 4 Impedance 250

☑ Peak or ☐ Center Frequency 2.35 MHz

Inspector SCD Date 4-7-86

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 [redacted]k. Dual contact transducers are tested on a flat polymer block unless otherwise [redacted]ied. Delay fingertip removable (Style DFR) transducers are tested off of the tip of the de[redacted] 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 [redacted]w the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

079

Transducer Description

Series GAMMA HP S/N C03620

Frequency 2.25 MHz Size .375

Style F Connector MD

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path 1/4 ☐ Spherical

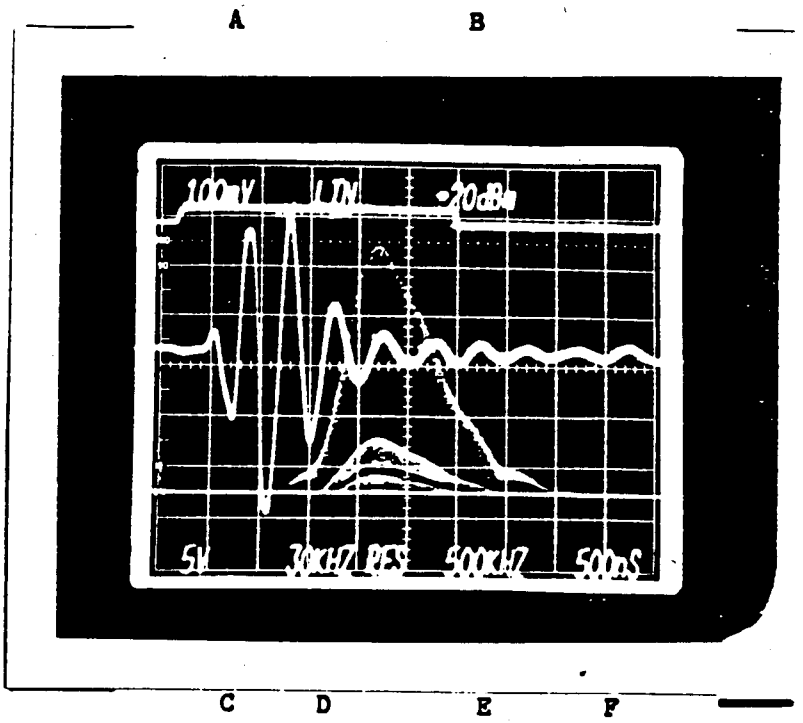
Target 3.0" Steel ☐ Cylindrical

Relative Sensitivity 62 dB

Energy Setting 4 Impedance 250

☑ Peak or ☐ Center Frequency 2.2 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

080

Transducer Description

Series GAMMA

Frequency 5.0 MHz Size .25

Serial No. C16353

☒ Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
_____ ☐ Cylindrical

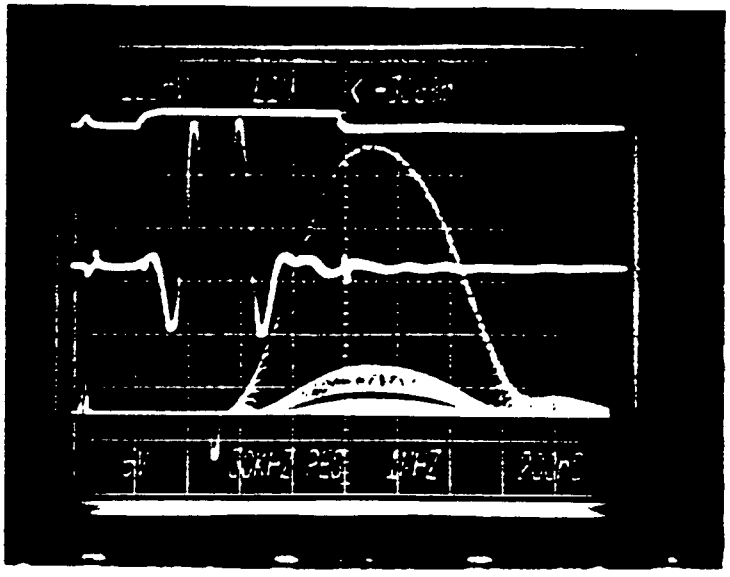
Style F Connector MD

Relative Sensitivity -53 DB

Energy Setting 2 Impedance 50Ω

Inspector MK Date 7-21-83

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 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 # 113-224-000 TRG

TRANSDUCER CERTIFICATION

081

Transducer Description

Type Gamma S/N E10460

Frequency 5.0 MHz Size .50"

Style CR Connector BNC

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path _____ ☐ Spherical

Target 3.0" S Steel ☐ Cylindrical

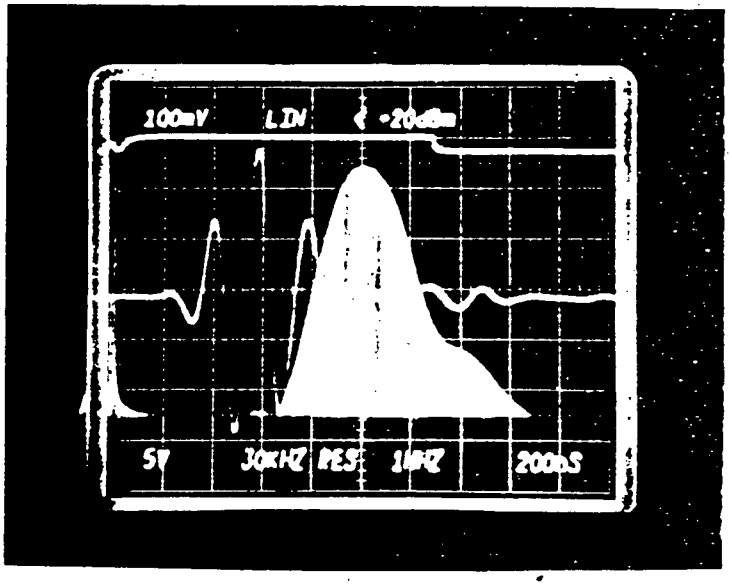
Relative Sensitivity 65 dB

Energy Setting 4 Impedance 250Ω

☑ Peak or ☐ Center Frequency 5.0 MHz

Inspector JEF Date 6-19-84

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 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 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.

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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 [illegible] the spectrum analyzer's attenuator and resolution settings respectively.

KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

Transducer Description

A B 082

Series GAMMA

Frequency 5.0 MHz Size .375

Serial No. E16315

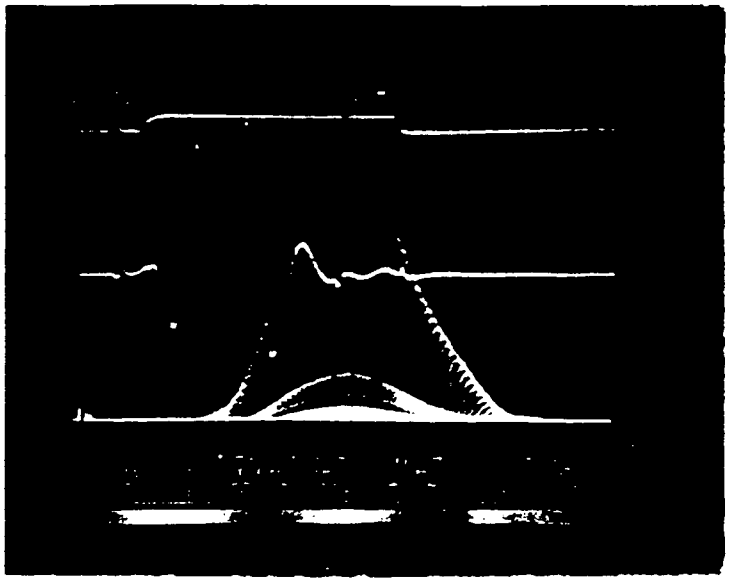
☐ Contact ☐ Immersion ☒ Nonfocused
Water Path ☐ Spherical
_____ ☐ Cylindrical

Style F Connector MD

Relative Sensitivity 58 DB

Energy Setting 2 Impedance 50Ω

Inspector MK Date 2-21-83



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.

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KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

Model 113-234-000-TRG

TRANSDUCER CERTIFICATION

083

Transducer Description

Series GAMMA S/N H09565

Frequency 2.25 MHz Size 1.0

Style CR Connector BNC

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path 1" ☐ Spherical

Target 3.0" STEEL ☐ Cylindrical

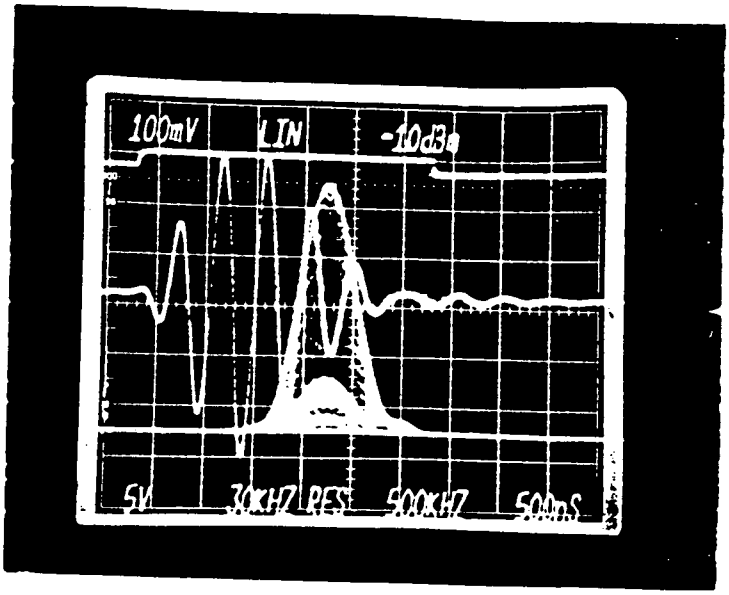
Relative Sensitivity 67 dB

Energy Setting 4 Impedance 250

☑ Peak or ☐ Center Frequency 2.25 MHz

Inspector SCD Date 2-26-86

A B



TRACE I

TRACE II

TRACE III

C D E F

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KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

084

Transducer Description

Series GAMMA S/N J03262

Frequency 2.25 MHz Size 1.0

Style SWS Connector BNC

☑ Contact ☐ Immersion ☐ Nonfocused

Water Path NA ☐ Spherical

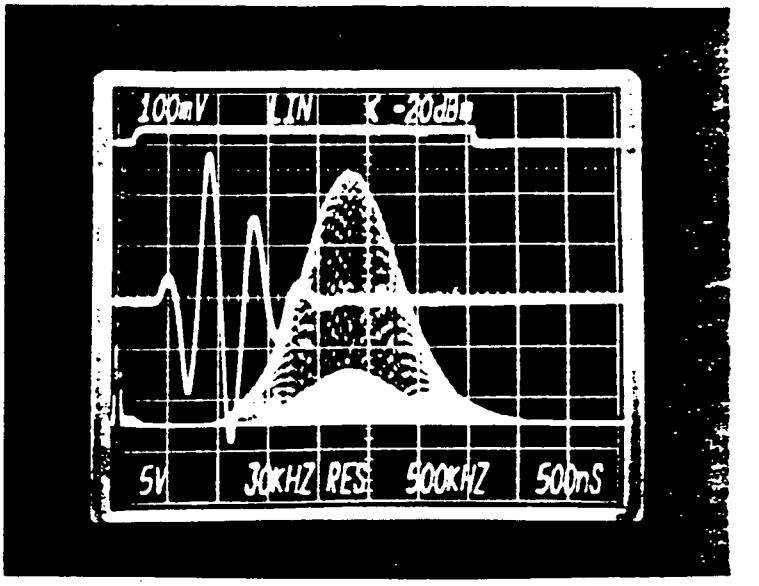
Target 1" PLEX ☐ Cylindrical

Relative Sensitivity 30 dB

Energy Setting 2 Impedance 50

☑ Peak or ☐ Center Frequency 2.3 MHz

Inspector SCD Date 10-25-84



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KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

TRANSDUCER CERTIFICATION

8085

Transducer Description

Series GAMMA HP S/N K29508

Frequency 2.25 MHz Size .25

S F Connector MD

☒ Contact ☐ Immersion ☐ Nonfocused

Water Path N/A ☐ Spherical

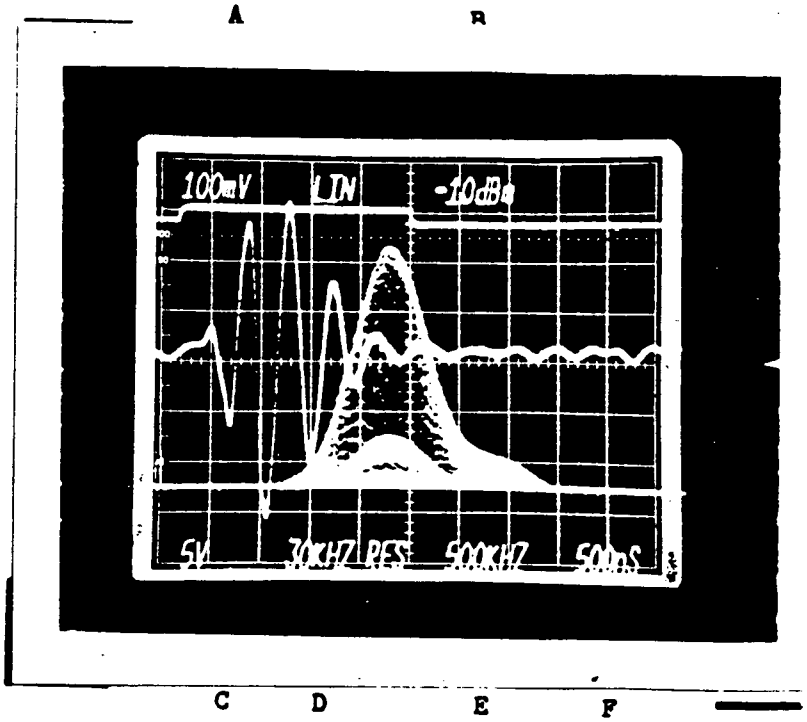
Target 3.0" STEEL ☐ Cylindrical

Relative Sensitivity 48 dB

Energy Setting 4 Impedance 250

☒ Peak or ☐ Center Frequency 2.3 MHz

Inspector SCD Date 2-26-86



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KRAUTKRAMER BRANSON
P. O. Box 350
Lewistown, PA 17044

PANAMETRICS 221 CRESCENT STREET, WALTHAM, MASSACHUSETTS 02154 / 617 899-2719 TELEX 923406

CONTACT TRANSDUCER ANALYSIS

Part No. A105s. Serial No. P05782 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 # 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.

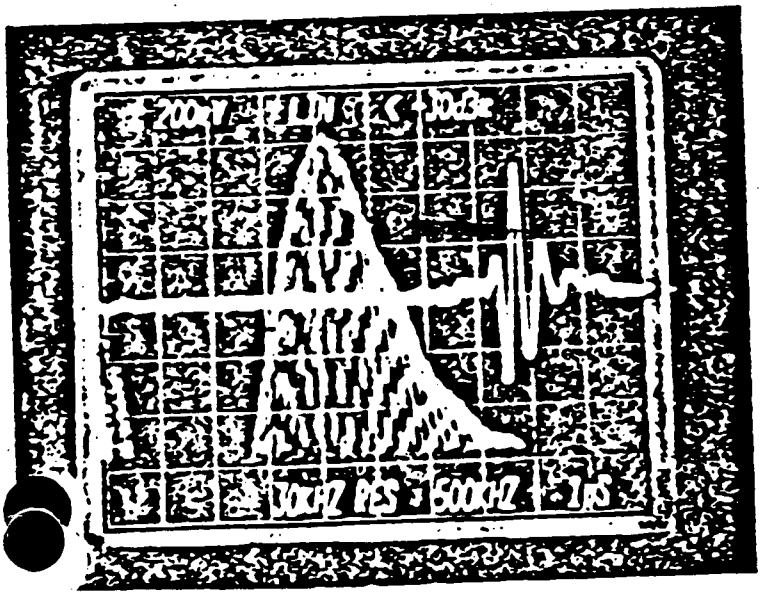
Receiver Damping 130 ohms.

Oscilloscope Settings:

1-Vertical Sensitivity/div.

2- Horizontal Sweep Rate/div.

1 3 6



5 4 2

Spectrum Analysis

3-Scale Format.

4-Horizontal Scan Width/div.

5-Resolution.

6-Input Attenuation.

Technician [signature]

Date 3/20/81

CALIBRATION BLOCKS

PLANT H. B. ROBINSON UNIT #2 1987

BLOCK IDENTIFICATION	SIZE OR SCHEDULE	MATERIAL	HEAT NO.
CPL-28	8" .755"T	SS-304 ASTM-A-312	M0176
CPL-29	8" .751T	SS-316 ASTM-A-376	4-098
CPL-31	10" .843"T	SS-304 ASTM-A-312	6-448
CPL-32	10" 1.048"	SS-304 ASTM-A-312	D61232
CPL-33	12" .373"T	SS-316 ASTM-A-312	8052221
CPL-36	14" 1.250"T	SS-304 ASTM-A-312	1762
CPL-40	32" 1.203"T	CS-ASME-SA-516GR.70	802N67160
CPL-42	.313"T	SS-304 SA-240	856455
CPL-43	.438"T	SS-304 SA-240	856455
CPL-45	3.50"T	CS-ASTM-A-508	123P118
CPL-47A	2.006"T	SS-304 SA-240	F07931
CPL-47B	14" .250"T	SS SA 312 T-304	182
CPL-49	.875"T	SS-304 SA-240	F07931
CPL-50A	3.500"T	CS-SA-533 GR.-B	D8366
CPL-54	16" 1.010"T	CSA-106-B	82565
CPL-56	26" 1.042"T	CS A-508	3G6735
CPL-RV-2	37.5"x22"x4"	CS-A-508	B-W-PC-C

FORM 45938A

CPL-28

Tubular Products Division

ALLIANCE OHIO | BELOIT FALLS, PA | MILWAUKEE WISCONSIN

MILL REPORT

CUSTOMER ORDER NO 77230-00N | DATE 2 16 76 | 211512 | 088

SOLD TO
CAPITOL PIPE & STEEL PRODUCTS INC.
PO BOX 471
BALA CYNWYD PA 19004

SHIP TO
CAPITOL PIPE & STEEL PRODUCTS, INC.
SAN ANTONIO & ORANGE STREETS
PEARLAND, TEXAS

Material was given a heat treatment consisting of heating to a min. of 1900°F for a minimum of 10 minutes and water quenched.

Both raw materials and finished products on this order have been produced in the USA.

SEAMLESS CROLOY 304 EXC. 04 MIN CARB. EF OD AW PIPE ASTM A 312-74
ASME SA 312, PRODUCT ANALYSIS PARA 8.

MAG P.O. NO.
NO OIL - PICKLE

STEEL WAS MELTED IN THE USA

B & W ORDER NO. | M/C | O D | WALL | FROM | CC | CODE NO | "P" PARTIAL "C" COMPLETE

ITEM	O.D.	WALL	LENGTH	SPECIAL MARKS	%	PCS	FOOTAGE	HYDRO TEST LBS PER SQ INCH	TESTS MADE
-A058279-202934 00035 09110000									ETCH
01	8625	718	RL 17-24					2498 5 Sec.Hold	BEND
									FLATTENING OK
									FLANGE
									EXPANSION
									FLARE
									CORROSION
									MICRO
									ULTRASONIC
									DYE PENETRANT

Tooling Specl.
0144

CAPITOL PIPE & STEEL PRODUCTS
QUALITY ASSURANCE
APPROVED
By D. Rivera
Date 3-6-78

CHEMICAL ANALYSIS

ITEM	HEAT NO	CARB	MANG	SUL	PHOS	SIL	CHROM	NI	MO	CU	CB	TI
	M0194	.053	1.75	.007	.028	.47	18.82	10.50				
	Tube Ck.	.062	1.77	.010	.025	.47	18.76	10.36				
	Tube Ck.	.064	1.75	.010	.025	.47	18.77	10.37				
	M0176	.067	1.79	.018	.023	.46	18.98	10.46				
	Tube Ck.	.058	1.82	.015	.024	.46	18.90	10.49				
	Tube Ck.	.065	1.81	.015	.024	.47	18.95	10.49				

ITEM	HEAT NO	ULTIMATE STRENGTH	YIELD POINT	% ELONG IN 2	REDUCT IN AREA	HARDNESS
	M0194	77300	37600	80		
	M0176	75100	35000	78		

Longitudinal Tensile Specimen

STRIP [X] STD RD [ ] FULL SECTION [ ]

SWORN TO AND SUBSCRIBED BEFORE ME 2-19-76

Rita J. Pyle
NOTARY PUBLIC
RITA J. PYLE, Notary Public
W. Mayfield Borough, Bvr. County, Pa.
MY COMMISSION EXPIRES
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.

eh

THE BABCOCK & WILCOX COMPANY BY Rick Price

8" 140 A.376 TP 316

Extrusion Facility

☐ ASTM A-312 ☐ ASME SA-31:
☐ ASTM A-376 ☐ ASME SA-37(
☐ CW 1401-F

Curtiss-Wright Corporation

CPL 129

60 Grider Street • Buffalo, New York 14215 DATE Aug. 23,1976

STOMER CAPITOL PIPE & STEEL PRODUCTS, INC. CUSTOMER P.O. 77631-00

RT NUMBER 8.625" OD X .812" A.W. (Sch 140) SALES ORDER NO. 2876

RT NAME PRESSURE TUBING SPECIFICATIONS TYPE 316/316H

This certificate covers the following parts:
2876-1-1
2876-1-2

	REQUIRED	MILL HEAT NO. 4-098 C-W Code 2876	MILL HEAT NO.
ELEMENT		HEAT LOT NO. 071676	HEAT LOT NO.
ARBON	0.06 - 0.08	0.065	Check 0.06
ANGANESE	2.00 MAX.	1.57	1.60
ICON	0.75 MAX.	0.40	0.41
ROMIUM	16.0 - 18.0	16.95	17.00
	11.0 - 14.0	12.00	12.10
	0.040 Max.	.0.025	0.025
ULPHUR	0.030 MAX.	0.017	0.016
OLYBDENUM	2.0 - 3.0	2.16	2.12
TEST	TRANSVERSE	PHYSICAL PROPERTIES	
NSILE, PSI	75,000 MIN.	80,500	
ELD, PSI	30,000 MIN.	37,600	
ONG, % IN 2 IN.	20 MIN.	56	
LATTENING		OK	

Tooling Spec. 5110

PARTS WERE HYDROSTATICALLY TESTED AT 2800 P.S.I. FOR A MINIMUM OF 5 SECONDS. NO DEFECTS NOTED.

Material was heated above 1950°F for 1/2 hour and rapidly cooled, by forced air.

We hereby certify the chemical analysis and physical tests reported herein.

Supervisor of Metallurgy C. C. Weart C. C. Weart

Sworn to before me this 23rd day of August 1976. Patricia Bronzino, Notary Public State of New York, Qualified in Erie County, My Commission expires March 30, 1978.

Patricia Bronzino

Tooling Specialist
0145
From 1

CFL - #31

MATERIAL CERTIFICATION

NUCLEAR 080

Extrusion Facility

Curtiss-Wright Corporation

Revised & Reissued

60 Grider Street • Buffalo, New York 14215

DATE Dec. 14,1978

CUSTOMER GUYON ALLOYS, INC.

CUSTOMER P.O. A20620N

PART NUMBER 10.750" O.D. X .844" A.W. (Sch 120)

SALES ORDER NO. 3195

PART NAME Seamless Tubing

SPECIFICATIONS Type 304 (.04 Min Carbon)

CHEMICAL COMPOSITION	REQUIRED PERCENT	Mill Heat No. 6-448 C-W Code 3195-1-1 3195-2-1 3195-1-2 3195-2-2	
ELEMENT		Heat Treat Lot 10311	
CARBON	0.04 - 0.08	0.072	
MANGANESE	2.00 Max.	1.82	
SILICON	0.75 Max.	0.61	
CHROMIUM	18.0 - 20.0	18.50	
NICKEL	8.00 - 11.00	9.33	
PHOROUS	0.040 Max.	0.024	
SULPHUR	0.030 Max.	0.023	
TEST	TRANSVERSE	MECHANICAL PROPERTIES	
Tensile PSI	75,000 Min.	84,300	
Yield PSI	30,000 Min.	41,700	
Elong. % in 2 In.	20 Min.	57	
Flattening		OK	

☒ ASTM A-312 ☒ ASME SA-312
☐ ASTM A-376 ☐ ASME SA-376
☐ CW 1401-F

ASME Code Section III Class I 1977 Edition thru Winter 1977 Addenda.

Q. A. APPROVED
BY: [signature] DATE: 12-18-7[illegible]
GUYON ALLOYS, INC.

Marking paint or ink used to apply normal marks required by specifications did not contain low melting point elements such as lead, zinc, sulphur, copper and mercury, nor chlorides or other halides in other than trace amounts.

PARTS WERE HYDROSTATICALLY TESTED AT 2353 P.S.I. FOR A MINIMUM OF 5 SECONDS. NO DEFECTS NOTED.

Parts were Ultrasonically tested to a 5% Notch in accordance with the 1977 Edition, including Addenda thru Winter 1977, of ASME Code Section III, Para. NB 2550 and were accepted.

Parts were annealed at 1950°F ± 25°F for 1/2 hour minimum at temperature and water quenched. to below 800°F in less than three minutes.

Parts were ground as a final cleaning operation.

We hereby certify to the chemical analysis, mechanical and other tests reported herein.

Supervisor of Metallurgy D. Rabenold [signature]

Sworn to before me this 25th day of October 1978. Patricia Bronzino, Notary Public, State of New York, Qualified in Erie County, My Commission expires March 30, 1980.

[signature]

DATE: JAN.13.1976 CERTIFICATE No. YYD9247 REV.

SUPPLIER: 022 --- 8292 ORAYA AND CO.,LTD

CUSTOMER: TIOGA PIPE SUPPLY INC.

MILL CERTIFICATE

TO SUMITOMO METAL INDUSTRIES, LTD
STEEL TUBE WORKS

STANDARD ASTM A312/A376 ASME SA312/SA376 GR.TP304

ARTICLE: SEAMLESS STAINLESS STEEL PIPE (HOT FINISHED)

SPECIFICATION

NOTES

62

Mill Work No.	Lot or T P No.	Size (Unit #1) O.D.	I.D.	W.T.	Length	Quantity (Unit #1) No. of pcs	Total Length	Weight kg	Order or Job No.
YYD9247		NOM10		SCH140	17F - 24F	2	40F 8"	1922	CPL-32

Heat No.	Lot or T P No.	Chemical Composition % C	Si	Mn	P	S	Cu	Ni	Cr	Mo	CO	Tensile Test #6 Yield Point	Tensile Strength	El %	Red %	Hardness	Grain Size No. of Austenite	Impact Test at	
		max						80	180			30000	70000	28					
		max						110	200			---	---	---					
D61232		L .06	.52	.75	.026	.005		9.95	18.95		.23	L RA 33570	81360	71					CORROSION TEST (GOOD (MIL.-P-1148C)

Description of Tests

Hydrostatic Test	Surface & Dimension	(Ring) Flattening	Drift Expanding or Flaring	Bending	Flange	Ring Expansion	Ring Pulling	
2800 P.S.I kg/cm² GOOD Result	GOOD	GOOD						

Surveyor To

Surveyor No.

SUMITOMO METAL INDUSTRIES, LTD
STEEL TUBE WORKS

091

CPL-33

PAGE 2 OF 3

TEST REPORT

THE YOUNGSTOWN WELDING & ENGINEERING CO.

3700 OAKWOOD AVE.
YOUNGSTOWN, OHIO 44509

CUSTOMER: KEYSTONE TUBULAR SERVICE CORP.
Butler, Pennsylvania

CUSTOMER ORDER NO.: 80-8-0503
YW&E CONTRACT NO.: 1635
DATE: 7-18-77

09

MATERIAL: Types 304, 304L, 316, 316L Stainless Steel

SPECIFICATION: ASTM A-312, ASME SA-312

YW&E ITEM	HEAT NO.	QUANTITY	DESCRIPTION	
5 (Keystone #7)	48290	4 pcs	12" IPS Schedule 10 x 20 ft. R/L - T304	TOTAL: 79' 2"
6 (Keystone #8)	413311	2 pcs	12" IPS Schedule 40s x 20 ft. R/L - T304L	TOTAL: 37'11"
7 (Keystone #9)	412440 8052221	1 pc 1 pc	12" IPS Schedule 40s x 20 ft. R/L - T316 12.750" x .375" WALL	TOTAL: 40' 5"

CHEMICAL COMPOSITION

YW&E ITEM	C	Mn	P	S	Si	Cr	Ni	Zn	Mo	Fe	Nb+Co	Ti	Pb	Cu
5	.065	1.74	.016	.025	.62	18.40	8.70		.18		.12			.23
	.017	1.77	.033	.020	.44	19.50	10.48							
7														
412440	.048	1.74	.031	.020	.45	17.17	13.29		2.28					
8052221	.058	1.87	.035	.009	.60	17.43	13.00		2.17					

8052221

PHYSICAL TESTS

YW&E ITEM	TENSILE STRENGTH, PSI	YIELD PSI	% ELONG.	% R. of A.	HARDNESS	BEND TEST	FLATT. TEST	PSI HYDRO	X-RAY
5	87,300	44,300	58.0		B87		OK	400	
6	81,000	37,000	59.0		B82.5		OK	750	
7									
412440	86,000	40,000	49.0		BHN162		OK	900	
8052221	85,310	50,840	51.0		B83		"	"	

Sworn and subscribed to before me

this _____ day of _____, 19_____

_____

Q. C. REVIEWED 7/26/7 PJL

We hereby certify that the above items have been inspected and tested in accordance with and have met all the requirements of the specifications shown, including data furnished us by the producing mill.

THE YOUNGSTOWN WELDING & ENGINEERING CO.

BY _____

THIS REPORT NOTARIZED ONLY WHEN REQUIRED

/k

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 Electric

P.O. NO 544 x4 2314 77X

T/S NO 5-2814

FOOTAGE _____ DATE 11/19/76

FLATTENING OK

OTHER TESTS _____

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: _____

SUBSCRIBED AND SWORN TO BEFORE ME THIS 30TH DAY OF MARCH 19 76

_____

093

094

SANDMEYER STEEL COMPANY

STAINLESS STEEL PLATES AND PLATE PRODUCTS

10001 SANDMEYER LANE • PHILADELPHIA, PA. 19116 • 215-464-7100

CERTIFIED MATERIAL TEST REPORT

CGE/31 .753T

CERTIFICATE OF TEST

WE CERTIFY THAT THE CHEMICAL ANALYSIS AND MECHANICAL TEST RESULTS APPEARING IN THIS CERTIFICATE ARE CORRECT AND TRUE TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

SANDMEYER STEEL COMPANY

QUALITY CONTROL DEPARTMENT

MILL ORDER NO. 1978-24A

CPL/42&43 DATE March 5, 1980

MATERIAL SPECIFICATION

ASME SA-240 UNAP

DESCRIPTION

HEAT NO.	QTY.	SIZE	GRADE	PLATE NUMBERS
856455	1	1" x 96" x 424"	304	3535

CHEMISTRY

HEAT NO.	C	MN	P	S	Si	Ni	CR	MO	CU	CO	N
856455	.040	1.74	.031	.004	.52	8.80	18.25	.15	.08	.18	.070

PHYSICALS

Heat No.	Yield	Tensile	Elong.	Red%	Hardness	Hardenability	Bend
856455	55,500	88,000	61		BHN/149		

REMARKS

SOLUTION ANNEALED AT 1900°F, MINIMUM, THEN WATER QUENCHED.

MATERIAL MELTED BY CRUCIBLE STEEL. RECORDS OF ALL TESTS ARE MAINTAINED AT SANDMEYER STEEL COMPANY.

Taylor Forge Division
GULF + WESTERN INDUSTRIAL PRODUCTS COMPANY
P.O. Box 4m
Chicago, Illinois 60690

CPL-40

CUSTOMER Grinnell Industrial Piping

SPECIFICATION NO. ASME Cl. 1 Gr. KCF-7 Section III

HEAT TREATMENT Class 2, 1971; Incl Summer 1971 Addenda

JF P-514

CUSTOMER ORDER NO. KER 7992-H

OUR ORDER NO. 191138

PACKING LIST NO. 295736-37

Heat Treatment per TF Spec. HT-191138-601 Dtd 1-24-74

Raw Material: ASTM SA516 Gr. 70

DESCRIPTION TF Item	CHARGE NO.	HEAT SYMBOL	MILL HEAT NO.	PHYSICAL PROPERTIES: YIELD STRENGTH PSI	TENSILE STRENGTH PSI	ELONG. IN 2" %	RED OF AREA %	CHEMICAL ANALYSIS: C	Mn	P	S	Si	Mo	Cr	Ni	Cu	V
1 - 32"OD x 1.033"Min Wall Pipe Hydrostatic Test: 1975 PSI Total: 20'0 1/2"	607	EPSS	802N67150	47600	74000	26.0		.20	.98	.005	.020	.26					
Parent Lgth- No. X-Ray No. No. 191138-601 1		EPSS	"	Pipe Qualification Tests Per ASME SA155 Transverse Weld Test	73310			Check Analysis - Parent Metal .25	1.05	.010	.018	.24					
Code JG ESB C2-2				Two side bend tests of weld found to be satisfactory per SA-155													
				REPORT OF WELDING MATERIALS TF Tests Per NB 2431.1													
		Flux No.	Bare Electrodes - Spec. SFA 5.17 EM-14 & F72 EM-14 (Wire)														
		1031	C62836		78290	28.0		.22	1.10	.014	.018	.32	.01	.01	.02	.03	.01
		3031	036012		71300	37.9		.14	1.32	.018	.021	.44	.01	.04	.01	.08	.01
			Covered Electrode - Spec. SFA 5.5 - Class E-9018-D1 (Red)														
			2N5B-20		77880	31.8		.05	1.43	.010	.015	.47	.31	.03	.01	.03	.04

REMARKS: Part covered by this report has been hydrostatic tested to the pressure indicated and was found to be satisfactory. Longitudinal weld seam has been 100% radiographed per TF Spec. 41.122 Dtd 7-18-74 (Single Film) and was found to be satisfactory.

T. W.

RECEIVED FEB 17 1975 OCD

DOCUMENTATION REVIEWED
Date 1/17/75
By

SUBSCRIBED AND SWORN TO BEFORE ME
THIS 4th DAY OF Oct. 19 74

NOTARY PUBLIC

QUALITY CONTROL

095

ASER:

WESTINGHOUSE ELEC. CORP.
NLS DIVISION
BOX 355.
PITTSBURGH, PA.
15230

LUKENS STEEL COMPANY

COATESVILLE, PA. 19320

TEST CERTIFICATE

DATE: 10/02/79 FILE NO 858/4 9

CONSIGNEE:
TOOLING SPECIALITIES
P.O. BOX 251
ATTN. TOM SHEARER
LATROBE, PA. 15650

MILL ORDER NO.	CUSTOMER P.O.	
60125 1	544-HXK-401347 -XN	92079 DG

HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATION(S).

SA-533 CL. 1 TYPE-B ASME CODE SECT. II & III SUB NB 1974 EDITION N-1160 8/4/81 CPL/44

ID TEST HOMOGENEITY TEST

CHEMICAL ANALYSIS

T NO.	C	MN	P	S	CU	SI	NI	CR	MO	V	TI	AL	B		Basic Proc.
D8366	.18	1.29	.010	.005		.22	.65		.56				VIP Steel		Elec.

PHYSICAL PROPERTIES

T NO.	SLAB NO.	YIELD PSI X100	TENSILE PSI X100	% ELONG IN 2	% R.A.	BHN	IMPACTS				DESCRIPTION
D8366	5	705 724	900 905	22 21							10- 10 X 14 X 40

PLATES AND TESTS HEATED TO 1625 F./1675 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED, RE-HEATED TO 1625 F./1675 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED, THEN TEMPERED 1220 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED.

PLATES STRESS RELIEVED BY HEATING TO 1025 F./1075 F., HELD 1/2 HR. PER INCH MIN. AND AIR COOLED.

REFERENCE TEMPERATURE WAS NOT PERFORMED BY LUKENS'.

INT-33
096

I hereby certify the above information is correct.

SUPERVISOR TESTING F. Fr. [illegible]

097

Welding Products Division

TELEDYNE McKAY

P.O. Box 1507 • 850 Grantley Road • York, Pa. 17405

CPL/44

Williams and Co.
901 Penna Ave.
Pgh, PA
15233

4-12-78
Your Order No. 80160-99-R-01-07
Marked For

Our Order No R 0640-1
Date Shipped 4-12-78

Material Description and Specifications

Item	Wire Ø in	Size, in	Classification	Coating
1	180	3/16	E308-16	DCT
2				
3				
4				
5				
6				

Item	Heat No	Lot No.	Specification
1	376153	2186893	AWS A5.4-69 ASME SFA 5.4
2			
3			
4			
5			
6			

Typical Deposit Chemistry — TYPICAL WELD METAL

Item	%C	% Mn	% P	% S	% Si	% Cr	% Ni	% Mo	% V	% Cb	Ferrite	Cu
1	.06	1.00	.022	.015	.75	20.5	9.7	.15			8.5FN	.10
2												
3												
4												
5												
6												

Typical Deposit Mechanical Properties — TYPICAL WELD METAL

Item	Tensile, psi	Yield, psi	% Elong
1	86,000	65,000	45
2			
3			
4			
5			
6			

For Notarization

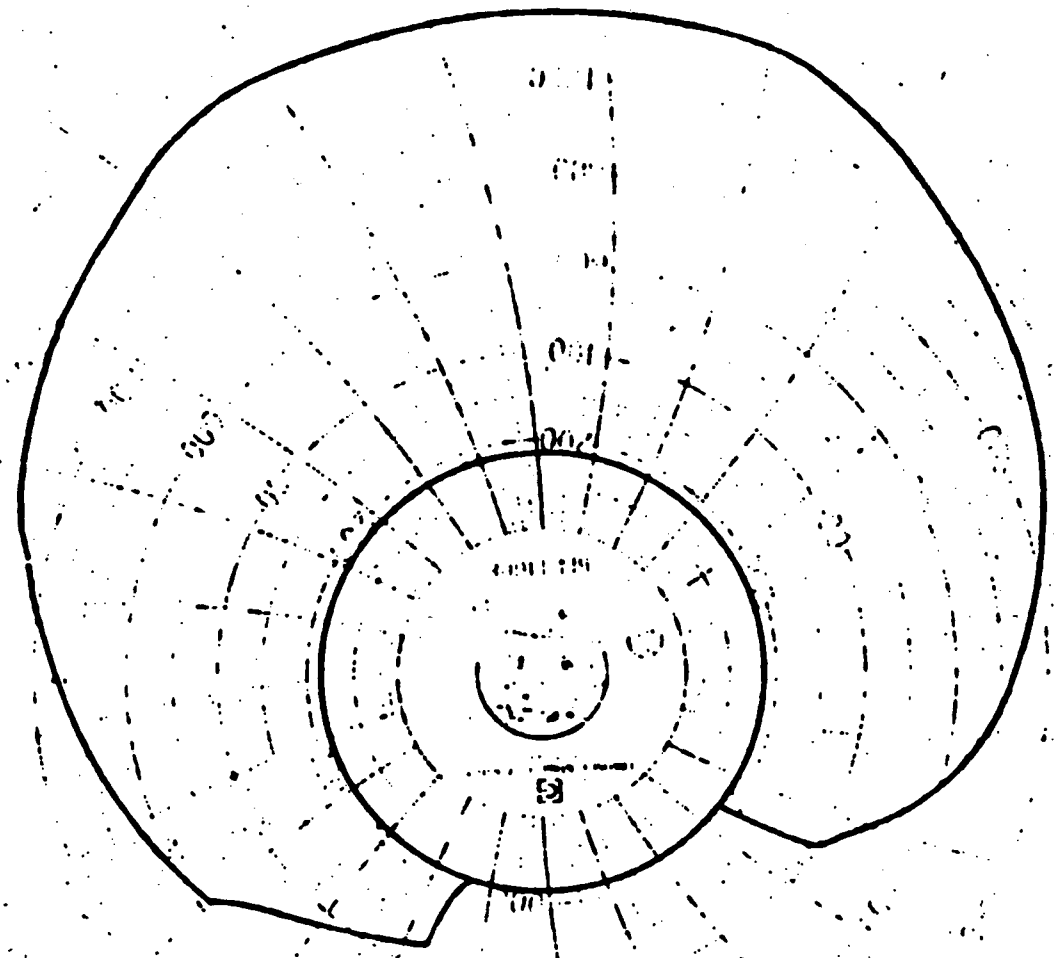
8tl

We hereby certify that the above product has been classified in accordance with the listed specifications and conforms to all applicable requirements thereof

TELEDYNE McKAY

346

APR 12 '78



CPL/44

DO
SYY-MXK-41066C-WN
BLUE M
2-22-80
W.C. 21895

ARCOS CORPORATION

1500 SOUTH 50th STREET PHILADELPHIA PA 19143

Date July 28, 1977

CERTIFICATION OF TESTS

Customer's Order No. 70401 01 R 0107
Arcos S. O. No. R 70844
Shipping Date July 28/77

Williams & Company Inc.
901 Pennsylvania Avenue
Pittsburgh, Pa. 15233

CPL/45

Size 3/16" Grade STAINLEND 309
Lot No./Alloy No. 7F38B Mix 3
Lbs./No. Pieces 1,080 #

	SPECIFICATION	CALCULATED TEST RESULTS
	ASME SFA 5.4 AWS A5.4-69 Class E309-16 Addenda 1-75	
Carbon		.07
Manganese		1.8
Silicon		.4
Sulphur		.02
Phosphorus		.02
Nickel		23.5
Chromium		13.0
Molybdenum		<.5
Titanium		
Columbium		
Tungsten		
Aluminum		
Copper		<.5
Iron		
Tantalum		
Cobalt		
Tin		
Vanadium		
Zinc		
Zirconium		
Ferrite	Schaeffler	6.0%
X-Ray		

	As Welded	Heat Treated	As Welded	Heat Treated
Charpys:				

	Yield	Tensile	Elong.	Yield	Tensile	Elong.	Red. of Area
Tensiles:							
As Welded:					80,000	30%	
Heat Treat:							
Hardness:							
P							

We hereby certify that the above material has been tested in accordance with the listed specification and is in conformance with all requirements.

