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The Authoritative Resource for Safe Drinking Water <sup>SM</sup>

**2003 AWWA ANNUAL CONFERENCE & EXPOSITION  
ANAHEIM, CALIFORNIA**

**ANNUAL PIPE TAPPING CONTEST  
RULES & REGULATIONS**

*Advocacy  
Communications  
Conferences  
Education and Training  
Science and Technology  
Sections*

**INTRODUCTION**

- I-1. A Tapping Team shall consist of no more than four (4) persons; three (3) workers and one (1) coach. The coach may also serve as the alternate worker whenever the Team shall deem appropriate and a new Coach appointed from the four original Team members for the next tap. No more than the three (3) workers and one (1) coach are permitted in the secured tapping area during the Team's preparation period and during the two (2) official taps. *All* persons on the team shall be AWWA members. This membership may be an individual membership, as an Active or Affiliate Member of AWWA, or team members may be regular employees of a Utility Member or Organization Member of AWWA. Each Section is responsible for verifying this membership requirement before entering the team in the contest.
- I-2. Each AWWA Section may enter one (1) men's team plus one (1) co-ed or all female team in the Annual Conference and Exhibition Preliminary Tapping Contest. Sections containing more than one state or province may enter one (1) men's team and one (1) co-ed or all female team for *each* state or province in the Section. Only AWWA Sections or International Teams that have qualified by competing in an international competition and are sponsored by a water utility company, are allowed to enter a team or teams in the Preliminary Tapping Contest. This team may be from one utility in the Section or any all star combination the Section may decide to enter as their representative. The title will be awarded to the team with the fastest tapping time. Additional Section teams *may* enter the competition on a space-available basis and *only* with the permission of the Tapping Contest Committee Chair.
- I-3. Only one (1) men's team and one (1) women's team per utility will be allowed to enter the Preliminary contest each year. The exception will be when a utility's team is the current reigning AWWA Annual Tapping Champion, which is automatically entered in the next year's Finals. In this case, the utility may enter another (second) team in the Preliminary Tapping Contest with full privileges and rights as all other teams in the Preliminaries.
- I-4. The AWWA Annual Tapping Contest Champion is automatically eligible for the next year's ACE Tapping Contest Finals as a special entry and is not counted as the Section's entry allotment.
- I-5. Each year the ACE host city utility shall be invited by AWWA to participate in the Preliminary Tapping Contest as a fully accredited entry. This special team entry shall be in addition to the normal entry allotment for the Section.
- I-6. The teams will be required to tap a water pressurized ductile iron pipe, install a corporation stop, cut and flare 3/4" copper tubing for installation of a water service line with a curb stop and connecting this line to a meter yoke.
- I-7. Each team will be allowed to have two (2) Official Taps (turns), at their option, to complete the tapping event with the shortest time of the two taps to be their Official Time for the event.

- I-8. A time period of 30 minutes shall be allowed for each team to complete their two (2) Official Taps.
- I-9. All teams shall be ready to compete and at their assigned station ten (10) minutes before their assigned event time. Teams absent from their station at their scheduled time shall be assigned a new starting time or forfeit their turn at the decision of the Head Official.
- I-10. The team or teams with the fastest OFFICIAL TIME (fastest time of the two (2) taps plus penalty seconds assessed, if any) will be the winner of the Preliminary Tapping Contest or the Final Tapping Contest.
- I-11. The four (4) teams in the Preliminary Tapping Contest with the fastest official times will advance to the Final Round to compete against the previous year's Tapping Champions. The Preliminary times will be used only for qualifying for the Finals and to establish the starting schedule of the Finals, i.e., the slowest time of the four will be the first to tap and continuing to the Champions, who will be the final contestant to tap in the Finals. The starting times for the Finals will be assigned immediately following the conclusion of the Preliminaries.
- I-12. The ACE Tapping Contest will take place over three days with the Preliminary Tapping Contest being held on Monday and/or Tuesday (as necessary) at a designated area. The Final Tapping Contest will occur on Wednesday at the same location or within the Exhibits Area as required. The contest location will be announced to all teams entered in the contest each year before the beginning of the Annual Conference.
- I-13. Each team may place a team banner, during their official tapping period, that is not larger than four feet by six feet (4' X 6') in the area designated by the Head Judge. Placement of the banners will be reviewed at each event on a space permitting basis. The banners will not display offensive language, slogans or graphics.

