

863

RELATED CORRESPONDENCE

ISHAM, LINCOLN & BEALE
COUNSELORS AT LAW

EDWARD S. ISHAM. 1872-1902
ROBERT T. LINCOLN. 1872-1889
WILLIAM G. BEALE. 1889-1923

THREE FIRST NATIONAL PLAZA
CHICAGO, ILLINOIS 60602
TELEPHONE 312 558-7500
TELEX: 2-5288

DOCKETED
USNRC

WASHINGTON OFFICE
1120 CONNECTICUT AVENUE, N.W.
SUITE 840
WASHINGTON, D.C. 20036
202 833-9730

April 18, 1986

80 APR 21 12:02

Mr. Robert Guild
BPI
109 North Dearborn Street
Suite 1300
Chicago, Illinois 60602

OFFICE OF THE ASST. DIR.
DOCKETING & SERVICE
BRANCH

50-457/457
OL

Re: Commonwealth Edison Company
(Braidwood Station, Units 1 & 2)

Dear Bob:

In accordance with your requests at the deposition of Mr. Gorski and our subsequent discussions, I have enclosed a more legible copy of the first page of Phillips, Getschow NCR 789 (Bates number K0013493) and certain other documents related to the thickness measurements taken for the pitted pipe (Bates numbers J0005059-J0005088). These other documents include examples of completed Pitted Pipe Sampling Checklists. These checklists provide the raw data for thickness measurements taken for samples numbered 1, 50, 100, 150, 200, and 250. In addition, I have enclosed a summary entitled "Pipe Sample Minimum Wall Checklists", which includes a comparison, for each sample, of the smallest wall thickness measurement taken against the manufacturer's minimum allowable thickness.

Sincerely,

Rebecca J. Lauer

Rebecca J. Lauer

RJL:bcf

Encs.

cc: Service List (w/o encs.)

8604220283 860418
PDR ADOCK 05000456
G PDR

DS03

SERVICE LIST

Herbert Grossman, Esq.
Chairman
Administrative Law Judge
Atomic Safety and Licensing
Board
United States Nuclear Regulatory
Commission
Washington, DC 20555

Dr. Richard F. Cole
Administrative Law Judge
Atomic Safety and Licensing
Board
United States Nuclear Regulatory
Commission
Washington, DC 20555

Dr. A. Dixon Callihan
Administrative Law Judge
102 Oak Lane
Oak Ridge, TN 37830

Stuart Treby, Esq.
Elaine I. Chan, Esq.
Office of the Executive Legal
Director
United States Nuclear Regulatory
Commission
Washington, DC 20555

Atomic Safety and Licensing
Board Panel
United States Nuclear Regulatory
Commission
Washington, DC 20555

Atomic Safety and Licensing
Appeal Board Panel
United States Nuclear Regulatory
Commission
Washington, DC 20555

Mr. William L. Clements
Chief, Docketing and Services
United States Nuclear Regulatory
Commission
Office of the Secretary
Washington, DC 20555

Ms. Bridget Little Rorem
117 North Linden Street
P.O. Box 208
Essex, IL 60935

Robert Guild
Douglass W. Cassel, Jr.
Timothy W. Wright, III
BPI
109 North Dearborn Street
Suite 1300
Chicago, IL 60602

Charles Jones, Director
Illinois Emergency Services
and Disaster Agency
110 East Adams
Springfield, IL 62705

William Little, Director
Braidwood Project
Region III
United States Nuclear Regulatory
Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Janice A. Stevens
(For Addressee Only)
United States Nuclear Regulatory
Commission
7920 Norfolk Avenue
Phillips Building
Bethesda, MD 20014

George L. Edgar, Esq.
Thomas A. Schmutz, Esq.
Newman & Holtzinger, P.C.
1615 "L" Street, N.W.
Suite 1000
Washington, DC 20036

Phillips, Getschow Co.

FORM 1001
251003
#-1-82

NONCONFORMITY REPORT (NCR)

SERIAL No.

789

| | | | |
|------------------------|--|-----------------------------------|---------------------------------|
| JOB No. 2501 | LOCATION Braidwood Nuclear Power Station | REPORTED BY R. Anderson | DATE REPORTED 9-17-82 |
|------------------------|--|-----------------------------------|---------------------------------|

| | |
|---|--|
| DATE CORRECTIVE ACTION COMPLETION REQUIRED 11-30-82 | DISPOSITION: <input type="checkbox"/> ACCEPT <input type="checkbox"/> REPAIR <input type="checkbox"/> REWORK <input type="checkbox"/> REJECT <input checked="" type="checkbox"/> CUSTOMER DISPOSITION |
|---|--|

Audit # 83818 on 2-15-84

NONCONFORMITY IDENTIFICATION AND HISTORY

$\frac{1}{2}$ " sch 80 S.S. pipe, HT# 745107, in use at Braidwood, has been found to be without certification. Our records do however contain certification for $\frac{1}{2}$ " sch 160 S.S. pipe with this same heat number. (745107)

Location: Instrument warehouse in turbine bldg. and 2" and under warehouse in Aux. bldg.

Hold Tag #789

UNCONTROLLED
FOR INFORMATION ONLY

DISPOSITION (Include Nonconformance Review Board action if necessary)

Suggest: Research section III installation records to determine where this material has been used, cut out and replace any that is found in section III installations. Put remaining material in class D stock.

Attached are CMTR's for $\frac{1}{2}$ sch 80 pipe for HT number 745107. It may have been received as 160. ~~for HT number 745107.~~
incorrectly. ~~for HT number 745107.~~

AND TRACEABILITY *John T. Merwin*
All pertinent receiving documentation should be updated accordingly. RDP 11/17/82 (MRR1369) 11-12-82

ANI Review: *C. Green*

Date: *11-25-82*

John T. Merwin 11-22-82
S. Kunsade 11/22/82

CORRECTIVE ACTION

Personnel responsible for verification of material acceptability at the time this material was received is no longer employed by PGC. No corrective action required.

ALL PERTINENT RECEIVING AND TRACEABILITY DOCUMENTATION HAS BEEN UPDATED ACCORDINGLY *R. Anderson* 7-26-83

HOLD TAG REMOVED

Assigned by: *R. Anderson* Date 11-23-82

| | | |
|---|---|---|
| Nonconformance Review Board Sign-offs Signature _____ Date _____ | NA <i>NA</i> Signature _____ Date _____ | Audit # 83818 on 12-12-83 Signature _____ Date _____ |
| Signature _____ Date _____ | Signature _____ Date _____ | Signature _____ Date _____ |

NONCONFORMITY REPORT COMPLETE AND CLOSED

Supervisor—Quality Control *J. Carls*

Date *4-26-83*

ANI Concurrence *J. K...*

Date *4/27/83*

KCC12493

#1

IR# 1569-4

PHILLIPS-GETSCHOW CO.
BRAIDWOOD N.P.S.

SMALL BORE CARBON STEEL
FITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/GA-5-92 REV. 3
PAGE 1 OF 3

1.0 SUPERINTENDENT TO DRAW THE SAMPLE OUT OF THE STORAGE AREA.

| | | | | | |
|--|-----------------|-----------------------------|----------------|------|----------------|
| 1.1 SAMPLE I.D. NUMBER | <u>F21-7</u> | DRAWN FROM THE STORAGE AREA | <u>5-24-85</u> | DATE | <u>5-24-85</u> |
| 1.2 HEAT NUMBER OR HEAT CODE OF SAMPLE REMOVED | <u>JD1571</u> | | | | |
| 1.3 Q.C. VERIFICATION: | <u>Jim Hunt</u> | <u>#</u> | <u>5-24-85</u> | DATE | |
| | Q.C. SIGNATURE | LEVEL | DATE | | |

2.0 SUPERINTENDENT TO IDENTIFY AND REMOVE BENDS. Q.C. SUPERVISOR TO EXAMINE REMOVED BENDS.

2.1 THE SAMPLE DOES DOES NOT CONTAIN A BEND.

2.1.1 IF SAMPLE DOES NOT CONTAIN A BEND, GO TO 3.0 AND CONTINUE TO COMPLETE WORK AND CHECKLIST (SECTIONS 2.1.2, 2.2, AND 2.3 DO NOT NEED TO BE ADDRESSED).

2.1.2 IF SAMPLE DOES CONTAIN A BEND, CONTINUE WORK PER THIS SECTION.

2.2 UNIQUE SAMPLE I.D. NUMBER IS TO BE VIBRO-ETCHED ON EACH BEND TO BE REMOVED FROM SAMPLE, AND TO ALL LOOSE PIECES THAT WILL EXIST FROM CUTS.

| | | | | |
|----------------------|------|-------------------|-------|------|
| PRODUCTION SIGNATURE | DATE | Q.C. VERIFICATION | LEVEL | DATE |
|----------------------|------|-------------------|-------|------|

2.3 THIS SPACE IS PROVIDED FOR Q.C. SUPERVISOR TO SKETCH AND IDENTIFY ALL BENDS EXAMINED AND TO RECORD ANY DATE (CRACKS OR TEARS) FOUND DURING Q.C. INSPECTION.

N/A

J060505⁹

| | | |
|----------------|-------|------|
| Q.C. SIGNATURE | LEVEL | DATE |
|----------------|-------|------|

IR 569-4

ACC. NO.: ENL-C 424

PAGE - 1

PHILLIPS, GETSCHOW CO.
BRADWOOD N. P. S.

SMALL BORE CARBON STEEL
PITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/QA-5-92 REV. 1
PAGE 3 OF 3 ADDITIONAL PAGES
WILL BE MARKED 2A, 2B, 2C, etc.

| | | | | | | | | | | | |
|-----------------------------------|-----|--------------|-----|-----------------------------------|-----|--------------|-----|-----------------------------------|-----|--------------|-----|
| 0° | 205 | | 205 | 0° | 202 | | 201 | 0° | 202 | | 205 |
| 45° | 202 | 1° To 44° | 195 | 45° | 207 | 1° To 44° | 202 | 45° | 203 | 1° To 44° | 200 |
| 90° | 198 | 46° To 89° | 180 | 90° | 204 | 46° To 89° | 204 | 90° | 193 | 46° To 89° | 183 |
| 135° | 190 | 91° To 134° | 189 | 135° | 200 | 91° To 134° | 204 | 135° | 179 | 91° To 134° | 186 |
| 180° | 199 | 136° To 179° | 206 | 180° | 205 | 136° To 179° | 199 | 180° | 187 | 136° To 179° | 195 |
| 225° | 203 | 181° To 224° | 205 | 225° | 196 | 181° To 224° | 182 | 225° | 200 | 181° To 224° | 200 |
| 270° | 207 | 226° To 269° | 202 | 270° | 199 | 226° To 269° | 187 | 270° | 203 | 226° To 269° | 205 |
| 315° | 204 | 271° To 314° | 199 | 315° | 182 | 271° To 314° | 199 | 315° | 206 | 271° To 314° | 204 |
| | | 316° To 359° | | | | 316° To 359° | | | | 316° To 359° | |
| SAMPLE I. D. NUMBER <u>F21-7A</u> | | | | SAMPLE I. D. NUMBER <u>F21-7B</u> | | | | SAMPLE I. D. NUMBER <u>F21-7C</u> | | | |

| | | | | | | | | | | | |
|-----------------------------------|-----|--------------|-----|-----------------------------------|-----|--------------|-----|-----------------------------------|-----|--------------|-----|
| 0° | 205 | | 207 | 0° | 205 | | 203 | 0° | 188 | | 180 |
| 45° | 205 | 1° To 44° | 193 | 45° | 202 | 1° To 44° | 205 | 45° | 179 | 1° To 44° | 179 |
| 90° | 193 | 46° To 89° | 193 | 90° | 203 | 46° To 89° | 209 | 90° | 188 | 46° To 89° | 195 |
| 135° | 205 | 91° To 134° | 201 | 135° | 204 | 91° To 134° | 201 | 135° | 200 | 91° To 134° | 205 |
| 180° | 193 | 136° To 179° | 194 | 180° | 201 | 136° To 179° | 185 | 180° | 205 | 136° To 179° | 203 |
| 225° | 178 | 181° To 224° | 179 | 225° | 186 | 181° To 224° | 177 | 225° | 192 | 181° To 224° | 203 |
| 270° | 190 | 226° To 269° | 189 | 270° | 179 | 226° To 269° | 192 | 270° | 205 | 226° To 269° | 201 |
| 315° | 197 | 271° To 314° | 200 | 315° | 186 | 271° To 314° | 201 | 315° | 198 | 271° To 314° | 202 |
| | | 316° To 359° | | | | 316° To 359° | | | | 316° To 359° | |
| SAMPLE I. D. NUMBER <u>F21-7D</u> | | | | SAMPLE I. D. NUMBER <u>F21-7E</u> | | | | SAMPLE I. D. NUMBER <u>F21-7F</u> | | | |

| | | | | | | | | | | | |
|---------------------------|-----|--------------|--|---------------------------|-----|--------------|--|---------------------------|-----|--------------|--|
| 0° | | | | 0° | | | | 0° | | | |
| 45° | | 1° To 44° | | 45° | | 1° To 44° | | 45° | | 1° To 44° | |
| 90° | | 46° To 89° | | 90° | | 46° To 89° | | 90° | | 46° To 89° | |
| 135° | | 91° To 134° | | 135° | | 91° To 134° | | 135° | | 91° To 134° | |
| 180° | N/A | 136° To 179° | | 180° | N/A | 136° To 179° | | 180° | N/A | 136° To 179° | |
| 225° | | 181° To 224° | | 225° | | 181° To 224° | | 225° | | 181° To 224° | |
| 270° | | 226° To 269° | | 270° | | 226° To 269° | | 270° | | 226° To 269° | |
| 315° | | 271° To 314° | | 315° | | 271° To 314° | | 315° | | 271° To 314° | |
| | | 316° To 359° | | | | 316° To 359° | | | | 316° To 359° | |
| SAMPLE I. D. NUMBER _____ | | | | SAMPLE I. D. NUMBER _____ | | | | SAMPLE I. D. NUMBER _____ | | | |

Quality Control Signature: [Signature] LEVEL: II DATE: 5-31-88 MICROMETER I. D. No.: CE-10

J0005061

PHILLIPS-DETSON CO.
BRAIDWOOD S.P.S.

SMALL BORE CARBON STEEL
FITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/04-5-92 REV. 1
PAGE 1 OF 1

1.0 SUPERINTENDENT TO DRAW THE SAMPLE OUT OF THE STORAGE AREA:

1.1 SAMPLE I.D. NUMBER A129-3 DRAWN FROM THE STORAGE AREA 5-30-85
DATE

1.2 HEAT NUMBER OR HEAT CODE OF SAMPLE REMOVED AD 7115
DATE 5-30-85

1.3 Q.C. VERIFICATION: Jim Hunt # 8 DATE 5-30-85
Q.C. SIGNATURE LEVEL DATE

2.0 SUPERINTENDENT TO IDENTIFY AND REMOVE BENDS. Q.C. SUPERVISOR TO EXAMINE REMOVED BENDS.

2.1 THE SAMPLE DOES DOES NOT CONTAIN A BEND.

2.1.1 IF SAMPLE DOES NOT CONTAIN A BEND, GO TO 3.0 AND CONTINUE TO COMPLETE WORK AND CHECKLIST (SECTIONS 2.1.2, 2.2, AND 2.3 DO NOT NEED TO BE ADDRESSED).

