

WATER ENVIRONMENT ASSOCIATION OF TEXAS

Operations Challenge 2014

AECOM Collection System Event

What we want you to do:

The event simulates connecting a 4-inch PVC lateral sewer to an existing 8-inch PVC sewer pipe while in service (the 'wet' pipe), and the identification of known pipe defects.

- Drill a 4.5-inch diameter hole in the 'dry' PVC pipe.
- Cut out and remove a measured length from both the 'wet' and 'dry' PVC pipes. The section cut from the 'dry' pipe will include the 4.5-inch hole, and will be used to replace the section removed from the 'wet' pipe.
- Install a service saddle connection in the 4.5-inch hole, and secure with hose clamps.
- Install the replacement length of 8-inch PVC pipe SDR 35 (complete with service saddle) into the 'wet' PVC pipe, and secure with flexible repair couplings and hose clamps.
- Identify images of known pipe defects and observations with the correct terminology from the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP).

What we will provide:

- A 6-foot length of PVC pipe strapped to a steel stand, ready for cutting. Water will be flowing through this length of pipe during the event (the 'wet' pipe).
- A 6-foot length of PVC pipe strapped to another steel stand, ready for cutting (the 'dry' pipe).
- Toolbox, with latch/hasp and padlock.
- Hand drill (non-ratcheting brace) with a LENOX 4.5-inch circular cutting blade (model 72L), or equivalent.
- One 4-inch service saddle with attached gasket and pull straps/clamps.
- Four flexible repair couplings with clamps.
- Two LENOX saw handles with two 18" PVC saw blades (model HS F180), or equivalent.
- Two speed wrenches with sockets.
- Tape measure and marker*. Teams have the option to use their own tape measure and marker. Additionally, teams have the option to either carry the tape measure and marker into the event on their body or have the items placed in the tool box during the three minute set-up period. However, whichever way the team decides, the tape measure and marker must end the event in the same manner, either on the body or in the tool box. * Separate from the PACP marker.
- Bound 8.5" X 11" test sheets (stapled at the top left) containing images from the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP).
- Table, privacy blind, test sheets and marker to view and mark PACP images.
- To aid team members, judges and coordinators, a high quality color printer is recommended to create the PACP test sheets.

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What you will be judged on:

- The time taken to complete the event.
- The tightness of your completed connections. The 'wet' pipe connections will be checked for water tightness at 3 psig for 30 seconds.
- The accuracy in identifying PACP pipe defects.
- Compliance with all provided instructions.
- **Safety.**

Required procedures:

- It is the responsibility of the team during the three minute event set-up period to ensure that all necessary tools are provided, and that all the tools and equipment to be used in the event are in satisfactory condition. Only the 'wet' may be marked during this pre-event set-up period. The PACP sheets may only be opened during the actual event and not disturbed during the set-up period. Also, during the three minute setup, the marker may be tested on scrap paper and placed anywhere on the PACP table. The marker is to remain at the table at all times.
- At the end of the three minute set-up period, all tools and equipment must be placed flat in the toolbox. None of the tools can be stacked on top of each other or left leaning against the tool box.
- Each team member is to wear all* required safety equipment throughout the event, and compete in a safe manner. (*See next bullet)
- * The team member(s) at the PACP table may remove their gloves, but only while working at the PACP table. Gloves may not be removed upon approach to the table and must be put back on prior to leaving the table.
- The team captain will start the event by signaling the judges both visually and audibly. It is the responsibility of the team captain to notify the judges as to how he or she will signal the start.
- The straps holding the PVC pipe to the stands may not be loosened during the event.
- The PVC pipe sections strapped to the stands may not be moved laterally by the competitors.
- The 4.5-inch hole must be drilled in the section originating from the 'dry' PVC pipe, using the hole saw provided.
- The lengths of PVC pipe must be cut out using the LENOX saws provided. All cuts must be completed within the framework of the pipe table.
- To prevent excess spillage, the cut section of the wet pipe must be inverted 90 degrees, prior to being removed from the wet table. This action should be clear and deliberate.
- The saddle must be mounted to the appropriate replacement PVC pipe section and properly secured in place with the straps/clamps provided.
- The PACP test sheets will contain 6 images of known pipe defects. The answer sheet will be on a separate page. The defects and the distance at which they are encountered will be presented in a manner that simulates a camera moving linearly through a pipe.
- The circle made must be distinct and clearly visible. Only a circle will be accepted to identify the selected answer, no other mark or symbol will be accepted. If the answer is changed, then the previous circled choice must be "x-ed" out and the new choice circled.

- Teams must enter their team number on the PACP test cover sheet. Teams must enter a 0 before their team number, for example: 01, 02, 03, etc.
- All tools must be placed in the toolbox after use. 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, and the toolbox must be replaced in its original location.
- The free end of the lock shackle must be placed through the hasp and over the body of the lock. Do not lock the lock.
- The team captain will determine the end of the event by signaling to the judges both visually and audibly. The event time will continue until all four team members have exited the event area regardless of the signal from the team captain.
- After the event ends, the team captain should remain just outside of the event area.
- The team captain will witness the pressure test.
- The team captain will be presented with the event time, along with any penalties.
- The team captain will sign the score sheet to conclude the event.

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The judges will then:

- Record the elapsed time. The average of the stopwatches will be used to set the raw time.
- Check the sewer service replacement section for water tightness. The 'wet' PVC pipe will be allowed to fill until water flows from the outlet end. At this point, the discharge valve will be closed and the pressure increased to 3 psi. Time penalties will be added for any leakage that occurs within 30 seconds. The team captain will be asked to witness the leak test.
- Verify that the PACP defects were identified properly.
- Any penalties and the associated penalty times must be approved and signed by all of the judges.
- Add any penalty times to the raw time on the score sheet
- Meet with the team captain to discuss the raw time and any penalties.
- Sign the score sheet with the team captain.

What you will provide:

- Hard hat, safety glasses or goggles, safety boots or shoes, protective gloves.
- Enthusiasm!

Rules:

- 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 eight (8) minutes (480 seconds) and will not be allowed to restart or rerun the event.
- 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 default time of eight (8) minutes (480 seconds).
- While sawing and drilling activity is occurring on a pipe table, no other activity is permitted on the same table. This means no touching the pipe, the pipe table or the person cutting the pipe.
- Only one person (at a time) may operate the brace and bit assembly used to drill the 4 ½ inch hole, with no additional forces being transmitted to the tool in use by any other team member(s).
- Team members may not place their hand inside the hole created by the hole saw while the dry pipe is still being cut.
- No punching of the 4.5 inch hole saw coupon in any way.
- No running or jumping.
- No collisions between team members.
- Kicking or the use of one's feet to move tools, equipment or material will not be permitted.
- Team members may reach under and over the wet pipe and table, but no body part may cross the cut ends of the wet pipe. i.e., the pipe is considered continuous, with no ends. Team members are allowed to be at the ends of the wet table as long as they do not cross the end of the pipe.
- A circle is the only mark accepted to identify the PACP selected answer.