## **GENERAL**

- G-1. Pipe to be tapped shall be AWWA C151, Class 52, 6" Ductile Iron Pipe, cement lined, capped on each end, pressurized and regulated to a pressure of 40-45 psi, by a suitable connection to the water supply. The Team is responsible for insuring the water supply is turned on and the air has been bled from the Ductile Iron Pipe prior to each tap. The corporation stop shall be tapped into the pipe at approximately 45 degrees from the top of the pipe.
- G-2. Pipe shall be securely fastened to support blocks at a height of 8 ½" to the bottom of the pipe above the ground or stage floor. Support blocks shall be of adequate construction so as to secure the pipe firmly in position suitable for the rough handling required.
- G-3. Distance from the pipe to the meter yoke shall be approximately 10' and nearly perpendicular to the pipe as best will accommodate the use of two straight 6' lengths of copper service pipe. This meter yoke stand may be set by the team, under supervision of the Official, to any precise distance that will best accommodate their style of work.
- G-4. Curb stop to be located approximately half way between the pipe and the meter yoke. End connectors will be inspected and attached, by a team member, to each end of the curb stop and to the meter yoke prior to the start of the event. The Official will then inspect the fitting to insure the end connectors are in the proper position, fully threaded, but not tight, prior to start.
- G-5. The tubing representing the service line shall be 3/4" type K copper, two straight 6' lengths, with all ends crimped at start of event by the team, under supervision of the Official, requiring team to cut and flare each end for connections as part of the preparation. All copper tubing shall be straight, not bent or curved in anyway, prior to the start of the event.

- G-6. Curb stop position after connections to tubing shall be no more than 4" above the ground/floor to the top of the inlet tubing and shall be in a "near vertical" position, i.e., no more than 10 degrees left or right of vertical.
- G-7. The tapping machine shall be Mueller B-101 and will be provided, including bits, for the contestants at the contest site. Tapping bits shall be new or reconditioned at the option of the sponsor.
- G-8. Each team will be allowed to inspect the available tapping bits and choose TWO bits, only. These TWO bits will be used by the Team, one for each tap. *NOTICE!* A broken bit will not be replaced with a new bit and a third tap will not be allowed.
- G-9. All connections shall be flared and drip-tight. The Officials will bleed air from the service line before checking for leaks.
- G-10. The service line shall contain no crimps that would impede the normal flow of water through the pipe. Officials shall determine the severity of any crimp by disconnecting the nearest joint carefully without disturbing the crimped section of the pipe and passing a marble or sphere approximately 1/2" diameter through the pipe past the crimped section. If marble passes through the crimp, the crimp is not damaging and there is no penalty. If the marble does not pass through the crimp, a penalty will be assessed to the event time.
- G-11. An end connector will be utilized on the one end of the meter yoke, which will be connected to the service line. This connector will serve to protect the threads on the meter yoke. The competing team will examine the connector threads carefully prior to the start of the event and request a new adapter from the Head Official if the threads are damaged enough to impair their work.
- G-12. The Tapping Team shall position themselves and all equipment, tools, and materials beside the pipe to be tapped prior to the start of the tap. At the start of the tap, team workers may be standing or kneeling on the floor, but shall not be touching any piece of equipment or tools.
- a. The coach shall be positioned out of the way of the team and the Officials, and may be located anywhere in the area. The coach may lead the team by instructions and encouragement in any way, but shall not be allowed to physically assist the team or utilize in any way the tools or equipment during the tap.
  - b. The tapping machine may be inspected, cleaned, and lubricated as necessary by the team before starting either turn. The drill bit will be chosen by the team from a ready supply of bits provided and may be assembled in the tapping machine prior to the tap at the option of the team.
  - c. The corporation stop may be placed in the adapter prior to the tap at the option of the team. Joint compound may be applied to the threads of the corporation stop at the option of the team.
  - d. Saddles and rubbers for the tapping machine may be assembled and ready on the floor before the tap. Chain hooks may be in the chain yoke or on the floor, but the chain must be on the floor and not hooked to the chain hooks before the start of the tap.
  - e. The same bar shall be used to make the tap and insert the corporation stop. Two bars will not be allowed for a tap.
  - f. The tapping machine feed-nut-and-yoke shall be securely in place around the boring bar at all times while the pipe is being drilled, tapped, (\*) and inserting the corporation stop.

