

Birmingham, Alabama

Revised

4-27-76

Revised 4-D

7-9-76

CAP-786

April 27, 1976

TO: Bruce Klomfas, Jim Carpenter

FROM: A. E. Alpine

SUBJECT: QUALITY CONTROL PROCEDURE - Operating Bulletin #4 C Revised 4-27-76 *AK*

COPY TO: W. R. Bond, S. D. Weaver, W. H. Beasley, I. L. Tavior,
Lynn Roberts, Buddy Swafford, Cecil Clark, Gerald Fox,
Wayne Limbaugh, Jim Wright, Paul Cooper, Roy Jackson, Lamar Sanders

In reviewing past and current claims, it is obvious that our Quality Control program needs an up-date. As quickly as the procedure can be modified for our operations a copy will be forwarded for plant use. In the meantime, please note the following - As of this date, each and every pipe going into a unit will be hydro-tested 5 seconds at the required AWWA pressure test, and all pipe requiring flex testing will be flexed for 5 seconds at the specified loading and hydro-tested for 5 seconds at the AWWA requirement.

As explained verbally, whenever F.T.T. (first time through) rejects down the finishing line exceed 10% for pipe 4" through 10" and 7% for pipe 12" through 24" a decision must be made. The decision may consist of one of the following alternatives.

- A. If excess "flex" breaks are evident it is practical to cut the pipe into half-lengths and quarter-lengths. This salvaged pipe must meet the required hydro-test after being machined to 3'3" and 6'6" without deviation.
- B. If "hydro" breaks exceed the percentage figure, a decision must be made as to "wetting down" and "double autoclaving" in order to gain strength, but in any event a decision must be made on the line whenever the percentage figures is reached.
- C. After random sampling of pipe (made close to the date of the pipe being run) and the pipe is within 50 lbs. of meeting test-example: a run of 16" Class 150 that is breaking at 480 lbs, a decision can be made to roll the unmachined pipe through and unitize it with red, "hold" tags on each corner. A complete wetting down for one weeks duration using a rainbird sprinkler and double autoclaving may achieve sufficient strength the second time. If not, declassify (but we cannot afford it.)

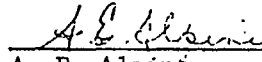
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QUALITY CONTROL PROCEDURENote -

It is proposed that we equip one autoclave with the sprinkler heads and associated equipment in order to provide induced moisture during the cure cycle, and especially during the "bring-up" cycle. This method will usually provide an 8 to 14% pickup in hydro strength. It is asked that the "bring-up" of an autoclave be not less than 45 to 50 minutes and the "blow-down" be 50 to 60 minutes. If this format isn't being used now, please incorporate it.

On all class 200 pipe it is customary to use "rain bird" sprinklers for several hours before autoclaving.

Any written or verbal deviations to AWWA testing are waived as of this bulletin.


A. E. Alpine
Vice President of Operations

AEA:dp

Important Note - Added 4/28/75 - Revision A

Pipe, at a raised temperature out of the autoclave is not to be machined and tested while in the expanded condition. All pipe must be sufficiently cool prior to machining so that machining tolerances and contraction stress through interior surface area cooling does not become factors.

The rough rule-of-thumb is - If the human hand can be placed and remain on the pipe without discomfort the pipe may be run down the line. Note that this is the maximum allowable temperature.

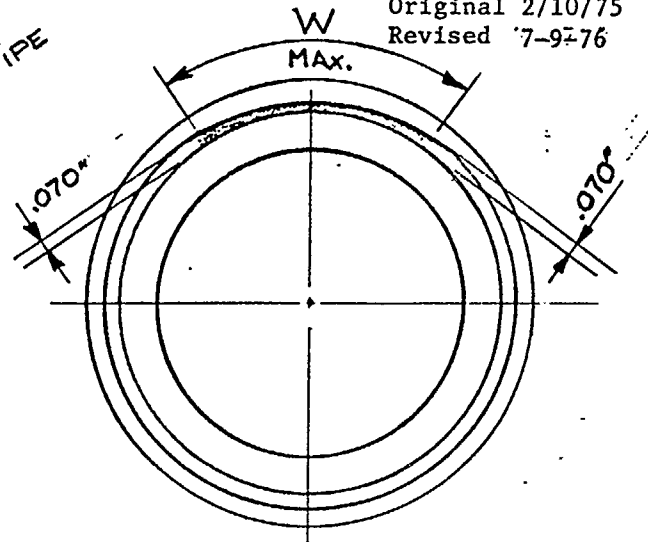
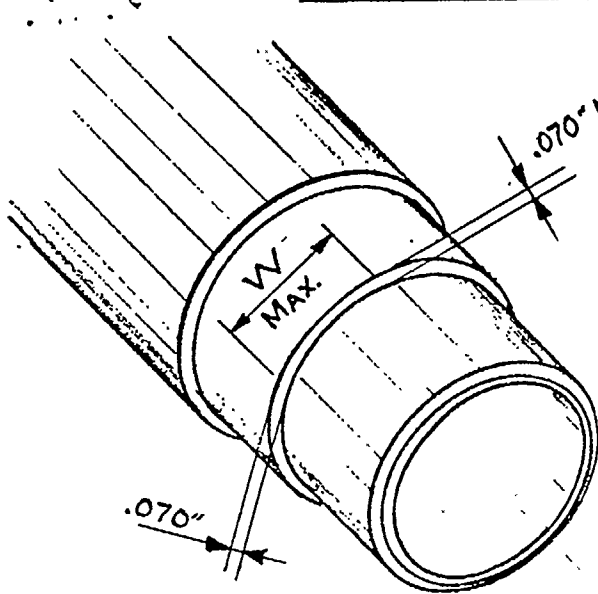
Cooling by water hose while the pipe is in the tray isn't permitted as this cellular material must have the wall cooled uniformly.

