

# OPERATIONS CHALLENGE 2020 - Virtual



## COLLECTION SYSTEM EVENT

In light of the COVID 19 pandemic and WEFTEC 2020 going virtual, we are modifying our event. The event will be virtual and will take place on the dry table only and will include connecting a 4-inch PVC lateral sewer to a new 8-inch sewer pipe and cutting out this 8-inch repair piece with a 4-inch outlet. This will be a two-person event. There will be two judges on site with camera phones that are coordinating with virtual judges online. There will be no programming of a sampler.

We cannot do WEFTEC without our operators, who have always been essential. We are looking forward to your participation and seeing you; even if it is virtual.

### During the event, your team will complete the following:

The event simulates installing a 4-inch PVC lateral sewer outlet to a new 8-inch PVC sewer pipe to be used for repair. This repair piece will be removed and placed in a square designated location signifying it is ready. There will be 3 saw cuts and one hole saw cut. One saw cut is on the pipe extending outside of the table area. The other two cuts and hole saw cut are inside the table as has been done on previous events.

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## SET-UP

The set-up of the event is attached to these rules. The event includes the following:

- ☛ The “wet pipe” table will NOT be used. Its location will be identified with a 30-inch by 30-inch square taped on the ground. The cut piece and repair piece will be placed in this square when they are complete.
- ☛ The “dry pipe” table and pipe. This pipe is the surplus material pipe and is used to make the repair piece. The pipe will be extended a minimum of 14 inches to one side outside of the table frame to allow for the one external saw cut.
- ☛ A tool box with tools.
- ☛ A sampler and sample designated area will NOT be used.

## WHAT YOU WILL PROVIDE

- C Hard hat, safety glasses or goggles, safety boots or shoes, protective safety gloves. (Safety gloves must be cut resistant. Latex and rubber gloves are not sufficient.)
- C In light of the current COVID 19 pandemic, a face covering, such as a face mask or shield must be worn.
- C A simulator with the identified equipment and two proctors with laptop computers or I-pads with cameras that can video the event.
- C Enthusiasm!

## EVENT ORDER

**The event should be conducted in a similar order. The order is not dictated. All steps must be completed:**

1. Drill a 4.5-inch diameter hole in the dry PVC pipe.
2. Install a Inserta Tee in the 4.5-inch hole, and secure with a hose clamp.
3. Cut off a section of the 8-inch pipe extended outside of the table. This piece of pipe must be cut across the pipe and be placed in the 30-inch x 30-inch square taped on ground.
4. Cut out and remove a measured length of pipe from dry PVC pipe. The section cut from the dry pipe will include the Inserta Tee and will be the repair piece.
5. Place the repair piece from the dry PVC pipe (complete with Inserta Tee) into 30-inch x 30-inch square taped on ground.
6. Tools will start in the tool box and will be returned.
7. The event will end when both competitors cross the finish line.

## EVENT SIMULATOR

**The Teams will provide the event simulator which includes the following items:**

1. Two proctors with laptop computers and/or I-pad-type devices with cameras that will video and coordinate with the virtual judges.
2. "Dry Pipe" - A 6-foot length of 8-inch SDR 35 PVC pipe strapped to the steel table/stand, ready for cutting (the dry pipe).
3. "Wet Pipe" and table are NOT used. In its place is a 30-inch x 30-inch square taped to the ground.
4. Toolbox. The toolbox is made out of 3/4" plywood and is approximately 19" H X 22" W X 39" L. The toolbox will contain:
  - a. Hand drill (non-ratcheting brace) with a LENOX 4.5-inch circular cutting blade (model 72L), or equivalent. Brace is a McMaster-Carr Ratchet-Bit Brace Hand Drill.  
<https://www.mcmaster.com/#hand-powered-drills/=16q283i>
  - b. One 4-inch IPS Sch 40 Inserta Tee, to include a rubber sleeve (ASTMF477), PVC hub (ASTM D3034), and stainless steel band.
  - e. A short piece of pipe may or may not be installed in the Inserta Tee outlet. It is used, so the plug will seat properly for a pressure test.
  - d. Spray bottle with lubrication soap solution (1 tsp of liquid dish soap and 16 oz of water)
  - e. Block of wood (Standard pine approximately 2-inch x 4-inch x16-inch).

- f. Four-pound mallet/sledge hammer (Stanley Fatmax 4 lb anti-vibrate) (Approximate dimensions: 14.3-inch x 5-inch x 1.9-inch).
- g. Two LENOX saw handles with two 18-inch PVC saw blades (model HS F180), or equivalent.
- h. Two speed wrenches with sockets.
- i. Tape measure and marker.

## SCORING

The event scoring will be based on the following:

- ☛ The time taken to complete the event.
- ☛ Compliance with all provided instructions.
- ☛ Ability to perform the event safely.