(\*\*) Failure to follow this procedure will be considered to be a SAFETY VIOLATION and the team shall be penalized accordingly.

(\*) When removing the boring bar from the tapping machine after threading has been completed, the yoke MUST be in place until the tap has disengaged from the pipe and the boring bar must be **FULLY** extended before the cap is removed from the cylinder.

(\*\*) When inserting the corporation stop, the cap MUST be installed on the cylinder before the yoke is placed on the boring bar. The corporation stop will be considered to be inserted when the ratchet is reversed to disengage from the corporation stop.

- g. The corporation stop shall be securely inserted into the pipe with no more than four (4) threads showing when tap is complete. The Official's decision on this matter will be final.
- h. Pine tar or grip enhancers may be applied to gloves. Once the pine tar or grip enhancer has been applied, the gloves cannot be used to touch any portion of the equipment or materials until after the official start of the tap.
- i. Only tools, equipment, and materials supplied by the contest sponsors can be used in preparation for, or during the official tap. Contestants shall bring only their personal protective equipment into the tapping area.
- j. Teams will not be allowed to participate if they are wearing articles of clothing or using equipment plainly displaying offensive language, slogans, or graphics.

G-13. There is no such thing as equipment failure! This is a contest of skill and dexterity as well as speed. Only TWO taps allowed per team.

- a. All equipment used in the Annual Tapping Contest is new and as such, is in new condition.
- b. Any tools, equipment, or other supplies provided for this contest that are damaged will be considered to be damaged through the neglect of the team in making the tap.
- c. Broken bits are the result of neglect by the team and only two bits are allowed per team, one for each tap. A broken bit is the problem of the team with the broken bit and will NOT be replaced.
- d. There is no time penalty for broken equipment or drill bits unless resulting from obvious malicious mishandling.
- e. Malicious treatment of equipment may be considered a safety violation depending on the circumstances

G-14. The timing for the event shall begin at the Head Official's signal and end when the corporation stop is turned on by one of the workers and all work has ceased. At that time, the Head Official shall shout STOP or sound a suitable signal announcing the end of the tap. All team members will back out of the immediate work area to permit the Officials to evaluate the work.

G-15. When a stage is utilized for the contest, suitable carpet shall be laid over the entire stage to present uniform footing for all contestants. Arrangements should be made to eliminate all water spilled during an event before the next event starting so as to provide the best possible working conditions for each team for both of their taps.

- G-16. The area for the contest shall be large enough to accommodate the working team and the Officials. A minimum of 10' clear area shall be provided between the working area and the spectators to afford safety from accidental flying tools or materials during the contest.