Sworn to and subscribed before me this 29th day July 1977

Mildred Pellegrino
MILDRED PELLEGRINO

Q.A. APPROVED AUG 2 77

ARCOS CORPORATION

352

CPL/45 100

BETHLEHEM STEEL CORPORATION

Bethlehem ..... PLANT—METALLURGICAL DEPARTMENT

REPORT OF TESTS

Report No. 679

MAKER Babcock and Wilcox Company — 5/24 19 66

Purchaser's Requisition	Date	Description	B. S. C. Order
63309A	12/1/65	Upper Shell - Item #1 "A"	3109-309
610-0110-5110		Drawing: 76823C Rev.3	

REQUIREMENTS

C	Mn	P	S	Si	Ni	Cr	V	Mo	Specs.
/.27	.50/.80	/.025	/.025	.15/.35	.50/.90			.55/.70	ASME SA336 Code Case 1332-1 and Section III, Article 3 Mod

	Y.S.(.2%)	Tensile	Elong.	Red.	V-Notch Impacts
Tangential	50000	80000	20.0		@ +10°F. 30 ft.lbs.avg.

CHEMICAL COMPOSITION

Heat No.	C	Mn	P	S	Si	Ni	Cr	V	Mo	Co.
123P118 (Ledle)	.20	.64	.006	.009	.23	.69	.38		.59	Under .01
Electric Furnace - Vacuum Degassed										
Check analyses										Co.
T012	.19	.64	.010	.009	.23	.69	.42		.60	Under .01
T0A6	.20	.65	.010	.007	.23	.68	.40		.60	Under .01

TEST RESULTS

V-N Impacts (Per BP251)

Identification No.	Specimen size	Y.S.(.2%)	Tensile	Elong.	Red.		Ft. Lbs.	Shear Fract.	Lateral Expansi
118VA1 T012	.505x2"	67750	89000	25.5	72.9				
" T0A6	"	66000	87000	25.5	74.1	T06	188	100%	.085
						T06	143	58%	.082
Grain Size 90% 6-8 10% 5 (T012 & T06 Samples)						T06	124	55%	.075
						T012	142	64%	.082
Test specimens were stress relieved at 1125°F.,						T012	123	55%	.078
for 30 hours - then Furnace Cooled to below 600°F.						T012	147	72%	.083

Heat Treatment of Forging (Per BP 250)
1550°F., held for 11 hours - Water Quenched.
1220°F., held for 22 hours - Air Cooled

Magnetic Particle Inspection was performed in accordance with procedure set forth in BP252, Rev. 1 and ASME Sect. III, Article 6 - Paragraph N626.5. No reportable indications were found.

I CERTIFY THE ABOVE RESULTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

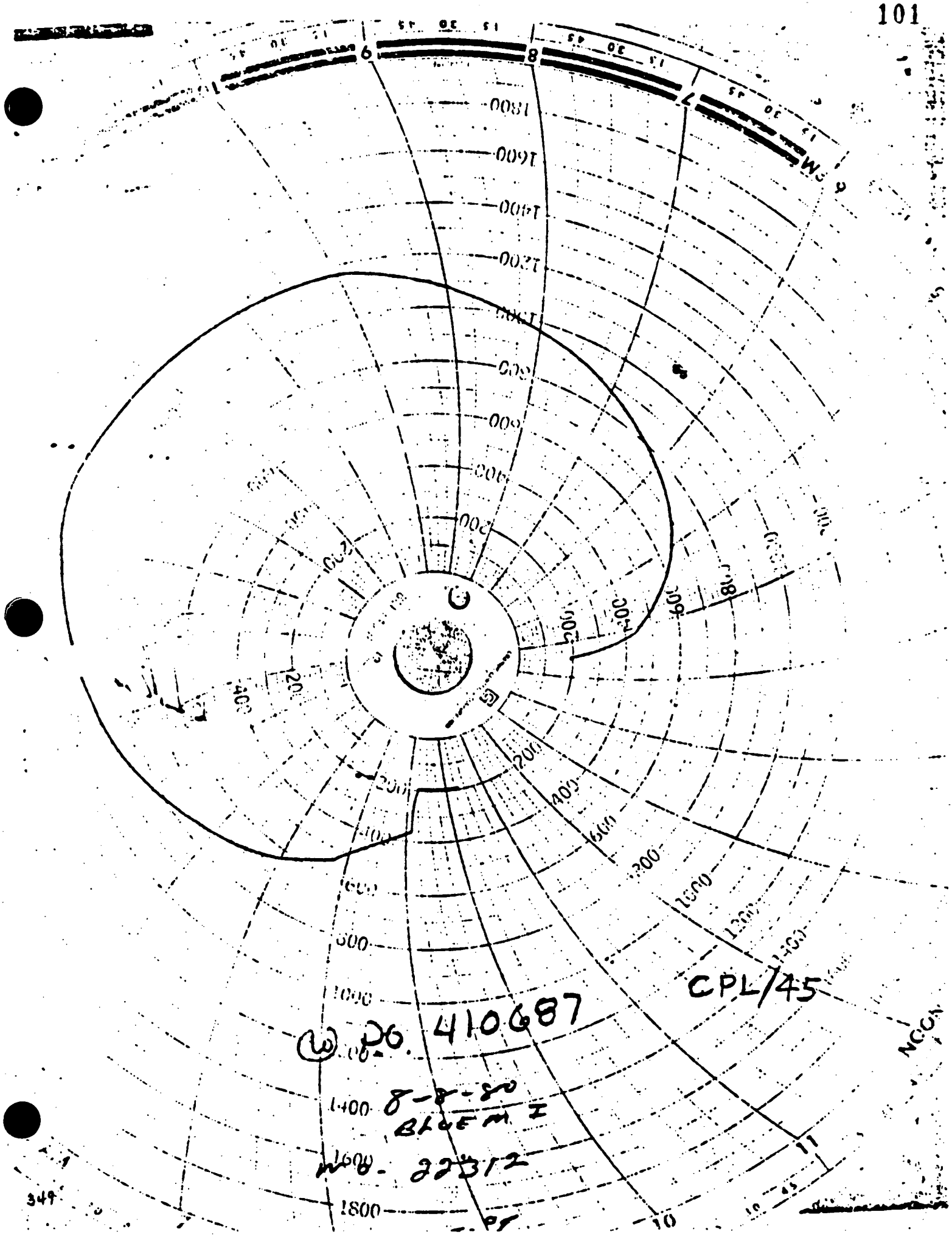
REMARKS: Final inspected by customer's representative.

E.A.Reid
CHIEF METALLURGIST

By G.W.Arnold

Waiting on deep weld information

345


CPL/45
410687
8-8-80
BLOEM I
22312

NSD PA1010

Nuclear Service Division

QUALITY RELEASE

CPL/47

102

QR- 7679 REV. O

IE ORDER	PART NAME	DRAWING & REV.
S. -485638	CALIBRATION BLOCK	SK. CPL-136 REVO

PAR NO.	CHG. NOTICE NO.	P.O. ITEM NO.	PROJ./S.O. NO.	QTY. ON ORDER	QTY. RELEASED
—	—	001	CPSN-9330	1	1

SUPPLIER	E. SPEC. & REV.	ORDER
TOOLING SPECIALISTS INC.	—	COMPLETE ☒ YES ☐ NO

SERIAL OR IDENTIFICATION NOS.

HT. NO. D9366-5

The equipment shown hereon is released by W Quality Assurance. Shipment may be made subject to authorization by W Purchasing. In the Audit Checklist below, an A indicates acceptability, a C indicates a contingency and a W indicates that W QA has waived the auditing or witnessing of the attribute. All non-applicable items are lined out.

AUDIT CHECKLIST

☒	Material Certifications	☐	~~Non-Operating Electrical Tests~~
☒	Heat Treat Records	☐	~~Operating Electrical Test~~
☐	~~RT Film and Records~~	☐	~~Pressure Test~~
☐	~~MT Records~~	☐	~~Seat Tightness Test~~
☐	~~al~~	☐	~~Performance Test~~
☒	Dimensional	☒	Cleanliness
☒	UT Records	☒	Packaging
☒	Personnel Qualification: ~~Welding~~, NDT	☐	~~Code Form~~
☒	CERTIFICATE OF COMPLIANCE	☐	~~Painting~~
☐		☐	

DEVIATION NOTICES AND REMARKS (ALL DEVIATIONS HAVE BEEN APPROVED BY THE RESPONSIBLE WESTINGHOUSE ENGINEER UNLESS A SPECIFIC EXCEPTION IS STATED.)

RELEASED FROM TST TO H.B ROBINSON SEG PLANT

CAROLINA POWER + LIGHT CO. HARTSVILLE, S. C.

THE SUPPLIER CERTIFIES that for the equipment and material released, all contractual requirements have been met. Approved deviations, if any, are listed above.

SUPPLIER SIGNATURE: Thomas D. Shearer — DATE: 2/22/84

TITLE

ment shown hereon is released by (W) Quality Assurance. Shipment may be made subject to authorization by (W) Purchasing.

pment supplier has certified that the equipment above meets all requirements of the purchase order, nd specifications. Westinghouse has reviewed evidence supporting this release and except as above has detected no deviations from such requirements. This release does not waive any rights Westinghouse may have under the purchase order including Westinghouse's right to reject the equipment upon discovery of any such deviations after arrival at destination.

Charles E. Humphries 2-22-84

Westinghouse Quality Assurance Representative

QUALITY ASSURANCE

TOOLING SPECIALISTS, INC.

CERTIFICATION LETTER OF COMPLIANCE

DATE: 2/21/84

CPL/47 103

TO: Westinghouse Electric Corp.
Nuclear Energy Systems
P. O. Box 355
Pittsburgh, PA 15230

Tooling Specialists, Inc. certifies that all purchase order requirements have been met for the following equipment and material. Any deviations from the order requirements have had Westinghouse NSD approval prior to shipment. Deviation Notice (D/N) numbers applicable are _____ (N/A if not applicable).

Westinghouse Purchase Order Number 544-MXF-485638-XN
P.O. Change Notice number (s) _____
Procurement Advisory Release (PAR) number (s) _____

Quantity	P.O. Item #	DWG. or Sketch and Rev. #	Base Mat'l & Heat #	Weld Joining Mat'l & Heat #	Cladding Mat and Heat #
					308 05074
1	001	CPL-136 REV 0	D-8366-5		309 09260

Weld joining procedure used _____ (include revision #)

Cladding procedure used NES-1001-H (include revision #)

Heat treating procedure used W-NES See Below (include revision #)

One copy each of the following documents as required by the purchase order are attached to this letter. All (including letter) are included with this shipment.

- X Westinghouse Quality Release
- X Base material mill test report (s)
- _____ Weld operator certification
- X Heat treat chart (s)
- X Inspection Report
- _____ Weld joining material mill test report
- X Cladding material mill test report
- X Other Letter of Compliance

One additional copy each of this letter and the above documents are hereby forwarded to the Westinghouse Buyer.

All records supporting this certification letter are available at Tooling Specialists.

Heat Treat block to 1150°F ± 25°F Rate of heating above 600°F not to exceed 100°F per hour. Hold for two (2) hours, furnace cool to 600°F at rate of cooling not to exceed 100°F per hour.

(signature)

Tooling Specialists, Inc.

NSID

SUPPLIER SURVEILLANCE REPORT

P.O. NO. 544-455638	CN. NO. REG 001 10A
VENDOR TOOLING SPECIALISTS INC.	SURVEILLANCE DATE 2-22-94
INSPECTED PO IT 001 CALIBRATION BLOCK	SEG PLANT

INSPECTIONS PERFORMED:

CPL/47

	ACTUAL	VERIFICATION OR OVERVIEW
1. NDE (LIST)	☐	☐
A. UT	☐	☑
B.	☐	☐
C.	☐	☐
2. DIMENSIONAL	☑	☑
3. VISUAL	☑	☐
OTHER (LIST) MATERIAL CERTS	☐	☑
A. HEAT TREAT	☐	☑
B. C OF C	☐	☑
C. WELD WIRE	☐	☑

QUALITY RELEASE(S) ISSUED: (LIST OR NO.)

1. 7679 REV. 0
2.
3.

DEVIATIONS OR NONCONFORMANCES:

1. NONE
2.
3.

REMARKS: ATTACHED TO PO ENCL IS COPY OF PO ORIGINAL BLOCK SHIPED FROM TSI TO TECHNICAL SEG PLANT

QUALITY ENGINEER/SURVEILLANCE INSPECTOR [signature] DATE [illegible]

MATERIAL TEST REPORT
Welding Products Division
PITTSBURGH WAREHOUSE

TELEDYNE McKAY
P.O. Box 1509 • 850 Grantley Road • York, Pa. 17405

CP4/47 105

SHAMROCK WELDING SUPPLY CO.

Your Order No. OD 7194
Marked For

Our Order No 2630
Date Shipped 5-20-82

Material Description and Specifications

Item	Weight, lb.	Size, in	Classification	Coating
1	60	3/16	E309-16	AC-DC
2				
3				
4				
5				
6				

Item	Heat No.	Lot No.	Specification
1	09260	2326392	AWS A5.478; ASME SFA5.4
2			
3			
4			
5			
6			

Typical Chemistry

Item	%C	%Mn	%P	%S	%Si	%Cr	%Ni	%Mo	%Cu	%V	%Cb+Ta	Ferrite
1	.07	1.0	.022	.015	.35	23.4	12.5	.15	.11			7FN
2												
3												
4												
5												
6												

Typical Mechanical Properties

Item	Tensile, psi	Yield, psi	% Elong.	Charpy V-Notch Impact, ft.lb.
1	88,000	67000	37	
2				
3				
4				
5				
6				

For Notarization

We hereby certify that the above product has been classified in accordance with the listed specifications and conforms to all applicable requirements thereof.

TELEDYNE McKAY

Douglas Shields

CERTIFICATE OF ANALYSIS

ALLOY RODS DIVISION
CHEMETRON CORPORATION
[illegible]LSON AVENUE HANOVER, PA 17331 717/637-8911

4-7-81

106

Customer Order No. .....

..... Order No. .....

Shipped .....

This material conforms to Specification

AWS A5.4-Add 1-75

.....

E 308-16

Type .....

Test No. X-321

Shamrock Welding Supply
P. O. Box 266
Glenshaw, PA 15116

ATTENTION: Gary Powell

CPL/47

Trade Name or Trademark:	Arcaloy 308 AC DC
Diameter Size:	3/16"
Lot Number:	1F927M02
Heat Number:	05074
Carbon	.069
Manganese	1.76
Chromium	20.01
Nickel	9.44
Silicon	.43
Columbium + Tantalum	.02
	.01
Molybdenum	.15
Tungsten	
Copper	.10
Titanium	.03
Phosphorus	.019
Sulphur	.014
Vanadium	.05
Cobalt	.17
Ferrite	6FN Delong 6% Schaeffler

The chemistry and ferrite values (if applicable) are from actual determinations made from weld pads deposited with this lot of electrodes.

The undersigned certifies that this report is correct and that no significant change has been made in any of the elements described in the qualification approval.

ALLOY RODS DIVISION
CHEMETRON CORPORATION

BY D. A. Smith

D. A. Smith

State of

County of ss

Subscribed and sworn to before me

this day of 19

SEAL

Notary Public

My commission expires:

PURCHASER:
WESTINGHOUSE ELEC. CORP.
NES DIVISION
BOX 355
PITTSBURGH, PA.
15230

LUKENS STEEL COMPANY
COATESVILLE, PA.
TEST CERTIFICATE

DATE: 10/02/79 FILE NO. 85[illegible]-79

CONSIGNED:
TOOLING SPECIAL[illegible]S
P.O. BOX 251
ATTN. TOM SHERRER
LATROBE, PA. 15650

MILL ORDER NO.	CUSTOMER P.O.	
68125 1	544-MXK-401347 -XN	92879 16

MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATION(S)

SA-533 CL. 1 TYPE-B ASME CODE SECT. II & III SUB NB 1974 EDITION N-1160 8/4/81

BEND TEST HOMOGENEITY TEST

CHEMICAL ANALYSIS

MELT NO.	C	MN	P	S	CU	SI	NI	CR	MO	V	TI	AL	S	Basic-Prac.
D8366	.18	1.29	.010	.005		.22	.65		.56				VIP Steel	Elec.

PHYSICAL PROPERTIES

MELT NO.	SLAB NO.	YIELD PSI X1000	TENSILE PSI X1000	% ELONG. IN 2"	% R.A.	BHN	IMPACTS			DESCRIPTION
D8366	5	705 724	900 905	22 21						10- 10 X 14 X 40

CPL/47
CPL/44
CPL/50 A

PLATES AND TESTS HEATED TO 1625 F./1675 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED, RE-HEATED TO 1625 F./1675 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED, THEN TEMPERED 1220 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED.

PLATES STRESS RELIEVED BY HEATING TO 1025 F./1075 F., HELD 1/2 HR. PER INCH MIN. AND AIR COOLED.

REFERENCE TEMPERATURE WAS NOT PERFORMED BY LUKENS.

I hereby certify the above information is correct.

SUPERVISOR TESTING

104

MIDNIGHT
BN 14008
CPH41
CPL-RV
HT D8665
Calibration Block
25238
485638

P.O. Box 1975
Baltimore, Maryla[illegible]03
Telephone: (301) 2[illegible]2000

EASTERN STAINLE[illegible] STEEL COMPANY

DIVISION OF Eastmet CORPORATION

CERTIFIED MATERIAL TEST REPORT

CPL-47A

suits and the st[illegible]nts of performed opera[illegible]orded here are in compli[illegible]the ordered material specifi[illegible]ons and the applicable material requirements.

J. S. Foley
QUALITY CONTROL DEPARTMENT

MANIFEST NO. 4242

DATE 10/01/80

SHIP TO: 2"T x 6"W x 10.75"L

MAIL TO: WILLIAMS AND COMPANY, INC.
901 PENNSYLVANIA AVENUE
PITTSBURGH, PA 15233
JOANNE MUHL

10/01/80

SALES ORDER: S05282	CUSTOMER'S P.O. NO.: 7142399S0306		M- 1	S-	O-

ITEM	HEAT NO.	M.P.O.	TYPE	FINISH	GAUGE	WIDTH / O.D.	LENGTH / I.D.	PIECES	GROSS	NET	
01	F07931	98579	304	NO. 1	2.0000	72.0000	240.0000				WATER QUENCHED

MATERIAL SPECIFICATIONS AND REQUIREMENTS

SPECS 06-200 ASTM A240-79 SA240-W79 PDS 10710BA AMS-5513C A262-79 PRA E
MATERIAL FREE FROM MERCURY CONTAMINATION MINIMUM SOLUTION ANNEALING TEMPERATURE 1900 F

HEAT NO.	TYPE	C %	MN %	P %	S %	SI %	CR %	NI %	CU %	TI %	CB+TA %	MO %	CO %	N %		
F07931	304	.048	1.57	.030	.005	.54	18.05	10.12	.43			.33	.20	.029		

WITH SHIPMENT COPY

CORROSION TEST CODES

CODE	DESCRIPTION
A.	ASTM A262-PRACTICE 'A' (OXALIC)
B.	ASTM A262-PRACTICE 'B' (STREICHER)
C.	ASTM A262-PRACTICE 'C' (HUEY)
D.	ASTM A262-PRACTICE 'E' (CUCUS04)
E.	QQS - 766 (CUS04)

		TRANSVERSE OR FRONT						LONGITUDINAL OR BACK								CORROSION TEST		MAG.PERM.	SOLUTION ANNEAL		
HEAT NO.	M.P.O.	TENSILE PSI	YIELD PSI	ELONG %	HARDNESS	BEND	R/A %	TENSILE PSI	YIELD PSI	ELONG %	HARDNESS	BEND	R/A %	GR	C	CODE	RESULT	TEST	TIME MINUTES	TEMP. °F	
F07931	98579	81800	33200	61	HB132	G	68							4		A D	SAT	-1.02			

Q.A. APPROVED

109

14 S/10 11-307

TEST REPORT

CPL-47B

SWEPCO TUBE CORPORATION

Swepco 110

ONE CLIFTON BOULEVARD • CLIFTON, NEW JERSEY 07015

Ce ol Pipe & Steel Prod.
P.O. Box 36431
Houston, Texas

SHIP TO

DATE: Dec. 19, 1974

(201) 778-3000
TWX NO. 710-989-7098
TELEX NO. 133321

EPCO B NO. K-3050-4

TRIBUTOR . NO. 67231-30

STOMER . NO.

SE METAL HEAT NO. 182

LD WIRE HEAT NO.

PRODUCT DESCRIPTION:
SWEPCO FF GRADE PIPE, T-304, TO ASME SA-312, ANNEALED & PICKLED

SWEPCO PC. NOS. 11 Pcs.

SIZE 14" O.D. X .250" W X 20' R/L

CUST. SERIAL NO.

CHEMICAL ANALYSIS

	C	Mn	P	S	Si	Ni	Cr.	Mo	Co	Cu	
DLE ANALYSIS	.072	1.80	.024	.012	.62	8.40	18.40		.23		
ECK ANALYSIS BASE METAL	.051	1.68	.0289	.0115	.47	8.70	18.15				
ECK SIS BASE METAL WELD DEPOSIT	.058	1.62	.0286	.0118	.45	8.60	18.20				
WEL ANALYSIS											
WELD WIRE ANALYSIS											

MECHANICAL TESTS

	HARD	YIELD P.S.I.	TENSILE P.S.I.	% ELONG. IN 2"	ROOT BEND	FACE BEND	REV. BEND	FLAT	GRAI SIZE
SE METAL	B/N 146	38000	86000	60.0					
E WELD - TRANSVERSE		40200	83300	63.0				OK	
E WELD - TRANSVERSE		39900	81500	54.0				OK	
E WELD - TRANSVERSE		37400	80300	62.0				OK	
PE WELD - TRANSVERSE									

EXAMINATIONS

	RADIOGRAPHY	ULTRASONIC	LIQUID PEN.	HYDRO	P.S.I.
PLICABLE SPECS.				ASME SA-312	535
RESULTS					O/L

ERTIFICATION/REMARKS

Tooling Spec.
R9-1245A
H96792
0351

HEAT TREATMENT
SOLUTION ANNEAL @ 2000 °F
FOR 30 MINUTES MIN.
~~AIR COOL - WATER QUENCH~~
FORCED AIR COOL

Sworn to and subscribed to before me
is 17th day of Jan. 1975

NOTARY PUBLIC OF NEW JERSEY
My Commission Expires March 28, 1978

I hereby certify these tests are correct to the best of my knowledge and belief.

SWEPCO TUBE CORPORATION
August Olsen

P.O. Box 1975
Baltimore, Maryla[illegible]
Telephone: (301) [illegible]

EASTERN STAINLE[illegible] STEEL COMPANY

DIVISION OF Eastmet CORPORATION

CERTIFIED MATERIAL TEST REPORT

CPL-49

suits and the s[illegible]nts of performed opera[illegible]corded here are in compli[illegible] the ordered material specifi[illegible]ions and the applicable material requirements.

J. S. Foley
QUALITY CONTROL DEPARTMENT

MANIFEST NO.

DATE 10/01/80

SHIP TO:

2"T x 6"W x 10.75"L

MAIL TO: WILLIAMS AND COMPANY, INC.
901 PENNSYLVANIA AVENUE
PITTSBURGH, PA 15233
JOANNE MUHL

10/01/80

SALES ORDER: S05282	CUSTOMER'S P.O. NO.: 714239S0306		M- 1	S-	O-

ITEM	HEAT NO.	M.P.O.	TYPE	FINISH	GAUGE	WIDTH / O.D.	LENGTH / I.D.	PIECES	GROSS	NET	
01	F07931	98579	304	NO. 1	2.0000	72.0000	240.0000				WATER QUENCHED

MATERIAL SPECIFICATIONS AND REQUIREMENTS

SPECS 06-200 ASTM A240-79 SA240-W79 PDS 10710BA AMS-5513C A262-79 PRA E
MATERIAL FREE FROM MERCURY CONTAMINATION MINIMUM SOLUTION ANNEALING TEMPERATURE 1900 F

HEAT NO.	TYPE	C %	MN %	P %	S %	SI %	CR %	NI %	CU %	TI %	CB+TA %	MO %	CO %	N %		
F07931	304	.048	1.57	.030	.005	.54	18.05	10.12	.43			.33	.20	.029		

WITH SHIPMENT COPY

CORROSION TEST CODES

CODE	DESCRIPTION
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C.	ASTM A262-PRACTICE 'C' (HUEY)
D.	ASTM A262-PRACTICE 'E' (CUCUS04)
E.	QQS - 766 (CUS04)

		TRANSVERSE OR FRONT						LONGITUDINAL OR BACK								CORROSION TEST		MAG.PERM.	SOLUTION ANNEAL	
HEAT NO.	M.P.O.	TENSILE PSI	YIELD PSI	ELONG %	HARDNESS	BEND	R/A %	TENSILE PSI	YIELD PSI	ELONG %	HARDNESS	BEND	R/A %	GR	C	CODE	RESULT	TEST	TIME MINUTES	TEMP. °F
F07931	98579	81800	33200	61	HB132	G	68							4		A D	SAT	-1.02		

Q. A. APPROVED

FORM NO. 2088
2/84

RECEIVING INSPECTION REPORT (RIR)

CPL [illegible]PA

RIR NO: 84 07
PO NO: HBR 9277
01000000

CLASS: ☑ Q ☐ FPQ ☐ RWQ ☐ FSQ ☐ RSQ ☐ OTS
SUPPLIER: WEST.
CRIT:
RESPONSE: CONST/WHSE T. TATE

I.

ITEM	QTY.	DESCRIPTION	ID NO.	STATISTICALLY SAMPLED	DOCUMENTATION	ID & MARKINGS	GAS BLANKETS	DESICCANT	PHYSICAL DAMAGE	CLEANLINESS	WORKMANSHIP	LUBRICANTS	COATING & PRESERVATIVES	DIMENSIONS	WELD PREPARATION	ELECTRICAL INSULATION	COVERS & SEALS	
1	1	CALIB. BLOCK UT, SA533 GRB CL1	CPL-50		*	✓			✓	✓				*				

(✓) SATISFACTORY (•) SEE REMARKS

REMARKS: AS BUILT DRG. NOT FURNISHED AS REQUIRED BY PURCHASE REQ.

INSPECTED BY: [signature] DATE: 6-03-84
OTHER INSPECTION BY: DATE: TYPE OF INSPECTION:

II.

CORRECTIVE ACTION:
( ) SCRAP
( ) USE AS NON-SAFETY RELATED
( ) RETURN TO VENDOR FOR ( ) REPLACEMENT ( ) *REPAIR ( ) REWORK
( ) OTHER

( ) REWORK AT PLANT
( ) *REPAIR AT PLANT
( ) *USE AS IS
(✓) CONDITIONAL RELEASE

* USE AS IS OR REPAIR REQUIRES engineering evaluation

JUSTIFICATION: Allow use of cal Block for "Information Only" Ultrasonic Inspection. Block will be returned to the warehouse after info only Inspections are complete.

COMPLETED BY: HBeane 6/3/84 DATE RECOMMENDED BY: HBeane 6/3/84 DATE CONCURRED BY: DHBaw by HBeane per tel 6/3/84 DATE

III. ISSUED CR # 0168 6-03-84 dlbld

RIR COMPLETED BY: DATE: RIR ACCEPTED: DATE: 6-11-84

CPL/50A

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CAROLINA POWER & LIGHT COMPANY

MATERIAL RECEIVED REPORT

SHEARON HARRIS PROJECT

SHIPPER: Westinghouse Electric Corp. (SGME)

SHIPPED FROM: Raleigh NC.

RECEIVED BY: Thurman Pate

M.R.R. BY: Thurman Pate

P. O. No.	M.R.R. No.
HER-9277	
Date Received	**Date Prepared**
6-3-84	6-3-84
Carrier	**Weight**
AAP. Couriers	
Pro. No.	**Car No.**
—	—
COLLECT / PREPAID $	

ITEM	QUANTITY	UNIT	DESCRIPTION	STORED
1	1	EA.	STANDARD - CALIBRATION FOR ULTRASONIC INSPECTION. 2 J13 F	
			TO BE USED ON NEW STEAM GENERATOR UPPER ASSEMBLY	
			CIRCUMFERENTIAL WELD, MATERIAL TO MEET ASME	
			SA-533 LATEST EDITION. STANDARD MUST MEET ASME	
			SECTION XI 1977 EDITION, SUMMER 78 ADDENDA.	
			AS BUILT DRAWING TO BE FURNISHED WITH STANDARD	
2	1	EA	CERTIFIED MILL TEST REPORTS ASSOCIATED WITH	P/O File
			ITEM 1.	

PURCHASE REQUISITION

CAROLINA POWER & LIGHT COMPANY
NUCLEAR PLANT CONSTRUCTION DEPARTMENT
HBR

PAGE 1 OF 2
1/50A

REQUISITION NUMBER	REQ. DATE	DATE MAT'L REQUIRED	PROMISED DEL.	SHIP VIA	F.O.B.	TERMS	PURCHASE ORDER NUMBER	C/O
HBR-9277	5/23/84	6/8/84						

REQUESTED BY	SUGGESTED SOURCES OR REMARKS
H.P. Beane	Westinghouse Electric Corp P.O. Box 10386, Raleigh N.C.

VENDOR

☐ CONFIRMING TELEPHONE ORDER BY _____
TO: _____ ON _____
☐ ORIGINAL NOTIFICATION

USED FOR	COST CODE	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
QA/QC Inspection "O-List" TR6320.00	HBR 5/23/84 RS2001220732 P20 A6560 TE1000000 CN2 1750	1	Standard, Calibration for Ultrasonic inspection. To be used on newsteam generator upper assembly circumferential weld. Material to meet ASME SA 533 latest edition, STANDARD MUST meet ASME SECTION XI 1977 Edition, Summer 78 addenda. As built drawing to be furnished with standard.	1	ea		

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QUALITY ASSURANCE				DISCIPLINE ENG.	APPROVAL	BUYER CODE
INSPECTION ☑ REQUIRED	DOCUMENTATION ☑ REQUIRED	SUPPLIER APPROVAL ☑ REQUIRED	APPROVAL		BY:	

PURCHASE [redacted]ISITION
CONTINUA [redacted]HEET

CAROLINA POWER [redacted] LIGHT COMPANY
NUCLEAR PLANT CONS[redacted]N DEPARTMENT

PA[redacted] 2 OF 2

CPL/[redacted]A

REQUISITION NUMBER
HBR 9377

PURCHASE ORDER NUMBER	C/O

USED FOR	COST CODE	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
		2	Certified Mill Test Reports	1	ea		
			associated with Item 1				
			Notify HBBeasie on Delivery				
			X-327				

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Requisition Number: HBR-9277
Date:

QA REQUIREMENTS CHECK LIST CPL/50A, 116

Equipment or services on this order are important to nuclear safety and must be manufactured or performed in accordance with the CP&L approved quality assurance program.

(X) 2. CP&L shall have the right of access to supplier facilities and Q.A. records for source inspection and Q.A. audit.

(X) 3. The supplier shall incorporate appropriate quality assurance program requirements in subtier procurement documents.

( ) 4. The items will be stored in a clean, dry warehouse with the temperature maintained between 40°F - 140°F without humidity controls. Supplier shall package the items to prevent deterioration during storage. Supplies shall specify a shelf life, if applicable.

(X) 5. Nonconformances to Purchase Order requirements or CP&L approved documents and which consist of one or more of the following shall be submitted to CP&L for approval of the recommended disposition:

1) Technical or material requirement is violated.

2) Supplier documents approved by CP&L are violated.

3) Nonconformances cannot be corrected by continuation of the original manufacturing process or by rework.

4) The item does not conform to the original requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired.

These submittals shall include Supplier's recommended disposition (e.g., "use-as-is" or "repair") and technical justification.

(X) 6. This contract is subject to the provisions of 10CFR21. CP&L shall be promptly notified of all deviations from technical requirements to this document and of any reports made to the USNRC pursuant to 10CFR21.

(X) 7. The following Q.A. documentation, as a minimum, shall be submitted:

PO Item No.	Documentation
	Certified mill test reports associated with standard.

(X) 8. Q.A. Documentation must be delivered by the same time the material is delivered. This documentation will be treated the same as the material for payment purposes. This documentation shall be legible and suitable for microfilming.

PICK-UP AGENT: P.C.

JOB NO.: AF 29634

DATE:

ORIGIN AIRPORT CODE:

DEST. AIRPORT CODE:

PICK UP

FROM SHIPPER: Tooling Specialists, Inc.

PICK-UP ADDRESS: [illegible]

ROOM NO.:

CITY: Latrobe

STATE (COUNTRY): PA

ZIP: 15650

MISC. (ATTN): Joann Keck

DECLARED VALUE: $ 720.00

P.O. #25468

DELIVERY

TO (CONSIGNEE): Carolina Power & Light Company

DELIVERY ADDRESS: Hwy 70 - Tranor

ROOM NO.:

CITY: Tranor

STATE (COUNTRY): John Campbell

ZIP:

MISC. (ATTN): Phone: 803-383-6524 Ext. 120

CONSIGNEE PHONE NO.:

NO. PIECES	DESCRIPTION OF CONTENTS	WEIGHT	COMMERCIAL VALUE
	DOCUMENTS OF NO COMMERCIAL VALUE		X
1	Wooden Box - Machined Steel	1lbs	
	6 1/2 x 7 3/4 x 22		
TOTAL PIECES: 1	THE SHIPPER CERTIFIES THAT THE NATURE OF GOODS AND CONTENTS IS TRUE AND CORRECT AND BEARS FULL RESPONSIBILITY FOR THIS DECLARATION.	TOTAL WEIGHT: 1lbs	TOTAL VALUE

SHIPPER'S SIGNATURE: X

SPECIAL HANDLING REMARKS:

DELIVERY AGENT:

DATE: 6-2

TIME: 0905 A.M. / P.M.

RECEIVED IN GOOD ORDER EXCEPT AS NOTED:

REMARKS:

RECEIVED BY: X

DATE:

TIME: A.M. / P.M.

AIR COURIERS INTERNATIONAL

TOLL FREE TELEPHONE NUMBERS

DOMESTIC SHIPMENTS: 1-800-528-6070 (PHOENIX 954-4600)

INTERNATIONAL SHIPM: 1-800-528-1904

AIR TRANSPORTATION

AIRLINE 1: 1

E.T.D.:

FLIGHT NO.:

DATE:

AIR WAYBILL NO.:

FROM:

TO:

AIRLINE 2: 2

E.T.D.:

FLIGHT NO.:

DATE:

AIR WAYBILL NO.:

FROM:

TO:

PLEASE BILL ☐ SHIPPER ☐ CONSIGNEE FOR DUT[illegible]

AIR COURIERS INTERNATIONAL

P.O. BOX 32069
PHOENIX, AZ 85064

BILL OF LAD[illegible]

34501[illegible]

SHIPMENTS ARE INSURED AGAINST LOSS [illegible] DIRECT CARRIER DURING AIR/SURFACE TRANSPORT. SEE WAYBILL FOR APPLICABLE TERMS AND [illegible] INTERNATIONAL UPON TERMS AND CONDITIONS [illegible] THE REVERSE SIDE.

SEE REVERSE SIDE FOR APPLICABLE TERMS AND [illegible]

TELEX 669401 AIR COURS IATA AGENT K[illegible]

THROUGH BILL OF LAD[illegible]

CUSTOM AGE[illegible]

CPL/50A

118

Phone: (412) 539-2534

DATE June 1 19__

P.O. NO. 54-4[illegible]

W.O. NO. 25466

Tooling Specialists, Inc.

P.O. BOX 828
LATROBE, PA. 15650

TO Westinghouse Electric Corporation
Nuclear Energy Systems
P.O. Box 355
Pittsburgh, PA 15230

SHIP TO Carolina Power & Light Company
H.B. Robinson Nuclear Project
off S.C. Highway 151 & 23
Hartsville, SC 29550
Attn: John Campbell 803-383-4524
Attn: ~~Warren Farmer~~ Ext. 130
(Air Couriers)

NO. PIECES	DESCRIPTION
1	Calibration Block HBR-9277
	CPL - 50
	Ht. D3366
	T = 3.5
	Sketch CPL - 139 Rev. 1
	Order Complete

RECEIVED THE ABOVE _____

RECEIVING CLERK

SD PA1010

CPL/50A

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Nuclear Service Division

QUALITY RELEASE

QR- 7634 REV. O

PURCHASE ORDER	PART NAME			DRAWING & REV.	
44-485653.	CAL. BLOCK.			SKETCH CPL-139 REV 1	
AR NO.	CHG. NOTICE NO.	P.O. ITEM NO.	PROJ./S.O. NO.	QTY. ON ORDER	QTY. RELEASED
-	REQ001	03.	CPLN-9330	001	001
SUPPLIER		E. SPEC. & REV.		ORDER	
TOOLING SPECIALISTS INC.				COMPLETE ☒ YES ☐ NO	

SERIAL OR IDENTIFICATION NOS.

HEAT NO. D8366 - SA533

The equipment shown hereon is released by W Quality Assurance. Shipment may be made subject to authorization by W Purchasing. In the Audit Checklist below, A indicates acceptability, a C indicates a contingency and a W indicates that W QA has waived the auditing or witnessing of the attribute. All non-applicable items are lined out.

AUDIT CHECKLIST

☐	Material Certifications	☐	~~Non-Operating Electrical Tests~~
☐	~~Heat Treat Records~~	☐	~~Operating Electrical Test~~
☐	~~Mfg Records~~	☐	~~Pressure Test~~
☐	~~RT/MT Records~~	☐	~~Seat Tightness Test~~
☐	Visual	☐	~~Performance Test~~
☐	Dimensional	☒	Cleanliness
☐	~~UT Records~~	☑	Packaging
☐	~~Personnel Qualification: Welding, NDT~~	☐	~~Code Form~~
☐	CERETIFICATE OF COMPLIANCE	☐	~~Painting~~
☐		☒	STAMPING

DEVIATION NOTICES AND REMARKS (ALL DEVIATIONS HAVE BEEN APPROVED BY THE RESPONSIBLE WESTINGHOUSE ENGINEER UNLESS A SPECIFIC EXCEPTION IS STATED.)

MATERIAL RELEASED ON Q.R. 7636 REV.O

SUPPLIER CERTIFIES that for the equipment and material ed, all contractual requirements have been met. Approved ations, if any, are listed above.

SUPPLIER SIGNATURE: Paul M. Prettiman DATE: 6-2-84

TITLE: Q.C. Manager

The equipment shown hereon is released by Quality Assurance. Shipment may be made subject to authorization by Purchasing.

The equipment supplier has certified that the equipment above meets all requirements of the purchase order, drawings and specifications. Westinghouse has reviewed evidence supporting this release and except as specified above has detected no deviations from such requirements. This release does not waive any rights Westinghouse may have under the purchase order including Westinghouse's right to reject the equipment upon discovery of any such deviations after arrival at destination.

Charles E. Dunzinger 6-2-84

Westinghouse Quality Assurance Representative

CPL/50A

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TOOLING SPECIALISTS, INC.
CERTIFICATION LETTER OF COMPLIANCE

TO: Westinghouse Electric Corporation
Nuclear Energy System
P.O. Box 355
Pittsburgh, PA 15230

DATE: June 1, 1984

Tooling Specialists, Inc. certifies that all purchase order requirements have been met for the following equipment and material. Any deviations from the order requirements have had Westinghouse NSD approval prior to shipment. Deviation Notice (D/N) numbers applicable are _____ (N/A if not applicable).

Westinghouse Purchase Order Number 54-485653
P.O. Change Notice number (s) C/N 1
Procurement Advisory Release (PAR) number (s) _____

Quantity	P.O. Item #	DWG. or Sketch and Rev. #	Base Mat'l & Heat #	Weld Joining Mat'l & Heat #	Cladding Mat' and Heat #
1	003	CPL - 139 Rev. 1	D8366		

Welding procedure used _____ (include revision #)

Cladding procedure used _____ (include revision #)

Heat treating procedure used _____ (include revision #)

One copy each of the following documents as required by the purchase order are attached to this letter. All (including letter) are included with this shipment.

- ✓ Westinghouse Quality Release
- ✓ Base material mill test report (s)
- _____ Weld operator certification
- _____ Heat treat chart (s)
- ✓ Inspection Report
- _____ Weld joining material mill test report
- _____ Cladding material mill test report
- ✓ Other Letter of Compliance

One additional copy each of this letter and the above documents are hereby forwarded to the Westinghouse Buyer.

All records supporting this certification letter are available at Tooling Specialists.

Thomas D Shaw
(signature)

Tooling Specialists, Inc.

DPA1010

Nuclear Service Division

QUALITY RELEASE

CPL/50A
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QR- 7634 REV. O

ORDER	PART NAME		DRAWING & REV.	
4-1-[illegible]53.	CAL. BLOCK.		SKETCH CPL-134 12W1	
R NO.	CHG. NOTICE NO.	P.O. ITEM NO.	PROJ./S.O. NO.	QTY. ON ORDER	QTY. RELEASED
-	REV 001	03.	CPLN-9330	001	001
PPLIER		E. SPEC. & REV.	ORDER	
TOOLING SPECIALISTS INC.		-	COMPLETE ☒ YES ☐ NO	

RIAL OR IDENTIFICATION NOS.