2.1.2 IF SAMPLE DOES CONTAIN A BEND, CONTINUE WORK PER THIS SECTION.

2.2 UNIQUE SAMPLE I.D. NUMBER IS TO BE VIBRO-ETCHED ON EACH BEND TO BE REMOVED FROM SAMPLE, AND TO ALL LOCAL PIECES THAT WILL EXIST FROM CUTS.

PRODUCTION SIGNATURE _____ DATE _____ Q.C. VERIFICATION _____ LEVEL _____ DATE _____

2.3 THIS SPACE IS PROVIDED FOR Q.C. SUPERVISOR TO SKETCH AND IDENTIFY ALL BENDS EXAMINED AND TO RECORD ANY DATE (GAGES OR TEARS) FOUND DURING Q.C. INSPECTION.

N/A

SIGNATURE LEVEL DATE

PHILLIPS 66 CHEMICAL CO.
BRAUNWOOD N P 2

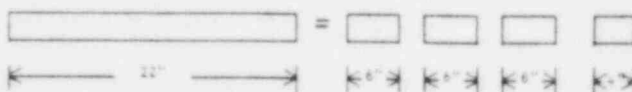
SMALL BORE CARBON STEEL PITTED PIPE
SAMPLING CHECKLIST FOR SAMPLE PREPARATION
AND INSPECTION

FORM PG/OA-5-92 REV. 1
PAGE 2 OF 3

3.0 SUPERINTENDENT TO SECTION THE SAMPLE

3.1 CUT THE STRAIGHT LENGTH OF PIPE INTO LENGTHS A MAXIMUM OF SIX (6) INCHES LONG
(Q.C. VERIFICATION IS REQUIRED PRIOR TO CUTTING)

EXAMPLE: A 22" LONG SAMPLE WOULD BE CUT INTO THREE SIX INCH LONG SECTIONS AND A FOUR INCH LONG SECTION



3.2 A STRAIGHT LENGTH OF PIPE LESS THAN SIX INCHES LONG WILL BE CONSIDERED A "SECTION" AND DOES NOT REQUIRE CUTTING (SECTIONING)

3.3 Q.C. VERIFICATION THAT SAMPLE I.D. NUMBER HAS BEEN TRANSFERRED TO EACH SECTION PRIOR TO RELEASE FOR CUTTING

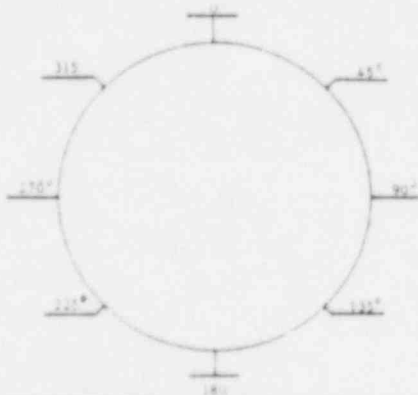
Jim West
Q.C. SIGNATURE LEVEL DATE 5-30-84

3.4 RECORD THE IDENTIFICATION AND THE LENGTHS OF THE SAMPLES

| I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| H124-34 | 6" | | | | | | | | | | |
| H124-3B | 6" | | | | | | | | | | |
| H124-3C | 6" | | | | | | | | | | |
| H124-3D | 6" | | | | | | | | | | |
| H124-3E | 6" | | | | | | | | | | |
| H124-3F | 5" | | | | | | | | | | |

4.0 MARKING THE SECTIONS

4.1 EIGHT ORIENTATION MARKS SHALL BE STAMPED ON EACH SEGMENT, AT 0°, 45°, 90°, 135°, 180°, 225°, 270°, AND 315°. THE ORIENTATION OF THE STAMP TO THE PIPE SHALL BE ARBITRARILY SELECTED.



AFTER THE END OF THE SAMPLE HAS BEEN STAMPED WITH THE EIGHT ORIENTATION MARKS, ONE OF THE MARKS SHALL BE SELECTED AND IDENTIFIED AS 0° (ZERO DEGREES)

5.0 MEASURING AND RECORDING WALL THICKNESS

5.1 MEASURE AND RECORD THE ACTUAL WALL THICKNESS AT THE EIGHT ORIENTATION MARKS (SEE Q.C. 3)

5.2 ADDITIONAL MEASUREMENTS BETWEEN THE ORIENTATION MARKS SHALL BE TAKEN AT 5 POINT WHERE LOCALIZED THINNING IS APPARENT IN THE JUDGMENT OF THE SUPERVISOR-QUALITY CONTROL, AND RECORDED IN THE SPACES PROVIDED.

| PHILLIPS, GETSLOW CO. BRADWOOD N. P. S. | | SMALL BORE CARBON STEEL FITTED PIPE SAMPLING CHECKLIST FOR SAMPLE PREPARATION AND INSPECTION | | FORM PG/GA-5-92 REV. 1 PAGE 3 OF 3 ADDITIONAL PAGES WILL BE MARKED 1A, 1B, 1C, etc. | |
|--|------------|--|------------------------------------|---|------------|
| 0° | <u>234</u> | | | 0° | <u>246</u> |
| 45° | <u>232</u> | 1° To 44° | <u>234</u> | 45° | <u>262</u> |
| 90° | <u>234</u> | 46° To 89° | <u>236</u> | 90° | <u>272</u> |
| 135° | <u>251</u> | 91° To 134° | <u>244</u> | 135° | <u>248</u> |
| 180° | <u>260</u> | 136° To 179° | <u>252</u> | 180° | <u>241</u> |
| 225° | <u>262</u> | 181° To 224° | <u>263</u> | 225° | <u>233</u> |
| 270° | <u>247</u> | 226° To 269° | <u>252</u> | 270° | <u>222</u> |
| 315° | <u>231</u> | 271° To 314° | <u>246</u> | 315° | <u>236</u> |
| | | 316° To 359° | <u>230</u> | | |
| SAMPLE I. D. NUMBER <u>H129-3A</u> | | | SAMPLE I. D. NUMBER <u>H129-3B</u> | | |
| 0° | <u>257</u> | | | 0° | <u>237</u> |
| 45° | <u>271</u> | 1° To 44° | <u>256</u> | 45° | <u>236</u> |
| 90° | <u>246</u> | 46° To 89° | <u>263</u> | 90° | <u>241</u> |
| 135° | <u>238</u> | 91° To 134° | <u>247</u> | 135° | <u>242</u> |
| 180° | <u>235</u> | 136° To 179° | <u>237</u> | 180° | <u>245</u> |
| 225° | <u>231</u> | 181° To 224° | <u>233</u> | 225° | <u>260</u> |
| 270° | <u>235</u> | 226° To 269° | <u>234</u> | 270° | <u>265</u> |
| 315° | <u>238</u> | 271° To 314° | <u>241</u> | 315° | <u>233</u> |
| | | 316° To 359° | <u>247</u> | | |
| SAMPLE I. D. NUMBER <u>H129-3D</u> | | | SAMPLE I. D. NUMBER <u>H129-3E</u> | | |
| 0° | | | | 0° | |
| 45° | | 1° To 44° | | 45° | |
| 90° | | 46° To 89° | | 90° | |
| 135° | | 91° To 134° | | 135° | |
| 180° | <u>1/4</u> | 136° To 179° | | 180° | <u>1/4</u> |
| 225° | | 181° To 224° | | 225° | |
| 270° | | 226° To 269° | | 270° | |
| 315° | | 271° To 314° | | 315° | |
| | | 316° To 359° | | | |
| SAMPLE I. D. NUMBER _____ | | | SAMPLE I. D. NUMBER _____ | | |

QUALITY CONTROL SIGNATURE T. W. G. Sullivan LEVEL 6555 DATE 4-5-95 MICROMETER I. D. NO. 45-15

PHILLIPS-DITSCHOW CO.
BRAIDWOOD N.P.S.

SMALL BORE CARBON STEEL
PITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/DA-5-92 REV. 1
PAGE 1 OF 3

1.0 SUPERINTENDENT TO DRAW THE SAMPLE OUT OF THE STORAGE AREA:

1.1 SAMPLE I.D. NUMBER F106-6 DRAWN FROM THE STORAGE AREA 5-28-85
DATE 5-28-85

1.2 HEAT NUMBER OR HEAT CODE OF SAMPLE REMOVED HD7760
DATE 5-28-85

1.3 Q.C. VERIFICATION: Jim Meast # 5-28-85
Q.C. SIGNATURE LEVEL DATE

2.0 SUPERINTENDENT TO IDENTIFY AND REMOVE BENDS. Q.C. SUPERVISOR TO EXAMINE REMOVED BENDS.

2.1 THE SAMPLE DOES DOES NOT CONTAIN A BEND.

2.1.1 IF SAMPLE DOES NOT CONTAIN A BEND, GO TO 3.0 AND CONTINUE TO COMPLETE WORK AND CHECKLIST (SECTIONS 2.1.2, 2.2, AND 2.3 DO NOT NEED TO BE ADDRESSED).

2.1.2 IF SAMPLE DOES CONTAIN A BEND, CONTINUE WORK PER THIS SECTION.

2.2 UNIQUE SAMPLE I.D. NUMBER IS TO BE VIBRO-ETCHED ON EACH BEND TO BE REMOVED FROM SAMPLE, AND TO ALL LOOSE PIECES THAT WILL EXIST FROM CUTS.

PRODUCTION SIGNATURE _____ DATE _____ Q.C. VERIFICATION _____ LEVEL _____ DATE _____

2.3 THIS SPACE IS PROVIDED FOR Q.C. SUPERVISOR TO SKETCH AND IDENTIFY ALL BENDS EXAMINED AND TO RECORD ANY DATE (CRACKS OR TEARS) FOUND DURING Q.C. INSPECTION.

N/A

Q.C. SIGNATURE _____ LEVEL _____ DATE _____

PHILLIPS 66 OILSUN CO.
BRIDGEWOOD N.P.S.

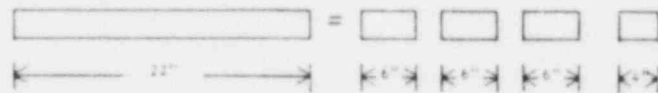
SMALL BORE CARBON STEEL PITTED PIPE
SAMPLING CHECKLIST FOR SAMPLE PREPARATION
AND INSPECTION

FORM PG/QA-5-92 REV. 1
PAGE 2 OF 3

3.0 SUPERINTENDENT TO SECTION THE SAMPLE

3.1 CUT THE STRAIGHT LENGTHS OF PIPE INTO LENGTHS A MAXIMUM OF SIX (6) INCHES LONG
(Q.C. VERIFICATION IS REQUIRED PRIOR TO CUTTING)

EXAMPLE: A 22" LONG SAMPLE WOULD BE CUT INTO THREE SIX INCH LONG SECTIONS AND A FOUR INCH LONG SECTION



3.2 A STRAIGHT LENGTH OF PIPE LESS THAN SIX INCHES LONG WILL BE CONSIDERED A "SECTION" AND DOES NOT REQUIRE CUTTING (SECTIONING).

3.3 Q.C. VERIFICATION THAT SAMPLE I.D. NUMBER HAS BEEN TRANSFERRED TO EACH SECTION PRIOR TO RELEASE FOR CUTTING.

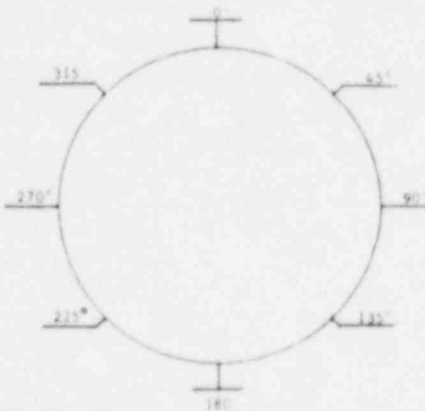
Jim Mast # _____ DATE 5-28-95
Q.C. SIGNATURE LEVEL

3.4 RECORD THE IDENTIFICATION AND THE LENGTHS OF THE SAMPLES:

| I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| FIG-6A | 6" | | | | | | | | | | |
| FIG-6B | 6" | | | | | | | | | | |
| FIG-6C | 6" | | | | | | | | | | |
| FIG-6D | 6" | | | | | | | | | | |
| FIG-6E | 6" | | | | | | | | | | |
| FIG-6F | 5 1/2" | | | | | | | | | | |

4.0 MARKING THE SECTIONS:

4.1 EIGHT ORIENTATION MARKS SHALL BE STAMPED ON EACH SEGMENT, AT 0°, 45°, 90°, 135°, 180°, 225°, 270°, AND 315°. THE ORIENTATION OF THE STAMP TO THE PIPE SHALL BE ARBITRARILY SELECTED



AFTER THE END OF THE SAMPLE HAS BEEN STAMPED WITH THE EIGHT ORIENTATION MARKS, ONE OF THE MARKS SHALL BE SELECTED AND IDENTIFIED AS 0° (ZERO DEGREES).

5.0 MEASURING AND RECORDING WALL THICKNESS:

5.1 MEASURE AND RECORD THE ACTUAL WALL THICKNESS AT THE EIGHT ORIENTATION MARKS (SEE PAGE 3)

5.1.1 ADDITIONAL MEASUREMENTS BETWEEN THE ORIENTATION MARKS SHALL BE TAKEN AT A POINT WHERE LOCALIZED THINNING IS APPARENT IN THE JUDGMENT OF THE SUPERVISOR-QUALITY CONTROL, AND RECORDED IN THE SPACES PROVIDED.

PHILLIPS, GETSCHOW CO.
BRAIDWOOD N. P. S.