## **OFFICIATING**

- O-1. The officiating of each event shall consist of three (3) persons with adequate experience in water utility work with one of the officials designated as the Head Official who has had experience in supervising tapping procedures in the field. The Head Official shall be in charge of the complete contest and after consulting with the other Officials on any infraction of the rules shall make the ruling as required by the circumstances for any penalties.
- O-2. The three Officials shall be responsible for timing the events with the Head Official being the one to announce the START and STOP of each of the events. The times as recorded by the Officials shall be used to determine the Official Time of each of the two events (turns). The time for each event by a team shall be recorded and lowest time of the two events shall be the official time for that event.
- O-3. The Officials shall see that all tools, materials, and team members are in the required positions before starting the event. They shall also insure the work area is free from standing water before starting each event.
- O-4. The Officials will watch for safety violations during the actual events and assess appropriate penalty times as required. During the time of the contest not taken up by the actual tapping events, the Officials shall see that all preparations for the events are accomplished in a safe manner with no penalties to be assessed.
- O-5. Squirting, continuous leaking connection spraying water on any other connection of the service line shall be covered appropriately with a towel or something to deter the water away from another connection while judging the next connection for leaks. If such measures are insufficient to block the flow of water to allow proper judging of the next joint, the connection may be tightened by the Officials, at the Head Official's option, during the inspection, so that other joints will not be doused with water.

## **SAFETY**

- S-1. Standard water utility safety practices will be observed at all times during the Tapping Contest.
- S-2. Safety equipment required for all participants shall be:
- a. Head protection for ALL team members shall be worn during the event. The head protection (hard hats) shall conform to American National Standard Safety Requirements for Industrial Head Protection Z89.1-1969. If a hard hat falls or is knocked off of a team member, the hat must be replaced on the team members head as soon as possible or a safety violation will be imposed. Head protection must be worn in accordance with manufacturer's recommendations.
  - b. Eye protection (glasses or goggles) are required to be worn by ALL team members, including the coach, during the tapping event. Eye protection must conform to American National Standard for Occupational and Education Eye and Face Protection Z87.1-1968.
  - c. Gloves are required to be worn by all three workers. The Coach is exempt while performing coaching duties. Gloves shall be full-fingered and suitable for construction related tasks. Lab type gloves such as latex material and gloves without complete fingers are not acceptable for the contest. Sport gloves with full fingers are allowed.

- d. Foot protection shall be required to be worn by ALL team members, including the coach, and shall conform to American National Standard for Men's Safety Toe Foot Wear, Z41.1-1967. If safety boots or shoes are not available to be worn by any team member, steel caps will be provided by AWWA and required to be worn for the event. Sneakers or dress type shoes meeting ANSI Z41.1-1967 are also allowed.
  - e. The host utility will provide hard hats and safety glasses for any competing team that did bring their own equipment, however each team is encouraged to provide their own personal hard hats and glasses. Gloves and boots/shoes will be required to be provided by each team member.
  - f. Short sleeved shirts and long legged trousers are required to be worn by the three workers during the event.
- S-3. During this contest, an ordinary task (tapping a distribution pipe) is performed in an extraordinary manner. Therefore, for this contest to be conducted safely, it is necessary for the yoke to be in place at all times during the use of the drilling, tapping, and inserting procedure as outlined in paragraph G-12, F., of these rules. Failure to follow this procedure will be considered a safety violation PLUS TWO (2) PROCEDURAL VIOLATIONS (10+10+10=30 SECOND VIOLATION ) AT THE DISCRETION OF THE HEAD OFFICIAL.

**EQUIPMENT & MATERIALS** (to be provided by AWWA, or host utility, for each tap)

- E-1. Mueller B-101 tapping machines (not B-100), completely outfitted including friction collar and round link chain. Bicycle-type chain is not allowed.
- E-2. Brass corporation stops, Mueller Co. (H-15000), and curb stops, Mueller (H-1502-2), 3/4", new, one each, to be provided for each tap.
- E-3. Flaring nuts shall be provided for all connections to stops and meter yoke and shall be as manufactured by Mueller Co. (H-15430).
- E-4. Type K copper tubing, 3/4", 6' lengths, two (2) lengths for each tap.
- E-5. Meter yoke, Mueller Co. (H-14180), 5/8" x 3/4", secured firmly to a portable stand.
- E-6. End connector, Mueller Co. H-15460, 90 degree female connector, 3/4", shall be provided to allow the service line to be connected to the meter yoke. This connector is utilized to protect the threads of the meter yoke from the service line connections.
- E-7. Pipe wrenches, four (4), 14", REED Manufacturing Company (RW-14) or RIDGID (31020).
- E-8. Hammers, two (2), shall be a brass, 3 lb hammer for flaring, Mueller Co. (H-18025) or Reed Manufacturing Company (HAM3, 3 lb, 06088).
- E-9. Adjustable (Crescent-type) wrenches, two (2), 12", Reed Manufacturing Company (CW 12) or RIDGID (86917).
- E-10. Tubing cutters, two (2), heavy duty, Reed Manufacturing Company (T-20) or RIDGID (32930). The team shall examine the cutting wheels before each tap to determine their condition and ask the Officials for a replacement if necessary. **THESE ARE THE ONLY CUTTERS ALLOWED!**
- E-11. Flaring tools, two (2), Mueller Company (H-18000), Reed Manufacturing Company (HF 3/4), or RIDGID (41330).