HEAT NO. D8366 - SA533

e equipment shown hereon is released by W Quality Assurance. Shipment may be made subject to authorization by W Purchasing. In the Audit Checklist below, A indicates acceptability, a C indicates a contingency and a W indicates that W QA has waived the auditing or witnessing of the attribute. All non-applicable ns are lined out.

AUDIT CHECKLIST

Material Certifications		☐	Non-Operating Electrical Tests
Heat Treat Records		☐	Operating Electrical Test
RT Film and Records		☐	Pressure Test
[illegible]cords		☐	Seat Tightness Test
Visual		☐	Performance Test
Dimensional		☒	Cleanliness
UT Records		☒	Packaging
Personnel Qualification: Welding, NDT		☐	Code Form
CERTIFICATE OF COMPLIANCE		☐	Painting
		☒	A STAMPING

VIATION NOTICES AND REMARKS (ALL DEVIATIONS HAVE BEEN APPROVED BY THE RESPONSIBLE WESTINGHOUSE ENGINEER UNLESS A SPECIFIC EXCEPTION IS STATED.)

MATERIAL RELEASED ON QR 7636 REV. 0

THE SUPPLIER CERTIFIES that for the equipment and material released, all contractual requirements have been met. Approved [illegible]tions, if any, are listed above.

SUPPLIER SIGNATURE [illegible] DATE 6-2-84

TITLE

e [illegible], shown hereon is released by Quality Assurance. Shipment may be made subject to authorization by Purchasing.

The equipment supplier has certified that the equipment above meets all requirements of the purchase order, drawings and specifications. Westinghouse has reviewed evidence supporting this release and except as pecified above has detected no deviations from such requirements. This release does not waive any rights Westinghouse may have under the purchase order including Westinghouse's right to reject the equipment upon iscovery of any such deviations after arrival at destination.

[illegible] 1-7-84

Westinghouse Quality Assurance Representative

CPL/50A

ISPECTION REPORT

1 of 1

TOOLING SPECIALISTS, INC.
Latrobe, Pa. 15650
Phone: (412) 539-2534

Dwg. # SK-Itik #CPL-139 | Revision 1 | Item —
P.O. # C/N 485653 | Work Order # 25468

W. N. E. S

122

RT DESCRIPTION:
1 Calibration Block, SA533 Grade B Class 1 Heat # D8366

IF OUT OF TOLERANCE, PLACE X IN BOX TO RIGHT OF DIMENSION.

RAWING DIMENSIONS	Part No. CPL50	X	Part No.	X	Part No.	X	Part No.	X	Part No.	X	Part No.	X
T = 3.5"	3.504"											
6"	6.00"											
2"	2.00"											
3"	3.00"											
2) 1/8" To 1/4" Ø Flat end mill	.19"											
3 T Deep (.070") +10% -20% (2)	.070"											
7T (19.972")	19.97"											
1/4 T (.876")	.882"											
1/2 T (1.752")	1.755"											
3/4 T (2.628")	2.630"											
	1.506"											
7/8 *	880"											
250 RMS	OK											
Scribe ℄ of Notches & Holes	OK											
Notches # 1 Thru 5	OK											
1) 3/16 Ø Drilled & Reamed	.187											
1) 3" Dr.	3.00"											

PURCHASER:

WESTINGHOUSE ELEC. CORP.
NES DIVISION
BOX 355
PITTSBURGH, PA.
15230

COATESVILLE, PA. 19320

TEST CERTIFICATE

DATE: 10/02/79
CONSIGNEE:

TOOLING SPECIALTIES
P.O. BOX 251
ATTN. TOM SHEARER
LATROBE, PA. 15650

MILL ORDER NO.	CUSTOMER	
68125 1	544-MXR-401347 -XN	92879 UG

MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATION(S)

SA-533 CL. 1 TYPE-B ASME CODE SECT. II & III SUB NB 1974 EDITION N-1160 8/4/81

END TEST HOMOGENEITY TEST

CHEMICAL ANALYSIS

HEAT NO.	C	MN	P	S	CU	SI	NI	CR	MO	V	TI	AL	B	Basic Proc.
D8366	.18	1.29	.010	.005		.22	.65		.56				VIP Steel	Elec.

PHYSICAL PROPERTIES

HEAT NO.	SLAB NO.	YIELD PSI X100	TENSILE PSI X100	% ELONG. IN 2"	% R.A.	BHN	IMPACTS			DESCRIPTION
D8366	5	705 724	900 905	22 21						10- 10 X 14 X 40

PLATES AND TESTS HEATED TO 1625 F./1675 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED, RE-HEATED TO 1625 F./1675 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED, THEN TEMPERED 1220 F., HELD 1/2 HR. PER INCH MIN. AND WATER QUENCHED.

PLATES STRESS RELIEVED BY HEATING TO 1025 F./1075 F., HELD 1/2 HR. PER INCH MIN. AND AIR COOLED.

REFERENCE TEMPERATURE WAS NOT PERFORMED BY LUKENS.

I hereby certify the above information is correct.

SUPERVISOR-TESTING

123

REPLY MESSAGE

Fold at Guide Marks to Mail in Window Envelope.

CPL-50A

28498

TO Dale. Lambert
Quality Assurance

124 ,

CAROLINA POWER & LIGHT CO

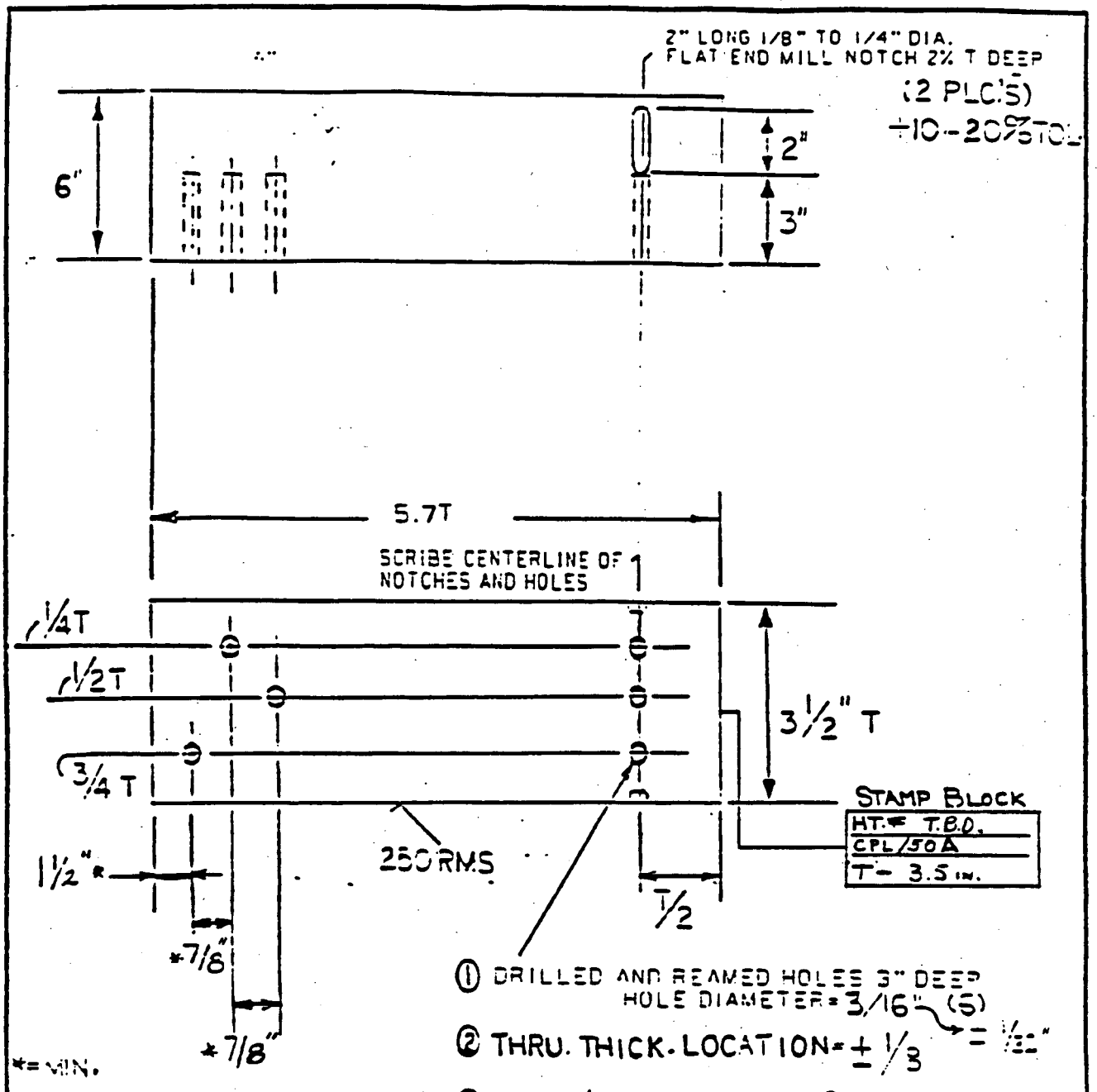
SUBJECT	ATTENTION	DATE
Calibration Block for S/G U.T.	Dale Lambert	6/5/84

In order to properly document the examinations now in progress on the steam Generator Class 2 side, The calibration block in use should be re-designated "CPL/50A" to destinguish it from the previous CPL/50 that was lost and to maintain unique I.D.'s

PLEASE REPLY TO ⟶ SIGNED Richard B. Weber Perf. Engrg.

DATE SIGNED

RECIPIENT-REPLY & RETAIN PINK COPY • DETACH & RETURN THIS COPY TO SENDER.



① DRILLED AND REAMED HOLES 3" DEEP
HOLE DIAMETER = 3/16" (5) = .187"

② THRU. THICK. LOCATION = ± 1/3

③ NOTCH'S PERPEND. ± 2°

④ TOL. ON HOLE & NOTCH LOCATION ± .010 UNLESS MIN. IS SPECIFIED.

⑤ ALL OTHER TOL. ± .010 IN.

MAT'L: A-533, Gr.B, Cl.1	APPROVALS	
USE: STN. GEN.	INITIATOR	Brent D Mathews 5/22/84
REV: 8D Mathews 5/22/84	INSP. SVC. MGR.	[illegible] 5/22/84
	QUAL. ASSUR.	[illegible] 5/22/84
	CPL# 50A	SKETCH# CPL-139 REV. 1

Nuclear Service Division

CPL/54 126

QUALITY RELEASE

QR- 7595 REV. 0

ORDER	PART NAME	DRAWING & REV.
185651	CALIBRATION BLOCK (MATERIAL)	5359C96 REV 1

CHG. NOTICE NO.	P.O. ITEM NO.	PROJ./S.O. NO.	QTY. ON ORDER	QTY. RELEASED
REQ 001	001	CPLN 9330	3	1

SUPPLIER	E. SPEC. & REV.	ORDER
TIOGA PIPE SUPPLY CO. INC.		COMPLETE ☐ YES ☒ NO

MATERIAL OR IDENTIFICATION NOS.

HT. NO. 82565 ASTM A-106-B-80

16" SCH 100 1.031 WALL

The equipment shown hereon is released by W Quality Assurance. Shipment may be made subject to authorization by W Purchasing. In the Audit Checklist below, A indicates acceptability, a C indicates a contingency and a W indicates that W QA has waived the auditing or witnessing of the attribute. All non-applicable items are lined out.

AUDIT CHECKLIST

☐ Material Certifications	☐ Non-Operating Electrical Tests
☐ ~~Heat Treat Records~~	☐ ~~Operating Electrical Test~~
☐ ~~RT Film and Records~~	☐ ~~Pressure Test~~
☐ ~~UT Records~~	☐ ~~Seat Tightness Test~~
☐ VT	☐ ~~Performance Test~~
☐ Dimensional	☐ Cleanliness
☐ UT Records	☐ Packaging
☐ ~~Personnel Qualification: Welding, NDT~~	☐ Code Form
☐	☐ ~~Painting~~
☐	☐

DEVIATION NOTICES AND REMARKS (ALL DEVIATIONS HAVE BEEN APPROVED BY THE RESPONSIBLE WESTINGHOUSE ENGINEER UNLESS A SPECIFIC EXCEPTION IS STATED.)

MATERIAL PURCHASED BY TSI P.O. 92268 - + RELEASED TO P.O. 485651 IT 001 (MATERIAL STORED AT TSI)

THE SUPPLIER CERTIFIES that for the equipment and material released, all contractual requirements have been met. Approved deviations, if any, are listed above.

SUPPLIER SIGNATURE DATE

TITLE

The equipment shown hereon is released by Ⓦ Quality Assurance. Shipment may be made subject to authorization by Ⓦ Purchasing.

The supplier has certified that the equipment above meets all requirements of the purchase order, drawings and specifications. Westinghouse has reviewed evidence supporting this release and except as specified above has detected no deviations from such requirements. This release does not waive any rights Westinghouse may have under the purchase order including Westinghouse's right to reject the equipment upon discovery of any such deviations after arrival at destination.

Charles E. Hemmingsen 5-3-84

Westinghouse Quality Assurance Representative

CPL/54
25 4/67

127

PHOENIX STEEL CORPORATION

TUBE DIVISION
PHOENIXVILLE, PENNA.

CERTIFICATE OF INSPECTION AND TESTS

10-28-82	DATE SHIPPED: 9-24-82	MILL ORDER NO. T-7315-J	SHIPPING LIST NO 74 A
Tioga Pipe Supply Co., Inc.		CUSTOMER ORDER NO. A10724	
		CAR NO. CR 565549	
		MATERIAL: SEAMLESS ☒ PIPE ☐ TUBE, HOT FINISHED	
		SPECIFICATION: ASTM A-106-B-80	

PCS.	OD	WALL	LENGTH	TOTAL FT.	TOTAL WT.	HEAT NO.
	16.000" x 1.031"					61690 51178 82565

NO.	C	MN.	P.	S.	SI.	CU.	NI.	CR.	MO.	V.
590	.27	.90	.012	.025	.29					
178	.27	.95	.011	.029	.28					
565	.24	.76	.008	.018	.23					

THESE MILL TEST REPORTS APPLY TO
YOUR P. O. # 9206 Pt 1
TIOGA PIPE SUPPLY CO., INC.

NO.	TENSILE (PSI)	YIELD (PSI)	% ELONG. IN 2"	% RA	HARDNESS ROCKWELL	HARDNESS BRINELL	GRAIN SIZE
590	87.5	56.3	28.00	(.505" Standard Round)			
178	82.8	48.8	28.00	"	"	"	
565	75.0	45.0	30.00	"	"	"	

TIOGA PIPE
QA ACCEPTANCE
BY ml
DATE 11/17/83

GAGE DISTANCE - 16TH	2	4	6	8	10	12	14	16	20	24	28	32

ROCKWELL C FLATTENING OK HYDROSTATIC PSI 2800

. CORPORATION HEREBY CERTIFIES THAT THE ABOVE MATERIALS HAVE BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE ...S PRESCRIBED IN THE APPLICABLE SPECIFICATIONS AND THE RESULTS OF SUCH INSPECTION AND TESTS AS CONTAINED IN THE COMPANY'S ...S ARE AS SHOWN ABOVE. FOR PROPERTIES OR CHARACTERISTICS FOR WHICH NO METHODS OF INSPECTION OR TESTING ARE PRESCRIBED BY ...SPECIFICATIONS, THE STANDARD MILL INSPECTION AND TESTING PRACTICES OF THE PHOENIX STEEL CORPORATION HAVE BEEN APPLIED. UPON SUCH INSPECTION AND TESTS, THE ABOVE MATERIALS HAVE BEEN APPROVED AS FULFILLING THE REQUIREMENTS OF SAID SPECIFICA-

Wayne Reeck...

INSPECTION REPORT

Page 1 of 1

TOOLING SPECIALISTS, INC.
Latrobe, Pa. 15650
Phone: (412) 539-2534

Dwg. # 5359C96 | Revision 1

P. O. # 48565 Item # 1 | Work Order 2540

CUSTOMER: WNES

128

DESCRIPTION: T, HB Pinion Unit No. 2 Sl. Block 16 incl O.P. Sled 100 Pipe HT 82565

IF OUT OF TOLERANCE, PLACE X IN BOX TO RIGHT OF DIMENSION.

DRAWING DIMENSIONS	Part No.	X	Part No.	X	Part No.	X	Part No.	X	Part No.	X	Part No.
Left Plan View											
1.00 at Left	1.06										
1.00 at Right	1.00										
1.50	1.50										
1.00 (at bottom Notch)	1.00										
9.00 $^{+2.00}_{-0.25}$	9.09										
Right Plan View											
3/4 T Hole (.757)	.75										
1/2 Min at Top	.50										
1/2 at Bottom	.50										
6.53° ± 1° at Top	6.53°										
45°	45°										
4.19°	4.19°										
7.73°	7.73°										
6.53° ± 1° at Bottom	6.53°										
3.58°	3.58°										
1.08	1.08										
.91 Typ.	.91										
1/2 min at Bottom	.50										
1/2 at Bottom	.50										
1/4 T Hole (.252)	.25										
Section A-A											
1.00 Typ	1.00										
45°	45°										
3 (4)	Ranges .102-.105										
1.031 = T Nom	1.010										
Notes # 1 Thru # 10	OK										

CPL/54 129

TOOLING SPECIALISTS, INC.
CERTIFICATION LETTER OF COMPLIANCE

Westinghouse Electric Corp.
[illegible]r Energy Systems
Box 355
Pi[illegible]burgh, PA 15230

DATE: 5/7/84

ling Specialists, Inc. certifies that all purchase order requirements have been met for following equipment and material. Any deviations from the order requirements have had tinghouse NSD approval prior to shipment. Deviation Notice (D/N) numbers applicable _____ (N/A if not applicable).

tinghouse Purchase Order Number 54-485651
. Change Notice number (s) _____
curement Advisory Release (PAR) number (s) _____

tity	P.O. Item #	DWG. or Sketch and Rev. #	Base Mat'l & Heat #	Weld Joining Mat'l & Heat #	Cladding Mat'l and Heat #
1	01	5359C96 REV 1	82565		

d joining procedure used _____ (include revision #)

dding procedure used _____ (include revision #)

t[illegible]ng procedure used _____ (include revision #)

copy each of the following documents as required by the purchase order are attached to s letter. All (including letter) are included with this shipment.

- X Westinghouse Quality Release
- X Base material mill test report (s)
- ___ Weld operator certification
- ___ Heat treat chart (s)
- X Inspection Report
- ___ Weld joining material mill test report
- ___ Cladding material mill test report
- X Other Letter of Compliance

additional copy each of this letter and the above documents are hereby forwarded to the tinghouse Buyer.

records supporting this certification letter are available at Tooling Specialists.

Thomas D Shaw
(signature)

Tooling Specialists, Inc.

NSD PA-11-0

Nuclear Service Division

CPL/54 16" SCH-100 130

QUALITY RELEASE

QR- 7600 REV.

ORDER	PART NAME	DRAWING & REV.
5.4 485651	CPL CALIBRATION BLOCK	5359C96 REV.1

PAR NO.	CHG. NOTICE NO.	P.O. ITEM NO.	PROJ./S.O. NO.	QTY. ON ORDER	QTY. RELEASED
—	REQ 001	001	CPLN 9330	3	1

SUPPLIER	E. SPEC. & REV.	ORDER
TOOLING SPECIALISTS INC.	—	COMPLETE ☐ YES ☑ NO

SERIAL OR IDENTIFICATION NOS.

HT. NO. 82565

The equipment shown hereon is released by W Quality Assurance. Shipment may be made subject to authorization by W Purchasing. In the Audit Checklist be an A indicates acceptability, a C indicates a contingency and a W indicates that W QA has waived the auditing or witnessing of the attribute. All non-applic items are lined out.

AUDIT CHECKLIST

A Material Certifications	☐ Non-Operating Electrical Tests
☐ Heat Treat Records	☐ Operating Electrical Test
☐ RT Film and Records	☐ Pressure Test
☐ ecords	☐ Seat Tightness Test
A Visual	☐ Performance Test
A Dimensional	A Cleanliness
☐ UT Records	W Packaging
☐ Personnel Qualification: Welding, NDT	☐ Code Form
A CERTIFICATE OF COMPLIANCE	☐ Painting
☐	A STAMPED NOTE-10 PER DWG.

DEVIATION NOTICES AND REMARKS (ALL DEVIATIONS HAVE BEEN APPROVED BY THE RESPONSIBLE WESTINGHOUSE ENGINEER UNLESS A SPECIFIC EXCEPTION IS STATED.)

MATERIAL RELEASED ON QR 7595 REV. 0

SHIP TO H.B. ROBINSON NUCLEAR PROJECT

THE SUPPLIER CERTIFIES that for the equipment and material ed, all contractual requirements have been met. Approved ions, if any, are listed above.

SUPPLIER SIGNATURE Thomas D. Shearer DATE 5/8/

TITLE

The equipment shown hereon is released by Quality Assurance. Shipment may be made subject to authorization by Purchasing.

The equipment supplier has certified that the equipment above meets all requirements of the purchase order, drawings and specifications. Westinghouse has reviewed evidence supporting this release and except as specified above has detected no deviations from such requirements. This release does not waive any rights Westinghouse may have under the purchase order including Westinghouse's right to reject the equipment upon discovery of any such deviations after arrival at destination.

Charles E. Hemingway 5-8-84

Westinghouse Quality Assurance Representative

TOOLING SPECIALISTS, INC.
CERTIFICATION LETTER OF COMPLIANCE

TO: Westinghouse Electric Corporation
Nuclear Energy Systems
P.O. Box 355
Pittsburgh, PA 15230

DATE: June 27, 1984

Tooling Specialists, Inc. certifies that all purchase order requirements have been met for the following equipment and material. Any deviations from the order requirements have had Westinghouse NSD approval prior to shipment. Deviation Notice (D/N) numbers applicable are _____ (N/A if not applicable).

Westinghouse Purchase Order Number 54-485651
P.O. Change Notice number (s) 001
Procurement Advisory Release (PAR) number (s) _____

Quantity	P.O. Item #	DWG. or Sketch and Rev. #	Base Mat'l & Heat #	Weld Joining Mat'l & Heat #	Cladding Mat and Heat #
1	003	5359C95 Rev. 1	3G6735		

Weld joining procedure used _____ (include revision #)

cladding procedure used _____ (include revision #)

heat treating procedure used _____ (include revision #)

One copy each of the following documents as required by the purchase order are attached to this letter. All (including letter) are included with this shipment.

X	Westinghouse Quality Release
X	Base material mill test report (s)
	Weld operator certification
	Heat treat chart (s)
X	Inspection Report
	Weld joining material mill test report
	Cladding material mill test report
X	Other Letter of Compliance

One additional copy each of this letter and the above documents are hereby forwarded to the Westinghouse Buyer.

All records supporting this certification letter are available at Tooling Specialists.

Thomas D. Shown
(signature)

Tooling Specialists, Inc.

INSPECTION REPORT

Page 1 of 1

TOOLING SPECIALISTS, INC.
Latrobe, Pa. 15650
Phone: (412) 539-2534

Dwg. #	Revision	Item
5359C95	1	—
P. O. # GN 1 54-485651 Item # 3	Work Order # 25407	

CUSTOMER: W AES CPL-56 132

PART DESCRIPTION:
(1) H. B. Robinson Unit No. 2 Calibration Block 26"O.D. Plate H.T. 366735

IF OUT OF TOLERANCE, PLACE X IN BOX TO RIGHT OF DIMENSION.

DRAWING DIMENSIONS	Part No. X	Part No. X	Part No. X	Part No. X	Part No. X	Part No. X
Sect A-A						
1.00 Typ.	1.00					
.109 Typ.	Ranges .101-.106					
45°	45°					
1.092 = T	1.042					
Left Plan View						
(2) 1.00	1.00					
1.50	1.50					
1.00 Flat	1.00					
14.00 $\pm^{2.00}_{0.25}$	14.00					
Right Plan View						
½	.54					
(2) ½ Min.	Ok					
¾ T Hole = .781	.78					
(2) 3.8° ± 1°	3.8°					
36°	36°					
2.43°	2.43°					
6.96°	6.91°					
2.20°	2.20°					
1.58	1.58					
.86 Typ.	.86					
¼ T Hole = (.260)	.26					
Notes #1 Thru 10	Ok					

INSPECTOR: Verl J. Jones 6-28-84

RECEIVING INSPECTOR:

SOUTHWEST FABRICATING & WELDING CO.

25407

HOUSTON, TEXAS 6-15-84

SPL-56

ORDER NO. MWO R-4639

CUSTOMERS ORDER NO. A-15261

TAG #92268 Part 2

DETAILED ANALYSIS REPORT

DESCRIPTION	PHYSICALS OF MATERIALS FROM WHICH MADE					CHEMICAL ANALYSIS									HEAT OR LOT NO.	SPECIFICATION OF MATERIAL FROM WHICH MADE
	# OF HEAT TREAT MONT	YIELD POINT PER SQUARE INCH	TENSILE STRENGTH PER SQUARE INCH	PERCENT ELONGATION IN 8	PERCENT REDUCT THIN IN AREA	C	MN	P	S	SI	CR	NI	MO	CB		
eel from U. S. Steel Corp.		47000	65800	25		.14	.89	.010	.021	.19					3G6735 SL#7	A-515 GR 55
nforms to A-515 GR 55																
(UT Plate per A578 prior		Chemical analysis of Plate				.16	.80	.007	.018	.18					Lot #3198	
to rolling)		Transverse Tension Test -				Top - 66,600 PSI Bottom - 67,100 PSI									Lot #3197	
		Two side bend test - Satisfactory														
) 26" O. D. (1.25"W)		Physicals and chemicals same as shown above														
155-KC55, CL 1 PIPE NH		Post Weld Heat Treat @ 1100°-1250°F for 1 hr 30 min.														
		X-Ray Long Seam 100% per procedure (PW-51) RT-1 R/4														
g. S/N P-4141		Results Satisfactory														

I HEREBY CERTIFY THIS REPORT TO BE TRUE AND CORRECT ACCORDING TO RECORDS IN THE POSSESSION OF THIS CORPORATION

M. Fore

133

REPORT OF DEMONSTRATION OF CALIBRATION TECHNIQUE FOR ULTRASONIC EXAMINATION OF H. B. ROBINSON REACTOR VESSEL SHELL TO FLANGE WELD

CARL R. OSMAN

APRIL 16, 1987

BACKGROUND

Ultrasonic examinations from the RV flange face have been performed in meeting the Robinson Plant's ISI Program commitments for volumetric examination of the RV pressure retaining shell to flange weld. However, the subsequent unavailability of the calibration block used in these previous examinations necessitated the use of another block for the Spring 1987 examination activities. Plant ISI personnel determined that calibration block CP&L RV-2 would meet Code requirements for material type, heat treatment, thickness, calibration hole size, etc., and would provide applicable metal path calibration needed for the examination. However, because calibration to obtain the needed examination metal path would have to be done from one of the weld clad surfaces of RV-2, (Figure 1) while the actual examination scanning surface (i.e., RV flange face) is unclad, it was felt to be prudent to confirm in advance of actual use the expectation that the presence of the cladding would not have a detrimental effect on the examination sensitivity.

The expectation that the cladding on RV-2 would not have a detrimental effect on this particular examination was based on past experience that weld deposited stainless steel cladding is generally more attenuative to ultrasound than unclad carbon steel. However, depending on the examination circumstances, the greater attenuation of the cladding can work either "for or against" the intended overall examination sensitivity. For example, for situations where the calibration block is not clad but the examination is to be conducted thru cladding, it is generally necessary to make some quantitative determination of the claddings attenuation effect (usually in dBs of difference in UT instrument gain setting) and then increase the gain setting by that amount to give an increased scanning and/or discontinuity evaluation level. However, for the situation where the calibration block is clad and the examination scanning surface is unclad (as would be the case with the use of the RV-2 calibration block in the UT of the RV shell to flange weld from the flange face), the effect is to have a "scanning level" which is "more sensitive" than would have otherwise have to be used. This increased scanning sensitivity would have no significant consequences unless discontinuity indication were encountered. Then, it would be appropriate to compensate for the "increases sensitivity" so that discontinuities not previously detected would not be evaluated to a more stringent level than appropriate, and/or previously detected and recorded discontinuities would not otherwise appear to have "grown".

DEMONSTRATION PLAN

As described in the preceding discussion in the Background section, for comparable metal path ranges, responses obtained from the calibration holes in RV-2 while scanning from an unclad surface should be higher in amplitude than calibration hole responses obtained thru the cladding. This pattern of responses would confirm that the cladding does not have a detrimental effect on the sensitivity of the examination.

DEMONSTRATION

By previous arrangement block RV-2 had been transported from Robinson Plant to the Materials Quality Section facilities at New Hill, NC, to facilitate coordination of the demonstration with the Section's system-wide NDE support schedule and personnel availability.

The demonstration was conducted on the afternoon of March 24, 1987 at MQS. Personnel participating in these demonstration activities included Mr. Greg Tucker, CP&L UT Level II; Mr. Carl Osman, CP&L UT Level III and Mr. Ed Dayton, Kemper Group ANI at the Harris Plant who would witness the demonstration. (Informational testing activities had already been preformed prior to March 24 to assure a successful demonstration for the record).

The demonstration was conducted using both 0° longitudinal straight beam and 12° refracted longitudinal wave angle beam techniques as would be done in the actual outage examination.

0° LONGITUDINAL WAVE STRAIGHT BEAM

Calibration was performed from the clad surface using the 7½", 10" and 12½" metal path distances (Positions A, B & C in Figure 2). The test system consisted of a KBI USL-38 UT instrument, a KBI Aerotech 2.25 MHz, 1"Ø straight beam transducer and an appropriate coaxial cable. The signal from the hole at 7½" was set to 80% FSH. Without changing the gain settings, signals from the 10" and 12½" deep holes were peaked and marked on the UT instrument screen. A DAC curve was then drawn thru the points previously marked.

Next, the responses from the holes were obtained at positions D, E and F. The amplitudes of the responses in positions D, E and F were all greater than the responses for positions A, B and C respectively. A 4dB reduction in instrument gain brought the D, E and F position response amplitudes down to the A, B and C DAC curve.

12° REFRACTED L-WAVE ANGLE BEAM

The calibration and subsequent testing sequence as described for straight beam was repeated for the 12° R.L. The test system consisted of the KBI USL-38, a KB-Aerotech 2.25 MHz, 1/2" Ø "Quick-Change" transducer installed in a wedge manufactured by Aerotech to produce 12° refracted L-waves in the material and appropriate coaxial cable. As with the straight beam exercise, the amplitudes of the 12° RL responses in positions D, E ad F were all greater than for positions A, B and C respectively, and a 4dB reduction in instrument gain brought the D, E and F position responses down to the A, B and C DAC curve.

CONCLUSION

The pattern of amplitudes obtained from the calibration holes in RV-2 (i.e., greater amplitudes from holes scanned from unclad base metal than scanning thru the cladding) was as expected, and confirms that the cladding should not have a detrimental effect on the production examination sensitivity.

Because of the dimensions of RV-2, it was not possible to repeat the comparison (i.e., scan holes from clad surface/scan holes from unclad surface) for a metal path range in the block that was closer to the metal path range in the actual examination. (Only a comparable metal path range thru cladding can be obtained.) However, again based on experience, the effect as demonstrated for the shorter metal paths would be seen at the longer metal paths. The amount of amplitude difference (clad versus unclad) for the longer metal paths could be more or less than the 4 dB obtained.

To provide assurance that the longer metal path calibration could be accomplished as expected, testing was done from the blocks other clad surface (i.e., 25", 27½" and 30" metal paths) with both the 0° and 12° R.L. techniques. In both cases, signals from all three holes were obtained at useable amplitudes.

Carl R. Osman

The demonstration activities described in this report were done to my satisfaction.

E R Dayh 4-22-87

Authorized Nuclear Inspector
Lumbermans Mutual Casualty Company
Kemper Group

Based on the report, the above referenced calibration block (RV-2) is considered to be acceptable under the rules of IWA-2240.

John Jumonville ANII 5-5-87

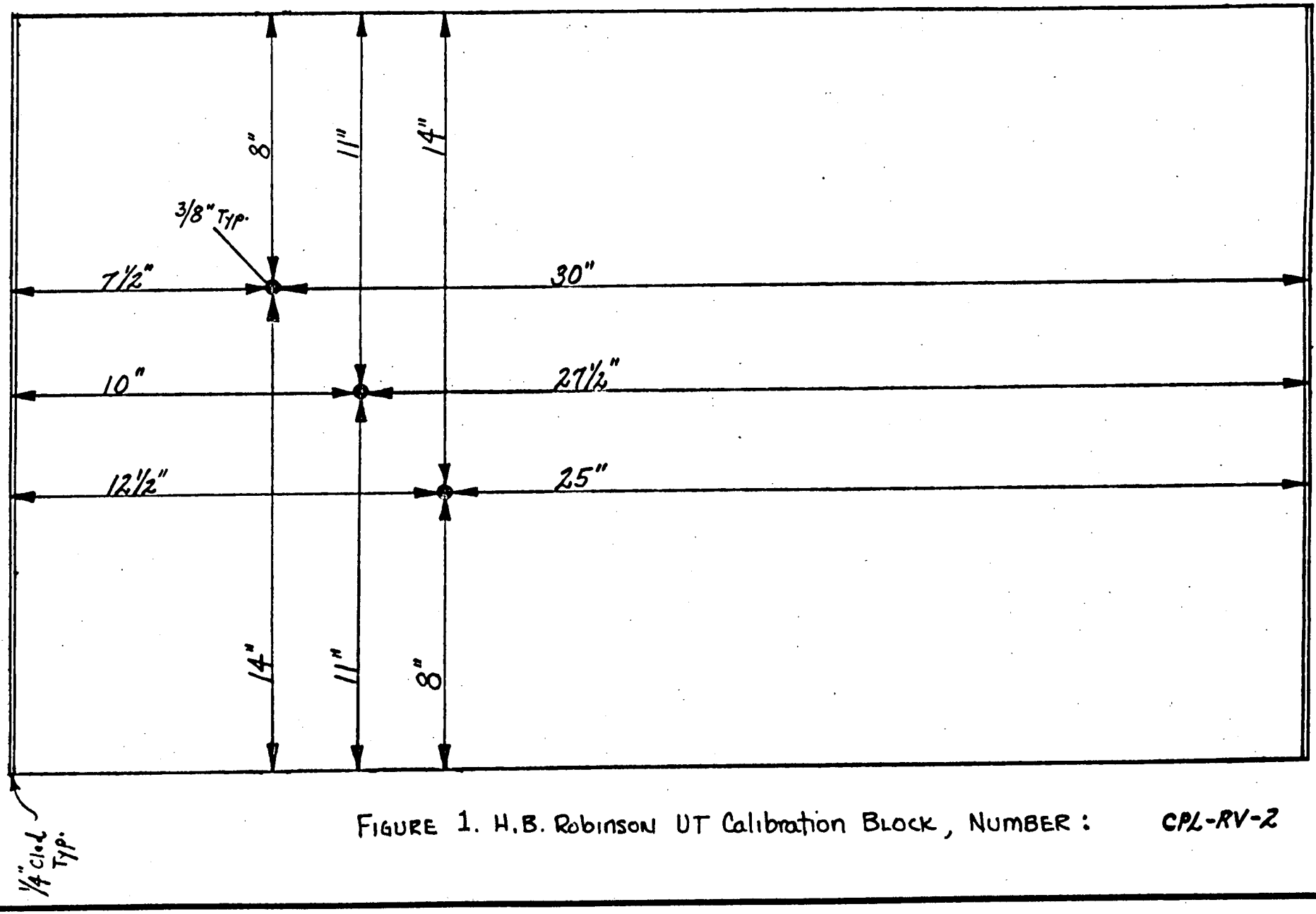


FIGURE 1. H.B. Robinson UT Calibration Block, Number: CPL-RV-2

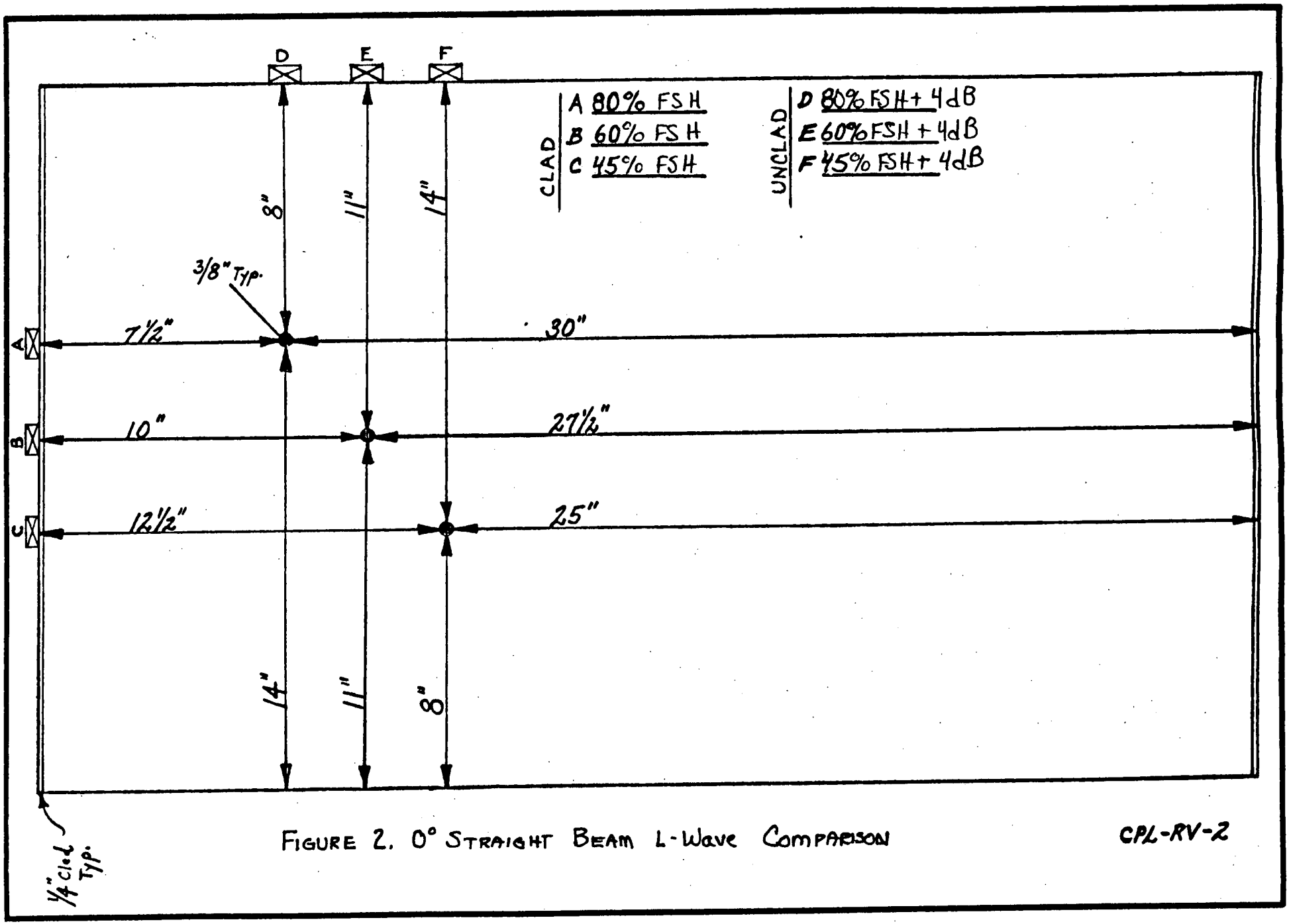


FIGURE 2. 0° STRAIGHT BEAM L-WAVE COMPARISON

CPL-RV-2

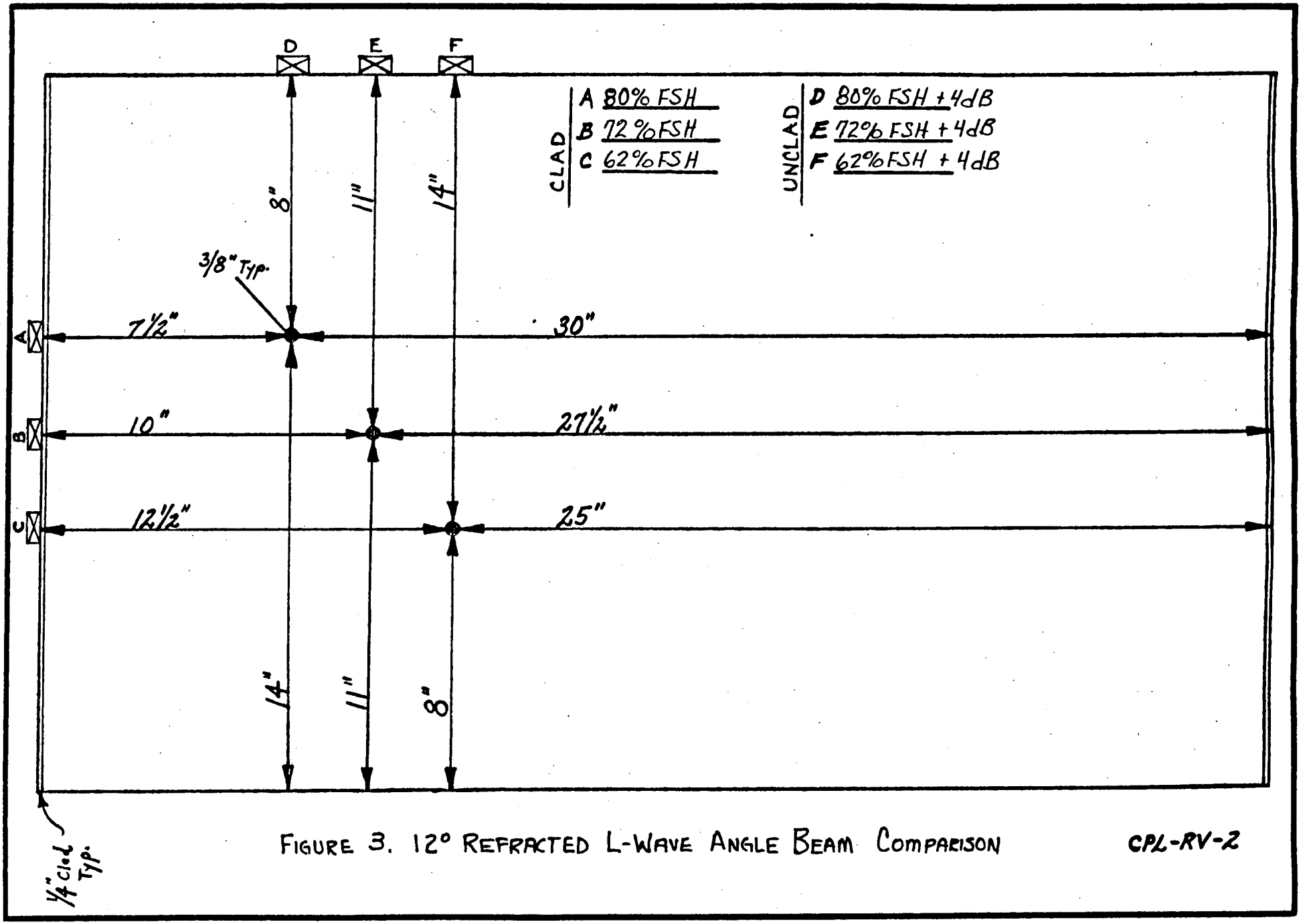


FIGURE 3. 12° REFRACTED L-WAVE ANGLE BEAM COMPARISON

CPL-RV-2

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

EXAMINATION CONSUMABLE MATERIALS

PLANT H. B. ROBINSON UNIT #2 YEAR 1987

	MANUFACTURER	TYPE	BATCH
U/T COUPLANT	SONOTRACE 40		BATCH - #8558
			BATCH - #8662
DYE PENETRANT			
CLEANER	MAGNAFLUX - SKCNF - 85M039		
			84M062
PENETRANT	MAGNAFLUX - SKLHF/S - 86J018		
DEVELOPER	MAGNAFLUX - SKD - NF - 85M035		
REMOVER	MAGNAFLUX - SKCNF - 85M039		
			84M062
DRY POWDER	MAGNAFLUX - MX - 201 GREEN - 84J035		
	MAGNAFLUX - 8A - RED - 87C024		
FILM			
OTHER	MAGNAGLO - 14AM BATH - 87A039		

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. 515778

DATE December 31, 1985

From Johnson and Johnson
Ultrasound
Imaging Supply Center
R.D. #4 Box 76
Lewistown, Penna. 17044

Sample of : Sonotrace 40

Marked : Batch 8558
Spec. ASTM-D-129 and D-808, 1980
Purchase Order no. 17711 RFB

RESULTS :

Halogens (Chlorides)	:	24.5 ppm
Sulphur	:	4.8 ppm

I, David N. Hoffman, do hereby certify that the above is true and correct.