SMALL BORE CARBON STEEL
PITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/QA-5-92 REV. 1
PAGE 3 OF 3 ADDITIONAL PAGES
WILL BE MARKED 1A, 1B, 1C, etc.

| | | | |
|------------------------------------|-----|--------------|-----|
| 0° | 270 | | |
| 5° | 285 | 1° To 44° | 278 |
| 90° | 279 | 46° To 89° | 288 |
| 135° | 281 | 91° To 134° | 288 |
| 180° | 274 | 136° To 179° | 275 |
| 225° | 268 | 181° To 224° | 277 |
| 270° | 256 | 226° To 269° | 264 |
| 315° | 252 | 271° To 314° | 253 |
| | | 316° To 359° | 261 |
| SAMPLE I. D. NUMBER <u>E106-6A</u> | | | |

| | | | |
|------------------------------------|-----|--------------|-----|
| 0° | 275 | | |
| 45° | 270 | 1° To 44° | 270 |
| 90° | 257 | 46° To 89° | 265 |
| 135° | 254 | 91° To 134° | 254 |
| 180° | 267 | 136° To 179° | 262 |
| 225° | 288 | 181° To 224° | 275 |
| 270° | 284 | 226° To 269° | 290 |
| 315° | 268 | 271° To 314° | 281 |
| | | 316° To 359° | 276 |
| SAMPLE I. D. NUMBER <u>E106-6B</u> | | | |

| | | | |
|------------------------------------|-----|--------------|-----|
| 0° | 273 | | |
| 45° | 260 | 1° To 44° | 276 |
| 90° | 279 | 46° To 89° | 271 |
| 135° | 283 | 91° To 134° | 287 |
| 180° | 283 | 136° To 179° | 285 |
| 225° | 265 | 181° To 224° | 272 |
| 270° | 256 | 226° To 269° | 259 |
| 315° | 259 | 271° To 314° | 257 |
| | | 316° To 359° | 264 |
| SAMPLE I. D. NUMBER <u>E106-6C</u> | | | |

| | | | |
|------------------------------------|-----|--------------|-----|
| 0° | 263 | | |
| 45° | 267 | 1° To 44° | 270 |
| 90° | 258 | 46° To 89° | 263 |
| 135° | 260 | 91° To 134° | 254 |
| 180° | 271 | 136° To 179° | 264 |
| 225° | 280 | 181° To 224° | 274 |
| 270° | 282 | 226° To 269° | 289 |
| 315° | 280 | 271° To 314° | 283 |
| | | 316° To 359° | 273 |
| SAMPLE I. D. NUMBER <u>E106-6D</u> | | | |

| | | | |
|------------------------------------|-----|--------------|-----|
| 0° | 288 | | |
| 45° | 279 | 1° To 44° | 285 |
| 90° | 262 | 46° To 89° | 271 |
| 135° | 253 | 91° To 134° | 257 |
| 180° | 263 | 136° To 179° | 256 |
| 225° | 269 | 181° To 224° | 265 |
| 270° | 274 | 226° To 269° | 271 |
| 315° | 290 | 271° To 314° | 266 |
| | | 316° To 359° | 277 |
| SAMPLE I. D. NUMBER <u>E106-6E</u> | | | |

| | | | |
|------------------------------------|-----|--------------|-----|
| 0° | 282 | | |
| 45° | 272 | 1° To 44° | 276 |
| 90° | 255 | 46° To 89° | 265 |
| 135° | 258 | 91° To 134° | 255 |
| 180° | 268 | 136° To 179° | 267 |
| 225° | 269 | 181° To 224° | 269 |
| 270° | 271 | 226° To 269° | 269 |
| 315° | 272 | 271° To 314° | 278 |
| | | 316° To 359° | 284 |
| SAMPLE I. D. NUMBER <u>E106-6F</u> | | | |

| | | | |
|---------------------------|----------|--------------|----------|
| 0° | | | |
| 45° | | 1° To 44° | |
| 90° | | 46° To 89° | |
| 135° | | 91° To 134° | |
| 180° | <i>N</i> | 136° To 179° | <i>A</i> |
| 225° | | 181° To 224° | |
| 270° | | 226° To 269° | |
| 315° | | 271° To 314° | |
| | | 316° To 359° | |
| SAMPLE I. D. NUMBER _____ | | | |

| | | | |
|---------------------------|----------|--------------|----------|
| 0° | | | |
| 45° | | 1° To 44° | |
| 90° | | 46° To 89° | |
| 135° | | 91° To 134° | |
| 180° | <i>N</i> | 136° To 179° | <i>A</i> |
| 225° | | 181° To 224° | |
| 270° | | 226° To 269° | |
| 315° | | 271° To 314° | |
| | | 316° To 359° | |
| SAMPLE I. D. NUMBER _____ | | | |

| | | | |
|---------------------------|----------|--------------|----------|
| 0° | | | |
| 45° | | 1° To 44° | |
| 90° | | 46° To 89° | |
| 135° | | 91° To 134° | |
| 180° | <i>N</i> | 136° To 179° | <i>A</i> |
| 225° | | 181° To 224° | |
| 270° | | 226° To 269° | |
| 315° | | 271° To 314° | |
| | | 316° To 359° | |
| SAMPLE I. D. NUMBER _____ | | | |

Ros Filiano II 5/21/85
QUALITY CONTROL SIGNATURE LEVEL DATE MICROMETER I. D. No. CE-7

100

ACC. NO.: EPC-064246

FAC 490

PHILLIPS-DETSCHM CO.
BRADWOOD N.P.S.

SMALL BORE CARBON STEEL
PITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/QA-5-92 REV. 1
PAGE 1 OF 3

1.0 SUPERINTENDENT TO DRAW THE SAMPLE OUT OF THE STORAGE AREA:

1.1 SAMPLE I.D. NUMBER C3-7 DRAWN FROM THE STORAGE AREA 5/14/85 DATE

1.2 HEAT NUMBER OR HEAT CODE OF SAMPLE REMOVED KD 6751 DATE 5/14/85

1.3 Q.C. VERIFICATION: [Signature] LEVEL II DATE 5/14/85

2.0 SUPERINTENDENT TO IDENTIFY AND REMOVE BENDS. Q.C. SUPERVISOR TO EXAMINE REMOVED BENDS.

2.1 THE SAMPLE DOES DOES NOT CONTAIN A BEND.

2.1.1 IF SAMPLE DOES NOT CONTAIN A BEND, GO TO 3.0 AND CONTINUE TO COMPLETE WORK AND CHECKLIST (SECTIONS 2.1.2, 2.2, AND 2.3 DO NOT NEED TO BE ADDRESSED).

2.1.2 IF SAMPLE DOES CONTAIN A BEND, CONTINUE WORK PER THIS SECTION.

2.2 UNIQUE SAMPLE I.D. NUMBER IS TO BE VIBRO-ETCHED ON EACH BEND TO BE REMOVED FROM SAMPLE, AND TO ALL LOOSE PIECES THAT WILL EXIST FROM CUTS.

PRODUCTION SIGNATURE DATE Q.C. VERIFICATION LEVEL DATE

2.3 THIS SPACE IS PROVIDED FOR Q.C. SUPERVISOR TO SKETCH AND IDENTIFY ALL BENDS EXAMINED AND TO RECORD ANY DATE (CRACKS OR TEARS) FOUND DURING Q.C. INSPECTION.

Q.C. SIGNATURE LEVEL DATE

J0005068

PHILLIPS, GETSCHOW CO.
BRADWOOD N.P.S.

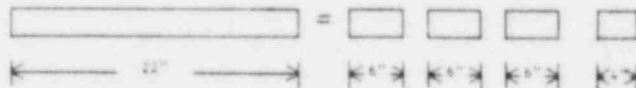
SMALL WORK CARBON STEEL PITTED PIPE
SAMPLING CHECKLIST FOR SAMPLE PREPARATION
AND INSPECTION

FORM PG/QA-5-92 REV. 1
PAGE 2 OF 3

3.0 SUPERINTENDENT TO SECTION THE SAMPLE:

3.1 CUT THE STRAIGHT LENGTHS OF PIPE INTO LENGTHS A MAXIMUM OF SIX (6) INCHES LONG
(Q.C. VERIFICATION IS REQUIRED PRIOR TO CUTTING)

EXAMPLE: A 22" LONG SAMPLE WOULD BE CUT INTO THREE SIX INCH LONG SECTIONS AND A FOUR INCH LONG SECTION.



3.2 A STRAIGHT LENGTH OF PIPE LESS THAN SIX INCHES LONG WILL BE CONSIDERED A "SECTION" AND DOES NOT REQUIRE CUTTING (SECTIONING).

3.3 Q.C. VERIFICATION THAT SAMPLE I.D. NUMBER HAS BEEN TRANSFERRED TO EACH SECTION PRIOR TO RELEASE FOR CUTTING.

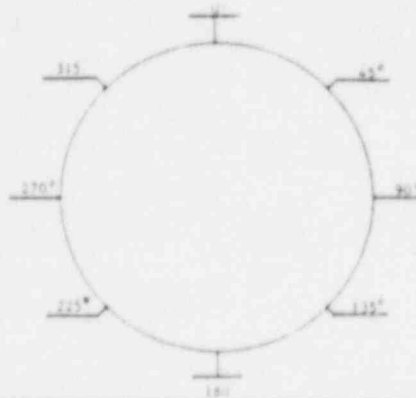
Ray Filipp Q.C. SIGNATURE *II* LEVEL *5/10/85* DATE

3.4 ENSURE THE IDENTIFICATION AND THE LENGTHS OF THE SAMPLES.

| I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| C3-7A | 6" | | | | | | | | | | |
| C3-7B | 6" | | | | | | | | | | |
| C3-7C | 6" | | | | | | | | | | |
| C3-7D | 6" | | | | | | | | | | |
| C3-7E | 6" | | | | | | | | | | |
| C3-7F | 6" | | | | | | | | | | |

4.0 MARKING THE SECTIONS:

4.1 EIGHT ORIENTATION MARKS SHALL BE STAMPED ON EACH SEGMENT, AT 0°, 45°, 90°, 135°, 180°, 225°, 270°, AND 315°. THE ORIENTATION OF THE STAMP TO THE PIPE SHALL BE ARBITRARILY SELECTED.



AFTER THE END OF THE SAMPLE HAS BEEN STAMPED WITH THE EIGHT ORIENTATION MARKS, ONE OF THE MARKS SHALL BE SELECTED AND IDENTIFIED AS 0° (ZERO DEGREES).

5.0 MEASURING AND RECORDING WALL THICKNESS:

5.1 MEASURE AND RECORD THE ACTUAL WALL THICKNESS AT THE EIGHT ORIENTATION MARKS. (SEE PAGE 3)

5.1.1 ADDITIONAL MEASUREMENTS BETWEEN THE ORIENTATION MARKS SHALL BE TAKEN AT A POINT WHERE LOCALIZED THINNING IS APPARENT IN THE JUDGMENT OF THE SUPERVISOR-QUALITY CONTROL, AND RECORDED IN THE SPACES PROVIDED.

| PHILLIPS, GETSCROW CO. BRAIDWOOD N. P. S. | | SMALL BORE CARBON STEEL FITTED PIPE SAMPLING CHECKLIST FOR SAMPLE PREPARATION AND INSPECTION | | FORM PG/QA-5-92 REV. 1 PAGE 3 OF 3 ADDITIONAL PAGES WILL BE MARKED 3A, 3B, 3C, etc. | | | | | | | |
|--|-----|--|-------|---|-----|--------------|-------|---------------------|-----|--------------|-------|
| 0° | 210 | 1° To 44° | 197 | 0° | 229 | 1° To 44° | 221 | 0° | 223 | 1° To 44° | 226 |
| 45° | 196 | 46° To 89° | 204 | 45° | 225 | 46° To 89° | 220 | 45° | 226 | 46° To 89° | 226 |
| 90° | 199 | 91° To 134° | 203 | 90° | 228 | 91° To 134° | 212 | 90° | 227 | 91° To 134° | 214 |
| 135° | 198 | 136° To 179° | 205 | 135° | 204 | 136° To 179° | 206 | 135° | 205 | 136° To 179° | 196 |
| 180° | 206 | 181° To 224° | 212 | 180° | 199 | 181° To 224° | 206 | 180° | 199 | 181° To 224° | 195 |
| 225° | 224 | 226° To 269° | 219 | 225° | 191 | 226° To 269° | 202 | 225° | 201 | 226° To 269° | 199 |
| 270° | 225 | 271° To 314° | 229 | 270° | 198 | 271° To 314° | 204 | 270° | 205 | 271° To 314° | 207 |
| 315° | 226 | 316° To 359° | 225 | 315° | 216 | 316° To 359° | 225 | 315° | 214 | 316° To 359° | 225 |
| SAMPLE I. D. NUMBER | | | C3-74 | SAMPLE I. D. NUMBER | | | C3-78 | SAMPLE I. D. NUMBER | | | C3-76 |
| 0° | 230 | 1° To 44° | 226 | 0° | 196 | 1° To 44° | 197 | 0° | 227 | 1° To 44° | 227 |
| 45° | 212 | 46° To 89° | 208 | 45° | 199 | 46° To 89° | 192 | 45° | 219 | 46° To 89° | 223 |
| 90° | 196 | 91° To 134° | 200 | 90° | 194 | 91° To 134° | 209 | 90° | 210 | 91° To 134° | 205 |
| 135° | 195 | 136° To 179° | 199 | 135° | 216 | 136° To 179° | 224 | 135° | 204 | 136° To 179° | 197 |
| 180° | 198 | 181° To 224° | 202 | 180° | 224 | 181° To 224° | 221 | 180° | 204 | 181° To 224° | 192 |
| 225° | 203 | 226° To 269° | 209 | 225° | 220 | 226° To 269° | 227 | 225° | 194 | 226° To 269° | 195 |
| 270° | 222 | 271° To 314° | 220 | 270° | 212 | 271° To 314° | 208 | 270° | 201 | 271° To 314° | 210 |
| 315° | 226 | 316° To 359° | 225 | 315° | 204 | 316° To 359° | 203 | 315° | 218 | 316° To 359° | 218 |
| SAMPLE I. D. NUMBER | | | C3-7D | SAMPLE I. D. NUMBER | | | C3-7E | SAMPLE I. D. NUMBER | | | C3-7F |
| 0° | | 1° To 44° | | 0° | | 1° To 44° | | 0° | | 1° To 44° | |
| 45° | | 46° To 89° | | 45° | | 46° To 89° | | 45° | | 46° To 89° | |
| 90° | | 91° To 134° | | 90° | | 91° To 134° | | 90° | | 91° To 134° | |
| 135° | N | 136° To 179° | A | 135° | N | 136° To 179° | A | 135° | N | 136° To 179° | A |
| 180° | | 181° To 224° | | 180° | | 181° To 224° | | 180° | | 181° To 224° | |
| 225° | | 226° To 269° | | 225° | | 226° To 269° | | 225° | | 226° To 269° | |
| 270° | | 271° To 314° | | 270° | | 271° To 314° | | 270° | | 271° To 314° | |
| 315° | | 316° To 359° | | 315° | | 316° To 359° | | 315° | | 316° To 359° | |
| SAMPLE I. D. NUMBER | | | | SAMPLE I. D. NUMBER | | | | SAMPLE I. D. NUMBER | | | |

Ray Philips II 5/12/85
 QUALITY CONTROL SIGNATURE LEVEL DATE
 MICROMETER I. D. No. CE-1

J6005070

PHILLIPS-GETSCHOW CO.
BRADWOOD N.P.S.

SMALL BORE LARSON STEEL
FITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/QA-5-92 REV. 1
PAGE 1 OF 3

1.0 SUPERINTENDENT TO DRAW THE SAMPLE OUT OF THE STORAGE AREA:

| | | | | |
|--|-------------------------------|-----------------------------|---------------------|---------------------|
| 1.1 SAMPLE I.D. NUMBER | <u>D15-7</u> | DRAWN FROM THE STORAGE AREA | <u>5/20/85</u> | |
| 1.2 HEAT NUMBER OR HEAT CODE OF SAMPLE REMOVED | <u>HD 7760</u> | | <u>5/20/85</u> | <u>5/30/85</u> |
| 1.3 Q.C. VERIFICATION | <u>Ray Filippa</u> | <u>JF</u> | <u>5/20/85</u> | <u>5/30/85</u> |
| | <small>Q.C. SIGNATURE</small> | <small>LEVEL</small> | <small>DATE</small> | <small>DATE</small> |

2.0 SUPERINTENDENT TO IDENTIFY AND REMOVE BENDS. Q.C. SUPERVISOR TO EXAMINE REMOVED BENDS.

2.1 THE SAMPLE DOES DOES NOT CONTAIN A BEND.

2.1.1 IF SAMPLE DOES NOT CONTAIN A BEND, GO TO 3.0 AND CONTINUE TO COMPLETE WORK AND CHECKLIST (SECTIONS 2.1.2, 2.2, AND 2.3 DO NOT NEED TO BE ADDRESSED).