Important Note - Added 4/27/76 - Revision C - SUBJECT: RECORDER CHARTS

All hydrotester charts, flextester charts, crush tester charts (or daily "crush" records) must be reviewed daily for date, shift, signature, and any pertinent notes. The preferred method is to arrange the charts on pegs on the wall in the Q. C. office for the month and after the month's end closing by accounting the charts are stapled together and filed.

AWWA requires that the charts be maintained one year and the usual format is to put the charts into dead storage for 3 years. In the event that a claim should become a lawsuit and the charts are required as proof of adequate testing of the pipe in question, we will adopt industry practice and keep the charts 3 years.


A. E. Alpine



STD. PRODUCT DRAWING A-1047

W = 20% OF CIRCUMFERENCE OF D₃-Mfg'r's. tolerance

CLASS PIPE

INSPECTOR'S CHECK SHEET

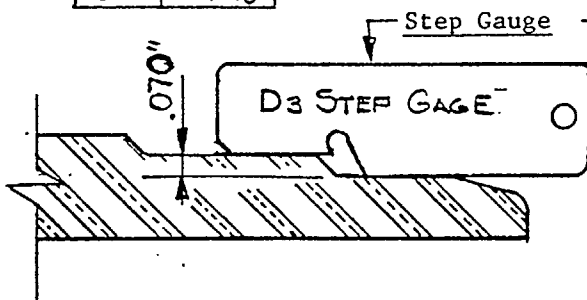
SIZE	W
4"	3"
6"	4 ³ / ₈ "
8"	5 ³ / ₄ "
10"	7 ³ / ₈ "
12"	8 ³ / ₄ "
14"	10 ¹ / ₄ "
16"	11 ⁵ / ₈ "
18"	13 ¹ / ₄ "
20"	14 ⁵ / ₈ "
24"	17 ⁵ / ₈ "

A. STRAIGHTNESS TOLERANCE

'Bow' or concavity shall not exceed 1/2" in a 13ft. length of pipe.

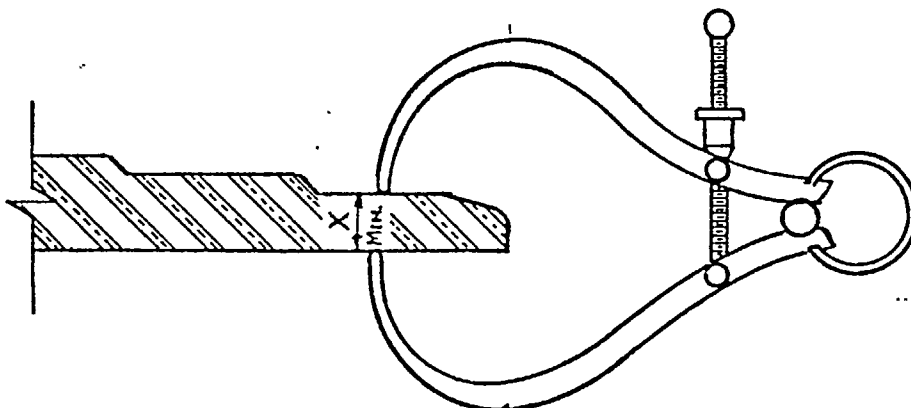
B. D₃ DIAMETER

20% of the D₃ circumference may have a shoulder less than .070". When checking D₃ shoulder use step gauge and scribe lines where shoulder falls below .070". The measured area is then compared to 'W' in chart above.



To construct use 1/8" x 1" CR flat stock. Drill 1/8" relief hole at step and 5/16" hole to allow gauge to be hung up.

MINIMUM WALL DIMENSIONS — Ref. AWWA C-400 -3.6
Use calipers, or construct "go" and "no go" horseshoe gauges.



CLASS PIPE

SIZE	X-100	X-150	X-200
4	.240	.340	.340
6	.380	.450	.530
8	.480	.550	.680
10	.540	.750	.920
12	.640	.880	1.080
14	.660	1.010	1.220
16	.750	1.130	1.380
18	.870	1.370	1.990
20	.960	1.540	2.230
24	1.140	1.890	2.710

Note: Q. C. Bulletin, for in-plant use.

Approved _____