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BUILDING COMMUNITY



## HDPE PIPE IMPROVES WATER SUPPLY AND LIVES OF STUDENT TRAINEES IN GOVERNMENT PILOT PROJECT

Students of a Job Corps Center in Oregon Get Much More Than a New Water System

ASTORIA, Ore. - A Job Corps Center near Astoria, Oregon is the site of a two-fold experimental pilot project for the United States Department of Labor. It is the first of 118 Job Corps Centers in the U.S. to have a state-of-the-art polyethylene water system, as well as a graduating class that includes 10 students who are now trained high-density polyethylene (HDPE) pipe fusion technicians.

Job Corps is part of the Work Force Investment Act under the Department of Labor. Job Corps houses, educates and trains economically challenged young people between the ages of 16 and 24. A variety of vocations from carpentry to nursing are taught to students, as well as academics to the equivalency of a high school education. The goal of the program is to help young people acquire skills to support themselves.

A former naval station, Tongue Point Job Corps Center houses more than 500 students and is located on Cathlamet Bay along the mouth of the Columbia River. Like many military bases across the country, its water infrastructure is in horrific shape from neglect and old age. After three emergency water breaks in a one-month period that cost the center \$10,000 to \$15,000 each, officials at

Tongue Point decided it was time to replace the ancient asbestos pipeline system.

The center was built on a solid base of concrete 10 to 14 inches thick, which posed problems for traditional open-cut construction because of the huge expense of resurfacing. Dennis Smith, co-owner of Pipe Experts LLC, won the contract after convincing the center's managers to use pipe bursting with HDPE pipe for the project.

Smith was not aware of the education and training that Job Corps provided before becoming involved with the Tongue Point job. "I was in the military and the reserves for 30 years as a training officer," said Smith. "My heart goes out to people who just need a little training to acquire a skill to help them get ahead in life." This was the thought process that led Smith to offer to train students at the Job Corps Center to become fusion technicians.

Business and Community Liaison for Tongue Point, Sarah Cullison, jumped at the proposal. "This is an awesome opportunity for our students," she said. "This is so exciting because it is not uncommon for young people to show up here with just the clothes on their backs. This is a chance for them to learn a skill that will not only help them become employable, it may help them land a great job."

Cullison explained that Job Corps measures the success of its students in finding employment. If the fusion skills help its students become employed, the vocation may become a part of Tongue Point's regular curriculum. If it is highly successful, fusion training could be included as a set course with



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other Job Corps Centers in other parts of the country.

Smith recruited Randy Sailsbury of R & L Manufacturing, who has more than 20 years of experience in the polyethylene industry, to teach the students in a two-week, hands-on fusion training course. “I could see the desire to learn in the eyes of these young people,” said Sailsbury.

## **HDPE Makes Difference for Water Lines and Lives**

The project included replacement of 10,000 feet of asbestos water lines with HDPE, SDR 11, ranging from 1-inch to 10-inch in diameter. About 80 percent of the project was done with pipe bursting and 20 percent with open-cut methods. One critical benefit HDPE provided is its flexibility. The base sits on an earthquake zone with unstable soil. HDPE has the ability to withstand tremendous force and dramatic earth movements, even surviving major earthquakes such one in Kobe, Japan in 1995. No other piping system survived the earthquake in Kobe except the HDPE lines, which were unscathed.

Another significant reason for using HDPE pipe is the thick layer of concrete over the base. A traditional open-cut operation would be quite expensive. The trenchless application of pipe bursting also enabled pipe experts to increase the line from 8-inch to 10-inches in diameter. During pipe-bursting, the original line is shattered and pushed out into the surrounding soil and the new HDPE line is pulled into the void left behind.

HDPE also has an expected life span of at least 100 years. This is important because

Tongue Point buys its water from nearby Astoria, but the municipality is not responsible for maintaining the system. The Job Corps Center wanted a system that would be leak-free with no maintenance problems in the future.

“HDPE pipe is a major part of water transportation,” said Smith. “Its long list of benefits is making it a preferred material for water municipalities and if you are a contractor who does work in the water industry, you better have an understanding of the material because it is showing up on more and more specs.”

Smith explained that trenchless applications are also a big reason polyethylene is being specified.

“The life expectancy of the pipe and lower maintenance costs are huge benefits,” he said. “But what really makes it perfect for water companies is its marriage with trenchless technologies. The ease of installation and the fact that it causes little disturbance to the community, is what makes it so attractive to the folks that run water companies.”

## **Tips for Increasing Production**

“Planning the set up and staging area really helped us have a smooth operation,” said Smith. With limited space on the grounds, Smith chose to use a piggybacking operation to fuse together the HDPE. Piggybacking is the process of using one fusion technician to operate additional fusion machines simultaneously.

Smith set up the staging area on a long pier that jutted out into the Columbia River. Two McElroy TracStar fusion machines and four McElroy PolyPorters were used on the pier



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with only one fusion operator to perform the task. The TracStars are self-propelled and mounted on a track system and were used to not only fuse the pipe together, they were also used to drag the strings of pipe down the pier. The PolyPorters are small pipe stands that are mounted on wheels and can be used much like a dolly to lift pipe off of the ground to be placed into the fusion machine.

Following the joining process of polyethylene pipe, there is a cool-down time that is approximately one minute per diameter inch of the pipe. The pipe cannot be rough-handled or removed from the fusion machine without allowing for the cool down.

Piggybacking basically removes this delay in production. While the fusion joint is cooling in the first fusion machine, there is time to start a second fusion joint on another machine. While the second joint is cooling, the first is ready to be moved and the process rotates accordingly. On a large job, the production advantage grows exponentially with the amount of pipe involved and the number of fusion machines used.

“It was much more economical having two machines set up to fuse at the same time,” said Smith. “I doubled the output with the same labor, while cutting construction time dramatically.”

Nearing the completion of the job, Smith stood beside two officials from Washington’s Department of Labor. They came from D.C. to Tongue Point to watch 10 graduating students receive a certificate of accomplishment in HDPE pipe fusion procedures. Smith looked as proud as the students who only a year or two earlier, had very little prospect for much of

a future. Now, they have the skills and know-how to help them achieve a future that is quite bright. Maybe even a career as pipe experts installing HDPE water systems in the Northwest.

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