## REQUIRED PROCEDURES

- 1) A three-minute event set-up period is provided to ensure that all necessary tools and equipment are provided and satisfactory. It is the team's responsibility during this time to complete the following:
  - Check and confirm that all equipment to be used in the event is in satisfactory condition. This includes showing the equipment to the proctors on site with camera devices and the virtual judges on-line.
  - Confirm the pipe table and clamps are appropriate for the team and modify as needed.
  - Lubrication of the saw blades and hole saw, as desired.
  - The Inserta Tee must be completely put together prior to the set-up period and is defined by the PVC hub being seated in the rubber coupling appropriately to the noted insertion point with the stainless band around the rubber coupling without falling off. At the end of the set-up period, the Inserta Tee may be completely together or completely apart inside the tool box.
  - At the end of the three-minute set-up period, all tools and equipment must be placed flat (free standing with its own support) in the toolbox. None of the tools can be stacked on top of each other (No overlapping of any component in the toolbox, whether touching or not) or left leaning against the toolbox. The judges with the proctors will confirm the tool box is set appropriately before the event begins. If it is not set appropriately, the Team Captain will be asked to reset the box and latch the padlock. If the box is not set by the end of three minutes, a penalty will be assessed.
    - "Leaning" is defined as "support of the vertical walls of the toolbox or other equipment is necessary to keep the item in the current position."
    - "Overlap" occurs when the tool/equipment cannot be lifted straight out without impacting another tool or equipment.
- 2) Each team member is required to wear all of the required safety gear, including face covering throughout the event, and compete in a safe manner.
- 3) Each team must make 4 cuts on the pipe: 3 saw cuts and 1 hole saw cut. One (1) saw cut is made on the end that is extending outside of the table. The other two (2) saw cuts are made inside the table to release

the repair piece. Each team member must make at least one (1) complete cut; either a saw cut or a hole saw cut.

- 4) The PVC pipe sections strapped to the tables may not be moved laterally by the competitors, during the event.
- 5) The 4.5-inch hole must be drilled in the section originating from the dry PVC pipe, using the hole saw provided.
- 6) Install the Inserta Tee using the following steps. (The order is not dictated.) All steps must be completed to be considered a proper procedure:
  - Core a 4.5-inch hole with the hole saw provided and clean the edges.
  - Install the rubber sleeve with the gold band perpendicular to the pipe. Check to be sure the inside and outside segments are flush to the pipe.
  - Place the stainless steel band over the rubber sleeve, but do not tighten.
  - Spray the soap solution inside the sleeve and on the plastic hub.
  - Align vertical red line on the plastic hub with the gold line on the sleeve and insert by hand.
  - Place a wood block on the plastic hub and drive the hub into the sleeve with the hammer.
  - The hub should be installed so that the horizontal red line is at the top of the rubber sleeve.
  - Tighten the stainless steel band, near the top of the rubber sleeve.
- 7) The lengths of PVC pipe must be cut out using the LENOX saws provided.
- 8) Place the cut piece and the repair piece (with inserta tee) in the 30-inch x 30-inch square.
- 9) When replacing tools in the toolbox, the tools must be placed in the toolbox and not thrown or dropped from a level above the height of the sides of the box. The toolbox lid is to be closed and latched with the padlock. The free end of the lock shackle must be placed through the hasp and over the body of the lock. A majority of the shackle's free end must be within the plane of the lock body. Do not close the lock.
- 10) The team members will start and finish the event at the Team Start and Stop line noted on the layout. The starting and finishing of the event will include signaling the judges both visually and audibly when the line is crossed. Time starts when first team member crosses the line into the simulator. The event time will continue until both team members have crossed the line leaving the simulator.
- 11) After the event ends, the team members should remain in the event area to review the repair piece and go over the time and any penalties.

#### **The judges will:**

- Record the elapsed time. The average of the stopwatches will be used to set the raw time.
- Confirm the repair piece is in the 30-inch x 30-inch square and the inserta tee is installed correctly.
- Confirm the cut piece from the extended end of pipe is in the 30-inch x 30-inch square.
- Any penalties and the associated penalty times must be approved by both judges.

- Add any penalty times to the raw time on the score sheet.
- Meet with the team members to discuss the raw time and any penalties.

## RULES

- 1) If a team member is injured during the event due to their own actions, the event will come to an immediate end so that aid can be provided to the injured team member. The team will then be given a default time of 8 minutes (480 sec) and will not be allowed to restart or rerun the event.
- 2) All of the procedures listed above must be fully completed. Any team found to be in violation of this rule known as “short-cutting” will be given a penalty time of 5 minutes (300 sec).
- 3) All procedures on the inserta tee must be followed.
- 4) While sawing and drilling activity is occurring on a pipe table by one team member, no other activity is permitted on the same table. This means no touching the pipe, the pipe table, the pipe clamps, or the person cutting the pipe and includes not setting tools on the table while active cutting is occurring.
- 5) Only one person (at a time) may operate the brace and bit assembly used to drill the 4.5-inch hole, with no additional forces being transmitted to the tool in use by any other team member(s).
- 6) Team members may not place their hand inside the hole created by the hole saw while the dry pipe is still being cut.
- 7) No punching of the 4.5-inch hole saw coupon in any way.
- 8) No running or jumping.
- 9) No collisions between team members.
- 10) Kicking or the use of one’s feet to move tools (even on accident), equipment or material (including the coupon) is not permitted.
- 11) Sliding tools to a team member or from table to table across the floor is not permitted.
- 12) Stepping on a tool is considered tool misuse.
- 13) You may adjust the pipe clamps during the run, if necessary, but no other activity can occur on the table while the clamps are being adjusted.
- 14) Teams are not allowed to lubricate the inserta tee during the 2-minute walkthrough.
- 15) All items in the toolbox are considered to be tools.
- 16) The inserta tee must be properly installed in the 8-inch pipe.

## COLLECTION SYSTEM SIMULATOR LAYOUT

