



PLASTICS·PIPE·INSTITUTE®

105 Decker Court, Suite 825
Irving, TX 75062
Phone: 469-499-1044
www.PlasticPipe.org

BUILDING COMMUNITY



HDPE PIPE PROTECTS PUBLIC WATER AND ENVIRONMENT

Beaumont Completes Innovative Installation of HDPE Pipe to Improve Water Treatment

BEAUMONT, TX -- The city of Beaumont, Texas recently faced the problem of preventing contamination of their raw water source while at the same time protecting the delicate environment of the wetlands that surround their water canal. City officials put on their creative, problem-solving hats and embraced offshore techniques to accomplish both objectives. The innovative operation is drawing attention from other parts of the country that have similar problems.

Beaumont draws its raw water from the Neches River and transports it in a canal system to their treatment facility. The canal system was developed many years ago and the levees that protect the canal from infiltration have eroded making intrusion from outside sources a problem. Of the many non-toxic contaminants, the largest concern comes from the runoff of wetlands along with saltwater contamination during the hurricane season. By eliminating these impurities, the treatment plant will not only function more efficiently, it will also dramatically lower its operating cost.

The main problem the city faced was trying to perform construction operations in federally protected wetlands. The remediation process can take months and the expense can be staggering. The levees cannot simply be built back up because for every acre of wetlands

that is disturbed, seven other acres of land must be turned into wetlands.

The city's water supply is taken from the Neches River above a dam that is being constructed that will act as a salt-water barrier. The dam will be equipped with gates that can be shut when a tidal surge situation occurs.



Flexible HDPE pipe is floated up a canal in Beaumont prior to submersion and installation with minimal impact.

During a tidal surge, saltwater drifts up the Neches River and the raw water harvested by the city is brackish. The canal runs parallel to the river for about 12 miles and then travels through a pipeline under the river to a pump station. From the pump station, the water



PLASTICS·PIPE·INSTITUTE®

105 Decker Court, Suite 825
Irving, TX 75062
Phone: 469-499-1044
www.PlasticPipe.org

BUILDING COMMUNITY



travels 13,000 feet down the canal that has the problem of eroded levees.

The decision was made to install a 48-inch high density polyethylene pipe (HDPE) DR 32.5 pipe and pump the raw water the last 13,000 feet from the pump station to the plant. The old canal system would provide the path the pipe will take so that there would be no digging required and the wetlands would not be disturbed.



HDPE pipe being fused to join 48-inch diameter sections into a leak-free monolithic system.

“Polyethylene is the only piping material that could have been used for this job,” said Everett Phelps, consultant for Brystar Contracting in Beaumont. Brystar is the

contractor for the project and known throughout Texas for performing unique jobs using HDPE.

Four years earlier, Brystar came to the rescue of the town of Edgewood, Texas, when the city ran out of water due to their reservoir drying up. The city was forced to ship bottled water in for their citizens. Brystar installed 11 miles of 10-inch-diameter HDPE in a total of 17 days and began pumping water from a nearby lake into Edgewood’s empty reservoir. The event made headlines nationally.

For the Beaumont canal job, Brystar set up a staging area in a park that is located at the Neches River crossing. The pipe sections were stacked and after the pipeline was completely fused together it was connected to the pump at this location.

Butt fusion is the process of using heat and pressure to connect polyethylene pipe end to end. The ends of the pipe are melted with a heater and after it has become molten, the pipe ends are pressed together and held until the melt cools. The resulting joint is stronger than the pipe resulting in no need to reinforce the joint.

As the pipe was being fused together, one-ton concrete weights were attached to the pipe at 8-foot intervals before being pushed out into the canal. The pipe was capped on the end so it floated in the water as it was being fed, one section at a time, into the canal toward the treatment plant. When all 13,000 feet of pipeline was completed, the cap was removed, the pipe filled with water and sank to the bottom of the 20-foot-deep canal.

“The canal made the process simple because we could operate the fusion machine



PLASTICS·PIPE·INSTITUTE®

105 Decker Court, Suite 825
Irving, TX 75062
Phone: 469-499-1044
www.PlasticPipe.org

BUILDING COMMUNITY



from one location,” said Phelps. “We didn’t have to worry about clearing a right of way for the pipe or digging a trench or boring it in. We simply pushed it down the canal.”

The canal has been dredged to grade and after it was in place, a scuba diver inspected the line to make sure it was resting on the bottom properly. The technique for sinking the pipeline was developed for offshore pipeline construction. It has been used a few times for long freshwater crossings in the U. S.

PE has been the standard pipe for the gas industry in the U.S. for about 30 years and is finally taking a foothold in the water market. Reports from the U.S. Environmental Protection Agency estimate a need of \$138 billion for water infrastructure repairs, just to meet regulations. Since HDPE does not rust, corrode or leak at the joints, many experts feel that HDPE is the best material to solve U.S. infrastructure problems.

“A lot of people have lobbied to try to keep HDPE out of the mainstream of water pipeline construction but it is unquestionably the pipe of the future,” said Phelps.



HDPE pipe with concrete ballasts attached to permit secure anchoring at bottom of Beaumont canal.

The Plastics Pipe Institute, Inc. (PPI) is a Texas-based, non-profit organization, founded in 1950, that is the major trade association representing all segments of the plastic piping industry. PPI is dedicated to expanding awareness about plastic pipe systems and promoting plastics as the material of choice for pipe applications. It is the premier technical, engineering and industry knowledge resource that publishes data for use in development and design of plastic pipe systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods. For more information about PPI and available information, go to: www.plasticpipe.org.