- E-12. Cutting grease (Mueller 88366) shall be supplied for all teams to utilize in the contest.
- E-13. ONLY lubricating grease from Mueller Company, light machine oil in spray or liquid, and WD-40 lubricant shall be provided for teams to lubricate the equipment and tools. No lubrication of any type will be allowed on the end connectors, threads, or flaring tool prior to the start of the tap.
- E-14. Combined drill-and-tap tools will be supplied for each Team with the Team allowed to use ONLY TWO BITS of their choice, one for each tap. This tool shall be as manufactured by Mueller Co. (#680539), Decatur, IL, (217) 254-7000; Salser Co. (Super-Tuff 3/4"cc), Ocala, FL, (800) 782-5268; Reed Manufacturing Co. (DT 75, 3/4"-cc), Erie, PA, (814) 452-3691,

## **PENALTIES**

- P-1. Various penalties will be assessed by the Head Official for any infraction of the rules as described herein or for any flagrant violation of normal safety practices.
- P-2. The penalties will be in the form of a predetermined number of seconds added to the total time of the team's event that will then be the OFFICIAL TIME of that event. Each of the team's two events will be considered separate for penalty points.
- P-3. Teams without proper personal safety apparel as prescribed above will not be allowed to compete until they have obtained the proper apparel in a reasonable amount of time during the contest.
- P-4. Penalties shall be (in seconds):
  - a. Leaking connection, barely oozing water and just discernable to the Officials, +4 each
  - b. Slow, obviously dripping connection, +6 each
  - c. Squirting, continuous leaking connection, +8 each
  - d. Curb stop too high above ground/floor and/or not vertical, (4", + or - 10 degrees, see Sec G-62) +4 each
  - e. Crimp in service line that will not pass 1/2" marble, +10 each
  - f. Safety violation, +10 each
  - g. More than four (4) threads showing on inserted corp. +10
  - h. Procedural Violation by any member of the Team. +10  
Caution! This is a general penalty for actions of the Team that may not specifically be covered in these rules, but are of sufficient gravity to the Officials as to warrant a penalty.
  - i. YOKE PENALTY, as described in Par. S-3, shall be 10+10+10=30 (or less at the discretion of the Officials depending on the nature of the violation). Having the yoke slip off the bar accidentally and a member of the team immediately places the Yoke back on the bar DOES NOT constitute a violation.
- P-5. If the corporation stop blows out of pipe or any connection blows apart after time is stopped, the team is DISQUALIFIED for that tap.
- P-6. For any disagreement with a penalty decision, the Head Official's decision is final.

P-7. There will be NO INSTANT REPLAY allowed for reversing any decision after the Head Official has made a final determination on any infraction in these rules.

**NOTE:** This contest is officiated by very competent officials and human judgment must enter into the contest at various times. All officials strive for fairness, in their judging duties so that all teams are judged as equally as possible. FAIR AND EQUAL TREATMENT FOR EACH AND EVERY TEAM is the goal of this contest. There is no intention to provide anyone with an advantage over some other team.

This contest is for FUN and ENJOYMENT of the participants and spectators. Let's keep it that way!