2.1.2 IF SAMPLE DOES CONTAIN A BEND, CONTINUE WORK PER THIS SECTION.

2.2 UNIQUE SAMPLE I.D. NUMBER IS TO BE VIBRO-ETCHED ON EACH BEND TO BE REMOVED FROM SAMPLE, AND TO ALL LOOSE PIECES THAT WILL EXIST FROM CUTS.

| | | | | |
|----------------------|------|-------------------|-------|------|
| PRODUCTION SIGNATURE | DATE | Q.C. VERIFICATION | LEVEL | DATE |
|----------------------|------|-------------------|-------|------|

2.3 THIS SPACE IS PROVIDED FOR Q.C. SUPERVISOR TO SKETCH AND IDENTIFY ALL BENDS EXAMINED AND TO RECORD ANY DATE (CRACKS OR TEARS) FOUND DURING Q.C. INSPECTION.

N A

| | | |
|----------------|-------|------|
| Q.C. SIGNATURE | LEVEL | DATE |
|----------------|-------|------|

J0005071

PHILLIPS CHEMICAL CO.
BRADWOOD N.P.E.

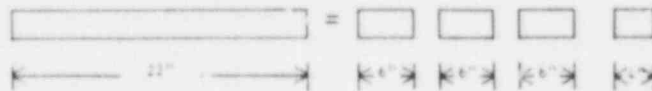
SMALL BORE CARBON STEEL FITTED PIPE
SAMPLING CHECKLIST FOR SAMPLE PREPARATION
AND INSPECTION

FORM PG/QA-1-92 REV. 1
PAGE 2 OF 3

3.0 SUPERINTENDENT TO SECTION THE SAMPLE

3.1 CUT THE STRAIGHT LENGTHS OF PIPE INTO LENGTHS A MAXIMUM OF SIX (6) INCHES LONG
(Q.C. VERIFICATION IS REQUIRED PRIOR TO CUTTING)

EXAMPLE: A 22" LONG SAMPLE WOULD BE CUT INTO THREE SIX INCH LONG SECTIONS AND A FOUR INCH LONG SECTION



3.2 A STRAIGHT LENGTH OF PIPE LESS THAN SIX INCHES LONG WILL BE CONSIDERED A "SECTION" AND DOES NOT REQUIRE CUTTING (SECTIONING)

3.3 Q.C. VERIFICATION THAT SAMPLE I.D. NUMBER HAS BEEN TRANSFERRED TO EACH SECTION PRIOR TO RELEASE FOR CUTTING

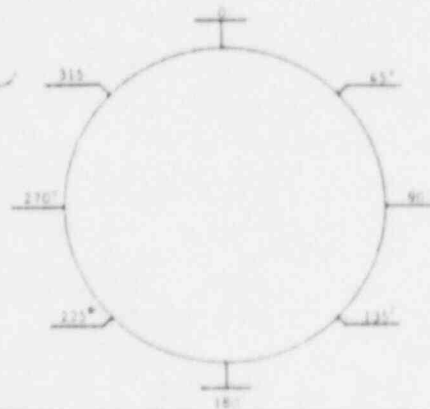
Ray Filipp II 5/24/85
SIGNATURE LEVEL DATE

3.4 RECORD THE IDENTIFICATION AND THE LENGTHS OF THE SAMPLES:

| I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| D15-7A | 6" | | | | | | | | | | |
| D15-7B | 6" | | | | | | | | | | |
| D15-7C | 6" | | | | | | | | | | |
| D15-7D | 6" | | | | | | | | | | |
| D15-7E | 6" | | | | | | | | | | |
| D15-7F | 6" | | | | | | | | | | |

4.0 MARKING THE SECTIONS

4.1 EIGHT ORIENTATION MARKS SHALL BE STAMPED ON EACH SECTION, AT 0°, 45°, 90°, 135°, 180°, 225°, 270°, AND 315°. THE ORIENTATION OF THE STAMP TO THE PIPE SHALL BE ARBITRARILY SELECTED.



AFTER THE END OF THE SAMPLE HAS BEEN MARKED WITH THE EIGHT ORIENTATION MARKS, ONE OF THE MARKS SHALL BE SELECTED AND IDENTIFIED AS 0° (ZERO DEGREES).

5.0 MEASURING AND RECORDING WALL THICKNESS

5.1 MEASURE AND RECORD THE ACTUAL WALL THICKNESS AT THE EIGHT ORIENTATION MARKS (SEE PAGE 3)

5.1.1 ADDITIONAL MEASUREMENTS BETWEEN THE ORIENTATION MARKS SHALL BE TAKEN AT A POINT WHERE LOCALIZED THICKNESS IS APPARENT IN THE JUDGEMENT OF THE SUPERVISOR-QUALITY CONTROL, AND RECORDED IN THE SPACES PROVIDED.

| PHILLIPS, GETSCHOW CO. BRAIDWOOD N.P.S. | SMALL BORE CARBON STEEL FITTED PIPE SAMPLING CHECKLIST FOR SAMPLE PREPARATION AND INSPECTION | FORM PG/QA-5-92 REV. 1 PAGE 3 OF 3 ADDITIONAL PAGES WILL BE MARKED 3A, 3B, 3C, etc. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|--|--|-----|------------|-----------|------------|-----|------------|------------|------------|------|------------|-------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|--|--|--------------|------------|---|----|------------|--|--|-----|------------|-----------|------------|-----|------------|------------|------------|------|------------|-------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|--|--|--------------|------------|---|----|------------|--|--|-----|------------|-----------|------------|-----|------------|------------|------------|------|------------|-------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|------|------------|--------------|------------|--|--|--------------|------------|
| <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td><u>182</u></td><td></td><td></td></tr> <tr><td>45°</td><td><u>158</u></td><td>1° To 44°</td><td><u>175</u></td></tr> <tr><td>90°</td><td><u>188</u></td><td>46° To 89°</td><td><u>188</u></td></tr> <tr><td>135°</td><td><u>199</u></td><td>91° To 134°</td><td><u>185</u></td></tr> <tr><td>180°</td><td><u>204</u></td><td>136° To 179°</td><td><u>196</u></td></tr> <tr><td>225°</td><td><u>210</u></td><td>181° To 224°</td><td><u>207</u></td></tr> <tr><td>270°</td><td><u>189</u></td><td>226° To 269°</td><td><u>205</u></td></tr> <tr><td>315°</td><td><u>194</u></td><td>271° To 314°</td><td><u>197</u></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td><u>177</u></td></tr> </table> <p>SAMPLE I.D. NUMBER <u>D15-7A</u></p> | 0° | <u>182</u> | | | 45° | <u>158</u> | 1° To 44° | <u>175</u> | 90° | <u>188</u> | 46° To 89° | <u>188</u> | 135° | <u>199</u> | 91° To 134° | <u>185</u> | 180° | <u>204</u> | 136° To 179° | <u>196</u> | 225° | <u>210</u> | 181° To 224° | <u>207</u> | 270° | <u>189</u> | 226° To 269° | <u>205</u> | 315° | <u>194</u> | 271° To 314° | <u>197</u> | | | 316° To 359° | <u>177</u> | <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td><u>175</u></td><td></td><td></td></tr> <tr><td>45°</td><td><u>179</u></td><td>1° To 44°</td><td><u>175</u></td></tr> <tr><td>90°</td><td><u>188</u></td><td>46° To 89°</td><td><u>179</u></td></tr> <tr><td>135°</td><td><u>192</u></td><td>91° To 134°</td><td><u>200</u></td></tr> <tr><td>180°</td><td><u>203</u></td><td>136° To 179°</td><td><u>196</u></td></tr> <tr><td>225°</td><td><u>204</u></td><td>181° To 224°</td><td><u>204</u></td></tr> <tr><td>270°</td><td><u>196</u></td><td>226° To 269°</td><td><u>202</u></td></tr> <tr><td>315°</td><td><u>189</u></td><td>271° To 314°</td><td><u>196</u></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td><u>182</u></td></tr> </table> <p>SAMPLE I.D. NUMBER <u>D15-7B</u></p> | 0° | <u>175</u> | | | 45° | <u>179</u> | 1° To 44° | <u>175</u> | 90° | <u>188</u> | 46° To 89° | <u>179</u> | 135° | <u>192</u> | 91° To 134° | <u>200</u> | 180° | <u>203</u> | 136° To 179° | <u>196</u> | 225° | <u>204</u> | 181° To 224° | <u>204</u> | 270° | <u>196</u> | 226° To 269° | <u>202</u> | 315° | <u>189</u> | 271° To 314° | <u>196</u> | | | 316° To 359° | <u>182</u> | <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td><u>180</u></td><td></td><td></td></tr> <tr><td>45°</td><td><u>172</u></td><td>1° To 44°</td><td><u>175</u></td></tr> <tr><td>90°</td><td><u>183</u></td><td>46° To 89°</td><td><u>182</u></td></tr> <tr><td>135°</td><td><u>191</u></td><td>91° To 134°</td><td><u>186</u></td></tr> <tr><td>180°</td><td><u>194</u></td><td>136° To 179°</td><td><u>191</u></td></tr> <tr><td>225°</td><td><u>203</u></td><td>181° To 224°</td><td><u>206</u></td></tr> <tr><td>270°</td><td><u>203</u></td><td>226° To 269°</td><td><u>204</u></td></tr> <tr><td>315°</td><td><u>195</u></td><td>271° To 314°</td><td><u>194</u></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td><u>185</u></td></tr> </table> <p>SAMPLE I.D. NUMBER <u>D15-7C</u></p> | 0° | <u>180</u> | | | 45° | <u>172</u> | 1° To 44° | <u>175</u> | 90° | <u>183</u> | 46° To 89° | <u>182</u> | 135° | <u>191</u> | 91° To 134° | <u>186</u> | 180° | <u>194</u> | 136° To 179° | <u>191</u> | 225° | <u>203</u> | 181° To 224° | <u>206</u> | 270° | <u>203</u> | 226° To 269° | <u>204</u> | 315° | <u>195</u> | 271° To 314° | <u>194</u> | | | 316° To 359° | <u>185</u> |
| 0° | <u>182</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | <u>158</u> | 1° To 44° | <u>175</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | <u>188</u> | 46° To 89° | <u>188</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>199</u> | 91° To 134° | <u>185</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>204</u> | 136° To 179° | <u>196</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | <u>210</u> | 181° To 224° | <u>207</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | <u>189</u> | 226° To 269° | <u>205</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | <u>194</u> | 271° To 314° | <u>197</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | <u>177</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0° | <u>175</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | <u>179</u> | 1° To 44° | <u>175</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | <u>188</u> | 46° To 89° | <u>179</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>192</u> | 91° To 134° | <u>200</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>203</u> | 136° To 179° | <u>196</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | <u>204</u> | 181° To 224° | <u>204</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | <u>196</u> | 226° To 269° | <u>202</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | <u>189</u> | 271° To 314° | <u>196</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | <u>182</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0° | <u>180</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | <u>172</u> | 1° To 44° | <u>175</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | <u>183</u> | 46° To 89° | <u>182</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>191</u> | 91° To 134° | <u>186</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>194</u> | 136° To 179° | <u>191</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | <u>203</u> | 181° To 224° | <u>206</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | <u>203</u> | 226° To 269° | <u>204</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | <u>195</u> | 271° To 314° | <u>194</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | <u>185</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td><u>169</u></td><td></td><td></td></tr> <tr><td>45°</td><td><u>177</u></td><td>1° To 44°</td><td><u>175</u></td></tr> <tr><td>90°</td><td><u>186</u></td><td>46° To 89°</td><td><u>181</u></td></tr> <tr><td>135°</td><td><u>192</u></td><td>91° To 134°</td><td><u>189</u></td></tr> <tr><td>180°</td><td><u>205</u></td><td>136° To 179°</td><td><u>196</u></td></tr> <tr><td>225°</td><td><u>207</u></td><td>181° To 224°</td><td><u>202</u></td></tr> <tr><td>270°</td><td><u>196</u></td><td>226° To 269°</td><td><u>200</u></td></tr> <tr><td>315°</td><td><u>194</u></td><td>271° To 314°</td><td><u>197</u></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td><u>182</u></td></tr> </table> <p>SAMPLE I.D. NUMBER <u>D15-7D</u></p> | 0° | <u>169</u> | | | 45° | <u>177</u> | 1° To 44° | <u>175</u> | 90° | <u>186</u> | 46° To 89° | <u>181</u> | 135° | <u>192</u> | 91° To 134° | <u>189</u> | 180° | <u>205</u> | 136° To 179° | <u>196</u> | 225° | <u>207</u> | 181° To 224° | <u>202</u> | 270° | <u>196</u> | 226° To 269° | <u>200</u> | 315° | <u>194</u> | 271° To 314° | <u>197</u> | | | 316° To 359° | <u>182</u> | <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td><u>195</u></td><td></td><td></td></tr> <tr><td>45°</td><td><u>201</u></td><td>1° To 44°</td><td><u>196</u></td></tr> <tr><td>90°</td><td><u>201</u></td><td>46° To 89°</td><td><u>200</u></td></tr> <tr><td>135°</td><td><u>194</u></td><td>91° To 134°</td><td><u>195</u></td></tr> <tr><td>180°</td><td><u>182</u></td><td>136° To 179°</td><td><u>183</u></td></tr> <tr><td>225°</td><td><u>173</u></td><td>181° To 224°</td><td><u>178</u></td></tr> <tr><td>270°</td><td><u>180</u></td><td>226° To 269°</td><td><u>174</u></td></tr> <tr><td>315°</td><td><u>188</u></td><td>271° To 314°</td><td><u>186</u></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td><u>188</u></td></tr> </table> <p>SAMPLE I.D. NUMBER <u>D15-7E</u></p> | 0° | <u>195</u> | | | 45° | <u>201</u> | 1° To 44° | <u>196</u> | 90° | <u>201</u> | 46° To 89° | <u>200</u> | 135° | <u>194</u> | 91° To 134° | <u>195</u> | 180° | <u>182</u> | 136° To 179° | <u>183</u> | 225° | <u>173</u> | 181° To 224° | <u>178</u> | 270° | <u>180</u> | 226° To 269° | <u>174</u> | 315° | <u>188</u> | 271° To 314° | <u>186</u> | | | 316° To 359° | <u>188</u> | <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td><u>177</u></td><td></td><td></td></tr> <tr><td>45°</td><td><u>169</u></td><td>1° To 44°</td><td><u>171</u></td></tr> <tr><td>90°</td><td><u>175</u></td><td>46° To 89°</td><td><u>176</u></td></tr> <tr><td>135°</td><td><u>184</u></td><td>91° To 134°</td><td><u>193</u></td></tr> <tr><td>180°</td><td><u>197</u></td><td>136° To 179°</td><td><u>188</u></td></tr> <tr><td>225°</td><td><u>199</u></td><td>181° To 224°</td><td><u>204</u></td></tr> <tr><td>270°</td><td><u>191</u></td><td>226° To 269°</td><td><u>203</u></td></tr> <tr><td>315°</td><td><u>190</u></td><td>271° To 314°</td><td><u>197</u></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td><u>182</u></td></tr> </table> <p>SAMPLE I.D. NUMBER <u>D15-7F</u></p> | 0° | <u>177</u> | | | 45° | <u>169</u> | 1° To 44° | <u>171</u> | 90° | <u>175</u> | 46° To 89° | <u>176</u> | 135° | <u>184</u> | 91° To 134° | <u>193</u> | 180° | <u>197</u> | 136° To 179° | <u>188</u> | 225° | <u>199</u> | 181° To 224° | <u>204</u> | 270° | <u>191</u> | 226° To 269° | <u>203</u> | 315° | <u>190</u> | 271° To 314° | <u>197</u> | | | 316° To 359° | <u>182</u> |
| 0° | <u>169</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | <u>177</u> | 1° To 44° | <u>175</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | <u>186</u> | 46° To 89° | <u>181</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>192</u> | 91° To 134° | <u>189</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>205</u> | 136° To 179° | <u>196</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | <u>207</u> | 181° To 224° | <u>202</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | <u>196</u> | 226° To 269° | <u>200</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | <u>194</u> | 271° To 314° | <u>197</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | <u>182</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0° | <u>195</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | <u>201</u> | 1° To 44° | <u>196</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | <u>201</u> | 46° To 89° | <u>200</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>194</u> | 91° To 134° | <u>195</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>182</u> | 136° To 179° | <u>183</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | <u>173</u> | 181° To 224° | <u>178</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | <u>180</u> | 226° To 269° | <u>174</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | <u>188</u> | 271° To 314° | <u>186</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | <u>188</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0° | <u>177</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | <u>169</u> | 1° To 44° | <u>171</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | <u>175</u> | 46° To 89° | <u>176</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>184</u> | 91° To 134° | <u>193</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>197</u> | 136° To 179° | <u>188</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | <u>199</u> | 181° To 224° | <u>204</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | <u>191</u> | 226° To 269° | <u>203</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | <u>190</u> | 271° To 314° | <u>197</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | <u>182</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td></td><td></td><td></td></tr> <tr><td>45°</td><td></td><td>1° To 44°</td><td></td></tr> <tr><td>90°</td><td></td><td>46° To 89°</td><td></td></tr> <tr><td>135°</td><td><u>N</u></td><td>91° To 134°</td><td><u>A</u></td></tr> <tr><td>180°</td><td><u>N</u></td><td>136° To 179°</td><td><u>A</u></td></tr> <tr><td>225°</td><td></td><td>181° To 224°</td><td></td></tr> <tr><td>270°</td><td></td><td>226° To 269°</td><td></td></tr> <tr><td>315°</td><td></td><td>271° To 314°</td><td></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td></td></tr> </table> <p>SAMPLE I.D. NUMBER _____</p> | 0° | | | | 45° | | 1° To 44° | | 90° | | 46° To 89° | | 135° | <u>N</u> | 91° To 134° | <u>A</u> | 180° | <u>N</u> | 136° To 179° | <u>A</u> | 225° | | 181° To 224° | | 270° | | 226° To 269° | | 315° | | 271° To 314° | | | | 316° To 359° | | <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td></td><td></td><td></td></tr> <tr><td>45°</td><td></td><td>1° To 44°</td><td></td></tr> <tr><td>90°</td><td></td><td>46° To 89°</td><td></td></tr> <tr><td>135°</td><td><u>N</u></td><td>91° To 134°</td><td><u>A</u></td></tr> <tr><td>180°</td><td><u>N</u></td><td>136° To 179°</td><td><u>A</u></td></tr> <tr><td>225°</td><td></td><td>181° To 224°</td><td></td></tr> <tr><td>270°</td><td></td><td>226° To 269°</td><td></td></tr> <tr><td>315°</td><td></td><td>271° To 314°</td><td></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td></td></tr> </table> <p>SAMPLE I.D. NUMBER _____</p> | 0° | | | | 45° | | 1° To 44° | | 90° | | 46° To 89° | | 135° | <u>N</u> | 91° To 134° | <u>A</u> | 180° | <u>N</u> | 136° To 179° | <u>A</u> | 225° | | 181° To 224° | | 270° | | 226° To 269° | | 315° | | 271° To 314° | | | | 316° To 359° | | <table style="width:100%; border-collapse: collapse;"> <tr><td>0°</td><td></td><td></td><td></td></tr> <tr><td>45°</td><td></td><td>1° To 44°</td><td></td></tr> <tr><td>90°</td><td></td><td>46° To 89°</td><td></td></tr> <tr><td>135°</td><td><u>N</u></td><td>91° To 134°</td><td><u>A</u></td></tr> <tr><td>180°</td><td><u>N</u></td><td>136° To 179°</td><td><u>A</u></td></tr> <tr><td>225°</td><td></td><td>181° To 224°</td><td></td></tr> <tr><td>270°</td><td></td><td>226° To 269°</td><td></td></tr> <tr><td>315°</td><td></td><td>271° To 314°</td><td></td></tr> <tr><td></td><td></td><td>316° To 359°</td><td></td></tr> </table> <p>SAMPLE I.D. NUMBER _____</p> | 0° | | | | 45° | | 1° To 44° | | 90° | | 46° To 89° | | 135° | <u>N</u> | 91° To 134° | <u>A</u> | 180° | <u>N</u> | 136° To 179° | <u>A</u> | 225° | | 181° To 224° | | 270° | | 226° To 269° | | 315° | | 271° To 314° | | | | 316° To 359° | |
| 0° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | | 1° To 44° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | | 46° To 89° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>N</u> | 91° To 134° | <u>A</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>N</u> | 136° To 179° | <u>A</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | | 181° To 224° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | | 226° To 269° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | | 271° To 314° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45° | | 1° To 44° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | | 46° To 89° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>N</u> | 91° To 134° | <u>A</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>N</u> | 136° To 179° | <u>A</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | | 181° To 224° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | | 226° To 269° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | | 271° To 314° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 316° To 359° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 45° | | 1° To 44° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90° | | 46° To 89° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135° | <u>N</u> | 91° To 134° | <u>A</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180° | <u>N</u> | 136° To 179° | <u>A</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225° | | 181° To 224° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270° | | 226° To 269° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315° | | 271° To 314° | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p><u>Ray Phillips</u> QUALITY CONTROL SIGNATURE</p> | <p><u>IF</u> LEVEL</p> | <p><u>5/22/85</u> DATE</p> | <p>MICROMETER I.D. No. <u>CE-9</u></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

