Modernizing Idaho's Water Infrastructure

An Ongoing Story Series on the Idaho Water Resource Board's Aging Infrastructure Grant Program Issue No. 3

Chester Canal and Irrigation Co.

Project description: Chester Canal and Irrigation Company, Ltd. is installing a new headgate equipped with automation at their river diversion.

The previous headgate was decrepit, leaky, and outdated, officials said. Water flow in the canal couldn't be turned down without placing tarps on the river side of the structure. It also was dangerous to operate with dilapidated board crossings and crumbling concrete.

New headgate under construction on the Chester Canal.

The new concrete headgate is the same size as the old one, simplifying design and engineering costs.

The automation equipment at the new headgate will transmit real-time water flow information to Fremont-Madison Irrigation District's existing Supervisory Control and Data Acquisition (SCADA) system.

Chester Canal holds a natural flow water right for 112 cfs and 1,337 acre-feet of storage water through the Fremont-Madison Irrigation District (FMID). The Chester Canal was built in the in 1890s. It covers about four miles and serves 50 water users farming 1,586 acres of irrigated cropland.

- ***Type of project:*** New headgate with automation to provide real-time water flow information; water conservation.
- ***Location:*** St. Anthony
- ***Total project cost:*** $129,238
- ***AIG:*** $29,724
- **Bureau of Reclamation WaterSmart grant:** $64,619
- ***Local cost-share:*** $34,894
- ***Other funding partners:*** Chester Canal and Irrigation Co.
- ***Start date:*** September 2022
- ***End date:*** June 2023

Project benefits: This project will provide multiple benefits with a new, safe, reliable and modern canal headgate.

"By automating the new headgate, it will allow us to monitor flow data and make flow changes from the FMID office or our own cell phones and computers," said Aaron Dalling, project manager.

"This equipment will also make changes as needed automatically. For example, in a scenario when flow in the river changes resulting in a change in head pressure on the Chester headgate, it will automatically adjust to maintain a constant flow in the canal despite the change in head pressure."

Water conservation/savings: Based on past experience with installing automation equipment on canal diversions, we estimate between four to 10 acre-feet of water could be saved every day during the irrigation season, from June 1 through Sept. 15, on the Chester Canal. This equates to a total water savings of between 420 acre-feet and 1,050 acre-feet each year.

This water savings will be recognized

Chester Canal and Irrigation Co. (cont.)

in Island Park and Grassy Lake Reservoirs. Keeping water in these reservoirs will benefit all water users in the Upper Snake reservoir system and help us be more resilient in potential subsequent drought years.

Keeping water in the reservoirs will also benefit fish habitat in the Henry's Fork River. More water held in the reservoirs during the irrigation season directly results in higher winter flows in the river. These winter flows are critical for the Henry's Fork fishery.

This project was recommended by the 2015 Henry's Fork Basin Study, coordinated and completed with the help of several partners including the Idaho Water Resource Board. In the study, canal automation was identified as one of the most economical means of conserving water in the Henry's Fork atershed.

Time savings for watermaster: The new automated headgate will save Chester Canal officials significant time, reduce vehicle wear and tear and result in an overall reduction in our carbon footprint.

The watermaster will have access to current flow data on the office computer. Flows at the headgate can be adjusted remotely. This will reduce vehicle travel by up to 8 miles per day. Spread through the irrigation season, the project will reduce vehicle travel by 800 miles and result in significant time savings for the watermaster.

For more information about the Chester headgate project, contact Aaron Dalling at FMID, 208-624-3381.

Top, example of automation equipment installed on a modern headgate on the North Fork of the Teton River. Below, the old Chester headgate.