Sworn to and subscribed before me
this 31st day of December, 1985.
Jacqueline Serrity
My Notary Public Commission expires
August 13, 1989.

To Johnson and Johnson
Lewistown, Penna.

INTERNATIONAL TESTING LABORATORIES, INC.

David N. Hoffman

ITL 102 9M 5-85

PRESIDENT

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. 523091

DATE October 17, 1986

From Johnson & Johnson
Ultrasound Incorporated
R.D. #4, Box 76
Lewistown, Penn. 17044

Sample of : Sonotrace 40

Marked : Batch No. 8662
Spec. ASTM-D-129 and D-808
Purchase Order No. 20041-DAL

Results :

Halogens (Cl) : 27.5 ppm

Sulphur : 4.5 ppm

I, David N. Hoffman, do hereby certify that the above is true and correct.

Sworn and subscribed before me this
17th day of October, 1986.
Jacqueline Scott
My Notary Public Commission
expires August 13, 1989.

To
Ultrasound Inc.
Lewistown, PA

INTERNATIONAL TESTING LABORATORIES, INC.
David N. Hoffman

MAGNAFLUX Corporation . 7300 West Lawrence Avenue . Chicago IL 60656 Telephone 312-867-8000

Date: December 19,1985

MAGNAFLUX

Purchase Order No. 55970

SUBJECT: Spotcheck Cleaner/Remover, Type: SKC-NF/ZC-7B, Batch No. 85M039

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: NA wt. % of residue. Halogen: NA wt. % of residue

Cleaner residue (see Note 3) 0.0020 g/100g. 0.0026 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

C. J. Britt

W. G. Blankenship - Director of Quality Assurance
A. S. Britton - 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 312-867-3000

Date: September 25, 1986

MAGNAFLUX

Purchase Order No. _____

SUBJECT: Spotcheck Penetrant, Type: SKL-HF/S, Batch No. 86J018

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 F5-6T, 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: 0.0156 wt. % of residue. Halogen: 0.0025 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

C. J. Britt

W. G. Blankenship - Director, Product Assurance

A. S. Britton - 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 F5-6T 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.

Purchase Order No. 308770 BB

Material: Spotcheck/Zyglo Developer Type: SKD-[illegible]

We hereby certify that when tested at the time of manufacture, the above material complies with the requirements of and has been tested for sulfur and halogen, in accordance with:

(a) ASME Boiler and Pressure Vessel Code, 1980 Edition, Section V, Nondestructive Examination, with Summer 1980 through Winter 1982 Addenda, Paragraph T-641, and Article 24 as applicable.

(b) ASME Boiler and Pressure Vessel Code, 1983 Edition, Section V, Nondestructive Examination, including all Addenda through Winter 1983 Addenda, Paragraph T-641 and Article 24 as applicable.

(c) ASTM E-165-80, Paragraph 7.1.

(d) MIL-STD-271E, (31 October 1975) and ACN-1 (24 October 1980), Paragraph 3.3.1.

(e) MIL-STD-271E, NTR-1E, June 16, 1978, Paragraph 3.3.

(f) MIL-STD-2132 (SH), 16 January, 1981, Paragraphs 5.1.2, [illegible].3 and 5.[illegible].5 and Appendix B, Paragraph 30.

(g) NDT Standard P3-6T, May 1974 and October 1975 including Amendments 1 (4-6-76) and 2 (2-9-78), Article 6, Paragraph T-650.

The following test results were obtained:

Sulfur: 0.0562 wt. % of residue. Halogen: 0.0190 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

C. J. Britton

W. G. Blankenship - Director of Quality Assurance
A. S. Britton - 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. MIL-STD-271, MIL-STD-2132, NDT P3-6T 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. 1868 - Rev. 8/84

Five years SHELF LIFE From The day Received

0 5 7 0 4 0 8 0 4 — 0

MAGNAFLUX Corporation 7300 West Lawrence Avenue Chicago IL 60656 Telephone 312-631-1600

Date: December 12, 1985

MAGNAFLUX

Purchase Order No. 55970

SUBJECT: Spotcheck/Zyglo Developer, Type: SKD-NF/ZP-9B Batch No. 85M086

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: 0.0086 wt. % of residue. Halogen: 0.0275 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

G. I. Britt

W. J. Blankenship - Director of Quality Assurance
A. S. Britton - 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 312-867-3000

MAGNAFLUX

Date: November 7, 1984

TO:

Purchase Order No. 55969

We hereby certify that the Magnetic Particle Inspection Material type MX-201 Green Powder, Batch No. 841035 meets the requirements of the following specifications:

A. ASME Boiler and Pressure Vessel Code, Section V, 1980 Edition, Nondestructive Examination, with Summer 1980 through Winter 1982 Addenda, Paragraph T-753 (a) and Article 25 as applicable.

B. ASME Boiler and Pressure Vessel Code, Section V, 1983 Edition, Nondestructive Examination, with Addenda through Winter, 1983, Paragraphs T-723, T-726(a) and Article 25.

C. ASTM E 709-80, Paragraphs 6.1, 6.2, and 6.3.

D. NAVSEA 250-1500-1, Rev. 10 June 1979 and Rev. 11, May 1983, Paragraph 12.4.1.6.

F. MIL-STD-271E(SHIPS), ACN-1, 24 October 1980, Paragraphs 4.2.6, 4.3.2.3, and 4.3.3.1.

G. MIL-STD-271E(SHIPS), NTR-1E, 16 June 1978, Paragraph 4.3.2.3.

H. MIL-STD-2132(SH), 16 January, 1981, Paragraph 4.2.1.3 and Appendix A, Paragragh 50.4.

We further certify that this material does not contain mercury as a basic element and no mercury bearing equipment was used in its manufacture.

Batch numbers appear on labels of bulk containers.

MAGNAFLUX CORPORATION

A. S. Britton

A. S. Britton - Manager, Chemical Quality Control
W. G. Blankenship - Director of Quality Assurance

Form No. 1565A R-7/84

MAGNAFLUX

Date: March 16, 1987

TO:

Purchase Order No. MR 75551 M

We hereby certify that the Magnetic Particle Inspection Material type No. 8A Red Powder, Batch No. 870024 meets the requirements of the following specifications:

A. ASME Boiler and Pressure Vessel Code, Section V, 1986 Edition, Nondestructive Examination, Paragraphs T-723, T-726(b) and Article 25 as applicable.

B. ASTM E 709-80, Paragraphs 6.1, 6.2, and 6.3.

C. NAVSEA 250-1500-1, Rev. 10 June 1979 and Rev. 11, May 1983, Paragraph 12.4.1.6.

D. MIL-STD-1949, 1 August 1985 Paragraph 4.10.1 and 4.10.1.1.

E. MIL-STD-271E(SHIPS), ACN-1, 24 October 1980, Paragraphs 4.2.6, 4.3.2.3, and 4.3.3.1. and ACN-2, 1 May 1984.

F. MIL-STD-271E(SHIPS), NTR-1E. 16 June 1978, Paragraph 4.3.2.3.

G. MIL-STD-2132A(SH), 10 September 1984, Paragraph 6.2.1.3.

We further certify that this material does not contain mercury as a basic element and no mercury bearing equipment was used in its manufacture.

Batch numbers appear on labels of bulk containers.

MAGNAFLUX CORPORATION

A. S. Britton - Manager, Quality Assurance
M. Plamoottil - Quality Control Chemist

Form No. 1565A R-1/87

MAGNAFLUX Corporation 7300 West Lawrence Avenue Chicago, IL 60656 Telephone 312-867-3000

MAGNAFLUX

Date: January 28, 1987

TO:

Purchase Order No. _____

We hereby certify that the Magnetic Particle Inspection Material type 14AM Prepared Bath, Batch No. 87A039 meets the requirements of the following specifications:

A. ASME Boiler and Pressure Vessel Code, Section V, 1986 Edition, Nondestructive Examination, Paragraphs T-723, T-726(b) and Article 25 as applicable.

B. ASTM E 709-80, Paragraphs 6.1, 6.2, 6.4, 6.4.2, 6.4.4.2 and 6.4.5.1.

C. MIL-STD-1949, 1 August, 1985. Paragraphs 4.10.1, 4.10.1.2 and 4.10.2

D. MIL-STD-271E(SHIPS), NTR-1E, 16 June 1978, Paragraph 4.3.2.3.

E. MIL-STD-2132A(SH), 10 September 1984, Paragraph 6.2.1.3, 6.2.2.3, 6.2.2.4, 6.2.2.5, 6.2.2.6, and 6.2.2.7.

F. The flash point of the material is over 200°F when tested by the Pensky-Marten's Closed Cup Method (ASTM D-93).

G. The vehicle meets the requirements of DOD-F-87935, 21 January 1986 and Ammendment 2, 21 January 1986.

We further certify that this material does not contain mercury as a basic element and no mercury bearing equipment was used in its manufacture.

Batch numbers appear on labels of bulk containers and on the bottom of aerosol cans.

MAGNAFLUX CORPORATION

M. Plamoottil

A. S. Britton - Manager, Quality Assurance
M. Plamoottil - Quality Control Chemist

Form No. 1565C R-1/87

MAGNAFLUX Corporation | 7300 West Lawrence Avenue | Chicago, IL 60656 | Telephone 312-867-3000

MAGNAFLUX

Date: January 2, 1985

Purchase Order No. 331057 BB

SUBJECT: Spotcheck Cleaner/Remover Type: SKC-NF/ZC-7B, Batch No: 84M062

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) MIL-STD-271E, (31 October 1973) and ACN-1 (24 October 1980), Paragraph 5.3.1.
   (e) MIL-STD-271E, NTR-1E, June 16, 1978, Paragraph 5.3.
   (f) 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.
   (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.

The following test results were obtained:

Sulfur: NA wt. % of residue. Halogen: NA wt. % of residue

Cleaner residue (see Note 3) 0.0024 g/100g. 0.0033 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

W. G. Blankenship - Director of Quality Assurance
A. S. Britton - 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. 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.

Shelf Life Expectancy = Five Years Or January 2, 1990

INSERVICE INSPECTION
FOR
CAROLINA POWER & LIGHT - H.B. ROBINSON UNIT #2
PROCEDURE APPROVAL

The procedures identified below have been reviewed and determined to be acceptable for inservice examinations based on Section XI, 1977 Edition of the ASME Boiler and Pressure Vessel Code up to and including the Summer, 1978 Addenda, except for those areas/items where reliefs or exception may be identified at some future time.

Procedure No.	Revision and Date	Amendment	Field Change
OPS-NSD-101	Rev. 5 04/08/75	03 08/07/79	none to date
NSD-ISI-10	Rev. 6 11/01/83	none to date	none to date
ISI-206	Rev. 1 10/02/84	none to date	none to date DDI 4-20-87 4-23-87
ISI-70	Rev. 2 06/14/82	none to date	none to date
ISI-47	Rev. 4 10/02/84	none to date	none to date
ISI-41	Rev. 5 10/01/84	none to date	none to date
ISI-11	Rev. 10 06/21/82	none to date	FC 3 04/13/87
ISI-8	Rev. 9 10/12/84	none to date	none to date
ISI-48	Rev. 0 10/07/75	none to date	FC 1 11/11/75 FC 2 01/06/87 FC 3 04/13/87

Prepared by: WESTINGHOUSE ELECTRIC CORPORATION

W APPROVAL : [signature]

H. B. ROBINSON APPROVAL : Richard B. Weber

TITLE : Sr. Specialist

AUTHORIZED INSPECTOR CONCURRENCE : [signature] ANII 4-17-87

AGENCY : Kemper Group

ANII signature does not include (W) procedure ISI-41

[signature] ANII 4-17-87

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date.....3-11-87
Admin. Supv. Original.....1	PROCEDURE REVIEW AND APPROVAL FORM	PCN.....1372
QNE Review.....1		Revision No.....0
Training Review.....1		Spec Proc. No.....SP-737
Warren Farmer 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-737

Pages Effected ENTIRE PROCEDURE 1-53

I. A. Proposed Revision: Addition of New Procedure - Special Procedure OPS-NSD-101 R/5 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 1/15/87

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 instructions on what is to be included in the documentation package for each examination. This procedure has no direct effect on plant equipment, therefor no unreviewed safety question arises and no changes to Tech. Specs. or FSAR is required due to this change.
(If additional space is required use additional paper and attach them to this form.)

OPS-NSD-101 Rev 5
Documentation

4-1-87 7532
EXPIRE

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: 1/15/87

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 3/4/87
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: N/A

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: N/A

NAME: ____ TITLE: ____

NAME: ____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: [signature] DATE 3/6/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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. HARRIS FARMER — Safety Reviewer — Signature — 1/28/87 Date
R. Chambers — Safety Reviewer — Signature — 3/4/87 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.

NA ARW 3/9/87 — CNS Review — N/A Date
NA APW 3/9/87 — PNSC Chairman — N/A 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: A.R. Wallace — MANAGER/FUNCTIONAL AREA — 3/9/87 APPROVED DATE — 3/16/87 EFFECTIVE DATE

PNSC IN-SESSION REVIEW: ___ YES ✓ NO

REMARKS: _____

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 737

PRESERVICE AND INSERVICE INSPECTION DOCUMENTATION

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: N H Chamberlain 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 53	0

Westinghouse Electric Corporation Power Systems

Nuclear Service Division
Box 2728
Pittsburgh Pennsylvania 15230

INSPECTION PROCEDURE: OPS-NSD-101

DATE: April 16, 1971

PLANT: General

CUSTOMER: General

PROCEDURE TITLE: Preservice and Inservice Inspection Documentation

Revision 1 Issued 03/01/74
Revision 2 Issued 03/25/74
Revision 3 Issued 08/04/74
Revision 4 Issued 02/09/75
Revision 5 Issued 04/08/75

APPROVED: Peter L Ruddle
P. L. Ruddle, Manager
Inspection Services

Westinghouse Nuclear Services Division
Inspection Services
Westinghouse Electric Corporation
P. O. Box 2728
Pittsburgh, PA 15230

PROCEDURE AMENDMENT

APPLICABILITY

Procedure Number OPS-NSD-101 Revision Number/Date Rev. 05 04/08/75

Amendment Number 03 8-7-79

Procedure Title Preservice and Inservice Documentation

CHANGE ACTION

1. Delete Amendment - 02 (Changes incorporated herein as items 3 thru 6)
2. Change paragraph 5.0 Data Recording - To Read:

   5.0 Ultrasonic Flaw Sizing
3. Change Paragraph 5.7, at end of last line, (DAC plus 6DB) To Read:

   (DAC minus 6DB)
4. Change Appendix A (Page 11) as follows:

   Block 34 - Delete the words: Together with the initials of the operator

   Block 37 - Add another sentence to read:
   If none, enter none.

   Blocks 44, 45 & 46 - Delete the asterisk* and the explanation at bottom of page.

   Block 51 - Add the following between the words "Examination by" on first line:
   (Other than due to geometry)

   Block 52 - (Page 12) Change last sentence to read:

   Should 'RI' be noted, a visual indication sheet (Appendix G, Page 28) shall be completed, however to minimize duplication, indication sheets need not be completed for indications that have previously been recorded (in accordance with the Examination Program Plant currently in effect) as determined by the Examination Program Coordinator or his designees.

PROCEDURE AMENDMENT

Procedure Number/Date OPS-NSD-101

Amendment Number/Date 03 8-7-79

5. Change Appendix E (Page 22) as follows:

   Block 12 - Change fourth line reference, (See Appendix E). to:

   (See Appendix F)

   Block 14 - Change last sentence to read:

   Should 'UNSAT' be noted, a visual indication sheet (Appendix G, Page 28) shall be completed, however to minimize duplication, indication sheets need not be completed for indications that have previously been recorded (in accordance with the Examination Program Plant currently in effect) as determined by the Examination Program Coordinator or his designees.

6. Add Appendix M, (Page 45) as attached hereto.

7. Add Appendix N (Page 47) and Sample Form as attached hereto.

Approved: B. J. Lefebvre

B. J. Lefebvre, Level III

PRESERVICE AND INSERVICE INSPECTION DOCUMENTATION

1.0 PURPOSE

This document describes the methods, procedures and special requirements for documenting and reporting the performance of non-mechanized, non-destructive preservice and inservice examinations conducted in accordance with the requirements of Section XI of the ASME Boiler and Pressure Vessel Code or any applicable USAEC Regulatory Guide.

2.0 SCOPE

2.1 The scope of examinations that are to be performed on all welds and/or areas of systems and components shall be fully defined in an Inspection Program Plan prepared for each specific inspection program conducted at any Nuclear Power Plant Site.

2.2 Each Inspection Program document shall be identified by the use of the three letter alpha designation applicable to the plant at which the inspection is to be conducted.

2.3 Each Inspection Program document shall be further identified as to the specific program which is to be conducted and the scheduled dates for performance.

2.4 Included in the Inspection Program document shall be isometric sketches identifying each weld subject to examination in each piping system and sketches identifying all welds and areas subject to examination on all vessels and components. Each sketch shall be individually identified as to the specific plant and component.

3.0 PERFORMANCE

3.1 All examinations shall be conducted in accordance with approved, written procedures. The specific procedure to be utilized for each weld or area shall be defined in the Inspection Program document.

3.2 To ensure consistency and reproducibility of examinations, all data shall be recorded and reported in accordance with the following requirements.

4.0 DATUM POINTS

To ensure uniformity of the manner in which all indications are reported during the performance of non-mechanized non-destructive examinations, their locations shall be referenced to an identifiable datum point.

4.1 Datum points shall only be established in the event that recordable indications are to be reported.

4.2 Datum points shall either be permanently marked on the component or the location adequately described such that subsequent re-location 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 and shall be applied in accordance with the requirements of W Process Specification 83860 LA, "Requirements for Marking of Reactor Plant Components and Piping".

4.4 The locations of datum points shall be established in accordance with the following rules.

4.4.1 For horizontal pipelines (Ref. Fig. 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" of the weld identification 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 DATA RECORDING

The locations of all reportable indications noted during the performance of non-destructive examinations shall be recorded with reference to datum points established in accordance with Section 4.0 of this document.

5.1 The length and location of all indications parallel to the weld shall be recorded by 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 The depth and width and location of all indications parallel to the weld shall be recorded by the perpendicular distance from the centerline of the weld to each side of the indication (starting and finishing points defining the width).

5.3 The length and location of all 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 The depth and width and location of all 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 All 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.)

5.6 The 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 The length and width (depths) of ultrasonic indications shall be determined to the points where the signal amplitude response falls to a value of 50 percent of the calibration DAC level (DAC plus 6 db)

5.8 All measurements of ultrasonic indications shall be referred to the point of sound entry of the search unit or the centerline of the search unit, whichever being applicable.

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 shall be achieved by utilizing the scan direction reference identities applicable to the side of the weld in conjunction with the measurement. (i.e. 4" (2), 6 1/2" (5) etc.)

5.10 An indication is defined as any ultrasonic response where the amplitude visibly exceeds the ultrasonic noise level.

6.0 DATA REPORTING

All information with respect to the performance of non-destructive examinations shall be reported on the data sheets similar to those attached in the Appendices of this document.

6.1 All information applicable to the calibration of ultrasonic equipment prior to the performance of examinations shall be reported on the Ultrasonic Examination Report sheet in accordance with the requirements of Appendix A.

6.2 All information applicable to the examination of piping system, vessel or component welds shall be reported on the Ultrasonic Examination Report sheet in accordance with the requirements of Appendix A.

6.3 All information applicable to the evaluation of indications to be recorded during the performance of ultrasonic examinations shall be reported on the Ultrasonic Indication Data Sheet in accordance with the requirements of Appendix B.

6.4 Should a transfer be found necessary during the performance of ultrasonic examination the information shall be recorded on the Ultrasonic Examination Transfer Record in accordance with the requirements of Appendix C.

6.5 The performance of instrument calibration as required prior to the examination of welds in accordance with Procedure ISI-47 shall be reported as required by Appendix D.

6.6 All information applicable to the surface examination of butt welds, socket welds, partial penetration welds and clad surfaces shall be reported on the Weld Surface Examination Data sheet included in Appendix E. Indications recorded during the performance of surface examinations may be pictorially represented on the surface inspection record charts in accordance with the requirements of Appendix F or reported by the use of photographs.

6.7 The verification of performance of visual examinations conducted concurrently with ultrasonic or surface examinations shall be reported in the applicable space provided in the Weld Examination Summary Sheets.

6.8 Indications recorded during the performance of visual examinations of welds shall be recorded on the Visual Examination Indication Record sheet in accordance with the requirements of Appendix G.

6.9 All information applicable to the ultrasonic examination of bolts, studs and nuts shall be reported on the ultrasonic examination report in accordance with the requirements of Appendix H. Indications recorded during the performance of the ultrasonic examinations of studs, bolts and nuts shall be reported on the ultrasonic indication report in accordance with the requirements of Appendix I.

6.10 The results of visual examinations, other than those listed above, shall be reported in accordance with the requirements of Appendix J.

6.11 The results of ultrasonic or surface examinations other than those listed above shall be reported in accordance with the requirements of Appendix K.

7.0 EXAMINATION EQUIPMENT

Records shall be made of the equipment and consumables utilized for the performance of an inspection program and documented on the forms attached in Appendix L.

7.1 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 during any individual inspection program.

7.2 An identification symbol or number shall be assigned to each ultrasonic instrument and be included in the above record. This identification symbol (or number) may be used to indicate on the data sheets which individual instrument was utilized for the performance of the examination.

7.3 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.

7.4 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 at a plant site.

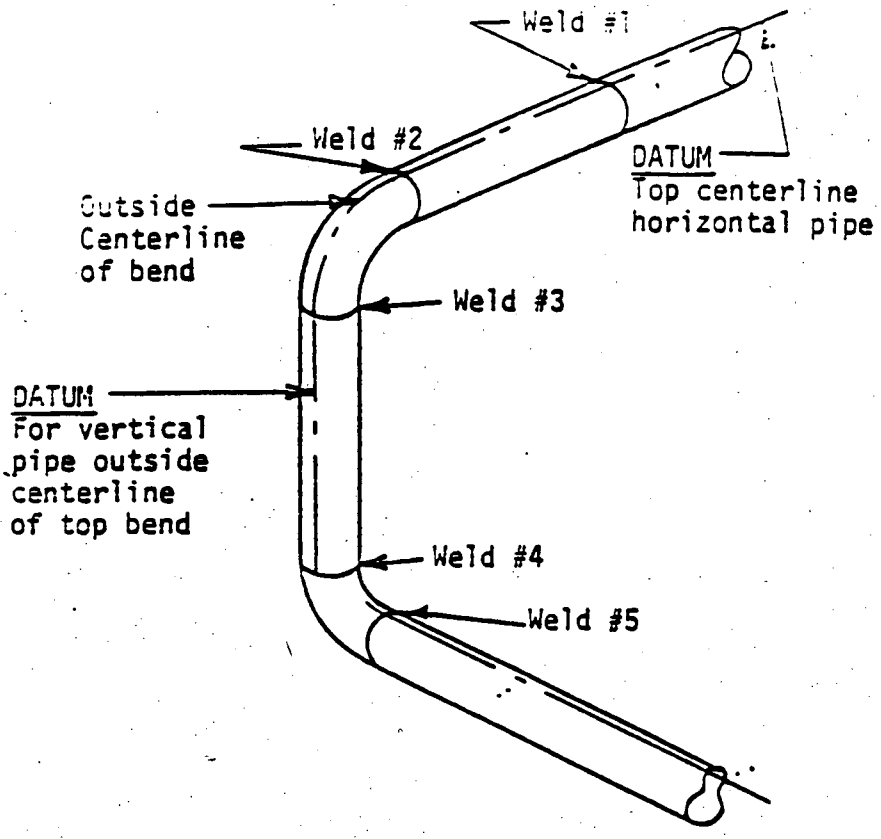


FIGURE 1

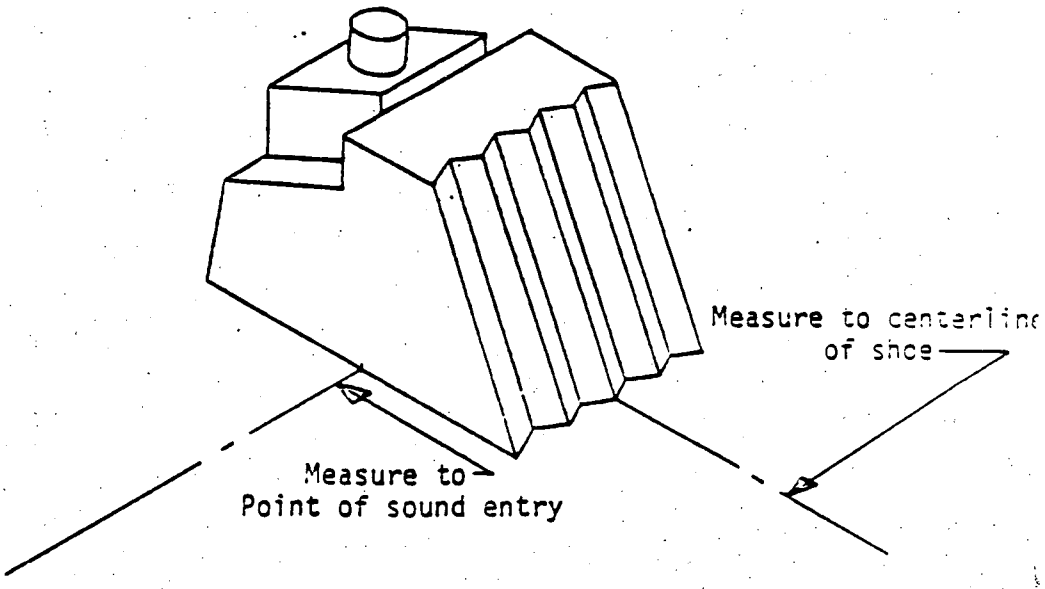
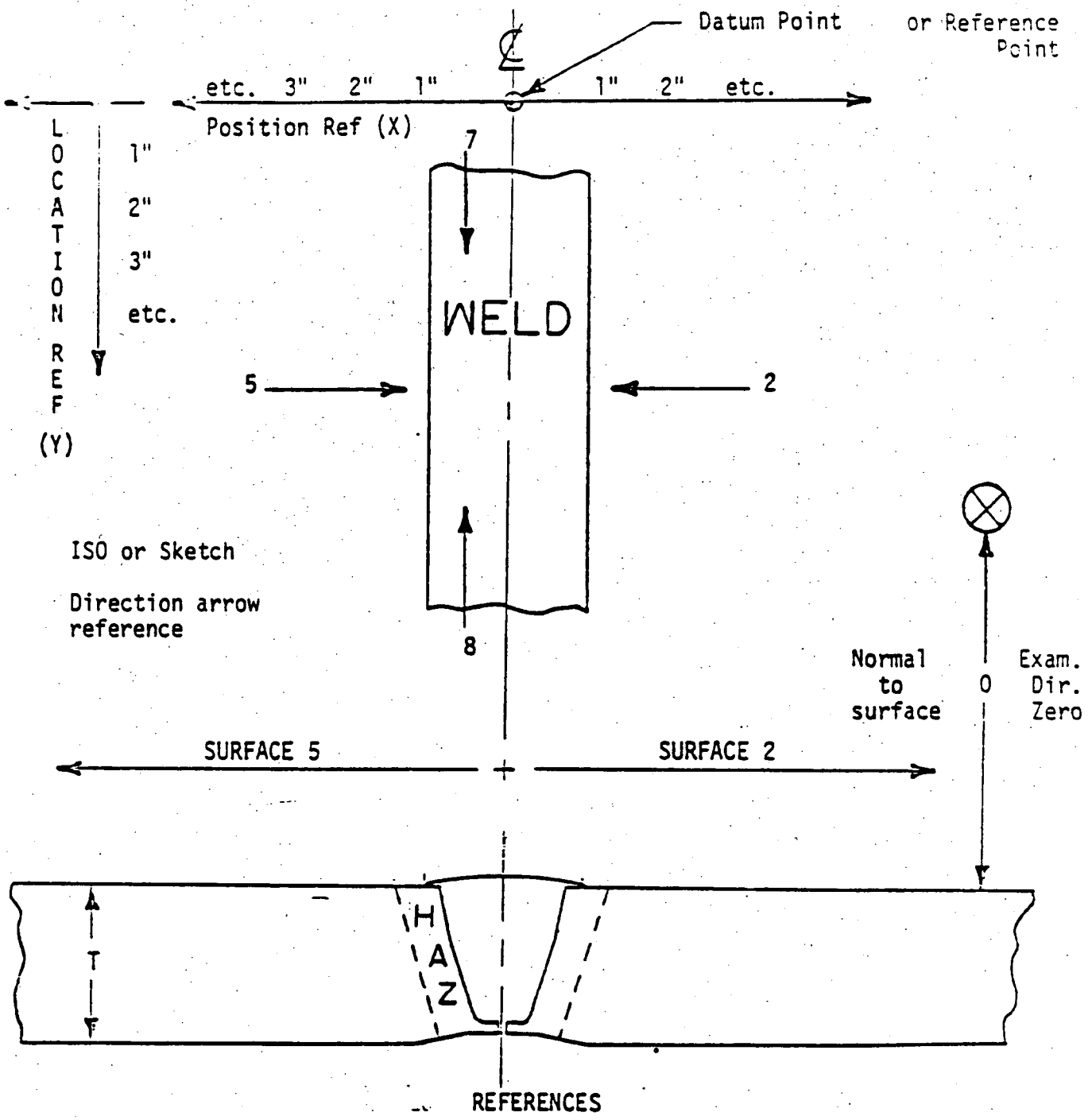


FIGURE 2



Examination Reference Key

VESSELS - As viewed from "TOP"
Circumferential Welds - Direction 7 points clockwise
Vertical Welds - Direction 7 points down

PIPE - As viewed in direction of orientation arrow (toward face of clock)
Circumferential Welds - Direction 7 points clockwise
Vertical Welds - Direction 7 points in direction of arrow

FIGURE 3

→5 ▷2

APPENDIX A

ULTRASONIC EXAMINATION DATA

The ultrasonic examination report form shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number references.)

Block No.	Information Required
1	Enter Plant name
2	Enter Plant unit number
3	Enter Date of examination
4	Enter Examination procedure number
5	Enter Plant Technical Specification reference item number applicable to area being examined (to be entered by the data coordinator)
6	Enter Unit loop identity (if applicable)
7	Enter Identity of component or system
8	Enter Size of pipe, diameter and schedule
9	Enter Sketch or Iso number
10	Enter Weld type (i.e. circ. butt weld)
11	Enter Calibration Block Identification Number
12	Enter search unit cable length
13	Make no entry if the examination is conducted from the O.D. surface of a pipe or components. Identify examination surface if other than these.
14	Enter search unit serial number
15	Enter search unit size
16	Enter search unit frequency
17	Enter search unit beam angle (i.e. 0°, 45° or 60° etc.)
18	Enter calibration reference reflector location (i.e. 1/4T, 1/2T, 3/4T, etc. or as node reference 1/8, 2/8, 3/8 etc.)
19, 21 & 25	Enter signal amplitude from reference reflector as a percentage of full screen height
20, 22 & 26	Enter the location of the reference reflector signal along the horizontal axis of the CRT screen (i.e. sweep location)
23 & 27	Enter the distance from the search unit sound exit point to the point on the block surface, vertically above the the location of the reference reflector, when the search unit is positioned for the maximum reference response.
24 & 28	Enter the distance from the search unit sound exit point to the point on the block surface, vertically above the location of the reference reflector, when the search unit is positioned to obtain a response of 50 percent of that from the reference response.

Note: Information required for items 23, 24, 27 and 28 above is only to be recorded when specifically required by the Inspection Program Coordinator or his designate.

Block No.	Information Required
29	Enter ultrasonic instrument identity
30	Enter the U.T. instrument Rep. Rate setting when calibrated
31	Enter the U.T. instrument Reject Control setting when calibrated
32	Enter the U.T. instrument Damping Control setting when calibrated
33	Enter the U.T. instrument Filter Switch setting when calibrated
34	Enter the time of initial calibration and subsequent calibration checks together with the initials of the operator
35	Indicate if continuation sheet(s) have been utilized for recording weld examination data.
36	Indicate if examination transfer data sheets have been completed for welds covered by this data sheet.
37	Indicate if any field changes are applicable to the procedure utilized for the performance of the examination
38	Operators signature certifying the examinations have been performed in accordance with the requirements of the referenced procedure and field changes.
39	Enter the gain control setting of the U.T. instrument after calibration
40	Enter the D.B. control settings of the U.T. instrument after calibration
41	Enter the identity (as given on the referenced sketch) of the weld being examined.
42	If a transfer is found to be necessary, indicate by entering a 'Y' in this space. If not necessary indicate by entering a 'N'. Ensure that a transfer data sheet is completed and indicate its attachment in space 36.
43	Indicate that the required straight beam examination of the area to be examined has been performed.
44, 45 & 46 *	Indicate here that the required angle beam examinations have been performed.
47	Indicate here if calibrated straight beam examination has been performed.
48	Indicate in these spaces that the required examinations have been performed. Enter any limitations preventing the performance of the required examinations such as obstructions due to pipe supports, etc. Indicate approximate extent of limitation.
49	Indicate condition of the base metal adjacent to the weld, i.e. as cast; hand ground, etc.
50	Indicate the condition of the weld surface; i.e. as welded; ground flat, etc.
51	Indicate the results of the ultrasonic examination by inserting the notation 'NI' if no indications greater than 20 percent of the primary reference DAC were noted. Signify by inserting the notation 'RI' if indications with an amplitude greater than 75 percent of the primary reference response

* Indicate in space 48 by the designation L/A if examinations in scan directions 7 and 8 have to be conducted utilizing the low angle approach described in paragraph 4.4.2.2 of Procedure ISI-5 or 7.4.1 of ISI-47.

Block No.	Information Required
	are noted. Ensure that an ultrasonic indication data sheet is completed for each such indication. Should indications be found which are greater than 20 percent, but not exceeding 75 percent of the primary reference response this shall be indicated by inserting the notation 'NRI' in the space provided.
52	Indicate here if indications are noted as the result of performing an examination in accordance with the requirements of Procedure ISI-8. The results should be reported by inserting the notations 'RI' or 'NI' as appropriate. Should indications be reported, a visual examination report chart shall be completed and attached (See Appendix G).
53	Enter any information necessary to explain unusual examination problems. The presence of geometric reflectors, with an amplitude greater than the recording level, should be noted here with a brief indication of the approximate extent, i.e. Root reflector 75% max. for 360°.

Note: Ultrasonic examination data continuation sheets shall, if utilized, also be completed in accordance with the above instructions as applicable to the twenty-two items of information required.

FORM 45336

OPS[illegible]0-101
Re[illegible]n 5
Pa[illegible]3

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

WELD ULTRASONIC EXAMINATION

PLANT 1	UNIT 2	DATE 3	PROCEDURE 4	TECH SPEC REF 5
LOOP 6	COMPONENT OR SYSTEM 7		PIPE SIZE 8	SKETCH NO 9

WELD TYPE 10	CALIBRATION BLOCK 11	SEARCH UNIT CABLE 12	INSTRUMENT 29	CALIBRATION CHECKS
EXAM. SURFACE 13	STRAIGHT BEAM SCAN DIRECTION 0	AXIAL SCANS DIRECTIONS 2 & 5	CIRCUMFERENTIAL SCANS DIRECTIONS 7 & 8	REP. RATE 30
S. U. NO.	14			REJECT 31
S. U. SIZE	15			34
S. U. FREQ.	16			DAMPING 32
BEAM ANGLE	17			

CALIBRATION REFLECTOR LOCATION	SIGNAL AMPLITUDE	SWEEP POSITION	SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SOUND ENTRY POINT TO SCRIBE LINE	DISTANCE FROM SOUND ENTRY POINT TO 50% DAC LOCATIONS		SIGNAL AMPLITUDE	SWEEP POSITION	DISTANCE FROM SOUND ENTRY POINT TO SCRIBE LINE	DISTANCE FROM SOUND ENTRY POINT TO 50% DAC LOCATIONS		FILTER 33
18	19	20	21	22	23	24		25	26	27	28		
GAIN	39												
REF. DB.	40												

Continuation sheets attached 35
Transfer record attached 36
This examination was performed in accordance with the procedure stated above and field change notice nos. 37

38
OPERATORS SIGNATURE

WELD NUMBER	XFER CHECK	BASE METAL SCAN	SCAN DIRECTION 2	5	7 & 8	0	INSPECTION LIMITATIONS	SURFACE CONDITION BASE METAL	WELD	EXAMINATION RESULTS U.T.	VISUAL	REMARKS
41	42	43	44	45	46	47	48	49	50	51	52	53

FORM 45337

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
WELD ULTRASONIC EXAMINATION
(CONTINUATION SHEET)

PLANT	UNIT	DATE	PROCEDURE	TECH SPEC REF
1	2	3	4	5

LOOP	COMPONENT OR SYSTEM	PIPE SIZE	SKETCH NO
6	7	8	9

WELD NUMBER	XFER CHECK	BASE METAL SCAN	SCAN DIRECTION				INSPECTION LIMITATIONS	SURFACE CONDITION		EXAMINATION RESULTS		REMARKS
			2	5	7 & 8	0		BASE METAL	WELD	U.T.	VISUAL	
41	42	43	44	45	46	47	48	49	50	51	52	53

APPENDIX B

ULTRASONIC INDICATION DATA SHEET

The ultrasonic indication data sheet shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number references.)