PHILLIPS-GETSCHOW CO.
BRAIDWOOD, N.P.S.

SMALL BORE CARBON STEEL
PITTED PIPE SAMPLING CHECKLIST
FOR SAMPLE PREPARATION AND INSPECTION

FORM PG/04-3-92 REV. 1
PAGE 1 OF 3

1.0 SUPERINTENDENT TO DRAW THE SAMPLE OUT OF THE STORAGE AREA:

1.1 SAMPLE I.D. NUMBER 6156-3 DRAWN FROM THE STORAGE AREA 6/3/85
 1.2 HEAT NUMBER OR HEAT CODE OF SAMPLE REMOVED MD7115 DATE 6/3/85
 1.3 Q.C. VERIFICATION: Ray Telego LEVEL II DATE 6/3/85

2.0 SUPERINTENDENT TO IDENTIFY AND REMOVE BENDS. Q.C. SUPERVISOR TO EXAMINE REMOVED BENDS.

2.1 THE SAMPLE DOES DOES NOT CONTAIN A BEND.

2.1.1 IF SAMPLE DOES NOT CONTAIN A BEND, GO TO 3.0 AND CONTINUE TO COMPLETE WORK AND CHECKLIST (SECTIONS 2.1.2, 2.2, AND 2.3 DO NOT NEED TO BE ADDRESSED)

2.1.2 IF SAMPLE DOES CONTAIN A BEND, CONTINUE WORK PER THIS SECTION.

2.2 UNIQUE SAMPLE I.D. NUMBER IS TO BE VIBRO-ETCHED ON EACH BEND TO BE REMOVED FROM SAMPLE, AND TO ALL LOOSE PIECES THAT WILL EXIST FROM CUTS.

PRODUCTION SIGNATURE _____ DATE _____ Q.C. VERIFICATION _____ LEVEL _____ DATE _____

2.3 THIS SPACE IS PROVIDED FOR Q.C. SUPERVISOR TO SKETCH AND IDENTIFY ALL BENDS EXAMINED AND TO RECORD ANY DATE (GAGES OR TEARS) FOUND DURING Q.C. INSPECTION.

MA

Q.C. SUPERVISOR SIGNATURE _____ LEVEL _____ DATE _____

PHILLIPS, OBITCHUM CO.
BRADWOOD N P S.

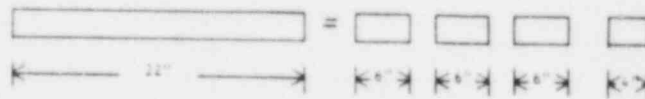
SMALL BORE CARBON STEEL FITTED PIPE
SAMPLING CHECKLIST FOR SAMPLE PREPARATION
AND INSPECTION

FORM PUIQA-5-92 REV. 1
PAGE 2 OF 3

3.0 SUPERINTENDANT TO SECTION THE SAMPLE

3.1 CUT THE STRAIGHT LENGTHS OF PIPE INTO LENGTHS A MAXIMUM OF SIX (6) INCHES LONG
(Q.C. VERIFICATION IS REQUIRED PRIOR TO CUTTING)

EXAMPLE: A 22" LONG SAMPLE WOULD BE CUT INTO THREE SIX INCH LONG SECTIONS AND A FOUR INCH LONG SECTION



3.2 A STRAIGHT LENGTH OF PIPE LESS THAN SIX INCHES LONG WILL BE CONSIDERED A "SECTION" AND DOES NOT REQUIRE CUTTING (SECTIONING)

3.3 Q.C. VERIFICATION THAT SAMPLE I.D. NUMBER HAS BEEN TRANSFERRED TO EACH SECTION PRIOR TO RELEASE FOR CUTTING

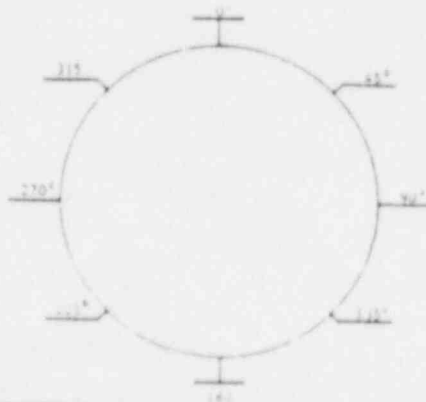
[Signature]
Q.C. SIGNATURE LEVEL DATE

3.4 RECORD THE IDENTIFICATION AND THE LENGTHS OF THE SAMPLES

| SECTION # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH | I.D. # | LENGTH |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 6" | 12 | | | | | | | | | |
| 2 | 6" | 12 | | | | | | | | | |
| 3 | 6" | 12 | | | | | | | | | |
| 4 | 4" | 12 | | | | | | | | | |
| 5 | 6" | 12 | | | | | | | | | |
| 6 | 6" | 12 | | | | | | | | | |

4.0 MARKING THE SECTIONS

4.1 EIGHT ORIENTATION MARKS SHALL BE STAMPED ON EACH SEGMENT, AT 0°, 45°, 90°, 135°, 180°, 225°, 270°, AND 315°. THE ORIENTATION OF THE STAMP TO THE PIPE SHALL BE ARBITRARILY SELECTED



AFTER THE END OF THE SAMPLE HAS BEEN STAMPED WITH THE EIGHT ORIENTATION MARKS, ONE OF THE MARKS SHALL BE SELECTED AND IDENTIFIED AS 0° (ZERO DEGREES).

5.0 MEASURING AND RECORDING WALL THICKNESS

5.1 MEASURE AND RECORD THE ACTUAL WALL THICKNESS AT THE EIGHT ORIENTATION MARKS (SEE PAGE 3)

5.1.1 ADDITIONAL MEASUREMENTS BETWEEN THE ORIENTATION MARKS SHALL BE TAKEN AT 15 DEGREE INTERVALS UNLESS OTHERWISE APPEARED IN THE LOCATION OF THE SUPERINTENDANT TO SECTION THE SAMPLE. THE THICKNESS SHALL BE THE THICKNESS OF THE PIPE.

| PHILLIPS, GETSCHW CO. BRAIDWOOD N. P. S. | | SMALL BORE CARBON STEEL FITTED PIPE SAMPLING CHECKLIST FOR SAMPLE PREPARATION AND INSPECTION | | FORM PG/QA-5-92 REV. 1 PAGE 3 OF 3 ADDITIONAL PAGES WILL BE MAILED 2A, 2B, 2C, etc. | | |
|---|------------|--|----------------|---|------------|--|
| 0° | <u>186</u> | 1° To | <u>187</u> | 0° | <u>187</u> | |
| 45° | <u>196</u> | 44° | | 45° | <u>189</u> | |
| 90° | <u>192</u> | 46° To | <u>193</u> | 90° | <u>172</u> | |
| 135° | <u>193</u> | 89° | | 135° | <u>182</u> | |
| 180° | <u>186</u> | 91° To | <u>195</u> | 180° | <u>183</u> | |
| 225° | <u>185</u> | 134° | | 225° | <u>193</u> | |
| 270° | <u>177</u> | 136° To | <u>196</u> | 270° | <u>195</u> | |
| 315° | <u>180</u> | 179° | | 315° | <u>199</u> | |
| | | 181° To | <u>181</u> | | | |
| | | 224° | | | | |
| | | 226° To | <u>175</u> | | | |
| | | 269° | | | | |
| | | 271° To | <u>179</u> | | | |
| | | 314° | | | | |
| | | 316° To | <u>184</u> | | | |
| | | 359° | | | | |
| SAMPLE I. D. NUMBER | | | <u>4156 3A</u> | SAMPLE I. D. NUMBER | | |
| | | | <u>CE 9</u> | SAMPLE I. D. NUMBER | | |
| | | | | <u>4156 3B</u> | | |
| | | | | <u>CE 9</u> | | |
| 0° | <u>193</u> | 1° To | <u>195</u> | 0° | <u>181</u> | |
| 45° | <u>194</u> | 44° | | 45° | <u>183</u> | |
| 90° | <u>199</u> | 46° To | <u>195</u> | 90° | <u>195</u> | |
| 135° | <u>188</u> | 89° | | 135° | <u>197</u> | |
| 180° | <u>177</u> | 91° To | <u>181</u> | 180° | <u>196</u> | |
| 225° | <u>173</u> | 134° | | 225° | <u>186</u> | |
| 270° | <u>189</u> | 136° To | <u>180</u> | 270° | <u>180</u> | |
| 315° | <u>189</u> | 179° | | 315° | <u>178</u> | |
| | | 181° To | <u>171</u> | | | |
| | | 224° | | | | |
| | | 226° To | <u>180</u> | | | |
| | | 269° | | | | |
| | | 271° To | <u>182</u> | | | |
| | | 314° | | | | |
| | | 316° To | <u>195</u> | | | |
| | | 359° | | | | |
| SAMPLE I. D. NUMBER | | | <u>4156 3D</u> | SAMPLE I. D. NUMBER | | |
| | | | <u>CE 7</u> | SAMPLE I. D. NUMBER | | |
| | | | | <u>4156 3E</u> | | |
| | | | | <u>CE 7</u> | | |
| 0° | | 1° To | | 0° | | |
| 45° | | 44° | | 45° | | |
| 90° | | 46° To | | 90° | | |
| 135° | <u>N</u> | 89° | | 135° | <u>N</u> | |
| 180° | | 91° To | <u>A</u> | 180° | | |
| 225° | | 134° | | 225° | | |
| 270° | | 136° To | | 270° | | |
| 315° | | 179° | | 315° | | |
| | | 181° To | | | | |
| | | 224° | | | | |
| | | 226° To | | | | |
| | | 269° | | | | |
| | | 271° To | | | | |
| | | 314° | | | | |
| | | 316° To | | | | |
| | | 359° | | | | |
| SAMPLE I. D. NUMBER | | | | SAMPLE I. D. NUMBER | | |
| | | | | SAMPLE I. D. NUMBER | | |
| | | | | | | |
| | | | | | | |

J0005076

SARGENT & LUNDY
ENGINEERS
CHICAGO

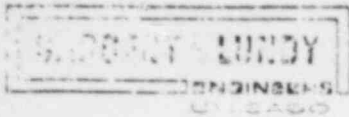
ACC. NO.: EMD-054246

PAGE 988

APPENDIX 3

PIPE SAMPLE MINIMUM WALL CHECKLISTS

30005077



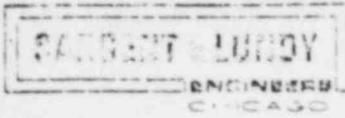
Safety-Related Non-Safety-Related

Client Commonwealth Edison Co.
 Project B-midwood 142
 Proj No 4683-00 Equip No.

