CITY OF RAPID CITY
SOUTH DAKOTA 57701

In the Beautiful Black Hills

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PLAINTIFF'S EXHIBIT
CAP-855

Mr. John R. Williams
4005 Chestnut Avenue
Fairfax, Virginia 22030

Re: AWWA C603-78

Dear Mr. Williams:

Following are my comments relative to revision of AWWA Standard C603-78. I hope they stimulate some meaningful discussion and contribute to the refinement of the Standard.

SECTION 1.2 Definitions

1.2.1 Compacted Backfill
The last sentence of this paragraph requires that backfill "shall be placed in not more than 6 in. layers. . ." I believe the 6 in. requirement should be eliminated. It is extremely difficult to enforce such a requirement in the field and most contractors will not take the time or put forth the effort to backfill in such small increments. I feel we should be more concerned with the density obtained than the compaction methods utilized. With the development of Nuclear Density Machines, it is relatively simple to check soil densities with a high degree of accuracy. When a particular contractor is aware that densities can be determined in a matter of minutes in the field, he will take greater care in backfilling and compacting his trench. If the soil density does not meet requirements, the contractor will be required to compact the backfill by any method necessary to obtain the desired density and still insure the integrity of the pipe.

1 PAGE 5

SECTION 2.1 Acceptance

Change the first sentence to read:

2 PAGE 6 At the time of delivery to the job site all material. . . .

SECTION 2.3 Handling

Change the second sentence to read:

3 PAGE 7 Whether moved by hand, skidways, hoists, or other acceptable methods material shall. . . . .

SECTION 3.2 Excavation and Preparation of Trench

3.2.1 Excavation Methods

(4) PAGE 14

The third sentence of this paragraph requires that sheeting be "withdrawn in increments of not more than 1 ft." Again, this is a difficult requirement to enforce in the field. I feel we should be concerned with the results rather than the methods used to obtain the results. In addition, situations will undoubtedly arise where sheeting cannot be utilized or where it is impossible or impracticable to remove it in 1 ft. increments. Therefore, this sentence should be generalized to provide for more flexibility.

For instance, it could be changed to read:

As backfill is placed and sheeting and bracing is withdrawn, it shall be done in such a manner as to not place any stress on or endanger completed work.

The fourth sentence of this section should be changed to read:

PAGE 14 PAGE 16 (5)

All excavated material shall be piled in a manner that will not endanger the work <u>or the safety of the workers and general public</u> or obstruct sidewalks and driveways.

3.2.4 Excavation in Poor Soil and Refilling to Grade

The first sentence should be changed to read:

PAGE 18 (6)

Any part of the trench excavated below grade shall be backfilled to grade with <u>compacted material meeting, as a minimum, the requirements of Paragraph 1.2.1.</u>

3.2.5 Pipe Laid on Trench Bottom or Bedding

PAGE 20 (7)

The note at the end of this section should list some recommended granular beddings and their gradations. In lieu of recommending bedding material, I feel the note should at least recommend the type of materials that are not desirable.

3.2.6 Pipe Laid on Earth Mounds

The first sentence requires that the earth mounds shall be of approved backfill material "compacted firmly."

(8)

The last sentence requires compaction, "to provide a firm and uniform bedding. . . . ."

PAGE 17

Again, reference should be made to Paragraph 1.2.1 as a minimum.

3.3.2.1 Does this section mean that trench water is allowed to enter the pipe while pipelaying is in progress?

(9)

The following sentences should be added, prior to the existing sentence:

PAGE 16

Water shall not be allowed in the trench while pipes are being laid. Water shall not be allowed to rise around the joint until jointing is completed.

3.3.3 Pipe Cutting

Add the following sentence to this section:

PAGE 24 (10) Workers shall wear protective clothing and an approved breathing apparatus while cutting and machining the pipe.

Reference may be made to OSHA Standards.

3.5.2 Reaction or Thrust Backing

The third sentence should be changed to read:

PAGE 37 (11) Hydrants may be tied to the water main with rods, cables, or other devices approved by the Engineer. (or manufacturer)

4.3.1 Filling

The second sentence should be changed to read:

PAGE 41 (12) Each section of the pipeline shall be filled slowly with water and all air expelled by means of taps, fire hydrants, or other approved air release devices at points of highest elevation.

Please advise me if you would like more justification of the above comments or desire that I use a different format.

I welcome the opportunity to serve on this sub-committee and look forward to working with the other members.

Sincerely,

DAN UHL
Sanitary Engineer

SU/wmr