Block No.	Information Required
1	Enter plant name
2	Enter plant unit number
3	Enter date of examination
4	Enter unit loop identity (if applicable)
5	Enter identity of component or system
6	Enter sketch or Iso number
7	Enter identity of operator performing examination
8	Enter the thickness of the calibration standard utilized to establish the DAC
9	Enter examination procedure number
10	Enter the identity (as given on the referenced sketch) of the weld being examined
11	Measure and record here the distance from the reference datum point to the nearest end of the indication at the point where the response signal has reduced to an amplitude of 50 percent of the DAC.
12	Similarly measure and record the distance from the datum point to the furthest end of the indication
13	Measure and record the sound path distance (depth) to the half amplitude point of the reflector nearest to the surface (i.e. minimum depth)
14	Measure and record the distance from the point of sound entry to the reference datum point in accordance with the requirements of Section 5.0 of this procedure at the minimum depth location.
15	Measure and record the sound path distance to the half amplitude point of the reflector furthest from the surface. (i.e. maximum depth)
16	Again measure and record the distance from the point of sound entry for maximum depth to the reference datum point.
17	Record the maximum signal response from the indication either as a percentage of DAC (i.e. 150%) or in terms of the attenuation required to reduce the signal amplitude to the DAC level (i.e. DAC + 6db)
18	Record the search unit refracted angle in the material
19	Indicate the direction that the search unit is pointing when recording the indication. This may be achieved by utilizing the scan direction references of Figure 3 (i.e. 2, 5, 7 or 8)

Block No.	Information Required
20	Measure and record the base metal thickness on the side of the weld opposite the direction of the ISO arrow.
21	Measure and record the weld thickness at or near the centerline of the weld.
22	Measure and record the base metal thickness on the side of the weld in the direction of the ISO arrow.
23	Record any additional information necessary to characterize the reflector.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
ULTRASONIC INDICATION DATA SHEET

PLANT: 1	UNIT: 2	DATE: 3
LOOP: 4	SYSTEM OR COMPONENT: 5	SKETCH NO. 6
OPERATOR(S): 7	STD THICK. 8	PROCEDURE NO. 9

WELD NUMBER	INDICATION LENGTH		MIN. DEPTH	S.U. POS.	MAX. DEPTH	S.U. POS.	MAX. % DAC	BEAM ANGLE	BEAM DIR.	BASE METAL THICK.	WELD THICK.	BASE METAL THICK.	REMARKS
	FROM	TO											
10	11	12	13	14	15	16	17	18	19	20	21	22	23

FORM 44430 A

APPENDIX C

ULTRASONIC TRANSFER DATA SHEET

The ultrasonic transfer data sheet shall be completed in accordance with the following. (Refer to the attached sample form for block number references.)

Block No.	Information Required
1	Date examination performed
2	Procedure utilized
3	Signature of operator(s) performing the examination
4	Plant name
5	Plant unit number
6	Sketch or ISO number as applicable
7	Calibration reference level db value
8	Db value from calibration block with amplitude at 80%
9	Db value from examination area with amplitude at 80%
10	Db difference between A and B above
11	Enter the corrected reference calibration db value
12	List weld numbers for which the above transfer is applicable

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
ULTRASONIC TRANSFER DATA SHEET

DATE 1

PROCEDURE 2

OPERATOR 3

PLANT 4 UNIT 5 SKETCH/ISO NO. 6

REF. CAL DB VALUE 7

DB VALUE CAL. BLOCK (A) 8

DB VALUE EXAM. ITEM (B) 9

DB DIFFERENCE BETWEEN A & B 10

IF (B) IS LESS THAN (A) CHANGE REF. DB VALUE BY THIS AMOUNT TO INCREASE SENSITIVITY. IF (B) IS GREATER THAN (A) CHANGE THE REF. DB VALUE BY THIS AMOUNT TO DECREASE SENSITIVITY. RECORD CORRECTED REF. CAL. DB VALUE 11.

THE ABOVE TRANSFER CORRECTION IS APPLICABLE TO WELD(S) NUMBERS:

12					

APPENDIX D

INSTRUMENT CALIBRATION DATA FOR WELDS

2 1/2 INCHES THICK OR GREATER IN FERRITIC VESSELS

The instrument calibration data sheet shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number references.)

Block No.	Information Required
1	Date of examination
2	Examination procedure number
3	Signature of operator
4	Plant name
5	Plant unit number
6	Make of instrument (Branson, Automation, etc.)
7	Instrument model number
8	Instrument serial number
9	Couplant used
10	Transducer size
11	Transducer frequency
12	Transducer serial number
13	Beam angle
14	Smaller signal amplitude with larger at 100%
15	Smaller signal amplitude with larger at 90%
16	Smaller signal amplitude with larger at 80%
17	Smaller signal amplitude with larger at 70%
18	Smaller signal amplitude with larger at 60%
19	Smaller signal amplitude with larger at 50%
20	Smaller signal amplitude with larger at 40%
21	Smaller signal amplitude with larger at 30%
22	Smaller signal amplitude with larger at 20%
23	Damping control setting during above verification
24	Reject control setting during above verification
25	Rep. rate control setting during above verification
26	Signal amplitude change from 80% with -6db change
27	Signal amplitude change from 80% with -12db change
28	Signal amplitude change from 40% with +6db change
29	Signal amplitude change from 20% with +12db change
30	Damping control setting during above verification
31	Reject control setting during above verification
32	Rep. rate control setting during above verification

W STINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
PRELIMINARY INSTRUMENT CALIBRATION DATA
FOR FERRITIC VESSEL BUTT WELDS
OF 2 1/2" THICK AND GREATER

DATE 1
PROCEDURE 2
OPERATOR 3
PLANT 4
UNIT 5

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	6	SIZE	10
MODEL	7	FREQ.	11
SERIAL NO.	8	SERIAL NO.	12
COUPLANT	9	ANGLE	13

AMPLITUDE LINEARITY VERIFICATION

	100%	90%	80%	70%	60%	50%	40%	30%	20%
1ST SIGNAL AMPLITUDE									
2ND SIGNAL AMPLITUDE	14	15	16	17	18	19	20	21	22
2ND SIGNAL ALLOWABLE AMPLI.	48-52%	47-43	42-38	37-33	32-28	28-23	22-18	17-13	12-8

CONTROL SETTINGS: DAMPING 23 REJECT 24 REP. RATE 25

AMPLITUDE CONTROL LINEARITY VERIFICATION

ORIGINAL SIGNAL AMPLITUDE	DB CONTROL CHANGE	SIGNAL AMPLITUDE	SIGNAL AMPLITUDE LIMITS
80% FSH	-6DB	26	36 - 42
80% FSH	-12DB	27	16 - 22
40% FSH	+6DB	28	76 - 84
20% FSH	+12DB	29	79 - 92

NOTE: MINUS DENOTES DECREASE IN AMPLITUDE; PLUS DENOTE INCREASE.

CONTROL SETTINGS: DAMPING 30 REJECT 31 REP. RATE 32

APPENDIX E

SURFACE EXAMINATION OF WELDS

The surface examination data sheet shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number references.)

Block No.	Information Required
1	Examination procedure number
2	Signature of operator
3	Plant name
4	Plant unit number
5	Date of examination
6	Identity of component or system
7	Enter sketch or reference ISO number
8	Enter batch number of the dye penetrant
9	Enter batch number of the developer
10	Enter batch number of the cleaner
11	Enter weld identity
12	Indicate in the appropriate column either NRI if no reportable indications are noted or RI if reportable indications are noted. If reportable indications are noted a Dye Penetrant Indication Record Sheet shall be completed and attached (See Appendix E). Indications noted during the examination of clad surfaces may be reported by the use of photographic records.
13	Enter any additional information as necessary to fully describe the performance of the examination. Identify any photographs utilized to provide a record of the examination results.
14	Indicate here if indications are noted as the result of performing a visual examination in accordance with the requirements of Procedure ISI-8. Should indications be reported, a visual examination report sheet chart shall be completed and attached (See Appendix G).

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
WELD SURFACE EXAMINATION

PROCEDURE: 1 PLANT: 3 UNIT: 4

OPERATOR: 2 DATE: 5

Piping System/Component 6

Isometric/Sketch No. 7

Material Batch Nos. Penetrant 8 Developer 9 Cleaner 10

WELD NUMBER	RESULTS NRI	RESULTS RI	COMMENTS	VISUAL ISI-8 SAT	VISUAL ISI-8 UNSAT
11	12		13	14	

APPENDIX F

SURFACE EXAMINATION INDICATIONS

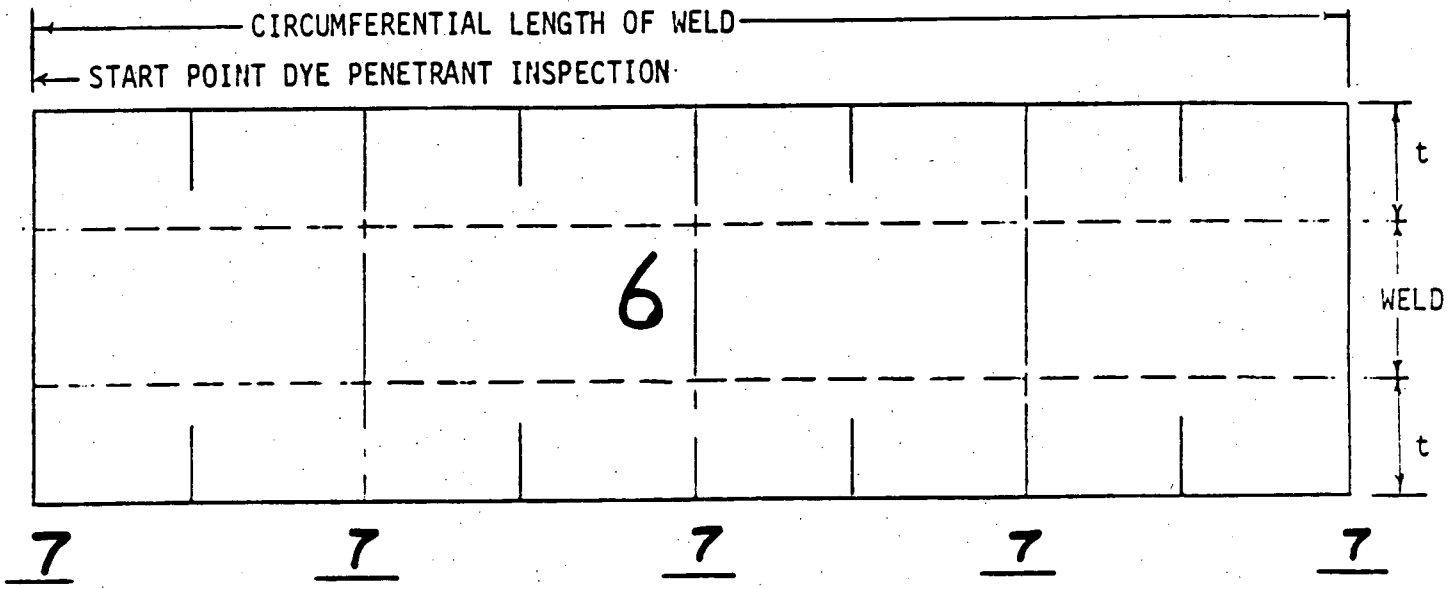
The surface examination indication record shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number references.)

Block No.	Information Required
1	Examination procedure number
2	Signature of operator
3	Plant name
4	Plant unit number
5	Date of examination
6	Indicate on the chart the approximate location and size of the indication
7	Identify, either in degrees or by distance in inches from the datum point, the location of the reference lines.
8	Enter any information necessary to clarity the report or nature of the indication
9	Enter the identity of the component or piping system
10	Enter the identity of the weld as given on the referenced sketch or ISO
11	Indicate the reference sketch or ISO

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
CIRCUMFERENTIAL AND LONGITUDINAL WELDS
DYE PENETRANT INDICATION RECORD

PROCEDURE: 1 PLANT: 3 UNIT 4

OPERATOR: 2 DATE: 5



REMARKS: 8

COMPONENT/PIPING SYSTEM 9

WELD NO. 10

ISO/SKETCH NO. 11

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
SURFACE EXAMINATION
INDICATION RECORD

PROCEDURE 1 PLANT 3 UNIT 4

OPERATOR 2 DATE 5

COMPONENT/PIPING SYSTEM 9

ITEM I.D. 10 SKETCH/ISO NO. 11

REMARKS 8

MAKE SKETCH SHOWING APPROXIMATE LOCATION AND LENGTH OF INDICATION(S)

APPENDIX G

VISUAL EXAMINATION INDICATION RECORD

The visual examination indication record shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number references.)

Block No.	Information Required
1	Procedure number used
2	Operators name
3	Plant name
4	Plant unit number
5	Date examination performed
6	Component or piping system identification
7	Weld number if applicable
8	Sketch or isometric number as applicable
9	List any visual aids used
10	Enter any remarks necessary for clarification
11	Mark chart to show all information necessary to locate and characterize the indication being reported

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
VISUAL EXAMINATION
INDICATION RECORD

PROCEDURE: 1 PLANT: 3 UNIT 4.

OPERATOR: 2 DATE: 5

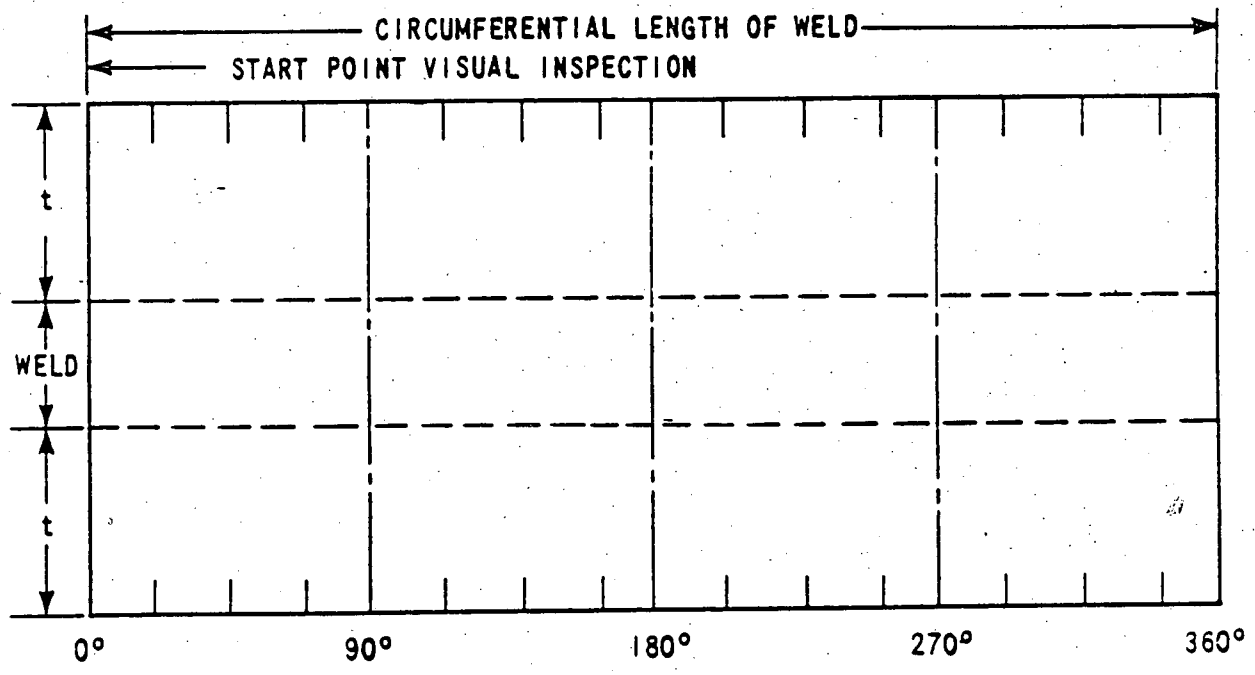
COMPONENT/PIPING SYSTEM: 6

WELD NO. 7 SKETCH/ISO NO. 8

VISUAL AIDS USED: 9

REMARKS: 10

MAKE SKETCH BELOW SHOWING LOCATION OF INDICATION(S)



APPENDIX H

STUD, BOLT AND NUT ULTRASONIC EXAMINATION

The stud, bolt and nut ultrasonic examination report form shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number locations.)

Block No.	Information Required
1	Date of examination
2	Examination procedure number
3	Signature of Operator
4	Applicable sketch number
5	Plant name
6	Plant unit number
7	Loop number (if applicable)
8	Component identity
9	Ultrasonic instrument identification
10	Search unit size
11	Search unit frequency
12	Search unit serial number
13	Record the signal amplitude of the first back surface reflection
14	Record the amplitude of the first response from the calibration hole
15	Record the amplitude of the second response from the calibration hole
16	Record the amplitude of the second response from the calibration hole after the instrument gain has been increased (i.e. 12db out)
17	Similarly record the amplitude of the third response
18	Similarly record the amplitude of the fourth response
19	Similarly record the amplitude of the fifth response
20	Similarly record the amplitude of the sixth response
21	Similarly record the amplitude of the seventh response
22	Similarly record the amplitude of the eighth response
23	Enter time of original calibration and each additional calibration check
24	Enter item identification number
25	Check mark the NRI box if no reportable indications are noted. Check the RI box if reportable indications are noted and complete a "Studs, Bolts, and Nuts Ultrasonic Indication Report" Sheet. (Refer to Appendix I)
26	Enter any information necessary for clarification
27	Enter a check mark in either the "Sat" or "Unsat" column as applicable. If "Unsat" is checked, complete a "Visual Examination Indication Record" Sheet. (Refer to Appendix J)

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
STUDS, BOLTS AND NUTS
ULTRASONIC EXAMINATION REPORT

DATE 1

PROCEDURE 2.

OPERATOR 3

SKETCH NO. 4

PLANT 5 UNIT 6 LOOP 7 COMPONENT 8

EQUIPMENT

INSTRUMENT

IDENTITY 9

TRANSDUCER

SIZE 10

FREQ. 11

SERIAL NO. 12

CALIBRATION

NUTS, STUDS, BOLTS LESS THAN 4" DIA. BACK SURFACE SIGNAL 13 % F.S.H.

STUDS, BOLTS 4" DIA. AND GREATER

CURVE "A"

FIRST SIGNAL FROM HOLE 14 % F.S.H.

SECOND SIGNAL FROM HOLE 15 % F.S.H.

CURVE "B"

SECOND SIGNAL 16 % F.S.H.

THIRD SIGNAL 17 % F.S.H.

FOURTH SIGNAL 18 % F.S.H.

CALIBRATION CHECKS 23 ____ ____

FIFTH SIGNAL 19 % F.S.H.

SIXTH SIGNAL 20 % F.S.H.

SEVENTH SIGNAL 21 % F.S.H.

EIGHTH SIGNAL 22 % F.S.H.

EXAMINATION RESULTS

ITEM NUMBER	RESULTS		COMMENTS	VIS. ISI-8	
	NRI	RI		SAT	UNSAT
24	25	25	26	27	27

LEGEND: NRI NO REPORTABLE INDICATIONS
RI REPORTABLE INDICATIONS

APPENDIX I

ULTRASONIC INDICATION REPORT STUDS, BOLTS & NUTS

The studs, bolts, and nuts ultrasonic indication report form shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number locations.)

Block No.	Information Required
1	Date examination performed
2	Procedure used
3	Operator(s) performing the examination
4	Enter sketch or drawing identification number as applicable
5	Plant name
6	Plant unit number
7	Enter loop number
8	Enter component name and number
9	Record maximum indication signal amplitude
10	Record indication penetration into the material
11	Enter indication location from one end, indication circumferential location, and length of indication
12	Indicate by the use of a sketch the approximate location of indications

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
STUDS, BOLTS, AND NUTS
ULTRASONIC INDICATION REPORT

DATE 1

PROCEDURE 2

OPERATOR 3

SKETCH NO. 4

PLANT 5 UNIT 6 LOOP 7 COMPONENT 8

INDICATION SIGNAL AMPLITUDE 9

INDICATION DEPTH 10

INDICATION LOCATION 11

INDICATE BY SKETCH BELOW APPROXIMATE LOCATION OF INDICATION.

12

APPENDIX J

VISUAL EXAMINATION REPORT

The results of visual examinations of supports, hangers, restraints, studs, nuts, bolts, washers, clad patches and interior surfaces of pumps and valves shall be reported in accordance with the following requirements. (Refer to the attached sample form for block number locations.)

Block No.	Information Required
1	Plant name
2	Unit number
3	Date of examination
4	Examination Procedure
5	Signature of operator
6	Loop number (if applicable)
7	Identity of system or component
8	Sketch or ISO number
9	Identity of item to be examined
10	Indicate the results of the examination by inserting 'NRI' if no reportable indications are noted or 'RI' if indications are found.
11	Identify any visual aids utilized to facilitate the examination of each item.
12	Identify any conditions affecting the performance of the examination. Describe any reportable indications or identify any separate sheet or photograph utilized to record indications.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
VISUAL EXAMINATION

PLANT: 1 UNIT: 2 DATE: 3

PROCEDURE: 4 OPERATOR: 5 LOOP: 6

SYSTEM OR COMPONENT: 7 SKETCH NO: 8

ITEM	EXAMINATION RESULTS	VISUAL AIDS	REMARKS
9	10	11	12

APPENDIX K

The reactor coolant pump motor flywheel ultrasonic and surface examination data sheets shall be completed in accordance with the following requirements.

The "Reactor Coolant Pump Flywheel Data Sheet" form shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number locations.)

Block No.	Information Required
1	Date examination performed
2	Procedure used
3	Operator(s) performing the examination
4	Plant name
5	Plant unit number
6	Loop number
7	Make of instrument (Branson, Automation, etc.)
8	Instrument model number
9	Instrument serial number
10	Couplant used
11	Periphery examination transducer size
12	Periphery examination transducer frequency
13	Periphery examination transducer serial no.
14	Gage hole examination transducer size
15	Gage hole examination transducer frequency
16	Gage hole examination transducer serial no.
17	Ream bolt hole signal amplitude from upper plate
18	Ream bolt hole signal amplitude from lower plate
19	Bore signal amplitude from gage hole
20	Near ream bolt hole signal amplitude from gage hole
21	Far ream bolt hole signal amplitude from gage hole
22	Enter time of original calibration and each additional calibration check
23	Enter check mark here if no recordable indications are noted during periphery examination
24	Enter check mark here if recordable indications are noted during periphery examination
25	Enter check mark if defects are noted and attach a "Flywheel Ultrasonic Indication Report" sheet. (See Appendix F)
26	Enter check mark here if no reportable indications are noted during the keyway corner examination
27	Enter check mark here if reportable indications are noted during the keyway corner examination
28	Enter check mark here if no reportable indications are noted during the radial gage hole examination.
29	Enter check mark here if reportable indications are noted during the radial gage hole examination
30	Enter check mark here if visual examination of the pump flywheel is satisfactory
31	Enter check mark here if visual examination of the pump flywheel is unsatisfactory and attach a "Visual Examination Indication Record" data sheet.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
REACTOR COOLANT PUMP FLYWHEEL DATA SHEET

DATE 1

PROCEDURE 2

OPERATOR 3

PLANT 4 UNIT 5 LOOP 6

EQUIPMENT

INSTRUMENT	TRANSDUCERS	
	PERIPHERY EXAM.	GAGE HOLE PROBE
MAKE 7		
MODEL 8	SIZE 11	SIZE 14
SERIAL NO. 9	FREQ. 12	FREQ. 15
COUPLANT 10	SERIAL NO. 13	SERIAL NO. 16

CALIBRATION

1. PERIPHERY - REAM BOLT HOLE REFLECTION UPPER PLATE 17 % FSH
   LOWER PLATE 18 % FSH
2. KEYWAY CORNER - BORE BACK REFLECTION 19 % (VERIFY 90% MIN.)
3. RADIAL GAGE HOLE - REAM BOLT HOLE REFLECTION - NEAR 20 % FSH
   CALIBRATION CHECKS 22 FAR 21 % FSH

EXAMINATION RESULTS

1. PERIPHERY 1) NO RECORDABLE INDICATIONS 23
   2) RECORDABLE INDICATIONS 24 SKETCH ATTACHED 25
2. KEYWAY CORNER 1) NO RECORDABLE INDICATIONS 26
   2) RECORDABLE INDICATIONS 27 SKETCH ATTACHED 25
3. RADIAL GAGE HOLE 1) NO RECORDABLE INDICATIONS 28
   2) RECORDABLE INDICATIONS 29 SKETCH ATTACHED 25
4. VISUAL EXAMINATION (ISI-8) SAT. 30
   UNSAT. 31

APPENDIX K (Cont'd)

The "Flywheel Ultrasonic Indication Report" form shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number locations.)

Block No.	Information Required
1	Date examination performed
2	Procedure used
3	Operator(s) performing the examination
4	Plant name
5	Plant unit number
6	Loop number
7	Enter check mark after appropriate scan which detected the indication
8	Indicate the length of the indication
9	Indicate the indications depth of penetration into the flywheel
10	Enter check mark if indication is in top plate
11	Enter check mark if indication is in bottom plate
12	Indication signal amplitude
13	Indicate on sketch all data necessary to locate the reported indication

NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
PLANT UT ULTRASONIC INDICATION REPORT

TYPE 1

PROCEDURE 2

OPERATOR 3

PLANT 4 UNIT 5 LOOP 6

SCAN: PERIPHERY 7 KEYWAY CORNER 7 RADIAL GAGE HOLE 7

INDICATION LENGTH 8

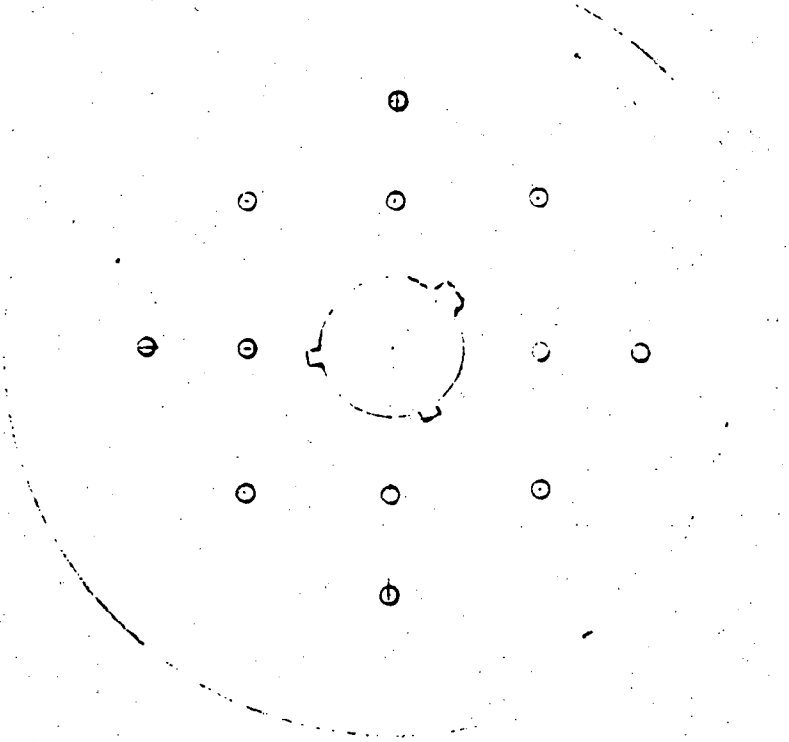
INDICATION DEPTH 9

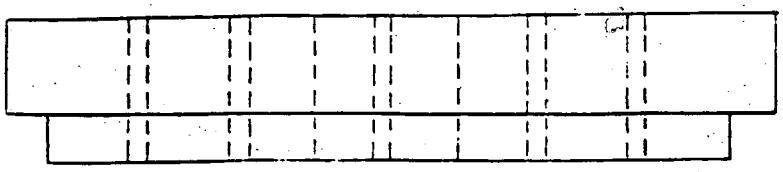
INDICATION LOCATION - TOP PLATE 10 BOTTOM PLATE 11

INDICATION SIGNAL AMPLITUDE 12 % FSH

INDICATE ON SKETCH BELOW APPROXIMATE LOCATION OF INDICATION.

13





APPENDIX K (Cont'd)

The "Surface Examination Flywheel Bore and Keyways" form shall be completed in accordance with the following requirements. (Refer to the attached sample form for block number locations.)

Block No.	Information Required
1	Procedure number used
2	Operators name
3	Plant name
4	Plant unit number
5	Date examination performed
6	Penetrant batch number
7	Developer batch number
8	Cleaner batch number
9	Enter Sat or Unsat as applicable
10	Enter any information necessary for clarification
11	Enter on sketch all information necessary to locate and characterize any reportable indications

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
SURFACE EXAMINATION
FLYWHEEL BORE AND KEYWAYS

PROCEDURE: 1 PLANT: 3 UNIT: 4

OPERATOR(S): 2 DATE: 5

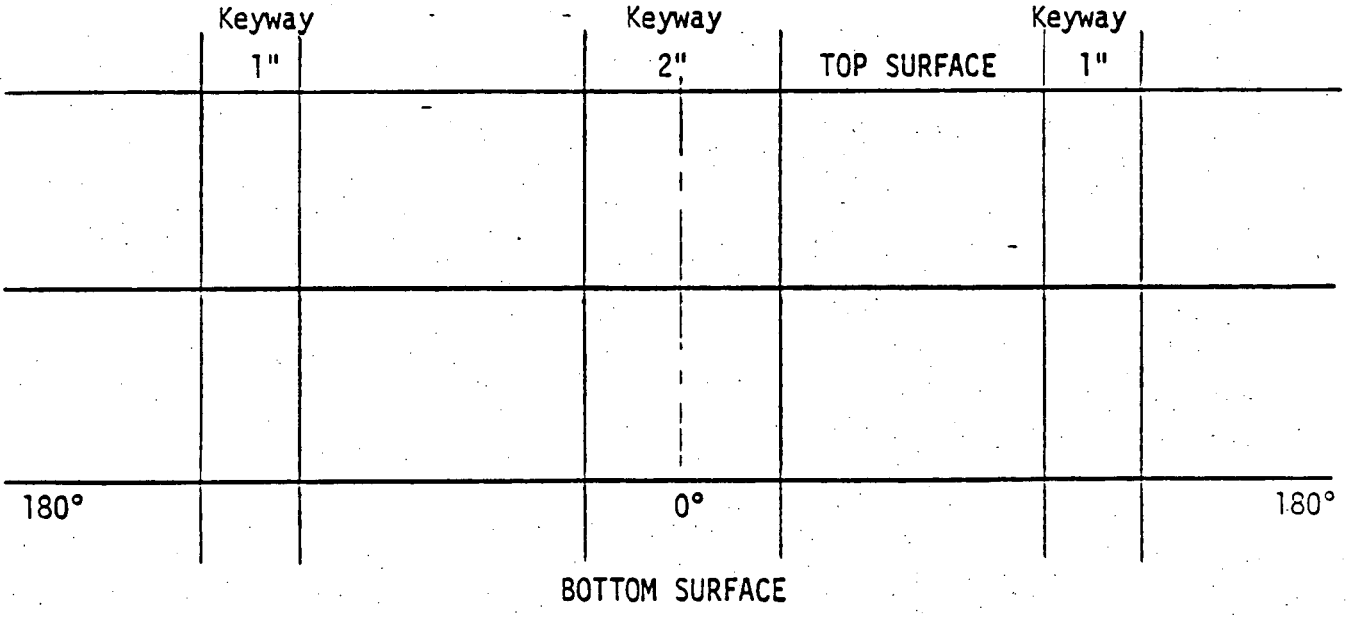
MATERIAL BATCH NOS. Penetrant 6 Developer 7 Cleaner 8

EXAMINATION RESULTS: 9

REMARKS: 10

EXAMINATION INDICATION DATA SKETCH

11



APPENDIX L

Records shall be made of the equipment and consumables utilized for the performance of an inspection program and documented on the attached forms.

ULTRASONIC EQUIPMENT IDENTIFICATION

INSTRUMENT IDENTIFICATION CODE	MANUFACTURER	MODEL	S/N

CALIBRATION BLOCKS

BLOCK IDENTIFICATION	SIZE OR SCHEDULE	MATERIAL	HEAT NUMBER

EXAMINATION CONSUMABLE MATERIALS

DESCRIPTION	MANUFACTURER	TYPE	BATCH
UT COUPLANT			
DYE PENETRANT			
CLEANER			
PENETRANT			
DEVELOPER			
REMOVER			

APPENDIX M

GENERAL INDICATION DATA

The General Indication Data Report Form shall be completed in accordance with the following requirement. (Refer to the Attached Sample Form for Block Number References).

BLOCK NUMBER

1. Enter Plant Name.
2. Enter Unit Number.
3. Enter Sketch Number.
4. Enter Identity of System or Component.
5. Enter the Program Plan Number (at the election on the Data Coordinator).
6. Enter Examiner's signature.
7. Enter date of Examination.
8. Enter Examination Procedure Identification Number.
9. Mark the appropriate block by which the indication was detected.
10. Enter the unique identity of the area or item examined.
11. Complete this block -- per instructions on forms.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

GENERAL – INDICATION DATA

PLANT 1 UNIT 2 SKETCH 3

SYST/COMP 4 PROG. NO. 5

EXAMINER 6 DATE 7 PROCEDURE 8

DETECTED BY U/T 9 P/T 9 M/T 9 V/T 9 IDENT NO. 10

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.

11

APPENDIX N

MAGNETIC PARTICLE EXAMINATION REPORT

Magnetic particle examinations shall be recorded in accordance with the following requirements. Refer to the attached sample form for block number locations.

Block No.	Information Required
1	Plant name
2	Plant or unit number
3	Number of sketch, drawing, etc., that identifies the area or item examined.
4	Name of the system or component or title of sketch
5	Number of procedure used for the examination. Include revision, amendment and field change numbers as applicable.
6	Identify magnetizing equipment used, such as model or type. Include serial number
7	Ferromagnetic particles used, such as: gray powder No. XX; prepared bath No. XX, fluorescent bath No. XX, etc.
8	Amperes used for direct, coil, prods, etc., as applicable. If not applicable, enter N/A.
9	Signature and Level of examiner. Signature and Level of certified aides is optional.
10	Date of report
11	Identify each item or area examine, as indicated in provision of block 3. Identification may be grouped if all information furnished is applicable to all; such as 1 thru 29 or 18 thru 54.
12	Mark the appropriate column based on No Relevant Indications (NRI) or Relevant Indications (RI) detected. If RI column is marked, complete an indication report form similar to Appendix Form.
13	Enter appropriate comments, if any, relative to examination problems or limitations, or which might be necessary to fully describe performance of examinations. If continuous method was not practical, enter brief explanation.

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICE

MAGNETIC PARTICLE EXAMINATION

PLANT 1 UNIT 2 SKETCH 3

SYST./COMP. 4 PROCEDURE 5

EQUIPMENT 6

PARTICLE TYPE 7 AMPERES 8

EXAMINER(s) 9 DATE 10

ITEM IDENT	RESULTS		COMMENTS
	NRI	RI	
11	12	12	13

File: 86-13508

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date..... 3-16-87
Admin. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 137.4
ONS Review..... 1		Revision No..... 0
Training Review..... 1		Spec Proc. No..... SP-730
Warren Farmer Assigned Copies..... 4		Temp. Change No..... N/A
Total (Minus Original).... 7		Temp. Change Expires N/A (If Any)

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-730

Pages Effected ENTIRE PROCEDURE 1-11

I. A. Proposed Revision: Addition of new procedure - Special Procedure NSD-ISI-10 R/6 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 1/15/87

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 FSAR Changes are required. Therefore no unreviewed safety question arises due to actions performed with this procedure.

(If additional space is required use additional paper and attach them to this form.)

4-1-87

ISI-10 Rev 6
Qual of UT Manual Equip

ALARA REVIEW FORM

Circle One: Procedure (Special Procedure) Modification

TITLE: SP- Qualification of Ultrasonic Manual Equipment

COMMENTS: None

3/5/87
DATE

Jim Handy
ALARA REPRESENTATIVE

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: 1/15/87

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: N/A Robert Chamberlain DATE 3-04-87
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: Jim Bondy DATE 3/5/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
Signature

(2) N/A NRC 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.

Wallace Farmer	[signature]	1/20/87
Safety Reviewer	Signature	Date
R. Chambers	N/A Chambers	3/4/87
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.

NA APW 3/9/87	N/A
CNS Review	Date
NA APW 3/9/87	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:	A.R. Wallace	3/9/87	3/16/87
	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- 730

QUALIFICATION OF ULTRASONIC MANUAL EQUIPMENT

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: Mary H. Chamberlain 3/4/87

APPROVED BY: A.R. Wallace 3/9/87

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 11	0

FORM 48773

Nuclear Service Division	INSPECTION SERVICES NONDESTRUCTIVE EXAMINATION PROCEDURE	PROCEDURE NUMBER NSD-ISI-10 Rev. 6

TITLE

QUALIFICATION OF ULTRASONIC MANUAL EQUIPMENT

Prepared By: B. J. Lefebvre
B. J. Lefebvre, Level III

Approved By: G. C. Efthymiou
G. C. Efthymiou, Manager
Inspection Service

EFFECTIVE DATE November 1, 1983		REVISED DATE November 1, 1983

QUALIFICATION OF ULTRASONIC MANUAL EQUIPMENT

1.0 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 on a cathode-ray tube (CRT) screen pulses in the frequency range from one to six megahertz (MHz). The presentation on the CRT screen shall be the "Video type" and characterized by a clean, crisp trace.

1.1 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.

1.2 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 2.3 (45 to 55% FSH).

1.3 The examination instrument shall be capable of maintaining a vertical linearity such that the calculated ratios determined from signals developed in accordance with 2.2, do not deviate by more than 0.2 through 90% of full screen height.

1.4 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.

2.0 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 within 1/2 to 2 in. 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. Instruments that do not incorporate an uncalibrated gain or sensitivity control are exempt from the requirements of 2.3., but must meet requirements of 3.2.

2.1 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.

2.2 Vertical Linearity

With the instrument settings and test conditions as established in steps (a) (b) (c) (d) and (e) of 2.1 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. Noting and recording the amplitudes of the eighth and ninth multiple signals between each progressive increase.

2.2 (cont'd)

f. Continue until the eighth signal reaches full screen height.

g. Document results on forms similar to that illustrated in Figure 2.

2.3 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 the instrument.

i. Document results on form similar to that illustrated in Figure 3.

3.0 SUPPLEMENTAL LINEARITY EVALUATION

This section is intended to satisfy the "instrument" calibration requirements of the Edition and Addenda (if any) of Section XI of the ASME Boiler and Pressure Vessel Code that is specified in the Examination Program Plan that incorporates this document. This section will be performed at the beginning of each period of extended use or every three months, which ever is less. Results are to be documented on a form similar to that illustrated in Figure 4. Checks are to be conducted as follows.

3.1 Screen Height Linearity Verification

a. Position the search unit on the calibration block 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.

3.2 Amplitude Control Linearity Verification

a. Position the search unit on a calibration block so that any 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.

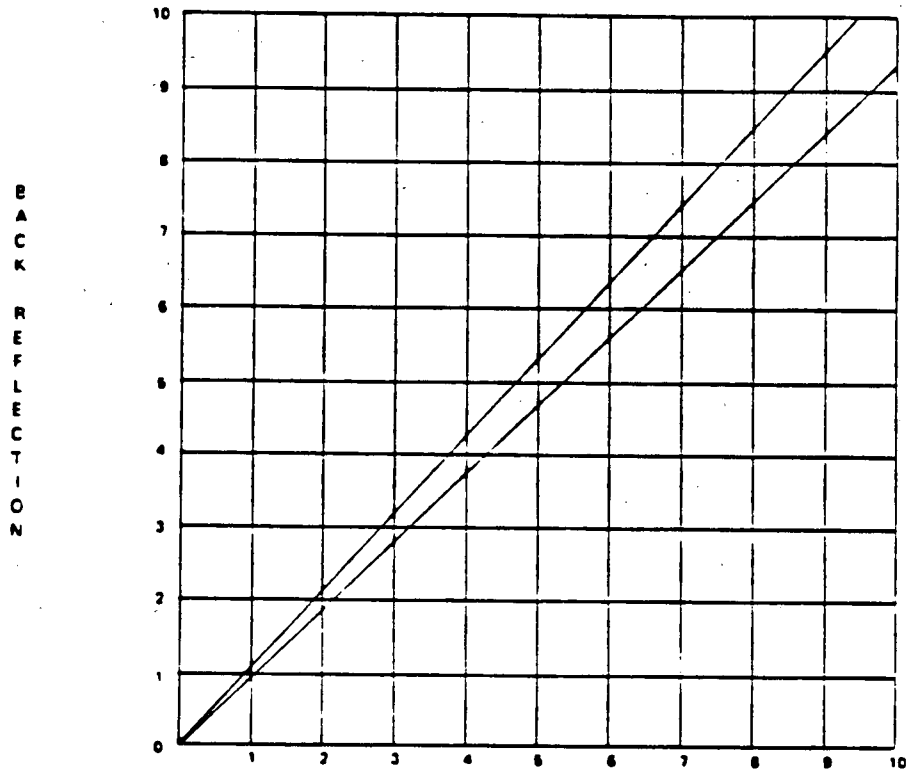
Indication set at % of full screen	DB Control Change	Indication limits, % of full screen
80%	- 6DB	32% - 48%
80%	- 12DB	16% - 24%
40%	+ 6DB	64% - 96%
20%	+ 12DB	64% - 96%

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 _____

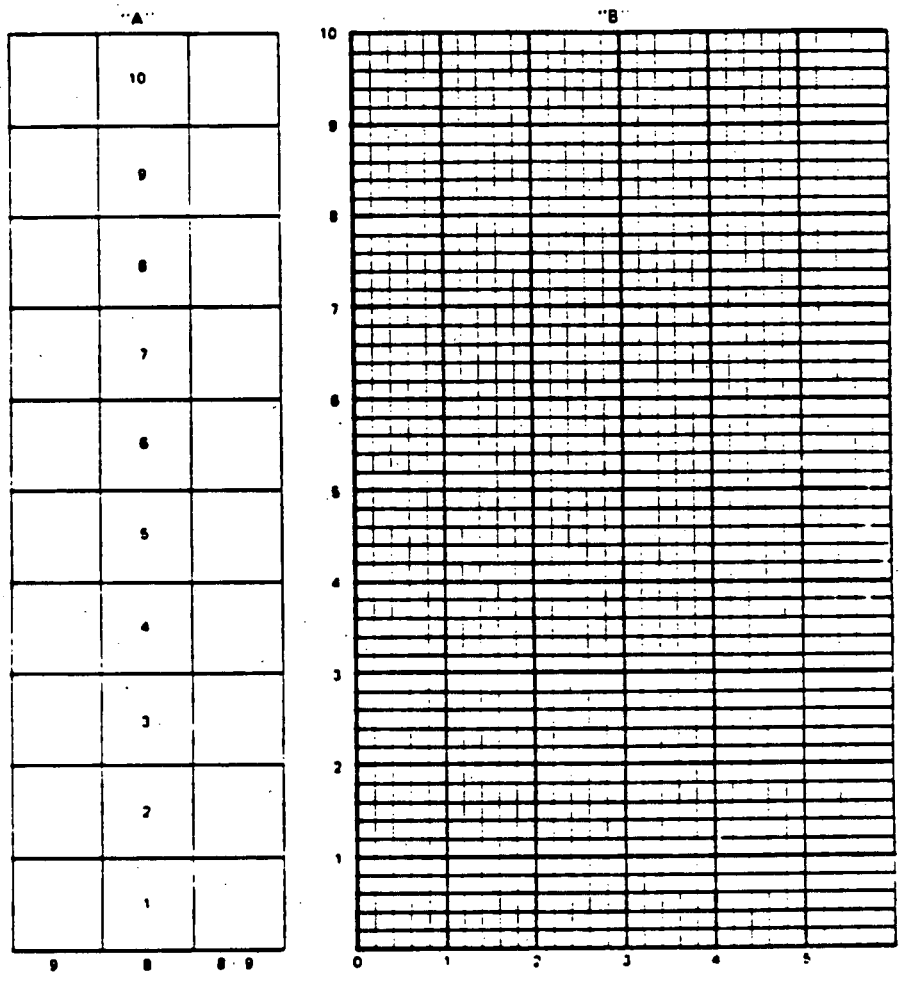
LINEARITY IS ☐ ACCEPTABLE ☐ UNACCEPTABLE DATE _____

REMARKS _____

FIGURE 1

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 _____

F-00004

FIGURE 2

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 _____

F 69005

FIGURE 3

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

INSTRUMENT LINEARITY CHECK

PLANT _____ UNIT _____ DATE _____

EXAMINER _____ PROCEDURE _____
LEVEL II

EQUIPMENT

INSTRUMENT		TRANSDUCER	
MAKE	_____	SIZE	_____
MODEL	_____	FREQ	_____
SERIAL NO	_____	SERIAL NO	_____
COUPLANT	_____	ANGLE	_____

SCREEN HEIGHT LINEARITY VERIFICATION

1ST SIGNAL	100%	80%	80%	70%	60%	50%	40%	30%	20%
2ND SIGNAL									

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	_____	32% 48%
80% FSH	-12DB	_____	16% 24%
40% FSH	+6DB	_____	64% 96%
30% FSH	+12DB	_____	64% 96%

NOTE MINUS DENOTES DECREASE IN AMPLITUDE PLUS DENOTES INCREASE

FORM 0595.1E

FIGURE 4

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date..... 3-11-87
Main. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 13722
ME Review..... 1		Revision No..... 0
Training Review..... 1		Spec Proc. No..... SP-731
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-731

Pages Effected Entire procedure 1-18

I. A. Proposed Revision: Addition of new procedure - special procedure ISI-206 R/1 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 1/15/87

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.)

