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# HDPE IRRIGATION PIPELINE RUNS 21 MILES TO PROTECT ENVIRONMENT

Named Project of the Year by Plastics Pipe Institute

ROOSEVELT, Utah - The solution to protecting the Upper Colorado River Basin from infiltrating salt found in groundwater while irrigating some 53,000 acres of farmland here was a 21.2 mile-long line of high-density polyethylene (HDPE) pipe. Ranging from 4 to 42 inches in diameter, the buried, solid-wall, PE 4710 HDPE pipe replaced open canals and ditches. The project earned owner, Dry Gulch Irrigation Company (Roosevelt, Utah), and the pipe's manufacturer, WL Plastics (Ft. Worth, Texas), the 2011 Municipal & Industrial "Project of the Year" Award from the Plastics Pipe Institute, Inc., (PPI) the major trade association representing all segments of the plastic pipe industry.

The new pipeline was designed to reduce seepage from the unlined portions of the existing canals and laterals, according to the U.S. Department of the Interior, Bureau of Reclamation Environmental Assessment report on the project which encompasses Hancock Canal, Martin Lateral, and State Road Canal in the Uintah County area. The seepage is dissolving salts in the soils and eventually carries it to the Upper Colorado River Basin.

"This is an excellent use of HDPE pipe, which will remain impervious to the chemicals and brackish water that will flow through it," explained Tony Radoszewski, executive director of the Plastics Pipe Institute, Inc. (PPI). "Controlling the salinity of the Colorado River remains one of the most important challenges facing reclamation. The river provides water for more than 23 million people and irrigation for more than four million acres of land in the United States, as well as water for about 2.3 million people and 500,000 irrigated acres in the Republic of Mexico. High salinity levels in the river disrupt agricultural production by making it difficult to grow vegetable and fruit crops.

"Because salt corrodes other types of pipe materials in municipal and household lines, the HDPE pipe offers significant advantages in this scenario. Plus, it will remain undamaged and stand up to nearly any chemical, gas or environmental situation. It's the right choice, and a superior one to other materials which would disintegrate in these circumstances.

**Sections of large-diameter PE 4710 HDPE pipe were fused together to make a leak-free line that runs 21 miles to provide water under pressure to irrigate some 53,000 acres of farmland in northeast Utah and saves $50,000 annually. The undertaking was named Project of the Year for the Plastics Pipe Institute's Municipal and Industrial Division.**

"According to the U. S. Department of the Interior's Bureau of Reclamation," Radoszewski explained, "salinity damages in the United States portion of the Colorado River Basin range between $500 million to $750 million per year, which could exceed $1.5 billion per year if future increases in salinity are not controlled. The purpose of the Colorado River Basin Salinity Control Program is to protect and improve the water quality in the Colorado River. We are pleased that the Dry Gulch Irrigation Company elected to use HDPE pipe."

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The project was recognized during PPI's annual membership meeting held in April in San Diego. WL Plastics is a member company of the PPI.

**The Project**

The Dry Gulch Irrigation Company of Roosevelt, Utah has been providing irrigation water to more than 53,000 acres of farmland through canals and open waterways to their shareholders since 1905. In 2010, a plan was started to design an enclosed, pressurized water distribution system, and HDPE pipe was the clear choice for the job. The Hancock Lateral Pipeline replaces 21.2 miles of open canals with buried, pressurized HDPE pipe at a total project cost of $6.5 million. The HDPE pipeline begins at a newly constructed 14-acre reservoir outside of Roosevelt, Utah and is fed by the Big Sand Wash Reservoir and Cottonwood Creek. Funding for the project came from many agencies, including the Bureau of Reclamation, Utah Department of Agriculture, Natural Resources Conservation Service, Utah Division of Water Resources and 5,340 shareholders of the Dry Gulch Irrigation Company.

Dry Gulch contracted with J-U-B Engineering (Boise, Idaho) to design the Hancock Lateral Pipeline. Tracy Allen with J-U-B Engineering said, "This new piping system will flow up to 80 cubic feet of water per second at a pressure of 60 psi.

"WL Plastics manufactured the more than 20 miles of HDPE pipe used in sizes ranging from 4 inches up to 42 inches in diameter. Sections of the pipe were fused together to make a monolithic line of pipe with leak-free joints. More than 200 truckloads of pipe were sent from WL's Cedar City, Utah, manufacturing plant to the jobsite in Roosevelt, Utah. Construction took three months and occurred in three phases, being worked on simultaneously by three different contractors - Larson Excavating (Manila, Utah); Silver Spur Construction (Draper, Utah); and Pallesen Construction (Manila, Utah). "Installation was pretty straight forward. It was mostly open trench, but we did have a couple of under-road sections where we used horizontal directional drilling (HDD)," said Allen. "And the HDPE pipe was excellent also for this kind of installation."

Jim Young of Dry Gulch said, "This is the first time we used HDPE pipe. It is some really tough stuff."

**The Benefits**

The Uintah Basin unit produces 120,000 tons of off-farm salt that is carried down the Colorado River each year. The Hancock Lateral Pipeline will reduce this by 2,400 tons a year. "The damage from salt on farmland is evident. There isn't a single field that doesn't have salt deposits on it," said Young.

Having a pressurized water distribution system will allow more than 3,000 acres of flood-irrigated land to be converted to sprinklers without the use of pumping equipment. This will also eliminate the need for pumping by farmers who are already using sprinklers to irrigate their land. The estimated savings on pumping costs are close to $50,000 per year. By enclosing the open canals, Dry Gulch will be able to deliver 30 percent more water than was originally lost to evaporation and seepage. The new pipeline will also give shareholders an earlier start and later finish to the growing season. The increase in water availability will have a direct effect on crop production. With an increase of 4,336 acre feet of water, crop production will increase $146 per water share. Shareholders will see more than $750,000 of increased crop production per year.

For more information, go to: www.plasticpipe.org.

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**About PPI:**

The Plastics Pipe Institute Inc. (PPI) is the major trade association representing all segments of the plastic pipe industry and is dedicated to promoting plastics as the material of choice for pipe applications. PPI is the premier technical, engineering and industry knowledge resource publishing 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 method.