Prepared by *P. J. Walz* Date 9-3-85
 Reviewed by *P. J. Walz* Date 9-9-85
 Approved by _____ Date _____

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n - 12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_n < t_{n-12.5}$ |
|----------|--------------------|------|-----|-------|----------------|------------------|------------------|-----------------------------|
| 1 | F21-7 | 1.5" | 80 | .200 | .175 | .177 | 96 | 0 |
| 2 | G231-6 | 1" | 80 | .179 | .157 | .162 | 96 | 0 |
| 3 | H330-3 | .75" | 80 | .154 | .135 | .137 | 96 | 0 |
| 4 | PG-2537C-10(R/C)/3 | 2" | 80 | .218 | .191 | -REASSIGNED | - | - |
| 5 | B91-1 | 2" | 80 | .218 | .191 | .195 | 96 | 0 |
| 6 | ILT-557-1/10 | .5" | 80 | .147 | .129 | -REASSIGNED | - | - |
| 7 | G278-6 | 1" | 80 | .179 | .157 | .154 | 96 | 1 |
| 8 | H299-3 | .75" | 80 | .154 | .135 | .135 | 96 | 0 |
| 9 | B11-4 | 2" | 80 | .218 | .191 | .190 | 96 | 1 |
| 10 | PG-2544A-23/4 | 2" | 80 | .218 | .191 | .193 | 48 | 0 |
| 11 | A141-7 | 2" | 80 | .218 | .191 | .205 | 96 | 0 |
| 12 | A59-7 | 2" | 80 | .218 | .191 | .181 | 96 | 12 |
| 13 | L74-1 | 1.5" | 80 | .200 | .175 | .183 | 96 | 0 |
| 14 | E175-3 | 1.5" | 80 | .200 | .175 | .191 | 96 | 0 |
| 15 | C202-3 | 1.5" | 80 | .200 | .175 | .106 | 96 | 1 |
| 16 | L203-4 | .75" | 80 | .154 | .135 | .138 | 96 | 0 |
| 17 | G97-5 | 1" | 80 | .179 | .157 | .164 | 96 | 0 |
| 18 | K36-5 | .75" | 80 | .154 | .135 | .140 | 96 | 0 |
| 19 | K203-1 | .75" | 80 | .154 | .135 | .136 | 96 | 0 |
| 20 | K291-1 | .75" | 80 | .154 | .135 | .125 | 96 | 6 |
| 21 | B202-3 | 2" | 80 | .218 | .191 | .194 | 96 | 0 |
| 22 | K202-3 | .75" | 80 | .154 | .135 | .143 | 96 | 0 |
| 23 | D29-7 | 1.5" | 80 | .200 | .175 | .166 | 96 | 7 |
| 24 | D192-4 | 1.5" | 80 | .200 | .175 | .172 | 96 | 4 |
| 25 | F68-5 | 1.5" | 80 | .200 | .175 | .178 | 96 | 0 |
| 26 | A142-2 | 2" | 80 | .218 | .191 | .195 | 96 | 0 |
| 27 | G505-7 | 1" | 80 | .179 | .157 | .156 | 96 | 1 |
| 28 | A13-6 | 2" | 80 | .218 | .191 | .184 | 96 | 3 |
| 29 | H147-7 | 1" | 160 | .250 | .219 | .222 | 96 | 0 |
| 30 | B132-4 | 2" | 80 | .218 | .191 | .210 | 96 | 0 |
| 31 | K140-8 | .75" | 80 | .154 | .135 | .138 | 80 | 0 |
| 32 | B167-3 | 2" | 80 | .218 | .191 | .206 | 96 | 0 |
| 33 | K230-8 | .75" | 80 | .154 | .135 | .142 | 96 | 0 |

Form GQ308.1 Rev. 2 SL-F627 04/82



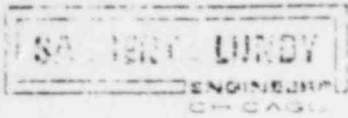
Date for CHECK OF PIPE SAMPLE WALL ACC. NO.: EMC-25424
 THICKNESS AGAINST PRIMARY CRITERIA PALE 99'

Safety-Related Non-Safety-Related

| | | |
|--------------------------------|---------------------------------|-------------|
| Client Commonwealth Edison Co. | Prepared by <i>A. J. Walrus</i> | Date 9-3-85 |
| Project Braidwood 142 | Reviewed by <i>P. J. Hill</i> | Date 9-9-85 |
| Proj. No. 4683-00 Equip. No. | Approved by | Date |

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n-12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_n < t_n-12.5\%$ |
|----------|--------------------|------|-----|-------|--------------|------------------|------------------|-----------------------------|
| 34 | PG-2537A-34/4 | .75" | 80 | .154 | .135 | .144 | 16 | 0 |
| 35 | C81-6 | 2" | 80 | .218 | .191 | .193 | 96 | 0 |
| 36 | PG-2545A-20/3 | 1.5" | 80 | .200 | .175 | .195 | 16 | 0 |
| 37 | H210-4 | .75" | 80 | .154 | .135 | .146 | 96 | 0 |
| 38 | K152-6 | .75" | 80 | .154 | .135 | .139 | 96 | 0 |
| 39 | F164-3 | 1.5" | 30 | .200 | .175 | .170 | 96 | 10 |
| 40 | E228-4 | 1.5" | 80 | .200 | .175 | .171 | 96 | 8 |
| 41 | H47-3 | 1" | 80 | .179 | .157 | .165 | 64 | 0 |
| 42 | ILT-503-2L/4 | .5" | 80 | .147 | .129 | .141 | 384 | 0 |
| 43 | IPT-524-2/3 | .5" | 80 | .147 | .129 | - REASSIGNED | | |
| 44 | A26-6 | 2" | 80 | .218 | .191 | .202 | 96 | 0 |
| 45 | G204-1 | 1" | 30 | .179 | .157 | .152 | 96 | 2 |
| 46 | L139-4 | 1" | 80 | .179 | .157 | .163 | 96 | 0 |
| 47 | L121-1 | 1.5" | 80 | .200 | .175 | .190 | 96 | 0 |
| 48 | F226-5 | 1.5" | 80 | .200 | .175 | .168 | 96 | 13 |
| 49 | C14-2 | 2" | 90 | .218 | .191 | .181 | 96 | 13 |
| 50 | H129-3 | 1" | 160 | .250 | .219 | .222 | 46 | 0 |
| 51 | A34-1 | 2" | 80 | .218 | .191 | .189 | 96 | 3 |
| 52 | K266-4 | .75" | 80 | .154 | .135 | .139 | 96 | 0 |
| 53 | PG-2544A-79/2 | 2" | 80 | .218 | .191 | .182 | 32 | 3 |
| 54 | G319-8 | 1" | 80 | .179 | .157 | .167 | 64 | 0 |
| 55 | H317-3 | .75" | 80 | .154 | .135 | .130 | 96 | 4 |
| 56 | L298-4 | 2" | 80 | .218 | .191 | .209 | 96 | 0 |
| 57 | K422-1 | .5" | 80 | .147 | .129 | .134 | 96 | 0 |
| 58 | G203-2 | 1" | 80 | .179 | .157 | .161 | 76 | 0 |
| 59 | F1-4 | 1.5" | 80 | .200 | .175 | .190 | 96 | 0 |
| 60 | G149-6 | 1" | 80 | .179 | .157 | .156 | 96 | 2 |
| 61 | IPSL-AF055 SH. 1/2 | .5" | 80 | .147 | .129 | .134 | 144 | 0 |
| 62 | L9-5 | 1" | 80 | .179 | .157 | .159 | 96 | 0 |
| 63 | H431-2 | .75" | 80 | .154 | .135 | .140 | 96 | 0 |
| 64 | F7-4 | 1.5" | 80 | .200 | .175 | .196 | 96 | 0 |
| 65 | D201-1 | 1.5" | 80 | .200 | .175 | .163 | 96 | 26 |
| 66 | A44-6 | 2" | 80 | .218 | .191 | .201 | 96 | 0 |

Form GQ.3051 Rev. 2 CL-F647 04/34



DATE FOR CHECK OF PIPE SAMPLE WALL THICKNESSES AGAINST PRIMARY CRITERIA PAGE 991 ACC. NO.: FMC-054241

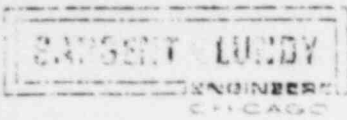
Safety-Related Non-Safety-Related

Client Commonwealth Edison Co.
 Project Braidwood 1#2
 Proj No. 4633-50 Equip No.

Prepared by [Signature] Date 9/9/83
 Reviewed by [Signature] Date 9-7-85
 Approved by [Signature] Date

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n-12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_n < t_{n-12.5\%}$ |
|----------|----------------|-------|-----|-------|--------------|------------------|------------------|-------------------------------|
| 67 | G 264 | 1" | 80 | .179 | .157 | .175 | 64 | 0 |
| 68 | H 279 - 2 | 1.75" | 80 | .154 | .135 | .135 | 96 | 0 |
| 69 | G 270 - 2 | 2" | 80 | .218 | .191 | .204 | 128 | 0 |
| 70 | K 194 - 1 | 1.5" | 80 | .154 | .135 | .136 | 96 | 0 |
| 71 | F 102 - 7 | 1.5" | 160 | .281 | .246 | .252 | 96 | 0 |
| 72 | E 202 - 6 | 1.5" | 80 | .200 | .175 | .180 | 96 | 0 |
| 73 | K 135 - 5 | .75" | 80 | .154 | .135 | .135 | 96 | 0 |
| 74 | H 182 - 5 | .75" | 80 | .154 | .135 | .136 | 96 | 0 |
| 75 | 14S-D2033-1-7 | 1" | 80 | .179 | .157 | .161 | 16 | 0 |
| 76 | E 259 - 2 | 1.5" | 80 | .200 | .175 | .191 | 96 | 0 |
| 77 | A 101 - 5 | 2" | 80 | .218 | .191 | .200 | 96 | 0 |
| 78 | H 144 - 5 | .75" | 80 | .154 | .135 | .131 | 96 | 0 |
| 79 | 27-689-1-8 | 1" | 80 | .147 | .129 | .135 | 64 | 0 |
| 80 | PG-2547A-42-19 | 1.5" | 80 | .200 | .175 | .161 | 64 | 7 |
| 81 | 3161 - 5 | 2" | 80 | .218 | .191 | .198 | 96 | 0 |
| 82 | F 50 - 1 | 1.5" | 80 | .200 | .175 | .180 | 96 | 0 |
| 83 | K 388 - 3 | .5" | 80 | .147 | .129 | .137 | 96 | 0 |
| 84 | B 157 - 1 | 2" | 80 | .218 | .191 | .215 | 96 | 0 |
| 85 | G 228 - 2 | 1" | 80 | .179 | .157 | .160 | 96 | 0 |
| 86 | PG-2037A-5-6 | 2" | 40 | .154 | .135 | .141 | 112 | 0 |
| 87 | G 123 - 8 | 1" | 80 | .179 | .157 | .155 | 64 | 1 |
| 88 | PG-2595A-119-3 | 1.5" | 80 | .200 | .175 | .184 | 80 | 0 |
| 89 | D 92 - 1 | 1.5" | 80 | .200 | .175 | .176 | 96 | 0 |
| 90 | G 220 - 6 | 1" | 80 | .179 | .157 | .140 | 96 | 22 |
| 91 | C 121 - 5 | 2" | 80 | .218 | .191 | .204 | 96 | 0 |
| 92 | G 32 - 3 | 1" | 80 | .179 | .157 | .170 | 96 | 0 |
| 93 | E 6 - 1 | 1.5" | 80 | .200 | .175 | .184 | 96 | 0 |
| 94 | 14T-5.8-32 - 2 | .5" | 80 | .147 | .129 | .145 | 464 | 0 |
| 95 | G 35 - 1 | 1" | 80 | .179 | .157 | .162 | 96 | 0 |
| 96 | K 359 - 3 | .75" | 160 | .281 | .246 | .205 | 96 | 0 |
| 97 | A 13 - 6 | 2" | 80 | .218 | .191 | .208 | 96 | 0 |
| 98 | A 73 - 2 | 2" | 80 | .218 | .191 | .172 | 96 | 16 |
| 99 | PG-2547A-15-13 | 1.5" | 80 | .200 | .175 | .177 | 16 | 0 |

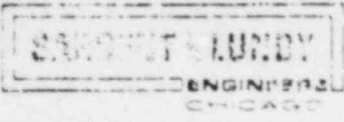
Form CO-308.1 Rev. 2 SL-F647 04/84



Safety-Related Non-Safety-Related

| | | |
|--------------------------------|------------------------------------|-------------|
| Client Commonwealth Edison Co. | Prepared by <i>J. H. Colwell</i> | Date 9-3-85 |
| Project Sraidwood 1 & 2 | Reviewed by <i>P. J. [unclear]</i> | Date 9-9-85 |
| Proj. No. 4683-50 Equip. No. | Approved by | Date |