3-31-87

ISI-206 Rev 1
MAN UT of Welds

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: 1/15/87

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: Nat Chandler DATE 3/4/87
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: N/A

NAME: N/A TITLE: N/A

NAME: N/A TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: N/A

NAME: N/A TITLE: N/A

NAME: N/A TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: J E Pottigan DATE 3/6/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/9/87
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.

Harold Farmer		1/20/87
Safety Reviewer	Signature	Date
R. Chambers		3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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: A.R. Wallace	3/9/87	3/16/87
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- 738

MANUAL ULTRASONIC EXAMINATION OF WELDS

ISI-206

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: M H Chamberlain 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

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LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 18	0

Nuclear Service Integration Division	INSPECTION SERVICES PROCEDURE FIELD CHANGE	PROCEDURE NUMBER: ISI 206

PROCEDURE TITLE

MANUAL ULTRASONIC EXAMINATION OF WELDS

REVISION	DATE	AMENDMENT	DATE
REV.1	10/02/84	NA	NA
FIELD CHANGE	DATE	PLANT	
01	04/20/87	H.B. ROBINSON	

REASON/APPLICABILITY

TO ALLOW EXAMINATION OF THE BORON INJECTION TANK

CHANGE ACTION

Change paragraph 1.1 to read " and vessel materials (0.25" to 2.5" thick)"

WESTINGHOUSE NSID APPROVAL: John Bushell	TITLE: COORDINATOR	DATE: 4-21-87
UTILITY APPROVAL: Richard B. Weber	TITLE: Sr. Specialist	DATE: 4/21/87
AUTHORIZED INSPECTOR APPROVAL: John Jancaska ANII	AGENCY: Kemper Group	DATE: 4-23-87

F49228 (TO BE INSERTED BEHIND COVER PAGE)

DISTRIBUTION:
Main. Supv. Original..... 1
Review..... 1
Training Review..... 1
Assigned Copies.....
Total (Minus Original)....

H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date..... 4-21-87
PCN.....
Revision No.....
Spec Proc. No.....
Temp. Change No.... T-2797
Temp. Change Expires 5-12-87 (21 Days)

TO BE COMPLETED BY PREPARER

Volume Number 21/A
Part 21/A Procedure No. SP-738
Pages Effected 3A

I. A. Proposed Revision: Add page 3A

B. Reason for Revision: (List any commitments causing this change.)
To make the procedure applicable to the Boron Injection Tank.

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: W. S. McCutcheon DATE 4/21/87

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis The proposed revision will allow examination of the Boron Injection Tank by increasing the range of material thicknesses inspected under this procedure. The intent of the procedure will remain unchanged and there will be no detrimental effect on plant equipment as a result of this change. Therefore, no unreviewed safety question exists.
(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: W S McCutcheon DATE: 4/21/87

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: _____ DATE_____
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: 4/21/87

NAME: _____ TITLE: SRO

NAME: _____ TITLE: SRO (MANAGEMENT) Eng Supv Rep (SRO)

B. TEMPORARY CHANGE CANCELLED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: _____ DATE_____
Signature

B. ALARA Review: _____ DATE_____
Signature

C. Fire Protection Review _____ DATE _____
Signature

D. Technical Review (1) _____ DATE _____
Signature

(2) _____ DATE _____
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.

Safety Reviewer	Signature	Date
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	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: _____ _____ _____
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- 738

MANUAL ULTRASONIC EXAMINATION OF WELDS

ISI-206

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: [signature] 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 18	0

Nuclear Services Integration Division	INSPECTION SERVICES NONDESTRUCTIVE EXAMINATION PROCEDURE	PROCEDURE NUMBER ISI-206 Rev.1

TITLE

MANUAL ULTRASONIC EXAMINATION OF WELDS

Prepared By: B.J. Lefebvre
B.J.Lefebvre Level III

Approved By: D.C. Adamonis
D.C.Adamonis, Manager
Inspection Services

Nuclear Service Integration Division	INSPECTION SERVICES PROCEDURE FIELD CHANGE	PROCEDURE NUMBER: ISI 206

PROCEDURE TITLE

MANUAL ULTRASONIC EXAMINATION OF WELDS

REVISION	DATE	AMENDMENT	DATE
REV.1	10/02/84	NA	NA
FIELD CHANGE	DATE	PLANT	
01	04/20/87	H.B. ROBINSON	

REASON/APPLICABILITY

TO ALLOW EXAMINATION OF THE BORON INJECTION TANK

CHANGE ACTION

Change paragraph 1.1 to read " and vessel materials (0.25" to 2.5" thick)"

WESTINGHOUSE NSID APPROVAL	TITLE	DATE
[signature]	COORDINATOR	4-21-87
UTILITY APPROVAL	TITLE	DATE
AUTHORIZED INSPECTOR APPROVAL	AGENCY	DATE

F49228

(TO BE INSERTED BEHIND COVER PAGE)

T-1707

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 the ASME Code, including Section XI, IWA-2240, when dictated due to Code omissions and to implement upgraded technology or good practice.

1.2 Procedure OPS-NSD-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 based on the applicable edition and addenda of ASME Boiler and Pressure Vessel Code specified in the Examination Program Plan.

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. Personnel certified to any LEVEL for ultrasonic examinations may be employed as 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 NSD-ISI-10 at the beginning 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 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 9.0.

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 shall be fabricated from the same product form and the same material specification as one of the materials in the weld assembly to be examined. Alternatively, for welds in austenitic materials, material of equivalent P-number or P-number grouping may be used. Calibration blocks and the general items for which they are applicable shall be as listed in the Examinaton Program Plan.

2.8.2 Calibration blocks shall be of the same nominal diameter and nominal wall thickness as the item to be examined, and shall contain notch reflectors. Notch depth shall be in accordance with the applicable code.

Alternatively, for austenitic material and for vessels; (1) reflectors may be side drilled holes, (2) for materials with diameters greater than 20", the block may be flat, (3) for materials with diameters of 20" and less, the examination surface may be within the range of .9 to 1.5 times the block diameter.

When drilled holes are provided, nominal depth (length) shall be 1 1/2" minimum if end or side drilled; and thru-wall or 1 1/4" minimum if drilled on a chord line. Diameter and location shall be based on nominal thickness, as follows:

THICKNESS (T)	DIAMETER	LOCATION (T)
Up to 1" Incl.	3/32"	1/2 (or 1/4 & 3/4)
Over 1" thru 2"	1/8"	1/4 & 3/4
Over 2" thru 4"	3/16"	1/4 & 3/4
Over 4" thru 6"	1/4"	1/4 & 3/4
Primary RC Loop	3/16"	1/4, 1/2 & 3/4

2.8.3 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. Devices for determining this difference are not considered as MT&E equipment.

2.8.4 Where the component is clad, the block shall be clad by the same welding procedure. If impractical, welding may be by manual procedure.

2.8.5 Surface finish of blocks shall be representative of surface finish of examination scan surfaces.

3.0 SYSTEM CALIBRATION

3.1 Prior to conducting examinations, the complete system to be utilized shall be calibrated on the applicable calibration block (See 2.8.1) 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.

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. See Figures 1 thru 4.

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 equally 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, 1/2 node techniques, and for austenitic materials greater than 1.7 inches thick, drilled holes may be used. Primary reference sensitivity shall be established from not nearer (in sweep time) the applicable reflector that provides the highest amplitude response. For primary loop reactor coolant piping, sensitivity shall be established from the 3/4 T hole. 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.

3.4.2 If either signal falls outside of its' range, such controls as reject, clipping, damping, filtering, etc., shall be adjusted such that this check can be accomplished satisfactorily. If adjustment of controls fails to provide a satisfactory check, the transducer and/or cable shall be changed and calibration repeated.

If the system continues to fall outside of the acceptable range, the instrument shall be changed. Once adjustment of controls that affect linearity is established, if necessary, they shall remain fixed for the period of the examinations.

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. With the peaked signal from the 3/4 T hole adjusted to 80% FSH reference sensitivity, the DAC curve shall be drawn as a line parallel to the line established above. 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 100% of sweep.

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.

3.5.3 (cont'd)

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 When calibrating for angle beam examination of primary loop reactor coolant piping system and for cast austenitic materials, a primary reference DAC shall be established by adjusting the 1/4 T hole reflector to 80% FSH and another DAC established by adjusting the 3/4 T hole reflector to 80% FSH. DAC curve for the 3/4 T shall parallel the 1/4 T curve. Examinations shall be conducted once for each DAC.

3.7 Calibration for reflectors transverse to the weld shall be based on 1/2 V.

3.8 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 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, those 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, from one side of the weld. As necessary, examination shall be conducted from both sides and 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 3.8) 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.

5.2 Examinations utilizing more than one DAC curve shall be accomplished once for each curve.

5.3 Rate of search unit movement shall not exceed 6" per second.

5.4 Scanning sensitivity shall be at least twice the primary reference sensitivity.

5.5 Base Metal Straight Beam Examination

5.5.1 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.

5.5.2 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 3.8 may be used.

5.5.3 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.

5.6 Angle Beam - Reflectors Parallel to the Weld

5.6.1 The scan pattern shall start with the search unit transmitting an agle 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 OPS-NSD-101.

5.7 Angle Beam - Reflectors Transverse to the Weld

5.7.1 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.

5.7.2 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 OPS-NSD-101.

6.0 INTERPRETATION AND INVESTIGATION

6.1 The 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 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 that exceed 20% of primary reference DAC 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 interpretaton and investigation.

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. Scribe/Ref. line data shall be recorded or verified.

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.

7.3 Valid flaw indications which provide a response between 20% and 50% of primary reference DAC shall be considered as--non-recordable indication--and noted as NRI.

7.3.1 For preservice examination of pipe welds only, where primary reference sensitivity was established from a notch, each such indication shall be noted on an RI data sheet. As a minimum, peak amplitude, sweep position, search unit location and direct, and scanning side thickness shall be noted.

7.4 Non-valid indications, and the absence of valid indications 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 OPS-NSD-101.

TABLE 1

ANGLE BEAM EXAMINATION

NOMINAL MATERIAL THICKNESS	TRANSDUCER (1) MAX. SIZE	MINIMUM FREQ. MHz	NOMINAL ANGLE
.250" 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
Main Coolant Piping			
Forged	1"	1.0	41°L/45°S
Centrifugally Cast or cast	1"	1.0	41°L

STRAIGHT BEAM EXAMINATION

	SIZE MIN.	MAX.	MAX. FREQ. MHz
Main Coolant 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.

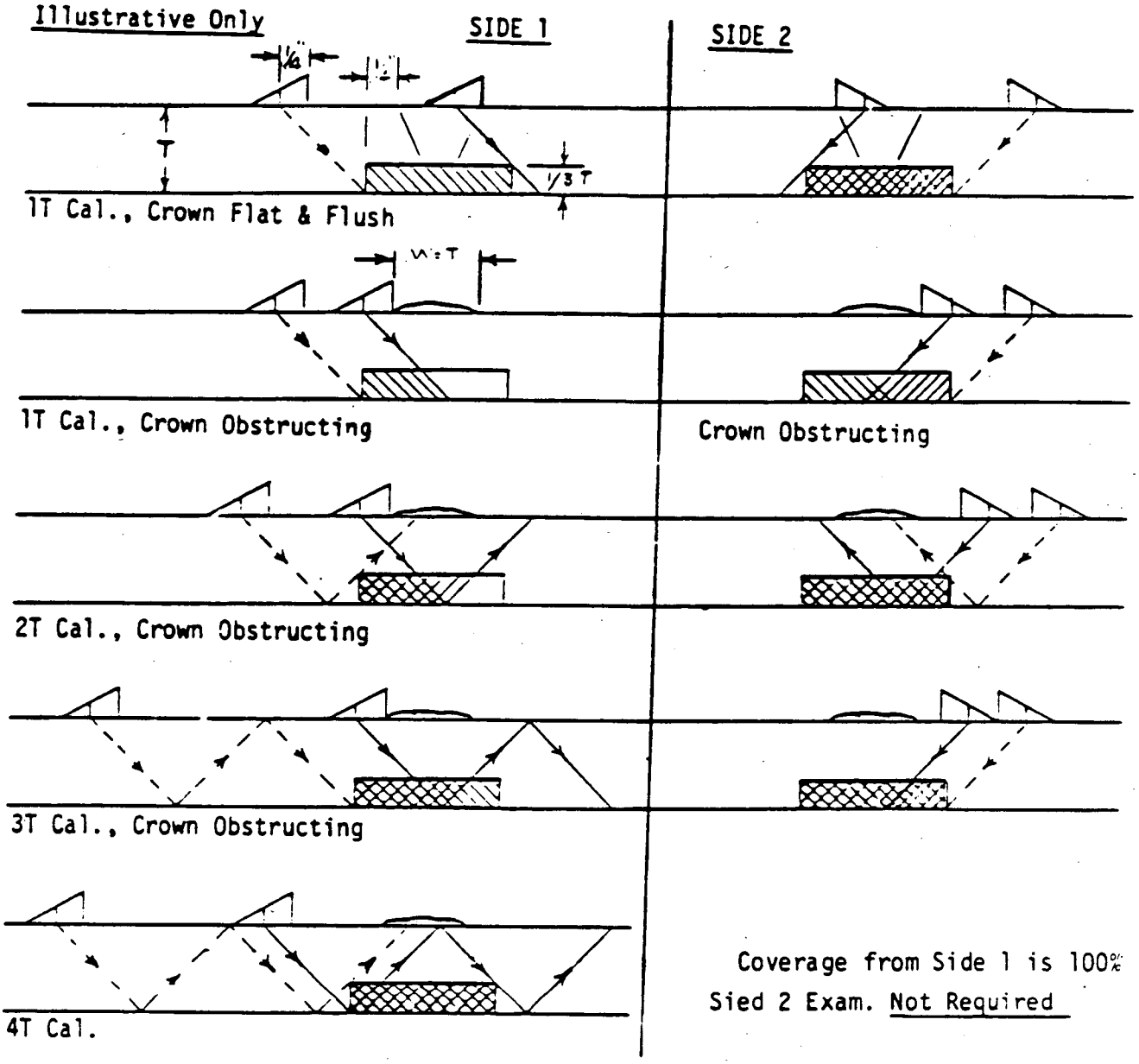
SWEEP RANGE CALIBRATION

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:

$$100 \div \frac{\text{EXAM. VOL. "T"}}{\text{CAL. BLOCK "T"}} = \text{MAX. \%SWP. LOCATION FOR LAST LEG.}$$

12
50



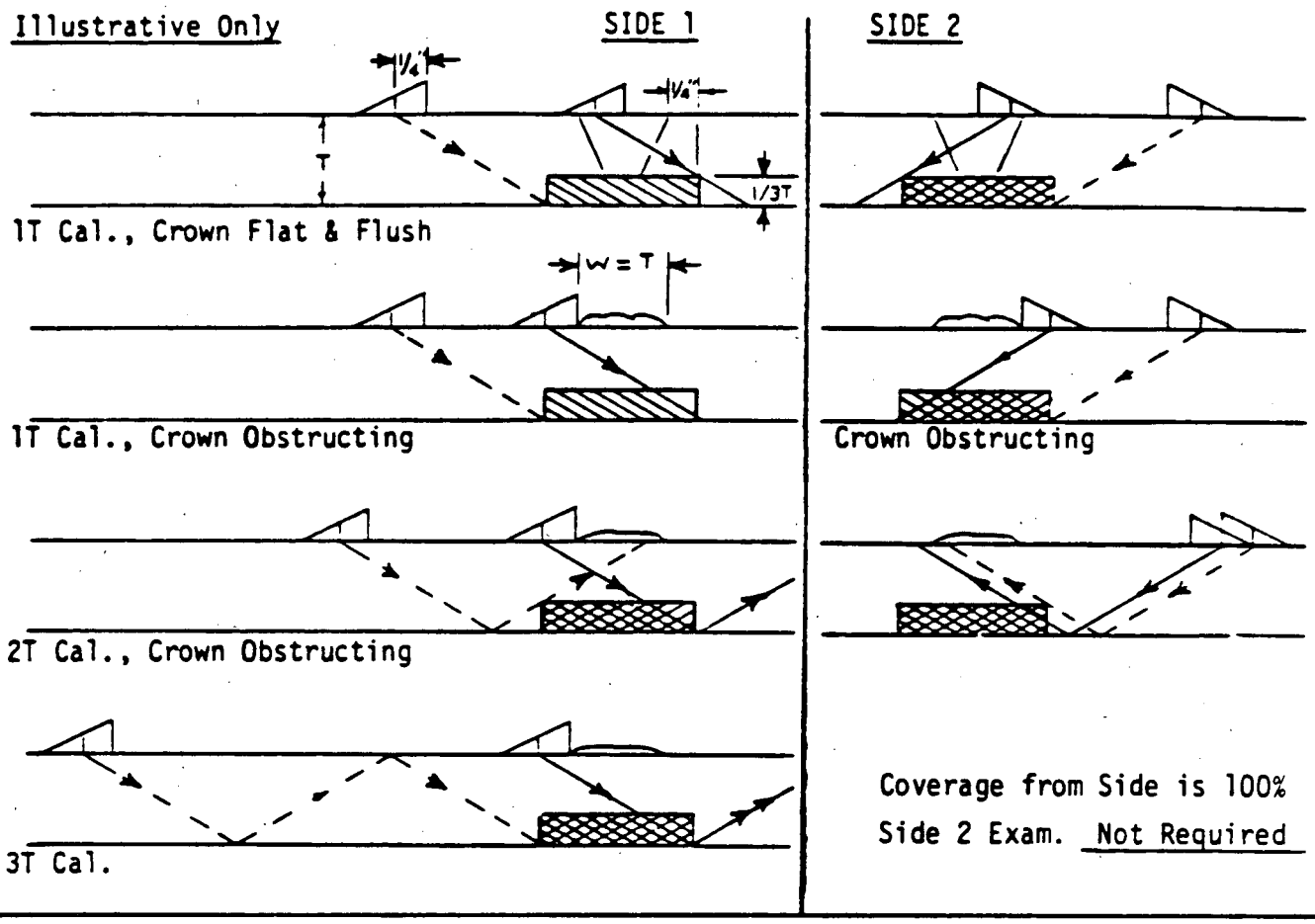
Broken Beam = Exam. Start

Solid Beam = Exam completion or Maximum access.

ALL BEAM ANGLES-45°

SEE FIGURE 2 FOR COMMENTARY

FIGURE 1



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:

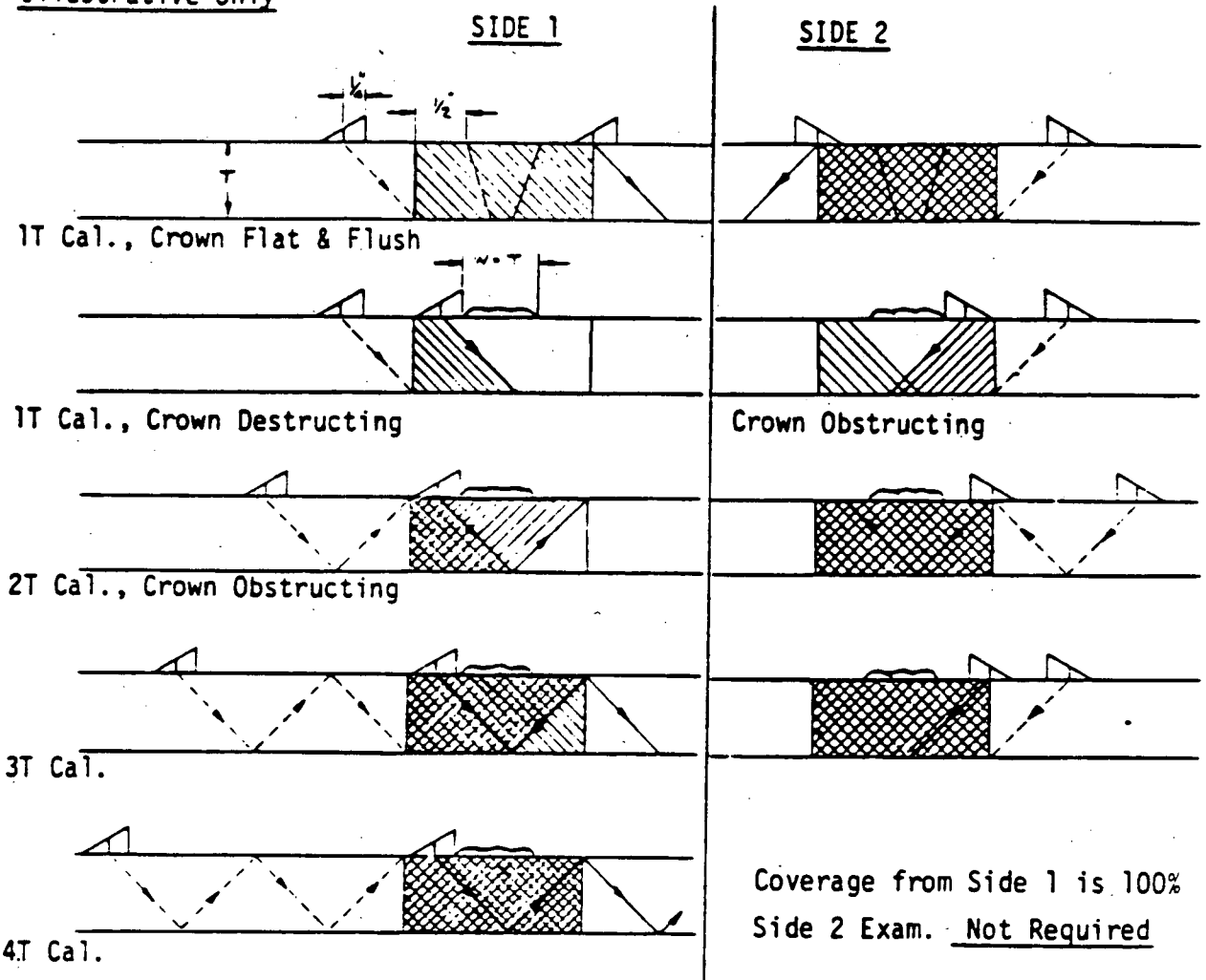
1. Search unit is essentially minimum size
2. Nominal beam angle (in the part) is achieved and maintained
3. Beam has zero spread
4. Beams reflect from parallel planes equal to T at I.D. and crown areas
5. Width of obstructing crown is equal to T
6. Scan access is available on both sides.

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

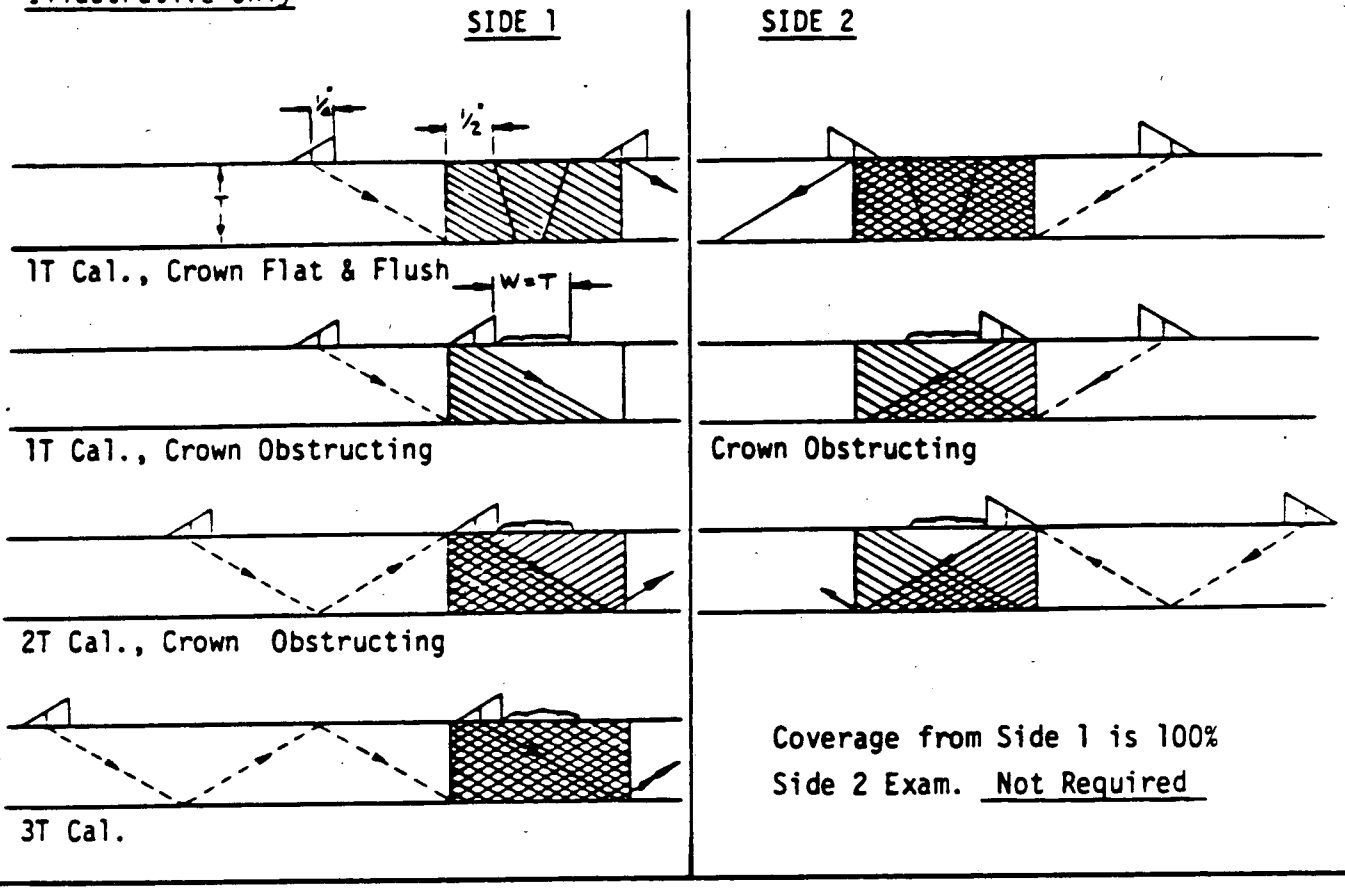
Solid Beam = Exam. Completion or Maximum Access

ALL BEAM ANGLES- 45°

SEE FIGURE 4 FOR COMMENTARY

FIGURE 3

Illustrative Only



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

File: 86-15508

ATTACHMENT 6.1
Page 1 of 3

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	
Main. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	Effective Date..... 3-16-87
AS Review..... 1		PCN..... 13720
Training Review..... 1		Revision No..... 0
Assigned Copies..... 4		Spec Proc. No..... SP-736
Total (Minus Original).... 7		Temp. Change No..... N/A
		Temp. Change Expires N/A (21 Da

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-736

Pages Effected ENTIRE PROCEDURE 1-9

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-70 R/2 Magnetic Particle Examinations

B. Reason for Revision: (List any commitments causing this change.)
To ensure Magnetic Particle Examinations are performed in accordance with Section XI ASME 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 1/15/87

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.)

4-1-87

MT ISI-70 Rev-2

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: 1/15/87

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: W. N. Chandler DATE 3/4/87
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: J. R. Peterson DATE 3/6/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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.

Harry Forner	Wane Lane	1/20/87
Safety Reviewer	Signature	Date
R. Chambers	[illegible]	3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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:	A. R. Wallace	3/9/87	3/16/87
	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- 736

MAGNETIC PARTICLE EXAMINATIONS

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: [signature] 3/4/87

APPROVED BY: A.R. Wallace 3/9/87

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 9	0

FORM 48779

Nuclear Service Division	INSPECTION SERVICES NONDESTRUCTIVE EXAMINATION PROCEDURE	PROCEDURE NUMBER ISI-70 Rev. 2

TITLE

MAGNETIC PARTICLE EXAMINATIONS

Prepared By: B. J. Lefebvre

B. J. Lefebvre, Level III

Approved By: J. A. Vano

J. A. Vano, Manager
Inspection Service

EFFECTIVE DATE 6-21-82		REVISED DATE 6-14-82

MAGNETIC PARTICLE EXAMINATIONS

1.0 SCOPE

1.1 This procedure is applicable to and describes requirements for magnetic particle examinations of ferromagnetic welds and bolting for indications that are open to the surface, using longitudinal magnetization as produced by yoke or coil techniques. Technical contents are based on the ASME Code, including Section XI IWA-2240 when dictated due to Code omissions and to implement upgraded technology or good practice.

1.2 Procedure OPS-NSD-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 surface examination requirements of Section XI of the ASME Band PV Code specified in the Examination Program Plan.

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 the applicable ASME Section XI. Personnel certified to any LEVEL for magnetic particle examinations may be employed as assistants.

3.0 EQUIPMENT

3.1 Magnetizing equipment shall be electromagnetic yokes or prewound coils capable of producing magnetization by AC or DC. This equipment shall be calibrated at least every 12 months, and following major repair, overhaul or damage.

3.1.1 Yokes shall have a calibrated lifting power of at least 10 pounds for AC and 40 pounds for DC at pole spacing of 3 to 6 inches. 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 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).

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 may be prepared bath containers (spray cans) or in bulk form. If the bulk form is used, it shall be prepared in accordance with the manufacturers directions or instructions, and the resulting bath strength for a 100 ml. sample of this preparation shall provide particle concentrations of 1.2 to 2.4ml. for visible and 0.1 to 0.5 ml. for fluorescent, as determined after allowing the sample to settle for at least 30 minutes. This check shall be made daily and the solution shall be thoroughly agitated before sampling and before use in examination.

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.

3.2.3 Surface temperature shall not exceed 600°F when using dry mediums or 135°F when using wet mediums.

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.

3.3.1 Suitable intensity of "black-light" in the area of examination and at the working distance utilized (light to surface distance), may be determined to be a minimum of 800uW/cm^2, when measured with a Black-Ray model J-221 longwave ultraviolet intensity meter. Response of the J-221 is centered at 365 nanometers and it provides "black-light" intensity with a single reading.

3.3.2 Alternatively, "black-light" intensity may be considered suitable for examinations when it is used in satisfactorily 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), in conjunction with a fluorescent medium.

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.

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" illumination (intensity) at the surface being examined and relative to the working distance (light to examination surface) and 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. For preservice examinations only, the extent that cannot be examined shall be noted--reference 9.0.

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 baths or mixes 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 limted 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 and equipment.

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 shall 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.

(b) For bolting; linear and curvilinear oriented axially, 1/2 inch and longer, and for non-axially oriented, 1/8 inch and longer.

(c) Any indication 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. For preservice examinations (PSI) only, the general location of such indications shall be recorded by examiners remarks, comments, or by a sketch.

8.3 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 OPS-NSD-101.

TABLE 1

COLOR	DRY		WET	
	MAGNAFLUX	DETEK	MAGNAFLUX	DETEK
BLACK	NO. 3A	M10-100		
RED	NO. 8A	M10-200	NO. 9CM	
GREY	NO. 1	M10-300		
YELLOW	NO. 2	M10-400		
FLUORESCENT			NO. 14 AM	M10-590

File: 86-15508

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date..... 3-16-87
Admin. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 1371
QA Review..... 1		Revision No..... 0
Training Review..... 1		Spec Proc. No..... SP-735
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-735

Pages Effected TP 1-12

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-47 R/4 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 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 1/15/87

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 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.)

JHL 4-1-87 no comments

ISI-47 Rev 4 UT Vessel Welds

File: 86-13508

DISTRIBUTION:	
Main. Supv. Original	1
AE Review	1
Training Review	1
Assigned Copies	4
Total (Minus Original)	7

H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date	3-16-87
PCN	13719
Revision No.	0
Spec Proc. No.	SP-735
Temp. Change No.	N/A
Temp. Change Expires	N/A (21 Days)

TO BE COMPLETED BY PREPARER

Volume Number N/A
Part N/A Procedure No. SP-735
Pages Effected TP 1-12

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-47 R/4 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 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 1/15/87

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 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.)

4-1-87
no comments

ISI-47 Rev 4
UT Vessel Welds

ALARA REVIEW FORM

Circle One: Procedura (Special Procedure) Modification

TITLE: Manual Ultrasonic Examination of Welds in Vessels SP-735

COMMENTS: No comments

3/5/87
DATE

Jim Handy
ALARA REPRESENTATIVE

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: 1/15/87

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: N/A R.A. Chambers DATE 3/4/87
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: Jim Dandy DATE 3/5/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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.

Kyle Farmer	[signature]	1/28/87
Safety Reviewer	Signature	Date
R. Chambers	[signature]	3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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:

A.R. Wallace	3/9/87	3/16/87
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- 735

MANUAL ULTRASONIC EXAMINATION OF WELDS IN VESSELS

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: Ray H. Chamberlain 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

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LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 12	0

Nuclear Services Integration Division	INSPECTION SERVICES NONDESTRUCTIVE EXAMINATION PROCEDURE	PROCEDURE NUMBER ISI-47 Rev.4

TITLE

MANUAL ULTRASONIC EXAMINATION OF WELDS IN VESSELS

Prepared By: B. J. Lefebvre

B.J.Lefebvre Level III

Approved By: D. C. Adamonis

D.C.Adamonis, Manager
Inspection Services

EFFECTIVE DATE October 19,1984		REVISED DATE October 2,1984

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 OPS-NSD-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 based on the applicable edition and addenda of ASME Boiler and Pressure Vessel Code specified in the Examination Program Plan.

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. Personnel certified to any LEVEL for ultrasonic examinations may be employed as 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 NSD-ISI-10 at the beginning 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° (longitudinal) and 45° and 60° (transverse). 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. For preservice examinations only, the extent that cannot be examined shall be noted. See 10.0.

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 Calibration blocks shall be in accordance with FIGURE 1 and shall not contain reflectors within the beam paths required to reach the calibration reflectors.

2.7.1 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. Devices for determining this difference are not considered as MT&E equipment.

2.7.2 Where the component is clad, the block shall be clad by the same welding procedure. If impractical, welding may be by manual procedure.

2.7.3 Surface finish of blocks shall be representative of surface finish of examination scan surfaces.

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.

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 (1 1/2" for holes) of the reflectors.

3.3 Where the surface within the volume to be examined is clad, calibration and examination is limted to 1/2 node 1 "T" 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 line 2 on the screen 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 line 6 on the screen 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 sweep lines 2 and 6 respectively.

3.4.4 Position the search unit for maximum response from the square notch on the opposite surface. The indication will appear near sweep line 8.

3.4.5 Two divisions on the sweep equals 1/4 T and range equals 1.25 T.

3.4.6 When calibrating for a range that is greater than 5/8 node, and when calibrating on blocks less than 4" thick for examination are "T" that is or may be greater than 1.25 x cal. block "T", 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 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 If either signal falls outside of its' range, such controls as reject, clipping, damping, filtering, etc., shall be adjusted such that this check can be accomplished satisfactorily. If adjustment of controls fails to provide a satisfactory check, the transducer and/or cable shall be changed and calibration repeated.

If the system continues to fall outside of the acceptable range, the instrument shall be changed. Once adjustment of controls that affect linearity is established, they shall remain fixed for the period of the examinations for which the calibration is applicable.

3.5.3 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.

3.5.4 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 (FSH) 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 as part of the calibration data.

3.5.5 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 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.

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, those 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 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:

5.2 (cont'd)

(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 interfering--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 its' 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 (direction 2 & 5) for indications parallel to the weld; and also for indications transverse to the weld (directions 7 & 8). Directions are as indicated in OPS-NSD-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 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 interpretation and investigation.

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. Scribe/Ref. line data shall be recorded or verified.

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 between 20% and 50% of primary reference DAC shall be considered as--non-recordable indication--and noted as NRI.

8.3.1 For preservice examination only, each such indication shall be noted on an RI data sheet. As a minimum, peak amplitude, sweep position, search unit location and direction, and scanning side thickness shall be noted.

8.4 Non-valid indications, and the absence of valid indications shall be considered as--no indication--and noted as NI.

9.0 POST CLEANING

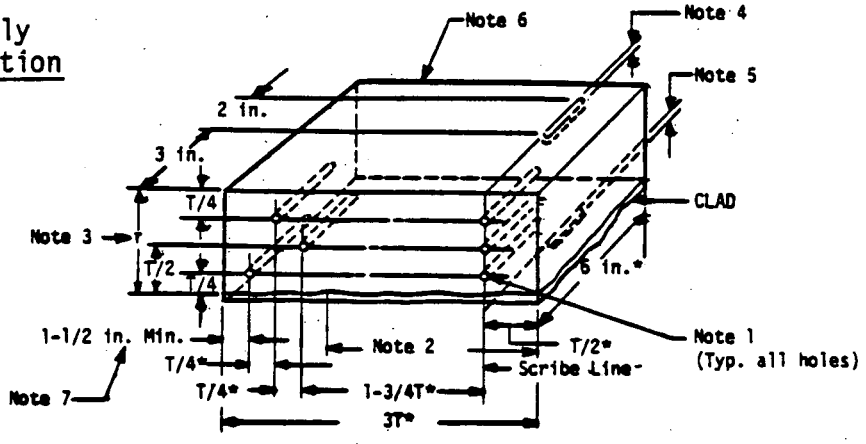
9.1 Examined areas shall be dry-wiped to remove excess wet couplant, if necessary.

10.0 EXAMINATION RESULTS AND DOCUMENTATION

10.1 All data relative to examinations shall be recorded in accordance with OPS-NSD-101.

Figure 1

Illustrative Only
Not for fabrication



1. Drill & Reamed Holes 3 in. Deep*

Block Thickness (t)	Hole Diameter**
Over 2 in. thru 4 in.	3/16 in.
Over 4 in. thru 6 in.	1/4 in.
Over 6 in. thru 8 in.	5/16 in.
Over 8 in. thru 10 in.	3/8 in.
Over 10 in. thru 12 in.	7/16 in.
Over 12 in. thru 14 in.	1/2 in.

2. Minimum length for manually deposited clad shall be T + 2 inches.

3. Block "T" shall be within 1 inch of thickness to be examined but shall not be less than 2 inches.

4. 2-inch long 1/8 in. Dia. flat end mill notches, maximum 2.2% T deep.

5. Through clad thickness and maximum 2.2% deep into the base metal maximum.

6. Blocks shall have a postweld heat treatment of at least 2 hours.

7. This dimension may be $\frac{T}{4}$ minimum provided it can be demonstrated there is no exaggerated or perverse effect on straight beam calibration.

*Minimum dimensions (All other dimensions are nominal.)

**The tolerances for hole diameters shall be ± 1/32 in. The tolerance on hole location through the thickness shall be ± 1/8 in. The perpendicular tolerance on notch reflecting surface shall be ± 2 deg.

File: 86-15508

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	
Main. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	Effective Date..... 3-16-87
QA Review..... 1		PCN..... 13718
Training Review..... 1		Revision No..... 0
Assigned Copies..... 4		Spec Proc. No..... SP-734
Total (Minus Original).... 7		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-734

Pages Effected ENTIRE PROCEDURE 1-12

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-4/R/5 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 1/15/87

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: 1/15/87

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: N/A N.A. Chamberlain DATE 3/4/87
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: N/A

NAME: N/A TITLE: N/A

NAME: N/A TITLE: SRO (MANAGEMENT)

B. TEMPORARY CHANGE CANCELLED THIS DATE: N/A

NAME: N/A TITLE: N/A

NAME: N/A TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: N/A DATE N/A
Signature

B. ALARA Review: R. Hammond DATE 3/6/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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.

