HARLINGEN IRRIGATION
DISTRICT NEWSLETTER

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Saving Water for the Future

Visit our Web Site at www.hidcc1.org

Harlingen Irrigation District's Tests New Pipelines for Leaks Manager says they are "Tight as a Drum"

As part of the district's on going water conservation project, the Taylor and Citrus laterals were replaced with buried PVC pipelines. After the pipelines were complete, they were filled with water up to the static levels with the canal system. All turn-out valves were closed and the inlets to the pipelines were sealed.

The amount of drop in the water level in the standpipes was measured over a 24-hour period. At the end of the test the water level in the standpipes remained well above the pipeline. The Citrus lost 0.0049 acre-feet in the 24 hr. period. The Citrus line is 6,720 feet long. The Taylor lost 0.0154 acre-feet in the 24 hr. period. The Taylor is 9,540 feet long. The measured loss amounts to less than 1% of the amount of water that is delivered by these pipelines each year.

Both pipelines have farm lateral pipelines connected that also contained water, but the lengths of the lateral pipelines were not included in the numbers above .

The farmers using the pipelines are extremely happy and are getting a larger flow of water than ever before. They are able to water efficiently out of gates that previously flowed so little water that portable pumps had to be used to deliver sufficient water to their fields.

Irrigation Standpipe Used to Test Pipelines for Leaks

Harlingen Irrigation District Newsletter

District Projects Save Water

Summer 2005

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Water Conservation Project Information

Conservation Project Funded by Texas Water Development Board, North American Development Bank, Border Environment Cooperation Commission, United States Bureau of Reclamation, and Harlingen Irrigation District

In December 2000, HB 106-576, titled the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000, was enacted. The bill allowed for the Bureau of Reclamation to participate in and partially fund the review of studies and planning reports for projects designed to conserve and transport raw water, evaluate alternatives, and construct or make improvements to infrastructure .

The law provided for a cost-sharing of 50% federal contribution for construction and project administration. The balance of funding included in-kind contributions of goods and services, and funds previously spent on feasibility and engineering studies by the District and grant funds for planning and project reports from the Texas State Energy Conservation Office through the Texas Water Development Board.

Additional funds were made available through the North American Development Bank for project approved by the Border Environment Cooperation Commission. These funds plus the federal funding allowed Districts in the LRGV to make major improvements and updates to the conveyance systems for the first time in forty years. Harlingen Irrigation District proposed and received approval for a Water Conservation Improvements Project that consisted of the lining of existing deteriorated concrete canals, installation of pipeline in designated segments of canal, telemetry and flow measurements and on-farm metering. Until additional sources of water become available to the District and it's users, water conservation will be increasingly important and the District will need to continue its commitment to increasing efficiency and reducing water loss to make sure that water is available now and in the future.

Installation of a 24" PVC pipeline (the instrument to the right is a laser used to set the pipeline slope)

Canal Rehabilitation Project Eliminates Seepage and Evaporation Losses

Harlingen Irrigation District identified several existing concrete lined canals that had broken and collapsing concrete linings. The failed concrete liners allowed water to seep from the canal and reduce the amount of water available for delivery by the district to farm land.

After the study of alternatives for rehabilitating the damaged canal segments, the district selected a combination of repair and replacement of the canals would be the most cost-effective and efficient. Two and one-half miles of the higher flow-rate Wyrick canal was lined with a EPDM (Ethylene Propylene Diene Monomer) liner, in an effort to reduce maintenance costs and reduced the amount of water loss due to seepage. Approximately six miles of canal is being replaced with PVC pipe. The pipe nearly eliminates seepage and evaporation in lower flow-rate canals and allows the District to measure the flow of water, reducing unnecessary flow and water loss.