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_{n-12.5\%}$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_{min} < t_{n-12.5\%}$ |
|----------|---------------------|------|-----|-------|----------------|------------------|------------------|-----------------------------------|
| 100 | F106-6 | 1.5 | 100 | 0.251 | 0.246 | 0.252 | 96 | 0 |
| 101 | G115-5 | 1.0 | 30 | 0.177 | 0.157 | 0.152 | 96 | 1 |
| 102 | C152-1 | 1.5 | 30 | 0.200 | 0.175 | 0.185 | 96 | 0 |
| 103 | E215-3 | 1.5 | 80 | 0.200 | 0.175 | 0.177 | 96 | 0 |
| 104 | ILT-537-1/6 | 0.5 | 30 | 0.147 | 0.129 | 0.135 | 42 | 0 |
| 105 | A4-5 | 2.0 | 80 | 0.218 | 0.191 | 0.207 | 96 | 0 |
| 106 | PG-2545A-112/5 | 2.0 | 30 | 0.219 | 0.191 | 0.207 | 42 | 0 |
| 107 | G115-7 | 1.0 | 30 | 0.177 | 0.157 | 0.162 | 96 | 0 |
| 108 | F25-2 | 1.5 | 80 | 0.200 | 0.175 | 0.195 | 16 | 0 |
| 109 | D234-5 | 1.5 | 160 | 0.281 | 0.246 | 0.255 | 96 | 0 |
| 110 | F181-3 | 1.5 | 50 | 0.200 | 0.175 | 0.177 | 96 | 0 |
| 111 | D22-2 | 1.5 | 80 | 0.200 | 0.175 | 0.177 | 96 | 0 |
| 112 | PG-2545A-46/1 | 1.5 | 80 | 0.200 | 0.175 | 0.188 | 16 | 0 |
| 113 | 1PT-537 SH2 (R/A)/3 | 0.75 | 80 | 0.154 | 0.135 | 0.146 | 16 | 0 |
| 114 | B101-8 | 2.0 | 80 | 0.218 | 0.191 | 0.204 | 48 | 0 |
| 115 | K62-7 | 0.75 | 80 | 0.154 | 0.135 | 0.145 | 64 | 0 |
| 116 | L314-5 | 0.75 | 30 | 0.154 | 0.135 | 0.138 | 72 | 0 |
| 117 | A121-5 | 2.0 | 80 | 0.218 | 0.191 | 0.195 | 96 | 0 |
| 118 | K110-2 | 0.75 | 80 | 0.154 | 0.135 | 0.137 | 16 | 0 |
| 119 | K418-4 | 0.5 | 50 | 0.147 | 0.129 | 0.133 | 96 | 0 |
| 120 | F71-5 | 1.5 | 80 | 0.200 | 0.175 | 0.172 | 96 | 1 |
| 121 | FG-3 | 1.5 | 80 | 0.200 | 0.175 | 0.142 | 96 | 0 |
| 122 | C10-6 | 2.0 | 80 | 0.218 | 0.191 | 0.192 | 96 | 0 |
| 123 | L360-4 | 1.0 | 50 | 0.177 | 0.157 | 0.169 | 80 | 0 |
| 124 | PG-2537A-85/9 | 0.75 | 80 | 0.154 | 0.135 | 0.146 | 32 | 0 |
| 125 | L88-6 | 1.5 | 50 | 0.200 | 0.175 | 0.177 | 96 | 0 |
| 126 | G457-4 | 1.0 | 50 | 0.177 | 0.157 | 0.155 | 96 | 2 |
| 127 | A117-3 | 2.0 | 50 | 0.218 | 0.191 | 0.209 | 96 | 0 |
| 128 | G242-2 | 1.0 | 50 | 0.177 | 0.157 | 0.153 | 96 | 2 |
| 129 | N-2537A-5/5 | 2.0 | 40 | 0.194 | 0.135 | 0.139 | 32 | 0 |
| 130 | C75-5 | 2.0 | 50 | 0.218 | 0.191 | 0.192 | 96 | 0 |
| 131 | H80-1 | 1.0 | 30 | 0.177 | 0.157 | 0.158 | 96 | 0 |
| 132 | B87-2 | 2.0 | 50 | 0.218 | 0.191 | 0.202 | 96 | 0 |



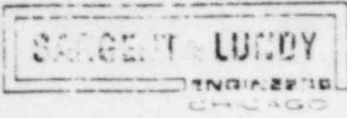
Call for CHECK OF PIPE SAMPLE WALL ACC. NO.: EMD-05424
 THICKNESS AGAINST PRIMARY CRITERIA
 FACE 993

Safety-Related Non-Safety-Related

| | | |
|---------------------------------|--------------------------------|-------------|
| Client Commonwealth Edison Co. | Prepared by <i>[Signature]</i> | Date 9-9-85 |
| Project Braidwood 142 | Reviewed by <i>[Signature]</i> | Date 9-9-85 |
| Proj No. 4683-50 Equip No. | Approved by | Date |

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n-12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_n < t_n-12.5\%$ |
|----------|-----------------|------|-----|-------|--------------|------------------|------------------|-----------------------------|
| 133 | L350-1 | 1" | 80 | .179 | .157 | .157 | 96 | 0 |
| 134 | E28-7 | 1.5" | 80 | .200 | .175 | .158 | 96 | 16 |
| 135 | PG-2544A-16-7 | 1.5" | 80 | .200 | .175 | .163 | 144 | 3 |
| 136 | PG-2537A-49-2 | 1.5" | 80 | .200 | .175 | .152 | 640 | 41 |
| 137 | 1PT-546-1-5 | .5" | 80 | .147 | .129 | .147 | 32 | 0 |
| 138 | L317-7 | .75" | 80 | .154 | .135 | .145 | 96 | 0 |
| 139 | G319-6 | 1" | 80 | .179 | .157 | .160 | 96 | 0 |
| 140 | C135-1 | 2" | 160 | .244 | .201 | .223 | 96 | 0 |
| 141 | L225-5 | .75" | 80 | .154 | .135 | .140 | 96 | 0 |
| 142 | D38-6 | 1.5" | 80 | .200 | .175 | .172 | 96 | 0 |
| 143 | B104-7 | 2" | 80 | .218 | .191 | .200 | 96 | 0 |
| 144 | C73-7 | 2" | 80 | .218 | .191 | .151 | 96 | 15 |
| 145 | G306-2 | 1" | 80 | .179 | .157 | .159 | 96 | 0 |
| 146 | B221-2 | 2" | 80 | .218 | .191 | .185 | 96 | 8 |
| 147 | E151-1 | 1.5" | 80 | .200 | .175 | .160 | 96 | 20 |
| 148 | F40-4 | 1.5" | 80 | .200 | .175 | .189 | 96 | 0 |
| 149 | PG-2586A-36-2 | 1" | 80 | .179 | .157 | .162 | 192 | 0 |
| 150 | C3-7 | 2" | 80 | .218 | .191 | .191 | 96 | 0 |
| 151 | H411-2 | .75" | 80 | .154 | .135 | .144 | 96 | 0 |
| 152 | K127-7 | .75" | 80 | .154 | .135 | .140 | 64 | 0 |
| 153 | A108-5 | 2" | 80 | .218 | .191 | .185 | 96 | 6 |
| 154 | D196-4 | 1.5" | 80 | .200 | .175 | .182 | 96 | 0 |
| 155 | PG-2542C-127-11 | 1" | 80 | .179 | .157 | .161 | 16 | 0 |
| 156 | F124-7 | 1.5" | 160 | .281 | .246 | .255 | 96 | 0 |
| 157 | PG-2544A-51A-2 | .5" | 80 | .147 | .129 | .132 | 16 | 0 |
| 158 | G509-4 | 1" | 80 | .179 | .157 | .160 | 96 | 0 |
| 159 | PG-2568A-6-1 | .5" | 80 | .147 | .129 | .138 | 32 | 0 |
| 160 | A168-7 | 2" | 80 | .218 | .191 | .210 | 96 | 0 |
| 161 | B153-1 | 2" | 80 | .218 | .191 | .200 | 96 | 0 |
| 162 | H451-5 | .75" | 80 | .154 | .135 | .149 | 96 | 0 |
| 163 | G298-2 | 1" | 80 | .179 | .157 | .148 | 96 | 1 |
| 164 | K352-4 | .75" | 160 | .219 | .192 | .206 | 96 | 0 |
| 165 | H21-4 | .75" | 80 | .154 | .135 | .137 | 96 | 2 |

Form GO-306.1 Rev. 2 SL-F6-77 04/84

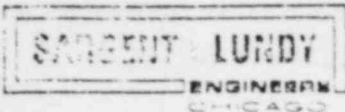


Client Commonwealth Edison Co.
 Project Braidwood 142
 Proj No. 4683-00 Equip No.

Prepared by J.H. Colwell Date 9-3-85
 Reviewed by Eric R. Johnson Date 9-9-85
 Approved by Date

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n-12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_n < t_n-12.5\%$ |
|----------|----------------------|------|-----|-------|--------------|------------------|------------------|-----------------------------|
| 166 | A72-3 | 2.0 | 80 | 0.218 | 0.191 | 0.184 | 96 | 4 |
| 167 | G54-3 | 1.0 | 80 | 0.179 | 0.157 | 0.161 | 96 | 0 |
| 168 | 1LT-502 SH.1 (R/C)/1 | 0.5 | 80 | 0.147 | 0.129 | - REASSIGNED - | | |
| 169 | G108-1 | 1.0 | 80 | 0.179 | 0.157 | 0.154 | 96 | 2 |
| 170 | PG-2541A-2B (R/A)/2 | 0.75 | 160 | 0.219 | 0.192 | 0.201 | 16 | 0 |
| 171 | L183-8 | 0.75 | 80 | 0.154 | 0.135 | 0.140 | 96 | 0 |
| 172 | L120-2 | 1.5 | 80 | 0.200 | 0.175 | 0.173 | 96 | 3 |
| 173 | G90-3 | 1.0 | 80 | 0.179 | 0.157 | 0.156 | 64 | 4 |
| 174 | D294-3 | 1.5 | 160 | 0.281 | 0.246 | 0.240 | 96 | 1 |
| 175 | B62-2 | 2.0 | 80 | 0.218 | 0.191 | 0.193 | 96 | 0 |
| 176 | L130-3 | 1.0 | 80 | 0.179 | 0.157 | 0.157 | 96 | 0 |
| 177 | K331-6 | 0.75 | 160 | 0.219 | 0.192 | 0.201 | 96 | 0 |
| 178 | L200-6 | 0.75 | 80 | 0.154 | 0.135 | 0.150 | 96 | 0 |
| 179 | C190-6 | 1.50 | 80 | 0.200 | 0.175 | 0.161 | 96 | 9 |
| 180 | H426-5 | 0.75 | 80 | 0.154 | 0.135 | 0.146 | 96 | 0 |
| 181 | F27-3 | 1.5 | 80 | 0.200 | 0.175 | 0.185 | 96 | 0 |
| 182 | C197-1 | 1.5 | 80 | 0.200 | 0.175 | 0.191 | 96 | 0 |
| 183 | H175-2 | 0.75 | 80 | 0.154 | 0.135 | 0.134 | 96 | 1 |
| 184 | C116-8 | 2.0 | 80 | 0.218 | 0.191 | 0.182 | 96 | 9 |
| 185 | F43-6 | 1.5 | 80 | 0.200 | 0.175 | 0.200 | 96 | 0 |
| 186 | L174-6 | 1.0 | 80 | 0.179 | 0.157 | 0.163 | 96 | 0 |
| 187 | PG-2545C-14/2 | 2.0 | 80 | 0.218 | 0.191 | 0.202 | 176 | 0 |
| 188 | A182-3 | 2.0 | 80 | 0.218 | 0.191 | 0.193 | 96 | 0 |
| 189 | K355-5 | 0.75 | 160 | 0.219 | 0.192 | 0.207 | 96 | 0 |
| 190 | G191-5 | 1.0 | 80 | 0.179 | 0.157 | 0.154 | 96 | 3 |
| 191 | 1LS-D8033 (R/B)/5 | 1.0 | 80 | 0.179 | 0.157 | 0.167 | 16 | 0 |
| 192 | L433-2 | 0.75 | 80 | 0.154 | 0.135 | 0.143 | 96 | 0 |
| 193 | E136-3 | 1.5 | 80 | 0.200 | 0.175 | 0.173 | 96 | 0 |
| 194 | F7-7 | 1.5 | 80 | 0.200 | 0.175 | 0.193 | 96 | 0 |
| 195 | F177-5 | 1.5 | 80 | 0.200 | 0.175 | 0.177 | 96 | 0 |
| 196 | PG-2537A-114/1 | 0.75 | 80 | 0.154 | 0.135 | 0.147 | 16 | 0 |
| 197 | H286-7 | 0.75 | 80 | 0.154 | 0.135 | 0.143 | 64 | 0 |
| 198 | H267-1 | 0.75 | 80 | 0.154 | 0.135 | 0.142 | 96 | 0 |

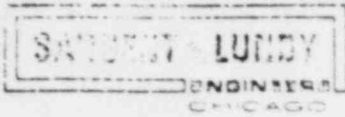
Form G330B1 Rev. 2 SL-F547 04/84



| | | |
|--------------------------------|----------------------------------|-------------|
| Client Commonwealth Edison Co. | Prepared by <i>A. H. Lovell</i> | Date 9-3-85 |
| Project Braidwood 1&2 | Reviewed by <i>Tim R Johnson</i> | Date 9-9-85 |
| Proj. No. 4683-00 Equip. No. | Approved by | Date |