WARREN FARMER	[signature]	1/20/87
Safety Reviewer	Signature	Date
R. Chambers	[signature]	3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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: A.R. Wallace	3/9/87	3/16/87
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- 734

MANUAL ULTRASONIC EXAMINATION OF REACTOR COOLANT PUMP FLYWHEELS

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: M H Chamberlain 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

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LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 12	0

Nuclear Services Integration Division	INSPECTION SERVICES NONDESTRUCTIVE EXAMINATION PROCEDURE	PROCEDURE NUMBER ISI-41 Rev.5

TITLE

MANUAL ULTRASONIC EXAMINATION OF REACTOR COOLANT PUMP FLYWHEELS

Prepared By: B. J. Lefebvre

B.J.Lefebvre,Level III

Approved By: D. C. Adamonis

D.C.Adamonis, Manager
Inspection Services

EFFECTIVE DATE	October 19,1984		REVISED DATE	October 1,1984

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 NSD-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 available 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.

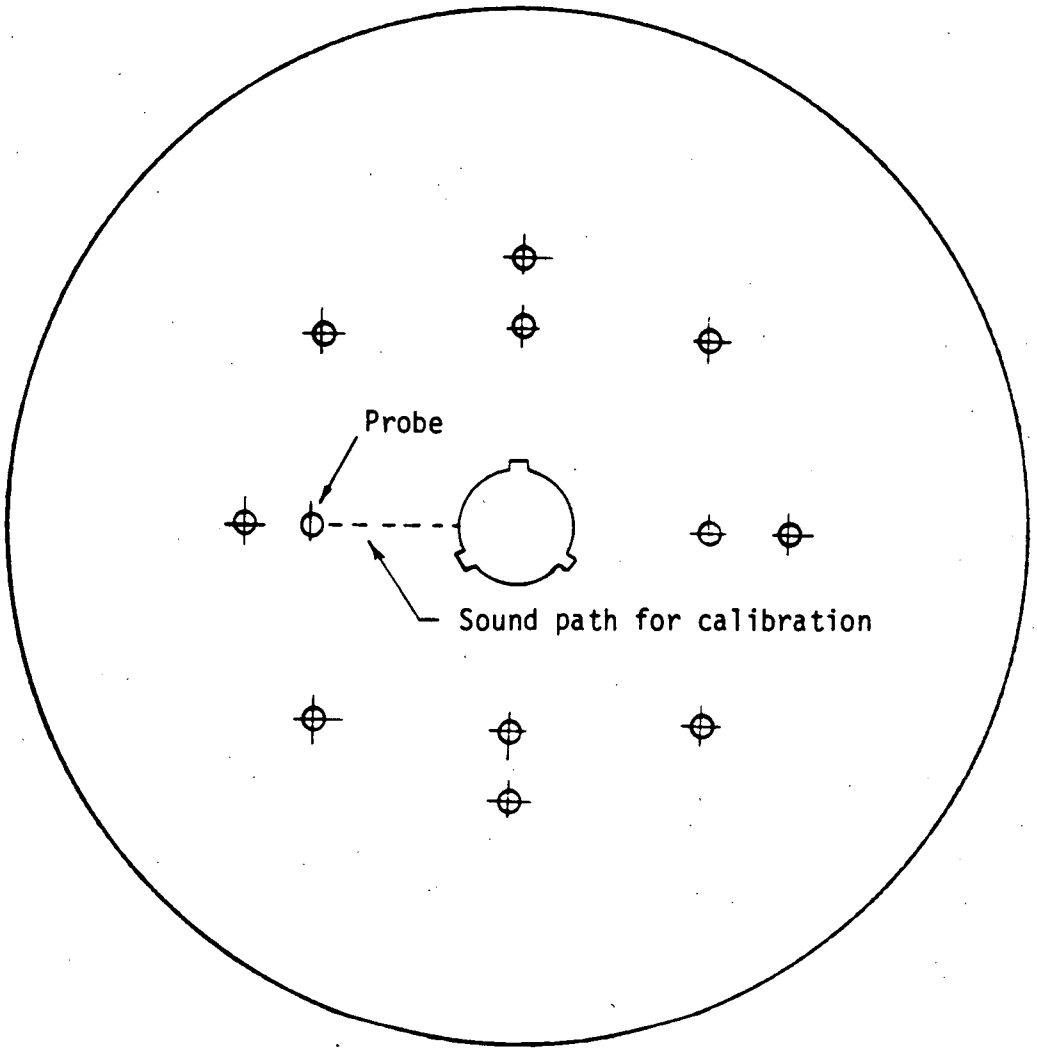
7.2 For the "radial gage hole" or "periphery" examinations: All indications having a response greater than the distance amplitude correction curve shall be recorded.

8.0 DATA RECORDING

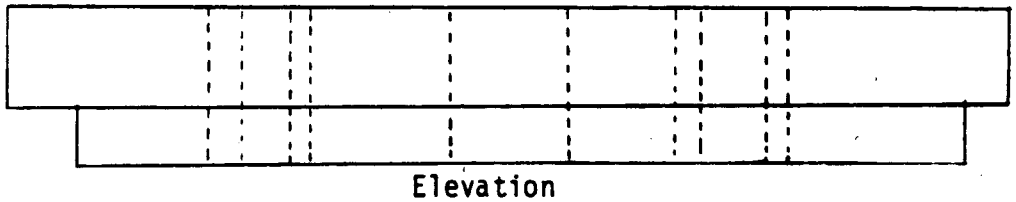
All data relative to the examinations and results shall be recorded in accordance with OPS-NSD-101.

Illustrative Only

Figure 1 Reactor Coolant Pump Flywheel



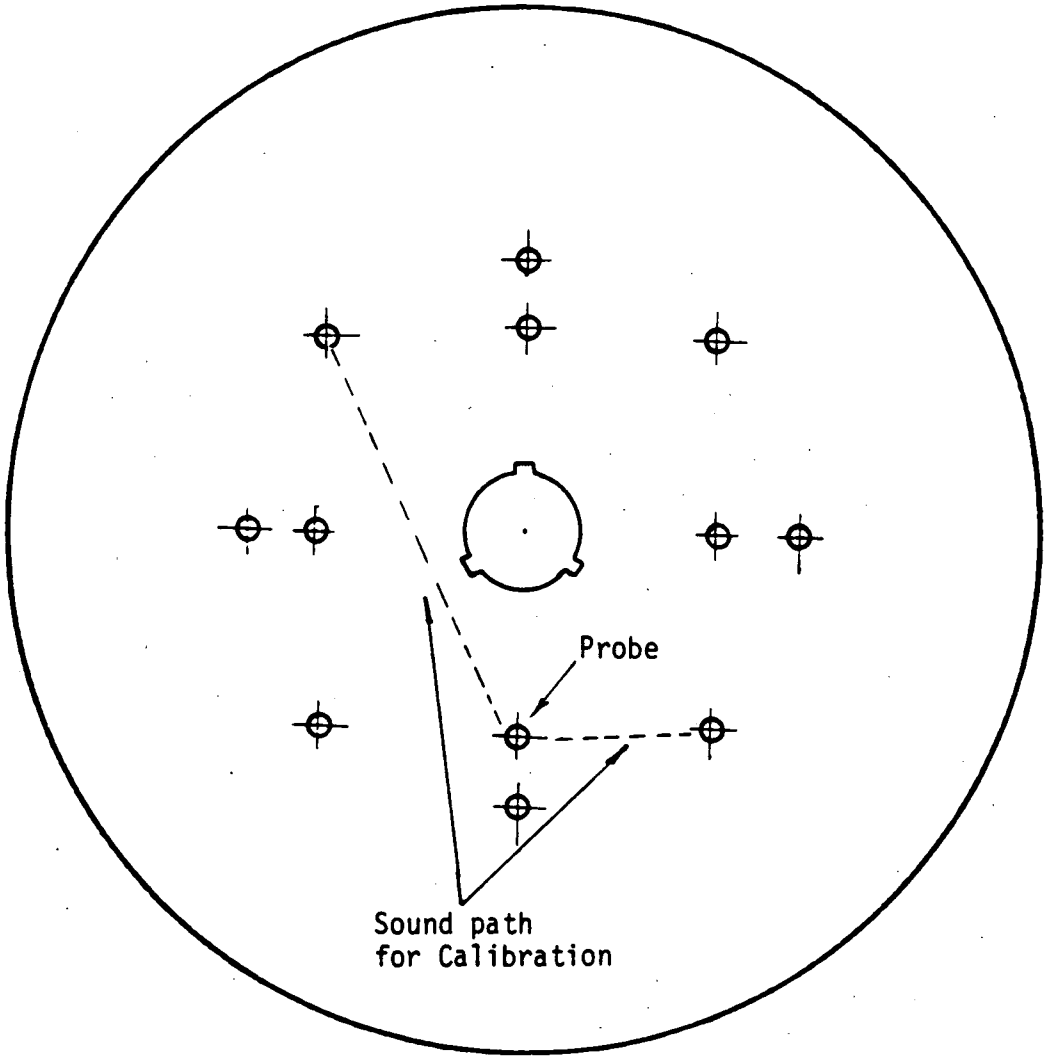
Plan



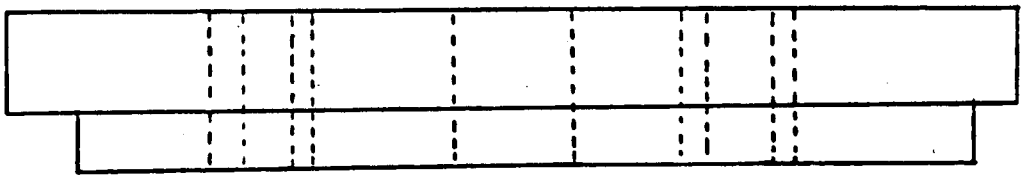
Elevation

Illustrative Only

Figure 2 Reactor Coolant Pump Flywheel



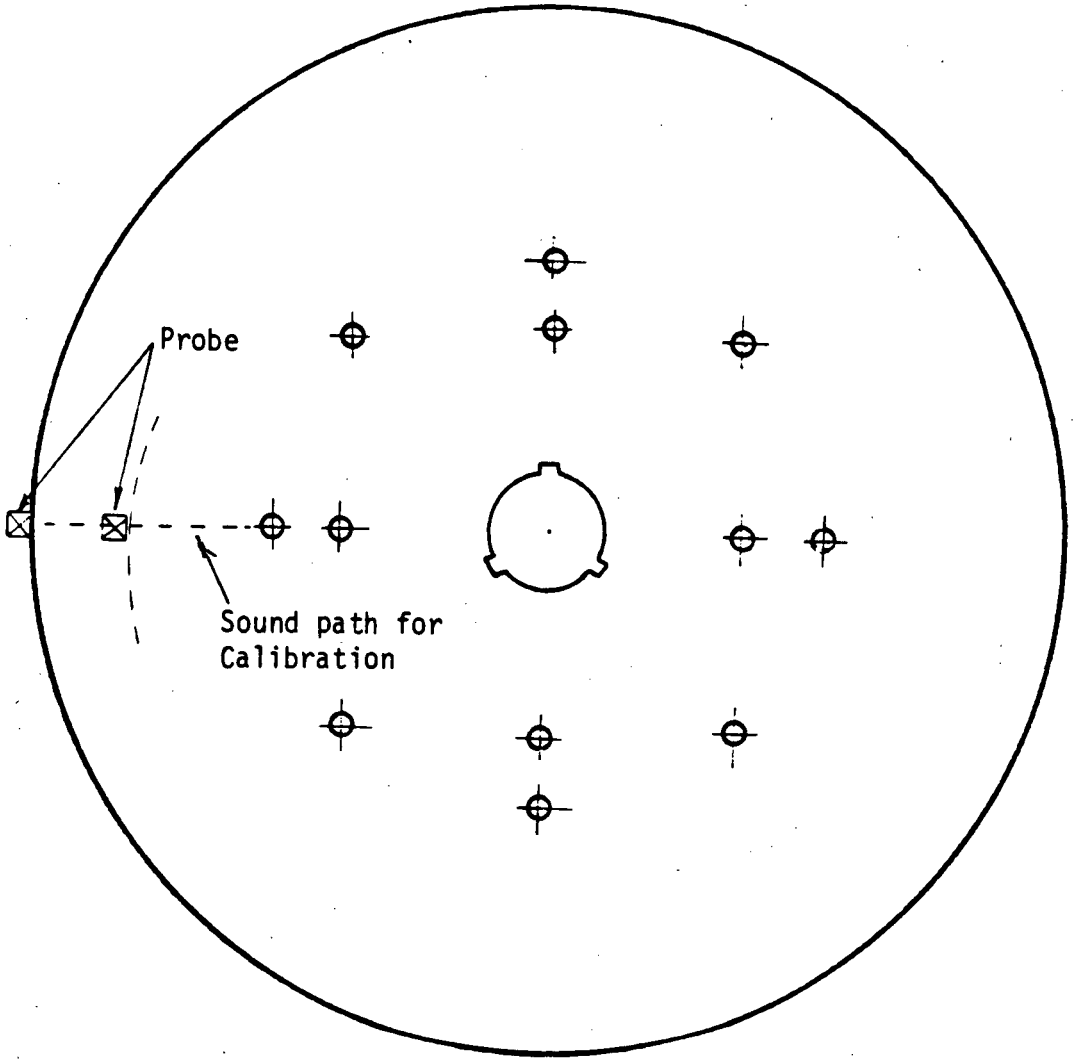
Plan



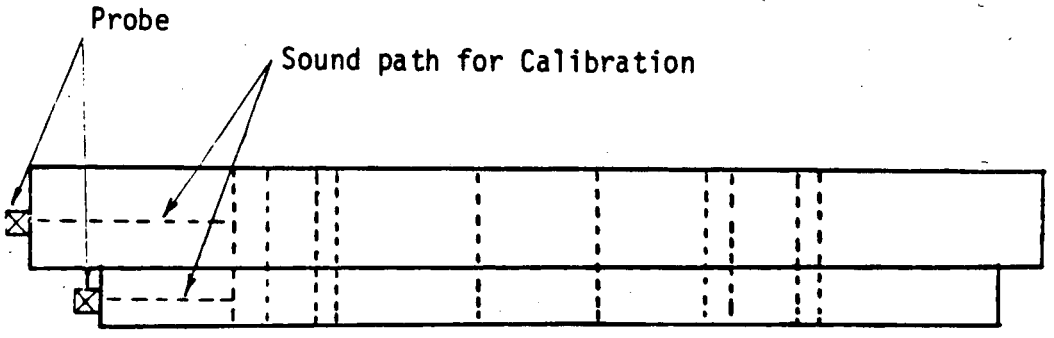
Elevation

Illustrative Only

Figure 3 Reactor Coolant Pump Flywheel



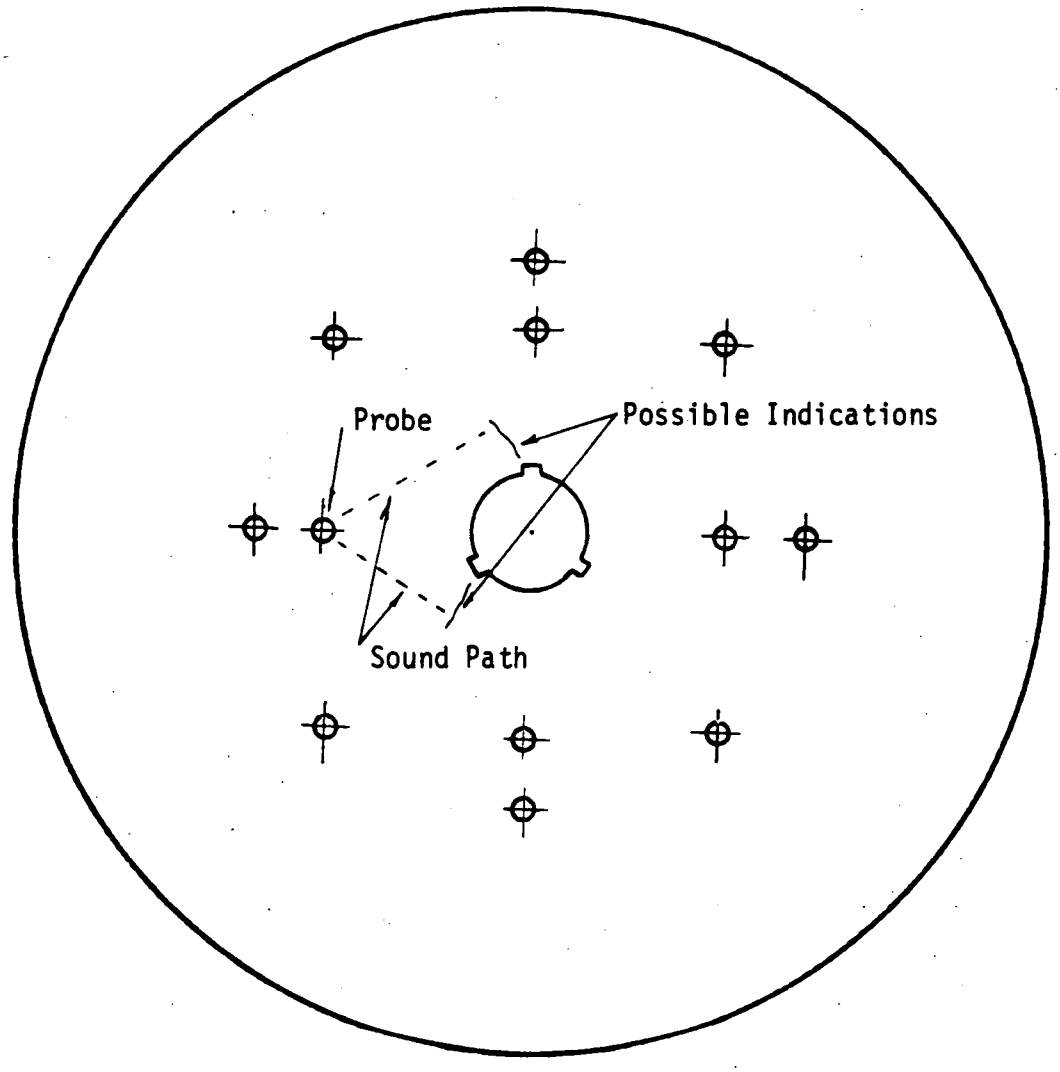
Plan



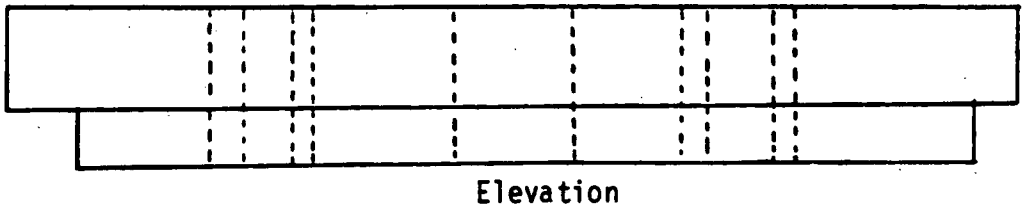
Elevation

Illustrative Only

Figure 4 Reactor Coolant Pump Flywheel



Plan

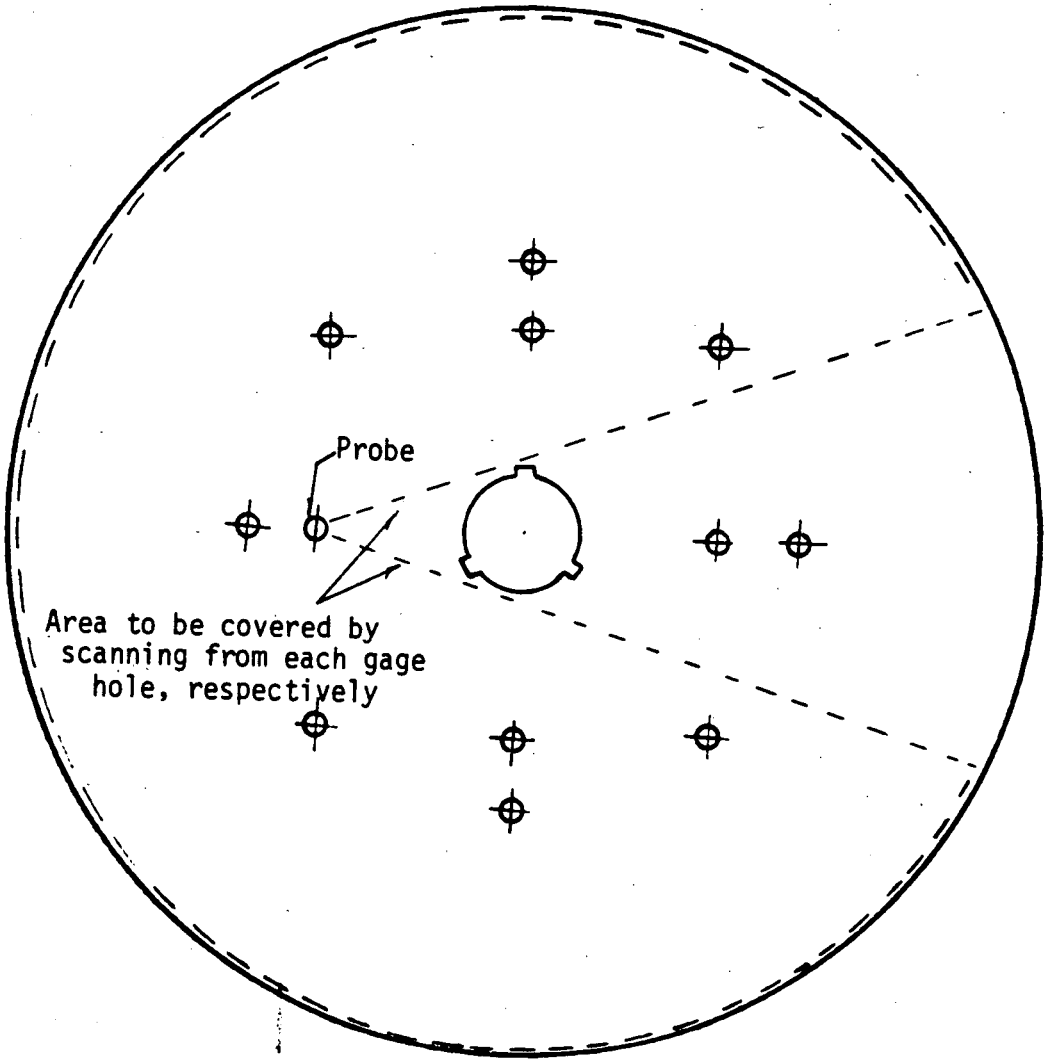


Elevation

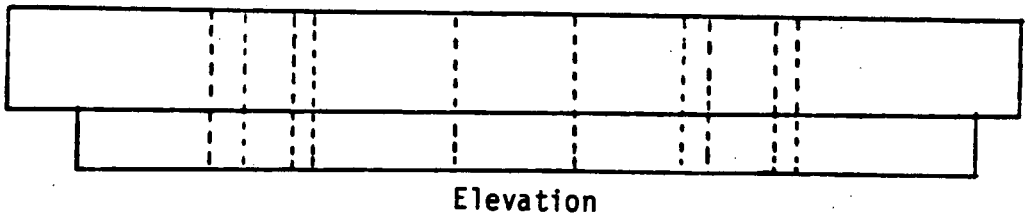
Illustrative Only

Figure 5

Reactor Coolant Pump Flywheel



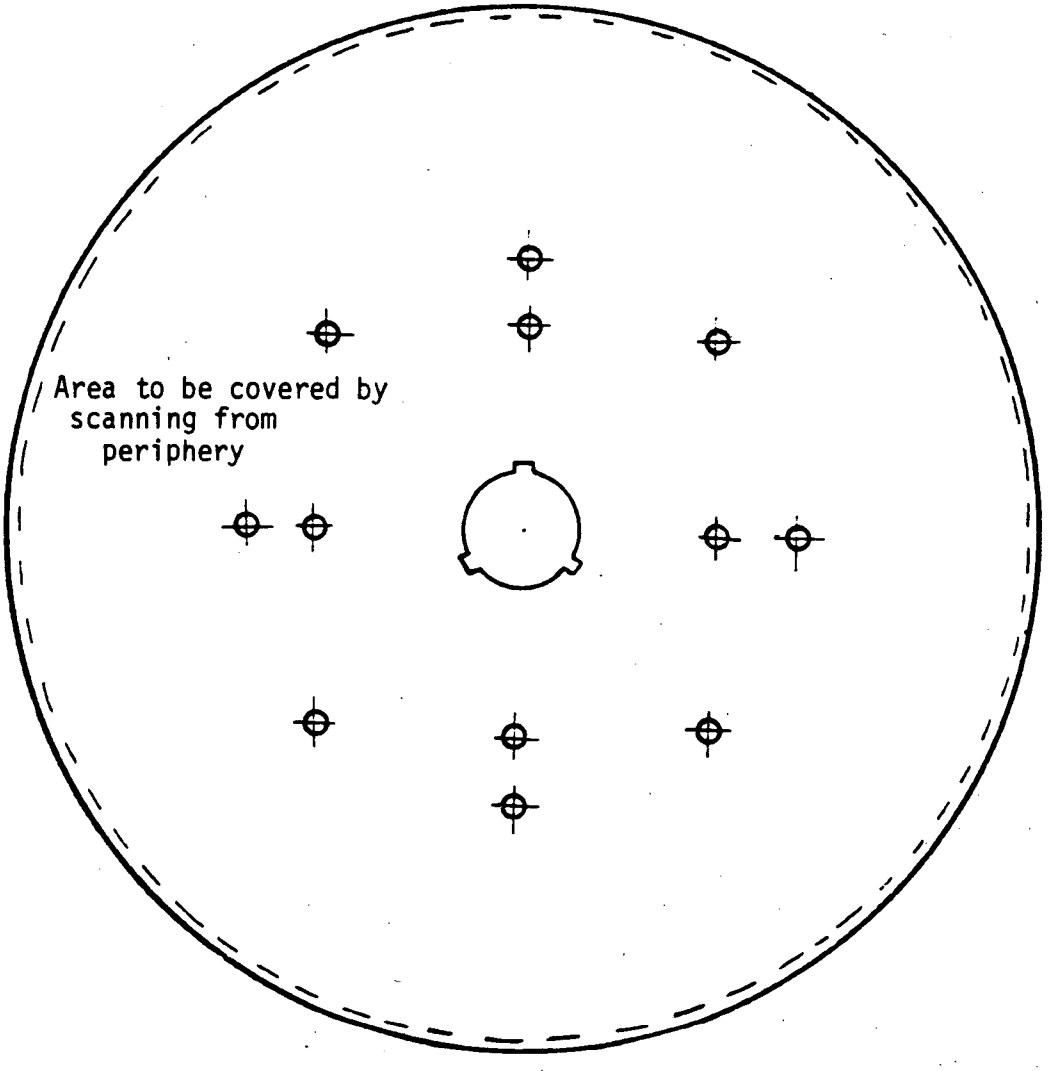
Plan



Elevation

Illustrative Only
Figure 6

Reactor Coolant Pump Flywheel



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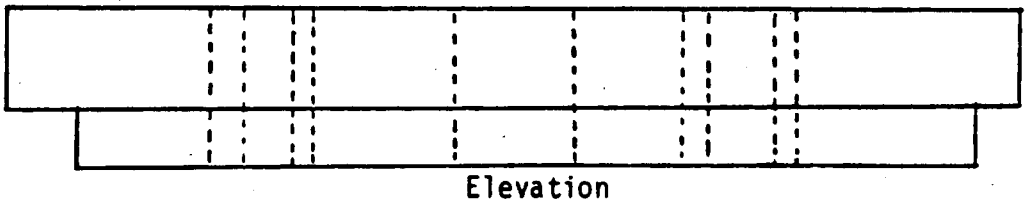

Elevation

DISTRIBUTION:	H. B. ROBINSON STEAM ELECTRIC PLANT	Effective Date..... 3-16-87
Admin. Supv. Original..... 1	PROCEDURE REVIEW AND APPROVAL FORM	PCN..... 13716
ONS Review..... 1		Revision No..... 0
Training Review..... 1		Spec Proc. No..... SP-732
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-732

Pages Effected ENTIRE PROCEDURE 1-9

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-15 R/6 Ultrasonic Examination of Studs, Bolts and Nuts

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 ASME 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 1/15/87

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 couplants, therefore this procedure enhances safety and no unreviewed concern arises due to its use.
(If additional space is required use additional paper and attach them to this form.)

UT
Studs, Bolts Nuts
ISI-15
Rev-6

SP-732

ALARA REVIEW FORM

Circle One: Procedure (Special Procedure) Modification

TITLE: SP- Ultrasonic Examination of Studs, Bolts, and Nuts

COMMENTS: None

3/5/87
DATE

Jim Handy
ALARA REPRESENTATIVE

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: 1/15/87

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: RHC for RBW DATE 3/4/87
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: Jim Dandy DATE 3/5/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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.

WALDO FARMER	[signature]	1/28/87
Safety Reviewer	Signature	Date
R. Chambers	[signature]	3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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: A. R. Wallace	3/9/87	3/16/87
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- 732

ULTRASONIC EXAMINATION OF STUDS, BOLTS, AND NUTS

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: M A Chamberlain 3/4/87

APPROVED BY: A.R. Wallace 3/9/87

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 9	0

Westinghouse Electric Corporation **Power Systems**

Nuclear Service Division
Box 2728
Pittsburgh Pennsylvania 15230

INSPECTION PROCEDURE: ISI-15

DATED: April 19, 1972

PLANT SITE: General

CUSTOMER: General

PROCEDURE TITLE: Ultrasonic Examination of Studs Bolts and Nuts

Revision 1 Issued 10/27/72
Revision 2 Issued 04/12/73
Revision 3 Issued 03/01/74
Revision 4 Issued 01/24/75
Revision 5 Issued 02/08/75
Revision 6 Issued 06/27/75

Prepared by: _____
Level III

Approved: _____
P. L. Ruddle, Manager
Inspection Services

Westinghouse Nuclear Services Division
Inspection Services
Westinghouse Electric Corporation
P. O. Box 2728
Pittsburgh, PA 15230

PROCEDURE AMENDMENT

APPLICABILITY

Procedure Number ISI-15 Revision Number/Date Rev. 6 6/27/75

Amendment Number 2 1/19/79

Procedure Title Ultrasonic Examination of studs, bolts and nuts.

CHANGE ACTION

1. Delete amendment 1 (Incorporated herein as Item 3)
2. Change paragraph 2.2 to read as follows:

   2.2 Personnel performing examinations to this procedure shall be certified to at least Level II by a procedure prepared in accordance with SNT-TC-1A, its supplements and appendices as applicable for the NDE method covered herein, except as may be modified by ASME Section XI. Certification and recertification shall be by examination only and visual acuity shall be based on standard J-1 letters or equivalent. Level I and/or Level I Trainees or both may be employed as assistants.

3. Add paragraph 2.6 to read as follows:

   2.6 Post Examination Cleaning

   2.6.1 Examined areas shall be dry wiped to remove excess couplant.

Approved by B. J. Lefebvre

B. J. Lefebvre, Level III

ULTRASONIC EXAMINATION OF STUDS, BOLTS, AND NUTS

1.0 SCOPE

1.1 This procedure details the requirements for ultrasonic examination of studs, bolts, and nuts in compliance with the ASME Code, Section XI.

2.0 GENERAL REQUIREMENTS

2.1 Ultrasonic equipment shall be a Branson Model 301, or equivalent, qualified to the requirements of NSD-ISI-10.

2.2 Operators or examiners shall be qualified to Level II in accordance with SNT-TC-1A, its supplements and appendices. Level I operators may be employed as assistants to Level II operators.

2.3 Ultrasonic couplant shall be a suitable liquid or paste such as glycerin, Hamikleer or cellulose gum, containing no more than one percent (1%) by weight of residual sulfur and halogens.

2.4 Surfaces from which the examinations are conducted shall be clean and free of 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.

2.5 For all nuts and for studs and bolts less than 4" diameter, the transducer element shall not exceed 1/2 square inch. For studs and bolts 4" and greater in diameter, the transducer shall be 1" diameter.

3.0 CALIBRATION

3.1 For all nuts and for studs and bolts less than 4" diameter, the calibration shall be accomplished by setting the first back surface reflection from the part being examined to 80 percent amplitude on the CRT.

3.2 For studs and bolts 4" and greater in diameter, calibration shall be established by using a calibration block similar to the one illustrated in Figure 1 and a DAC curve similar to the experimentally determined curve illustrated in Figure 2.

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 threaded areas shall be carefully observed to detect and investigate possible indications emanating from these sections.

5.0 EVALUATION OF INDICATIONS

5.1 All non-geometric indications from threaded areas shall be evaluated and reported. All other indications exceeding 20 percent of the DAC shall be investigated to determine maximum response, location, and probable cause.

5.2 For studs 4" diameter and greater, indications that are 50 percent of the DAC or more shall be evaluated and recorded on the ultrasonic indication report to the extent that shape, orientation, location, and possible identity of the indication producing area can be assessed.

5.3 For all nuts and for studs and bolts less than 4" diameter-indications that are 50 percent or greater than the back surface, calibration amplitude shall be evaluated and recorded as indicated in 5.2.

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 report. Signals resulting from the thread surfaces or other designed geometry need not be reported.

5.5 In the event that reportable indications are detected on items that are not installed and are not permanently identified with a unique designation, the item shall be securely tagged or positively identified.

6.0 EXAMINATION RESULTS AND DOCUMENTATION

6.1 All data relative to the examinations and evaluated indications shall be reported in accordance with OPS-NSD-101.

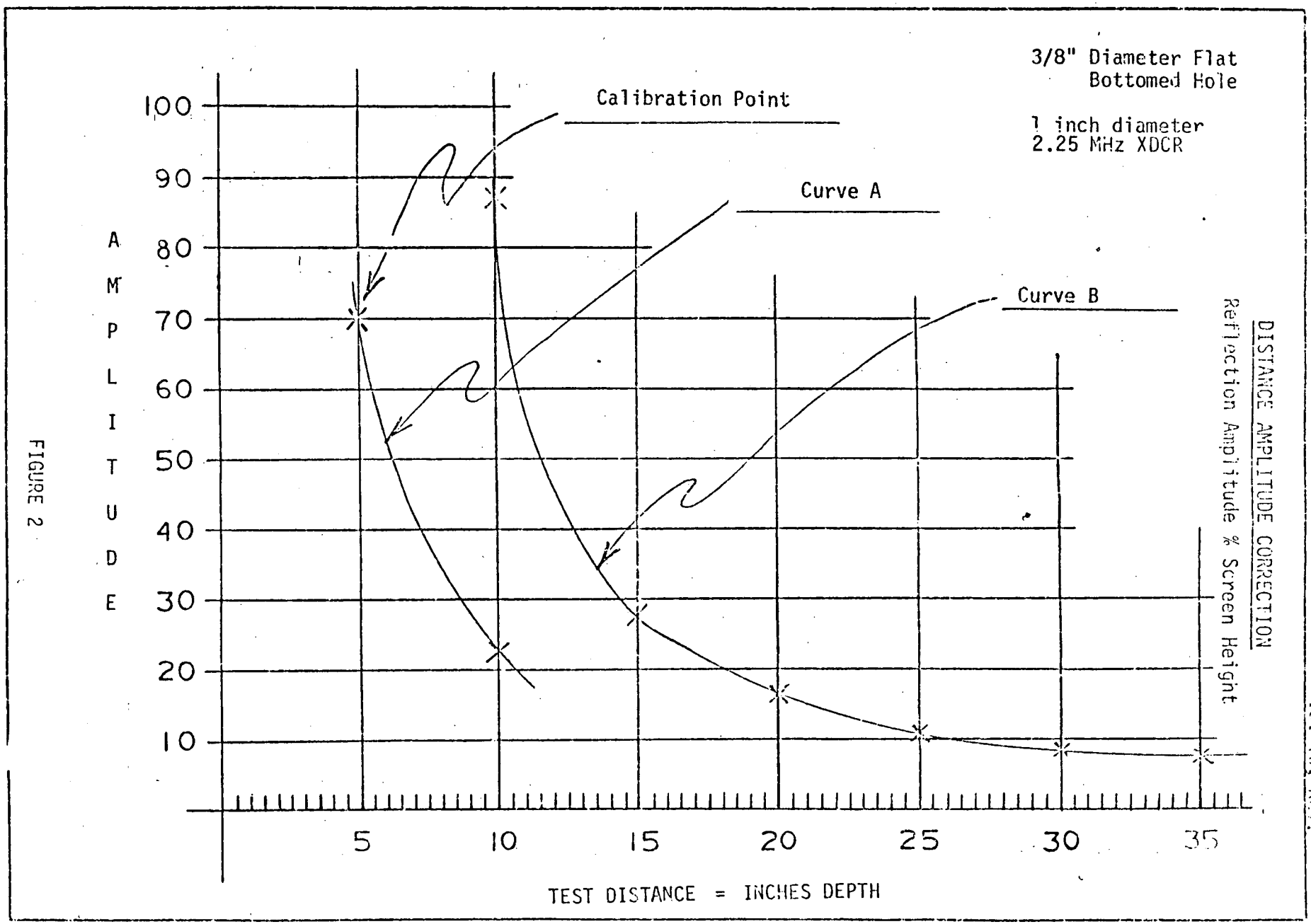
3/8" Diameter Flat
Bottomed Hole
1 inch diameter
2.25 MHz XDCR
Calibration Point
Curve A
Curve B
DISTANCE AMPLITUDE CORRECTION
Reflection Amplitude % Screen Height
AMPLITUDE
100
90
80
70
60
50
40
30
20
10
5
10
15
20
25
30
35
TEST DISTANCE = INCHES DEPTH

FIGURE 2

File: 06-13508

DISTRIBUTION:	
Admin. Supv. Original	1
ONS Review	1
Training Review	1
Assigned Copies	4
Total (Minus Original)	7

H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date	3-16-87
PCN	13715
Revision No.	0
Spec Proc. No.	SP-731
Temp. Change No.	N/A
Temp. Change Expires (21 Days)	N/A

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-731

Pages Effected Entire Procedure 1-10

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-11R/10 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 ASME 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 1/15/87

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.)

3-30-87
QPMR 7532

ISI-11 Rev 10
PT

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: 1/15/87

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 3/4/87
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: [signature] DATE 3/4/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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.

WARREN FARMER		1/20/87
Safety Reviewer	Signature	Date
R. Chambers		3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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:	A. R. Wallace	3/9/87	3/16/87
	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- 731

LIQUID PENETRANT EXAMINATION

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: M A Chenlon 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

CONTROLLED COPY

LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 10	0

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Review..... 1
Training Review..... 1
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H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date..... 4-14-87
PCN.....
Revision No.....
Spec Proc. No.....
Temp. Change No..... T-277
Temp. Change Expires 5-5-87 (21 Days)

TO BE COMPLETED BY PREPARER

Volume Number N/A
Part N/A Procedure No. SP-731
Pages Effected 3a

I. A. Proposed Revision: Add page 3a

B. Reason for Revision: (List any commitments causing this change.)
To provide clarification as requested by Authorized Nuclear Inspector.

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: W. S. McCutcheon DATE 4/14/87

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis The proposed revision is initiated for clarity only and will have no adverse affect on the intent of the procedure. No other changes are required to the P.O.M., Tech Spec or UFSAR. Therefore no unreviewed safety question arises as a result of 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: W. S. McCutcheon DATE: 4/14/87

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: _____ DATE_____
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: _____

NAME: _____ TITLE: SR.SUG

NAME: _____ TITLE: SRO (MANAGEMENT) Eng Support Rep (SRO)

B. TEMPORARY CHANGE CANCELLED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: _____ DATE_____
Signature

B. ALARA Review: _____ DATE_____
Signature

C. Fire Protection Review _____ DATE _____
Signature

D. Technical Review (1) _____ DATE _____
Signature

(2) _____ DATE _____
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.

_____ _____ _____
Safety Reviewer Signature Date

_____ _____ _____
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 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: _____ _____ _____
MANAGER/FUNCTIONAL AREA APPROVED DATE EFFECTIVE DATE

PNSC IN-SESSION REVIEW: _____ YES _____ NO

REMARKS: _____

_____

_____

Nuclear Service Integration Division	INSPECTION SERVICES PROCEDURE FIELD CHANGE	PROCEDURE NUMBER: ISI 11 REV. 10

PROCEDURE TITLE
LIQUID PENETRANT EXAMINATION

REVISION	DATE	AMENDMENT	DATE
10	6/14/82	NA	NA

FIELD CHANGE	DATE	PLANT
3	4/13/87	H.B.ROBINSON

REASON/APPLICABILITY

To meet the latest interpertation of the applicable code

CHANGE ACTION

Paragraph 3.4.1
ADD the time from complete excess penetrant removal to application of developer shall not exceed 10 hours.

	TITLE	DATE
WESTINGHOUSE NSID APPROVAL: Roger Bushell	COORDINATOR	4-13-87
UTILITY APPROVAL: Richard B. Weber	Sr. Specialist	4-13-87
AUTHORIZED INSPECTOR APPROVAL: John Howard ANII	AGENCY: Kemper Group	DATE: 4-13-87

F49228 (TO BE INSERTED BEHIND COVER PAGE)

OLD

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 731

LIQUID PENETRANT EXAMINATION

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: [signature] 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

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LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 10	0

FORM 48779

OLD

Nuclear Service Division	INSPECTION SERVICES NONDESTRUCTIVE EXAMINATION PROCEDURE	PROCEDURE NUMBER ISI-11 Rev. 10

TITLE

LIQUID PENETRANT EXAMINATION

Prepared By: B. J. Lefebvre
B. J. Lefebvre, Level III

Approved By: J. A. Vano
J. A. Vano, Manager
Inspection Service

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.