Firestone Pond Guard® Canal Liner used on the Wyrick Canal

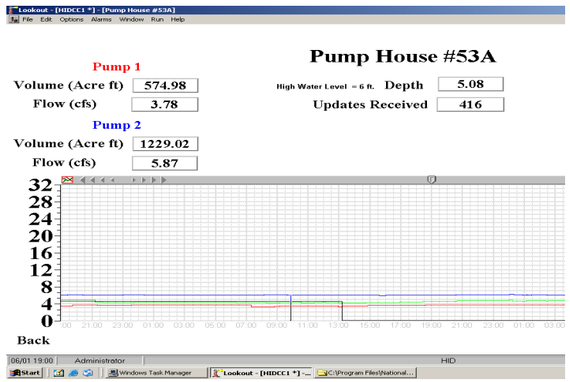
Telemetry and Flow Measurement Project Reduces Excess Water Flow and Saves on Pumping Costs

The Telemetry and Flow Measurement System being installed in the Harlingen Irrigation District will periodically, and on demand, poll for data from field devices, process the data into a central data base, send commands to field devices and display the data in useful format to water operations personnel. The system consists of remote telemetry units (RTU's) and a base operations system (BOS). The BOS is composed of a computer, radio components, and user software applications, transmits to and receives information from the RTU's. The BOS is used to convert and store all of the data received from the RTU's, as well as the data needed to convert flow measurements.

The RTU's, complete with radio, SCADA CPU, and power supply, interface to the metering and water level sensing devices, antennae and cabling. The system is programmed to relay data to the BOS.

This information allows the District to remotely measure the amount of water delivered from each of the District's 54 diversion points, reducing the amount of excess water passed through the system and reducing pumping costs.

Also, the District has installed measurement sites in strategic locations along the District's Main Canal and laterals used in operations to support delineation of water use by District consumers.



Typical Computer Display of the Meter Diversions at the District Pump House 53A. This pump house has four pumps. The Chart at the shows the measured flow for each pump during the last 24 hours.

Texas Water Development Board's Agricultural Water Conservation Demonstration Initiative (ADI) Project

The Texas Water Development Board is providing a grant to the Harlingen Irrigation District to develop and manage an Agricultural Water Conservation Demonstration Initiative (ADI) project that integrates state-of-the-art irrigation water distribution network control and management, and on-farm irrigation technology and management systems in a large-scale demonstration of cost-effective technologies that maximize surface water use efficiency from the diversion of water at the river to consumption of water by the crop.

The project will demonstrate, document, and incorporate the District's on-going conservation projects, and provide coordination between the District's staff, agricultural water users, and state and federal technical agencies. The project includes maximizing the efficiency of flood irrigation, demonstrating the effectiveness of all major irrigation technologies, and showcasing how to implement the beneficial findings from the field demonstration sites to irrigation districts and farmers.

Demonstration projects include activities related to both drip and flood irrigation with areas concentrating on monitoring both citrus and vegetable crops, automated measurement systems, surge irrigation techniques, and using variable speed pump controllers to optimize the on-farm demand, and development of information systems to allow water users to access their real-time water use and historic water use data via the Internet.

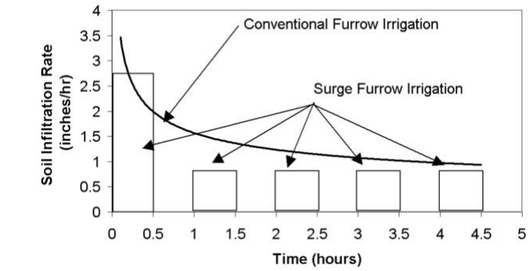
Public field days, workshops, and presentations will be used to transferring the demonstrated technologies from the proposed project to producers. The ADI project is sponsored by the Texas Water Development Board and is supported by an advisory committee comprised of local producers and experts in the field of irrigation. ADI has also contracted the services of Texas A&M University Kingsville, Texas

ADI Surge Irrigation Demonstration

ADI's surge demonstration started on May 5, 2005 with two cooperators. The first demonstration is in a 35 acre sugar cane field where a P&R surge valve is used, along with a fertigation pump and controller. This demonstration will show the efficiencies of surge irrigation combined with fertigation, compared to traditional flood irrigation combined with fertigation.

The second field is a 40 acre cotton field where a Waterman surge valve will be used. The tail water from each field is measured by damming the field drain and pumping the runoff through a flowmeter. Soil moisture will be monitored on a daily and weekly basis.

The cotton field is expected to have one more irrigation event this growing season, and should be followed with a fall vegetable crop. The sugar cane field will have approximately six more irrigation events prior to harvest.



Surge Irrigation Valve (center) and Flow Meter (left)