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n-12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_n < t_n-12.5\%$ |
|----------|--------------------|------|-----|-------|--------------|------------------|------------------|-----------------------------|
| 199 | PG-2556A-15(R/B)/7 | 1.5 | 80 | 0.200 | 0.175 | 0.173 | 544 | 2 |
| 200 | D15-7 | 1.5 | 80 | 0.200 | 0.175 | 0.158 | 96 | 7 |
| 201 | G58-7 | 1.0 | 80 | 0.179 | 0.157 | 0.165 | 96 | 0 |
| 202 | H179-2 | 0.75 | 80 | 0.154 | 0.135 | 0.132 | 96 | 1 |
| 203 | G220-3 | 1.0 | 80 | 0.179 | 0.157 | 0.143 | 96 | 16 |
| 204 | K309-7 | 0.75 | 80 | 0.154 | 0.135 | 0.141 | 64 | 0 |
| 205 | PG-2544A-9/1 | 2.0 | 80 | 0.218 | 0.191 | 0.205 | 32 | 0 |
| 206 | H231-2 | 2.75 | 80 | 0.154 | 0.135 | 0.147 | 96 | 0 |
| 207 | F167-7 | 1.5 | 80 | 0.200 | 0.175 | 0.167 | 96 | 3 |
| 208 | G216-5 | 1.0 | 80 | 0.179 | 0.157 | 0.152 | 96 | 6 |
| 209 | F221-5 | 1.5 | 80 | 0.200 | 0.175 | 0.171 | 16 | 10 |
| 210 | E220-6 | 1.5 | 80 | 0.200 | 0.175 | 0.166 | 96 | 1 |
| 211 | G163-4 | 1.0 | 80 | 0.179 | 0.157 | 0.147 | 96 | 5 |
| 212 | PG-2537A-29, 8 | 2.0 | 80 | 0.218 | 0.191 | 0.212 | 32 | 0 |
| 213 | H177-2 | 0.75 | 80 | 0.154 | 0.135 | 0.149 | 96 | 0 |
| 214 | H245-4 | 0.75 | 80 | 0.154 | 0.135 | 0.148 | 96 | 0 |
| 215 | L12-1 | 1.0 | 80 | 0.179 | 0.157 | 0.168 | 96 | 0 |
| 216 | H200-6 | 0.75 | 80 | 0.154 | 0.135 | 0.146 | 96 | 0 |
| 217 | E125-5 | 1.5 | 80 | 0.200 | 0.175 | 0.187 | 96 | 0 |
| 218 | PG-2545A-116/4 | 2.0 | 80 | 0.218 | 0.191 | -REASSIGNED- | - | - |
| 219 | K360-7 | 0.75 | 160 | 0.219 | 0.192 | 0.208 | 48 | 0 |
| 220 | PG-2556A-7(R/E)/4 | 1.0 | 80 | 0.179 | 0.157 | 0.165 | 16 | 0 |
| 221 | G453-8 | 1.0 | 80 | 0.179 | 0.157 | 0.150 | 96 | 7 |
| 222 | B96-5 | 2.0 | 80 | 0.218 | 0.191 | 0.190 | 96 | 1 |
| 223 | G394-2 | 1.0 | 80 | 0.179 | 0.157 | 0.156 | 96 | 3 |
| 224 | IFT-651-1/3 | 0.5 | 80 | 0.147 | 0.129 | -REASSIGNED- | - | - |
| 225 | F168-3 | 1.5 | 80 | 0.200 | 0.175 | 0.174 | 96 | 1 |
| 226 | K305-2 | 2.75 | 80 | 0.154 | 0.135 | 0.147 | 96 | 0 |
| 227 | G510-2 | 1.0 | 80 | 0.179 | 0.157 | 0.172 | 96 | 0 |
| 229 | B32-1 | 2.0 | 80 | 0.218 | 0.191 | 0.175 | 64 | 0 |
| 229 | H22 8 | 1.0 | 80 | 0.179 | 0.157 | 0.170 | 64 | 0 |
| 230 | K202-7 | 0.75 | 80 | 0.154 | 0.135 | 0.139 | 32 | 0 |
| 231 | D103-2 | 1.5 | 80 | 0.200 | 0.175 | 0.177 | 96 | 0 |

Form CO-308.1 Rev. 2 SL-F647 04/84

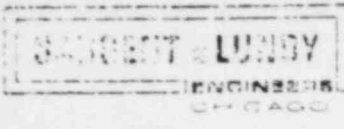


Calc. For CHECK OF PIPE SAMPLE WALL ACC. NO.: EMC-05424
 THICKNESS AGAINST PRIMARY CRITERIA
 X Safety-Related Non-Safety-Related PAGE 996

| | | |
|--------------------------------|-------------------------------------|-------------|
| Client Commonwealth Edison Co. | Prepared by <i>[Signature]</i> | Date 9/9/85 |
| Project Braidwood 1&2 | Reviewed by <i>Elmer R. Johnson</i> | Date 9-9-85 |
| Proj. No. 4683-00 Equip. No. | Approved by | Date |

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n-12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_m < t_n-12.5\%$ |
|----------|----------------|------|-----|-------|--------------|------------------|------------------|-----------------------------|
| 222 | C 10 - 1 | 2" | 80 | .218 | .191 | .176 | 96 | 8 |
| 233 | G 36 - 2 | 1" | 80 | .179 | .157 | .167 | 96 | 0 |
| 234 | PG-2556A-12-12 | 1.5" | 80 | .200 | .175 | .186 | 32 | 0 |
| 235 | PG-2537C-76-5 | .75" | 80 | .154 | .135 | .167 | 16 | 0 |
| 236 | E 223 - 4 | 1.5" | 80 | .200 | .175 | .176 | 96 | 0 |
| 237 | PG 116A-29-1 | 1" | 80 | .179 | .157 | .207 | 32 | 0 |
| 238 | B 178 - 5 | 2" | 80 | .218 | .191 | .205 | 96 | 0 |
| 239 | K 263 - 4 | .75" | 80 | .154 | .135 | .151 | 96 | 0 |
| 240 | G 41 - 5 | 1" | 80 | .179 | .157 | .167 | 96 | 0 |
| 241 | B 18 - 7 | 2" | 80 | .218 | .191 | .197 | 96 | 0 |
| 242 | K 132 - 7 | .75" | 80 | .154 | .135 | .137 | 6 | 0 |
| 243 | G 160 - 5 | 1" | 80 | .179 | .157 | .154 | 96 | 8 |
| 244 | D 258 - 6 | 1.5" | 160 | .281 | .246 | .243 | 96 | 2 |
| 245 | PG-2537A-126-6 | 2" | 80 | .218 | .191 | .188 | 176 | 2 |
| 246 | D 208 - 6 | 1.5" | 80 | .200 | .175 | .170 | 96 | 2 |
| 247 | L 175 - 2 | 1" | 80 | .179 | .157 | .233 | 96 | 0 |
| 248 | PG-2537A-27A-1 | .75" | 80 | .154 | .135 | .150 | 16 | 0 |
| 249 | K 374 - 5 | .75" | 160 | .219 | .192 | .191 | 96 | 1 |
| 250 | L 156 - 3 | 1" | 80 | .179 | .157 | .171 | 96 | 0 |
| 251 | F 39 - 7 | 1.5" | 80 | .200 | .175 | .175 | 96 | 0 |
| 252 | PG-2569A-13-4 | 1" | 80 | .179 | .157 | .163 | 48 | 0 |
| 253 | G 356 - 4 | 1" | 80 | .179 | .157 | .167 | 96 | 0 |
| 254 | H 375 - 7 | .75" | 80 | .154 | .135 | .135 | 96 | 0 |
| 255 | PG-2545A-14-3 | 1.5" | 80 | .200 | .175 | .174 | 16 | 1 |
| 256 | G 4 - 7 | 1" | 80 | .179 | .157 | .157 | 96 | 0 |
| 257 | C 5 - 2 | 2" | 80 | .218 | .191 | .188 | 96 | 3 |
| 258 | K 415 - 6 | .5" | 80 | .147 | .129 | .136 | 96 | 0 |
| 259 | G 273 - 4 | 1" | 80 | .179 | .157 | .163 | 96 | 0 |
| 260 | PG-2544A-48-18 | 1.5" | 80 | .200 | .175 | .171 | 64 | 5 |
| 261 | G 373 - 3 | 1" | 80 | .179 | .157 | .152 | 96 | 1 |
| 262 | D 192 - 6 | 1.5" | 80 | .200 | .175 | .173 | 96 | 5 |
| 263 | G 7 - 5 | 1" | 80 | .179 | .157 | .168 | 96 | 0 |
| 264 | G 80 - 7 | 1" | 80 | .179 | .157 | .160 | 96 | 0 |

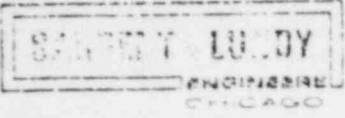
Form GQ3081 Rev. 2 SL-5647 7/84



| | | |
|--------------------------------|-------------------------|-------------|
| Client Commonwealth Edison Co. | Prepared by [Signature] | Date 9-9-85 |
| Project Broadwood 142 | Reviewed by [Signature] | Date 9-9-85 |
| Proj No. 4693-00 Equip No. | Approved by [Signature] | Date |

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n - 12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_n < t_n - 12.5\%$ |
|----------|-----------------|------|-----|-------|----------------|------------------|------------------|-------------------------------|
| 265 | H376-6 | .75" | 80 | .154 | .135 | .140 | 96 | 0 |
| 266 | K220-7 | .5" | 80 | .147 | .129 | .140 | 96 | 0 |
| 267 | H240-8 | .75" | 80 | .154 | .135 | .147 | 32 | 0 |
| 268 | E291-6 | 1.5" | 80 | .200 | .175 | .185 | 96 | 0 |
| 269 | H89-8 | 1" | 80 | .179 | .157 | .171 | 64 | 0 |
| 270 | G383-1 | 1" | 80 | .179 | .157 | .162 | 96 | 0 |
| 271 | C108-3 | 2" | 80 | .218 | .191 | .192 | 96 | 0 |
| 272 | D40-4 | 1.5" | 80 | .200 | .175 | .194 | 96 | 0 |
| 273 | C26-3 | 2" | 80 | .218 | .191 | .200 | 96 | 0 |
| 274 | D12-1 | 1.5" | 80 | .200 | .175 | .186 | 96 | 0 |
| 275 | C186-6 | 1.5" | 80 | .200 | .175 | .169 | 96 | 11 |
| 276 | PG-2544A-116-2 | 2" | 80 | .218 | .191 | .177 | 192 | 1 |
| 277 | L256-3 | 2" | 80 | .218 | .191 | .175 | 96 | 17 |
| 278 | E107-7 | 1.5" | 80 | .200 | .175 | .185 | 96 | 0 |
| 279 | C141-1 | 1.5" | 80 | .200 | .175 | .178 | 96 | 0 |
| 280 | PG-2544A-135-14 | 1.5" | 80 | .200 | .175 | .181 | 80 | 0 |
| 281 | D67-2 | 1.5" | 80 | .200 | .175 | .171 | 96 | 3 |
| 282 | A31-6 | 2" | 80 | .218 | .191 | .184 | 96 | 2 |
| 283 | J58-7 | 1.5" | 80 | .200 | .175 | .176 | 96 | 0 |
| 284 | E63-3 | 1.5" | 80 | .200 | .175 | .183 | 96 | 0 |
| 285 | D119-4 | 1.5" | 80 | .200 | .175 | .196 | 96 | 0 |
| 286 | G168-3 | 1" | 80 | .179 | .157 | .158 | 96 | 0 |
| 287 | L185-8 | .75" | 80 | .154 | .135 | .144 | 48 | 0 |
| 288 | A93-4 | 2" | 80 | .218 | .191 | .195 | 96 | 0 |
| 289 | A83-8 | 2" | 80 | .218 | .191 | .191 | 96 | 0 |
| 290 | A93-2 | 2" | 80 | .218 | .191 | .191 | 96 | 0 |
| 291 | E43-5 | 1.5" | 80 | .200 | .175 | .178 | 96 | 0 |
| 292 | C102-7 | 2" | 80 | .218 | .191 | .184 | 96 | 6 |
| 293 | H7-1 | 1" | 80 | .179 | .157 | .154 | 96 | 3 |
| 294 | H297-5 | .75" | 80 | .154 | .135 | .146 | 96 | 0 |
| 295 | H123-8 | 1" | 16 | .219 | .219 | .230 | 32 | 0 |
| 296 | L113-4 | 1" | 80 | .179 | .157 | .155 | 96 | 2 |
| 297 | D211-2 | 1.5" | 80 | .200 | .175 | .174 | 96 | 1 |

Form GO 3.00.1 Rev. 2 SL-F647 04/84



THICKNESS CHECK OF PIPE SAMPLE WALL ACC. NO.: EMD-C54246
 THICKNESS AGAINST PRIMARY CRITERIA

Safety-Related Non-Safety-Related PAGE 998

| | | |
|--------------------------------|------------------------------------|-------------|
| Client Commonwealth Edison Co. | Prepared by <i>J.H. Givill</i> | Date 9-3-85 |
| Project Braidwood 1#2 | Reviewed by <i>Eric R. Johnson</i> | Date 9-9-85 |
| Proj. No. 4683-00 Equip. No. | Approved by | Date |

| SAMPLE # | SAMPLE ID # | SIZE | SCH | t_n | $t_n-12.5\%$ | SAMPLE t_{min} | # OF PTS CHECKED | # OF PTS $t_m < t_n-12.5\%$ |
|----------|-------------|------|-----|-------|--------------|------------------|------------------|-----------------------------|
| 298 | L378-3 | 1.0 | 80 | 0.179 | 0.157 | 0.163 | 96 | 0 |
| 299 | G522-5 | 1.0 | 80 | 0.179 | 0.157 | 0.155 | 96 | 3 |
| 300 | G517-6 | 1.0 | 80 | 0.179 | 0.157 | 0.171 | 96 | 0 |
| 301 | G436-8 | 1.0 | 80 | 0.179 | 0.157 | 0.156 | 64 | 1 |
| 302 | H293-4 | 0.75 | 80 | 0.154 | 0.135 | 0.148 | 96 | 0 |
| 303 | F50-7 | 1.5 | 80 | 0.200 | 0.175 | 0.179 | 96 | 0 |
| 304 | A177-4 | 2.0 | 80 | 0.218 | 0.191 | 0.202 | 96 | 0 |
| 305 | C24-5 | 2.0 | 80 | 0.218 | 0.191 | 0.180 | 96 | 10 |
| 306 | G390-1 | 1.0 | 80 | 0.179 | 0.157 | 0.142 | 96 | 14 |

J0005087



Calcs. For _____

Safety-Related _____ Non-Safety-Relate _____

ACC. NO.: EMD-754245
 ADDENDUM A
 PAGE 15

| | | |
|--|-------------|------|
| Client | Prepared by | Date |
| Project | Reviewed by | Date |
| Proj. No. Equip No. | Approved by | Date |

TABLE II

CHECK OF PIPE SAMPLE WALL

THICKNESS AGAINST MANUFACTURER'S

TOLERANCE

| SAMPLE # | SAMPLE ID # | SIZE | SCH | f_{nom} | $f_{nom} - 12.5\%$ | SAMPLE f_{min} | # OF PTS CHECKED | # OF PTS $f_{min} < f_{nom} - 12.5\%$ |
|------------------|--------------|------|-----|-----------|--------------------|------------------|------------------|---------------------------------------|
| N/A (CUTOUTS) | 2537C-382 #1 | 2" | 80 | 0.218 | 0.191 | 0.198 | 32 | 3 |
| | 2537C-37 #7 | ↓ | 40 | 0.154 | 0.135 | 0.141 | 16 | 0 |
| | 2537C-80 #2 | ↓ | 80 | 0.218 | 0.191 | 0.212 | 64 | 0 |
| | 2552C-8 #2 | ↓ | ↓ | ↓ | ↓ | 0.199 | 272 | 0 |
| | 2552C-14 #1 | ↓ | ↓ | ↓ | ↓ | 0.212 | 16 | 0 |
| | 2552C-1 #8 | ↓ | ↓ | ↓ | ↓ | 0.184 | 256 | 1 |
| | 2552C-4 #3 | ↓ | ↓ | ↓ | ↓ | 0.195 | 256 | 0 |
| | 2552C-15 #5 | ↓ | ↓ | ↓ | ↓ | 0.191 | 304 | 0 |
| | 2568C-1 #1 | 3/4" | ↓ | ↓ | 0.154 | 0.135 | 0.149 | 16 |
| 2568C-1 #2 | ↓ | ↓ | ↓ | ↓ | 0.143 | 32 | 0 | |
| #15 | C202-3 | 1.5" | 80 | 0.200 | 0.175 | 0.187 | 46 | 0 |

Form GO-3 08.1 Rev. 2 SL-F647 04/84