1.2 Procedure OPS-NSD-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 surface examination requirements based on the applicable edition and addenda of ASME B and PV Code specified in the Examination Program Plan.

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 the applicable ASME Section XI. Personnel certified to any LEVEL for liquid penetrant examinations may be employed as assistants.

2.2 Material/Equipment

2.2.1 Liquid penetrant materials shall have been tested for contaminants in accordance with ASME B & PV Code Section V. 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 TRADE NAMES 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.) if 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. For preservice examinations only, the extent that cannot be examined shall be noted--reference 7.0.

3.0 Procedure

3.1 Precleaning

3.1.1 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.

3.1.2 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.

3.1.3 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.

3.1.4 Precelaning shall be such that the subsequent application of penetrant material wets the surface freely, and does not bead or "ball-up".

3.2 Penetrant application

3.2.1 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.

3.3 Penetrant removal

3.3.1 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.

3.3.2 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.

3.3.3 A final wipe shall be made with a clean and dry absorbent cloth or paper to ensure dryness of the surface.

3.4 Developing

3.4.1 Developer shall be applied as soon as practical after final dry wipe of penetrant removal. Developer shall be thoroughly agitated to disperse solids prior to application.

3.4.2 Developer shall be applied by spraying to achieve a thin even film or coating that covers the area being examined.

3.4.3 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 shall 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 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 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 if applicable.

(a) Linear and curvilinear having length of 1/16 inch or longer and including rounded within 1/4 inch in any direction.

(b) Rounded having a major axis dimension of 1/8 inch or greater and including smaller rounded within 1/4 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. For preservice examination (PSI) only, 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 and 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. Cleaning of such areas is the responsibility of reviewers. 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 OPS-NSD-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.	DUBL-CHECK, DR-60	DUBL-CHECK, DP-51	DUBL-CHECK-D100

DISTRIBUTION:
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H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date..... 3-16-87
PCN..... 13713
Revision No..... 0
Spec Proc. No..... SP 729
Temp. Change No..... N/A
Temp. Change Expires N/A (21 Days)

TO BE COMPLETED BY PREPARER

Volume Number N/A
Part N/A Procedure No. SP-729
Pages Effected ENTIRE PROCEDURE 1-15

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-8 R/9 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 1/15/87

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.)

3-30-87

ISI-8 Rev 9
VT

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: 1/15/87

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 3/4/87
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: ____

NAME: ____ TITLE: ____

NAME: [signature] 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: J E Kottan DATE 3/6/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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.

Warren Farmer	Warren Farmer	1/28/87
Safety Reviewer	Signature	Date
R. Chambers	R. A. Chambers	3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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:	A.R. Wallace	3/9/87	3/16/87
	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- 729

VISUAL EXAMINATION

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: M H Hankins 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

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LIST OF EFFECTIVE PAGES

EFFECTIVE PAGES	REVISION
Cover Sheet	0
LEP	0
3 through 15	0

Nuclear Services Integration Division	INSPECTION SERVICES NONDESTRUCTIVE EXAMINATION PROCEDURE	PROCEDURE NUMBER: ISI-8 Rev.9

TITLE

VISUAL EXAMINATION

Prepared By: B. J. Lefebvre

B.J.Lefebvre

Approved By: D.C. Adamonis

D.C.Adamonis, Manager
Inspection Services

EFFECTIVE DATE October 12,1984		REVISED DATE September 21,1984

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.

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 OPS-NSD-101 Preservice and Inservice Documentation and the Examination Program Plan specified therein, 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 B and PV Code that is noted in the Examination Program Plan to which it is attached.

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 inspections.

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, 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.

Certification of all visual examination personnel shall be in accordance with the appropriate requirements for Qualifications Of Nondestructive Examination Personnel that are specified in the Section XI of the ASME B and PV Code that is noted in the Examination Program plan. 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 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 may be conducted when access is sufficient to provide the examiner with a line of vision distance 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 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.

6.0 EXAMINATIONS

6.1 The item to be examined and the method/technique to be used shall be as specified in the Examination Program Plan.

6.1.1 If the method/technique is not specified, or if it is specified as VT, VE, VT-D, VE-D or VT-1, the techniques as defined in 4.1 through 4.1.3 shall apply.

6.1.2 If the method/technique is specified as either VT-R, VE-R, VT-2, VT-3, VT-4, 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.

6.2 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 7.0.

6.3 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 7.0.

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

Boric acid residue
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

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

INTERNAL SURFACES - Vessels, Pumps and Valves

Cracks
Corrosion/erosion
Loose parts
Debris
Scratches on sealing and bearing surfaces
Pitting (unusal 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 on nut
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

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
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

7.0 RECORDING OF INDICATIONS

7.1 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.

7.2 All indications of degradation that is not recordable in accordance with 7.1 shall be considered as - nonrecordable indications - and recorded as NRI.

7.3 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.

8.0 All data and results shall be documented in accordance with instruction OPS-NSD-101.

File: 06-15508

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H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date	3-16-87
PCN	13717
Revision No.	0
Spec Proc. No.	SP-733
Temp. Change No.	N/A
Temp. Change Expires	N/A (21 Days)

TO BE COMPLETED BY PREPARER

Volume Number N/A

Part N/A Procedure No. SP-733

Pages Effected ENTIRE PROCEDURE 1-13

I. A. Proposed Revision: Addition of new procedure - Special Procedure ISI-48 Manual Ultrasonic Examination of Reactor Vessel Flange to Vessel Weld and Stud Hole Ligaments Reactor Vessel Flange.

B. Reason for Revision: (List any commitments causing this change.)
To ensure flange weld and ligaments area of stud holes are examined 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 1/15/87

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis This procedure will enhance plant safety by inspecting the R.V. Flange Weld and Ligaments for defects without affecting the structural integrity of the component, therefore 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.)

4-1-87
QA/NR 7532

ISI-4/8 Rev
UT RV
Flange + Ligament

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: 1/15/87

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: NH Charlton DATE 3/4/87
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: R. Hammond DATE 2/6/87
Signature

C. Fire Protection Review N/A DATE N/A
Signature

D. Technical Review (1) Richard B. Weber DATE 1/19/87
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.

WARREN FARMER	Warren Farmer	1/20/87
Safety Reviewer	Signature	Date
R. Chambers	R. Chambers	3/4/87
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.

NA ARW 3/9/87	N/A
CNS Review	Date
NA ARW 3/9/87	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:	A.R. Wallace	3/9/87	3/16/87
	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- 733

MANUAL ULTRASONIC EXAMINATION OF REACTOR VESSEL FLANGE TO VESSEL WELD AND STUD HOLE LIGAMENTS REACTOR VESSEL FLANGE

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: N H Chamlee 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

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H. B. ROBINSON STEAM ELECTRIC PLANT
PROCEDURE REVIEW AND APPROVAL FORM

Effective Date..... 4-14-87
PCN.....
Revision No.....
Spec Proc. No.....
Temp. Change No..... I-278
Temp. Change Expires 5-5-87 (21 Days)

TO BE COMPLETED BY PREPARER

Volume Number N/A
Part N/A Procedure No. SP-733
Pages Effected 5a, 5b

I. A. Proposed Revision: Add pages 5a, and 5b.

B. Reason for Revision: (List any commitments causing this change.)
To provide clarification, as requested by Authorized Nuclear Inspector.

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: W. S. McCutcheon DATE 4/14/87

TO BE COMPLETED BY PREPARER OR OTHER INDIVIDUAL

II. A. Safety Analysis The proposed revision is initiated for clarity only and will have no adverse affect on the intent of the procedure. No other changes are required to the Tech. Specs, P.O.M. or UFSAR. Therefore no unreviewed safety question arises as a result of 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: W S McCutcheon DATE: 4/14/87

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: _____ DATE_____
Responsible Supervisor

IV. A. TEMPORARY CHANGE APPROVED THIS DATE: _____

NAME: _____ TITLE: SR. SRO.

NAME: _____ TITLE: SRO (MANAGEMENT) Cog Super Rep (SRO)

B. TEMPORARY CHANGE CANCELLED THIS DATE: _____

NAME: _____ TITLE: _____

NAME: _____ TITLE: SRO (MANAGEMENT)

V. A. QA/QC Review: _____ DATE_____
Signature

B. ALARA Review: _____ DATE_____
Signature

C. Fire Protection Review _____ DATE _____
Signature

D. Technical Review (1) _____ DATE _____
Signature

(2) _____ DATE _____
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.

Safety Reviewer	Signature	Date
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	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: _____ _____ _____
MANAGER/FUNCTIONAL AREA APPROVED DATE EFFECTIVE DATE

PNSC IN-SESSION REVIEW: _____ YES _____ NO

REMARKS: _____

_____

_____

Nuclear Service Integration Division	INSPECTION SERVICES PROCEDURE FIELD CHANGE	PROCEDURE NUMBER: ISI 48

PROCEDURE TITLE: Manual Ultrasonic Examination of Reactor Vessel Flange to Vessel Weld And Stud Hole Ligaments Reactor Vessel Flange

REVISION	DATE	AMENDMENT	DATE
NA	NA	NA	NA

FIELD CHANGE	DATE	PLANT
3	4/13/87	H.B. ROBINSON

REASON/APPLICABILITY

to meet the latest interpertation of the code

CHANGE ACTION

ADD Sketch of cal. block CPL RV2 which also lists the material. page 2 of this field change.

Examination personnel shall be certified to SNT-TC-1A,as may be modified by the applicable ASME section XI

Rate of scanning shall not exceed 6 inches per second.

To assure effective coverage, scanning and indexing shall be such that beams overlap at least 10%

The maximum size of the transducer shall be 1 inch

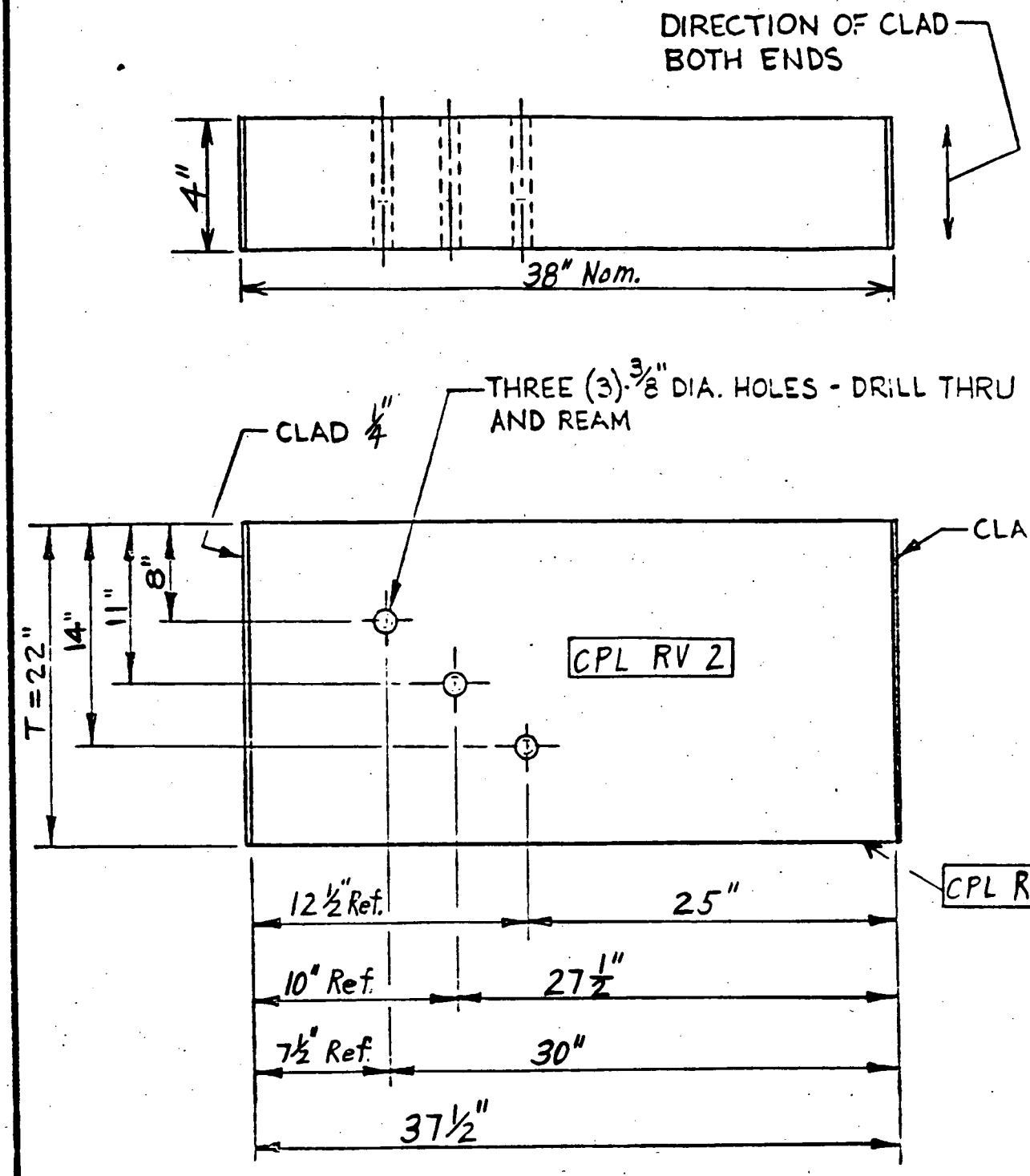
Once calibration has been established, any change to any part of the system will require at least a verification of the calibration.

	TITLE	DATE
WESTINGHOUSE NSID APPROVAL: [signature]	COORDINATOR	4/13/87
UTILITY APPROVAL: Richard B. Wiber	Sr. Specialist	4/13/87
AUTHORIZED INSPECTOR APPROVAL: [signature]	AGENCY: Kemper Group	4-13-87

F49228

(TO BE INSERTED BEHIND COVER PAGE)

USE:
VESSEL FLANGE TO SHELL WELD
NOZZLES TO SHELL WELDS



MATERIAL: A 508 Class 2
HEAT 110 : B-W-PC "C"

WT. = 948#

CALIBRATION BLOCK : CPL-RV-2

OLD

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON SEG PLANT

SPECIAL PROCEDURE

SP- 733

MANUAL ULTRASONIC EXAMINATION OF REACTOR VESSEL FLANGE TO VESSEL WELD AND STUD HOLE LIGAMENTS REACTOR VESSEL FLANGE

REVISION 0

Effective Date 3-16-87

Expiration Date 9-15-87

RECOMMENDED BY: N H Chamlee 3/4/87

APPROVED BY: A. R. Wallace 3/9/87

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OLD

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3 through 13	0

OLD

ıghouse Electric Corporation Power Systems

Nuclear Service Division
Box 355
Pittsburgh Pennsylvania 15230

INSPECTION PROCEDURE: ISI-48

DATED: October 7, 1975

PLANT SITE: Carolina Power & Light Co., H. B. Robinson

PROCEDURE TITLE: Manual Ultrasonic Examination of Reactor Vessel Flange to Vessel Weld And Stud Hole Ligaments Reactor Vessel Flange

Prepared by: B. J. Fujikura

Approved: Peter L Ruddle
P. L. Ruddle, Manager
Inspection Services

APPENDIX D

Attachment 1

Change Sheet No. 1

Service Activity Procedure Field Change Report

PLANT: H.B. Robinson Unit #2 CUSTOMER: Carolina Power & Light

PROCEDURE NO.: ISI-48 REVISION: 0

PROCEDURE TITLE: Manual Ultrasonic Examination of Reactor Vessel Flange to Vessel Weld and Stud Hole Ligaments Reactor Vessel Flange

REASON FOR CHANGE: Reworded to reflect actual conditions under which DAC was constructed.

DETAILS OF CHANGE: Paragraph 4.2.1 First Sentence

delete; "... such that twelve (12) DB are in."

replace by: "... to approximately the mid range."

SIGNATURE OF CUSTOMER'S APPROVAL: [signature] ENG. SUP.
Title

SIGNATURE OF WESTINGHOUSE APPROVAL: Richard B. Weber Coordinator ISI
Title

DATE: 11/11/75

ULD

Nuclear Service Integration Division	INSPECTION SERVICES PROCEDURE FIELD CHANGE	PROCEDURE NUMBER ISI-48

PROCEDURE TITLE: Manual Ultrasonic Examination of Reactor Vessel Flange to Vessel Weld and Stud Hole Ligaments Reactor Vessel Flange

REVISION	DATE	AMENDMENT	DATE
N/A	N/A	N/A	N/A

FIELD CHANGE	DATE	PLANT
2	1/6/87	H. B. ROBINSON

REASON/APPLICABILITY: Update Recording Criteria

CHANGE ACTION

Revise Para 5.2 as follows:

5.2 All indications which produce a response greater than 50 percent of the primary response reference level DAC curve will be evaluated and recorded on the ultrasonic indication report to the extent that the shape, orientation, location, and possible identity of the indication producing area can be assessed. Indications greater than 100 percent of DAC will be reported immediately. Reflectors determined to be geometric ref. paragraph 6.1.

WESTINGHOUSE NSID APPROVAL	TITLE	DATE
David Kurek David Kurek	W Level III	12/30/86
UTILITY APPROVAL	TITLE	DATE
AUTHORIZED INSPECTOR APPROVAL	AGENCY	DATE

MANUAL ULTRASONIC EXAMINATION OF REACTOR VESSEL FLANGE TO VESSEL WELD AND STUD HOLE LIGAMENTS REACTOR VESSEL FLANGE

1.0 SCOPE

This procedure is applicable to, and describes requirements for manual ultrasonic examination of R.V. flange to vessel weld and R.V. flange stud hole ligaments to a depth of 12 inches. This procedure complies with ASME Code, Section XI. Procedure OPS-NSD-101 Preservice and Inservice Examination Data Reporting is considered part of this procedure and is to be used as applicable.

2.0 GENERAL REQUIREMENTS

2.1 Ultrasonic flaw detection instruments shall be of the pulse echo type with an A-Scan presentation and shall be qualified to the requirements of NSD-ISI-10.

2.2 The beam angles shall be within $\pm$ 2° of nominal. Other frequencies and/or angles may be used if required to conduct the examinations or investigations. Transducers shall be qualified to the requirements of NSD-ISI-10.

2.3 Operators performing examinations to this procedure will be qualified to Level II in accordance with SNT-TC-1A, its supplement and appendices as applicable for ultrasonic testing. Level I operators may be employed as assistants.

2.4 Prior to starting an examination, the areas to be examined and contacted by the search unit shall be cleaned to ensure that it is free of dirt, loose scale, machining or grinding particles, weld spatter or other loose foreign matter that would impair the free movement of the search unit or affect the inspection results. If such conditions are detected, they will be rectified prior to conducting the examination.

2.5 A suitable liquid, semi-liquid, or past couplant medium, such as water, oil, glycerin, or grease shall be applied to the test surface. Couplants used to ensure the transmission of ultrasonic beams shall contain not more than one percent (1%) by weight, of residual sulphur and halogens.

2.6 The identity and geometric configuration of the area to be examined shall be given in the Inspection Program Plan (Ref. OPS-NSD-101).

2.7 The calibration standards used (See Figure 1) shall be made of ultrasonically sound material metallurgically similar to that being tested and the same or equivalent P-number grouping as the finished component. For the purpose of this paragraph, P-numbers 1, 3, 4 and 5 materials are considered equivalent. The standard reflecting surface shall be a side drilled hole.

3.0 FLANGE STUD HOLE LIGAMENT EXAMINATION

3.1 Extent of Examination

The flange ligaments shall be examined from the face of the flange. The extent of examination shall cover all the area between the stud holes and an area of base material around the holes extending at least one search unit diameter from the edge of the hole. Search units utilized shall be 1 inch or less and have a minimum frequency of 2.25 MHz.

3.2 Calibration of Equipment

A distance amplitude curve (DAC) shall be determined from the end of the calibration block utilizing the response from the holes as shown in Figure 3. With the instrument sensitivity set at one half of the full decibel range of the instrument the search unit shall be positioned such as to obtain the maximum response from the calibration hole. The gain control shall be adjusted to set this response at 80 percent of full screen height. Starting from this basic calibration setting, the response from the other calibration holes shall be marked. The DAC shall be made by joining the three response points by a smooth line.

3.3 Examination

The examination of the ligaments and the base material around the threaded holes shall be performed from the face of the flange. The area to be scanned shall be all the flange face between adjacent threaded stud holes and an area around each hole extending one search unit diameter beyond the edge of the hole. The examination is to be limited to a depth of 12 inches into the material beneath the flange face. Scanning shall be at two (2) times reference sensitivity.

3.4 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 recalibration 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-examination and data correction of all indications reported since the previous acceptable calibration or check.

4.0 FLANGE TO VESSEL WELD EXAMINATION

4.1 Extent of Examination

The flange to vessel weld shall be examined from the face of the flange. The volume subject to examination and extent of scan length shall be in accordance with Figure 3. Search units utilized shall be a maximum of 3/4 inch; 2.25 MHz frequency, and shall produce a 12° refracted longitudinal wave within the flange.

4.2 Equipment Calibration

A distance amplitude curve (DAC) shall be established utilizing the response from the transducer positions shown in Figure 2.

4.2.1 Adjust the instrument DB control such that twelve (12) DB are in. Position the search unit on the calibration block such that the maximum response from the applicable calibration hole is obtained. Adjust the gain control to set this response at 80 percent of full screen height. This is the primary reference response. Starting from this basic calibration setting, the response from the other calibration holes shall be marked. The DAC shall be made by joining the response points by a smooth line on the CRT.

4.2.2 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 recalibration 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-examination and data correction of all indications reported since the previous acceptable calibration or check.

4.3 Examination

The examination of the flange to shell weld shall be performed from the flange face. The area to be scanned shall be all of the flange face between and around the stud holes as shown in Figure 3.

5.0 INVESTIGATION AND EVALUATION OF INDICATIONS

5.1 All indications exceeding 20% of the primary reference DAC (40% of scanning DAC) shall be investigated to determine maximum response and type of indication.

5.2 All indications which produce a response greater than 75 percent of the primary response reference level DAC curve will be evaluated and recorded on the ultrasonic indication report to the extent that the shape, orientation, location, and possible identity of the indication producing area can be assessed. Indications greater than 100 percent of DAC will be reported immediately. Reflectors determined to be geometric ref. paragraph 6.1.

5.3 Discontinuity length shall be determined by positioning the search unit such that the sound beam is directed perpendicular to the long axis of the discontinuity and by moving the transducer parallel with this axis in each direction from the position of maximum signal amplitude. The extremity of the discontinuity shall be defined as the point where the signal amplitude drops to 50% of the calibrated DAC line. At this point, the scanning surface is marked at the position indicated by the center line of the search unit width. This shall be repeated in the opposite direction to determine the other extremity. The length of the discontinuity shall be defined as the distance between these two marks.

5.4 Evaluation of indications shall be performed at the reference frequency and sensitivity. Other frequencies or beam angles may be used as an aid in interpreting examination results.

6.0 EXAMINATION RESULTS AND DOCUMENTATION

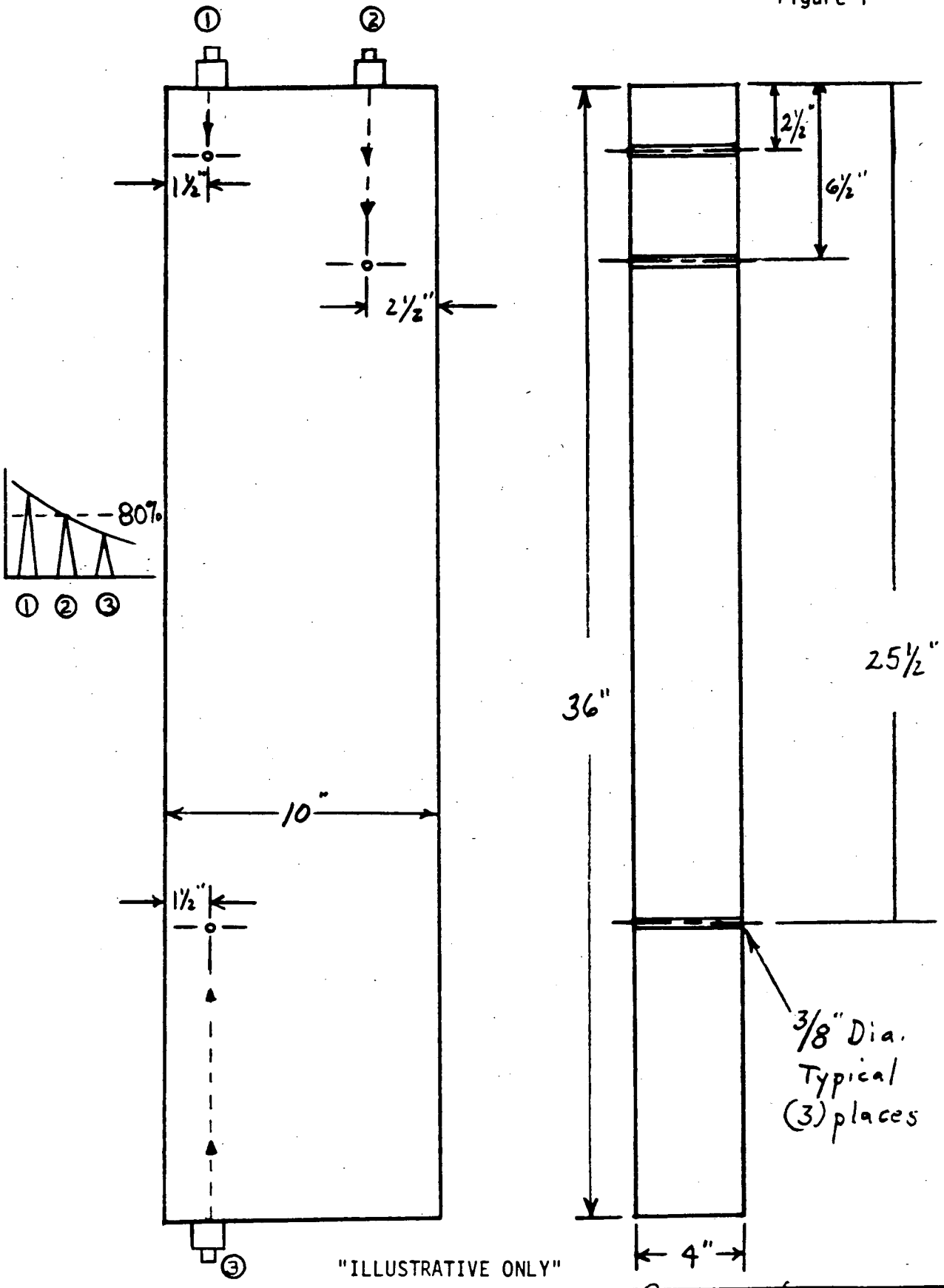
6.1 Reflectors determined to be caused by geometry shall be acknowledged by recording the approximate location, length and minimum and maximum amplitudes, i.e. 20% to 90% - 360°. This information shall be recorded in the remarks section on the "Weld Ultrasonic Examination Report" Data Sheet.

6.2 All data relative to the examinations and evaluated indications shall be reported in accordance with Instruction OPS-NSD-101.

OLD

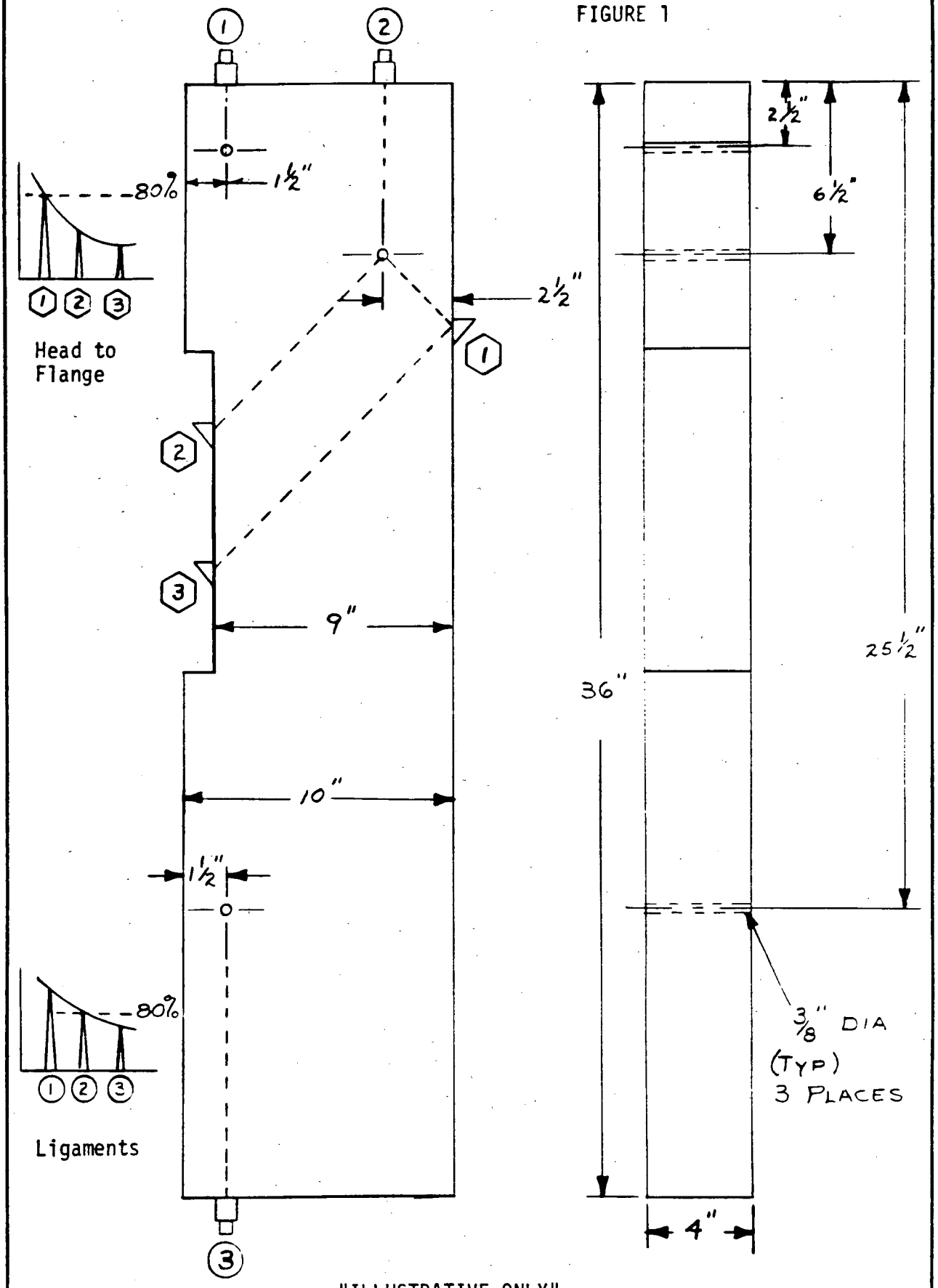
WESTINGHOUSE ELECTRIC CORPORATION

Figure 1



OLD

FIGURE 1

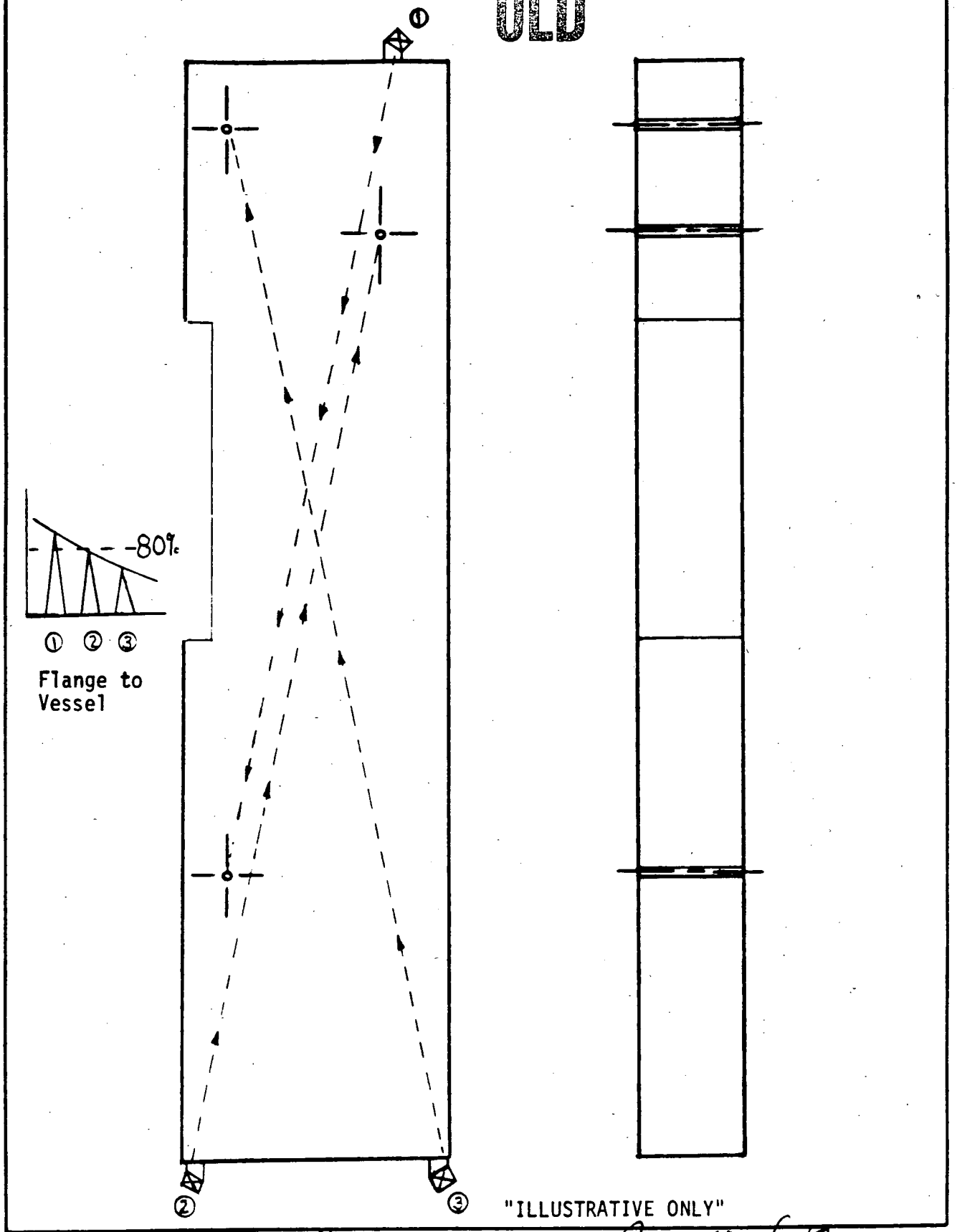


"ILLUSTRATIVE ONLY"

WESTINGHOUSE ELECTRIC CORPORATION

OLD

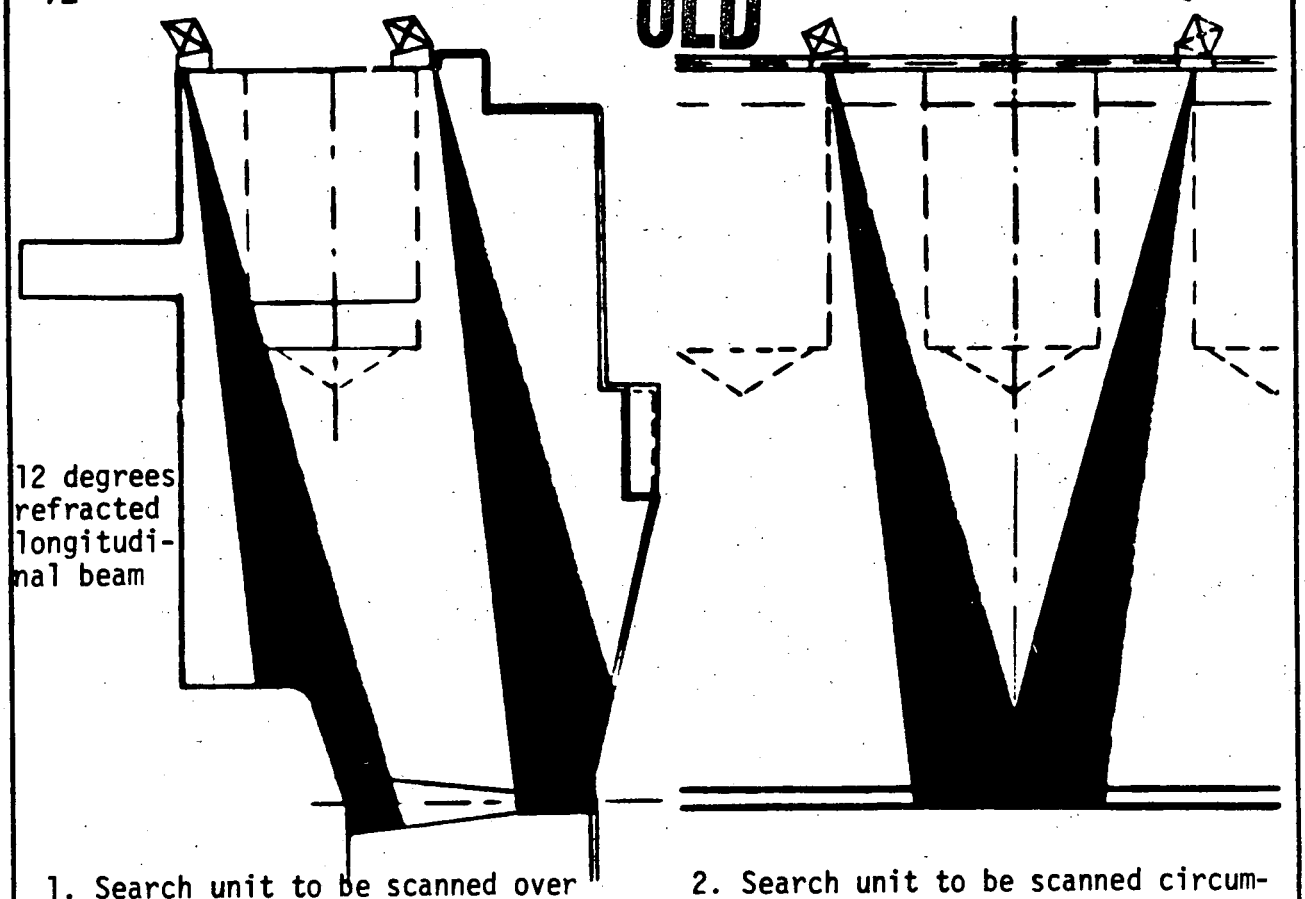
Figure 2



"ILLUSTRATIVE ONLY"

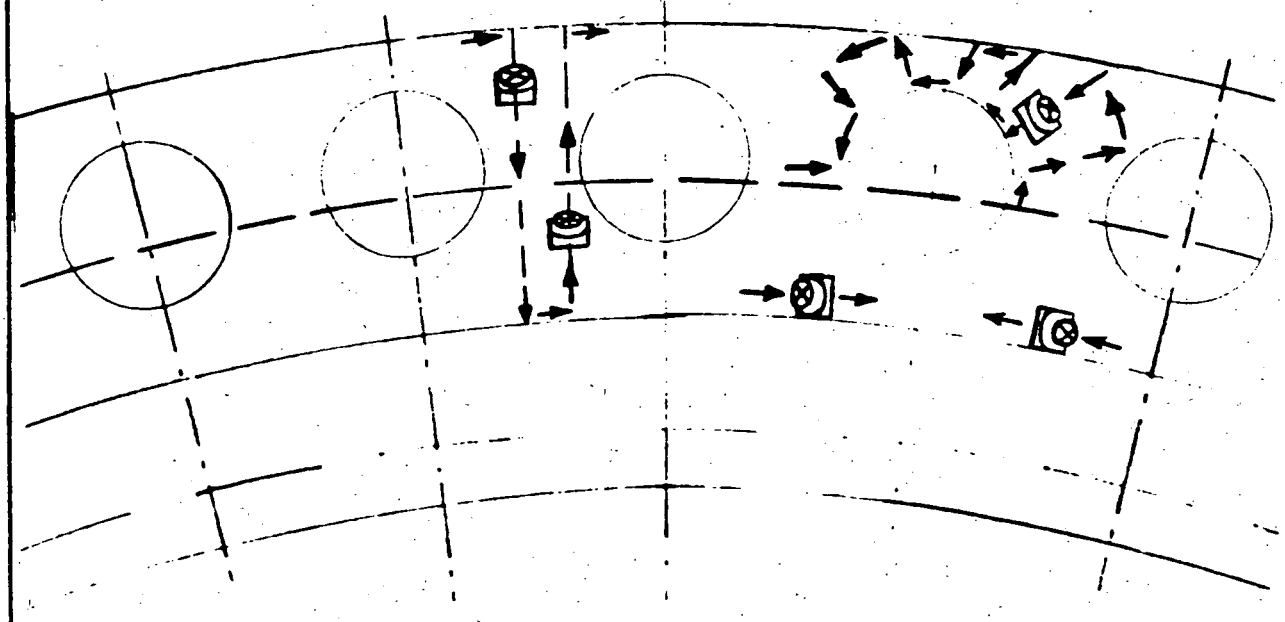
WESTINGHOUSE ELECTRIC CORPORATION

FIGURE 3 OLD



1. Search unit to be scanned over full width of flange surface between stud holes in both directions as shown.

2. Search unit to be scanned circumferentially around inner edge of flange surface in both directions and around each stud hole as shown.



EXAMINATION SCAN PATTERNS FOR VESSEL TO FLANGE WELD "ILLUSTRATIVE ONLY"