



Modernizing Idaho's Water Infrastructure

An Ongoing Story Series on the Idaho Water Resource Board's Aging Infrastructure Grant Program **ISSUE NO. 22**

Jefferson Irrigation Company Water and Energy Efficiency Project

Overview: The Jefferson Irrigation Company was established in 1935 to provide irrigation water in the Montevue region of Idaho, west of Mud Lake. The company manages and operates 18 wells that serve more than 10 miles of canal system and many miles of laterals. Water is lifted approximately 100 feet on average to deliver water into the main canal.

The Jefferson Irrigation Co. uses the canal to deliver water to approximately 10,740 acres of agricultural land. The canal is an unlined, open channel that begins at the well field and extends approximately 10 miles west to farms located in Terreton. The maximum diversion rate for the well field is 252 cubic feet per second (cfs) or 113,097 gallons per minute.

Water from the Jefferson Irrigation Co. irrigates a variety of crops, primarily hay, grain, potatoes and corn.

Jefferson Irrigation Co. is a non-profit entity. The new pipeline project will be completed in partnership with landowners served by the North Branch of the Jefferson Canal.

The Challenge: The Jefferson Irrigation Co. canal and laterals experience significant water losses due to seepage. A recent analysis completed by HDR Engineering estimated seepage losses to be nearly 25 percent within the lateral



New pipeline in place replaces the old lateral ditch, connecting directly to a pivot in a farm field, eliminating seepage losses. (Photo courtesy Jefferson Irrigation Co.)

- **Type of project:** Water and energy efficiency project
- **Location:** Terreton, Idaho
- **Total project cost:** \$2.5 million
- **Idaho Water Resource Board Aging Infrastructure Grant:** \$581,488
- **NRCS EQIP funding:** \$1.2M
- **Water users cost-share:** \$682,617
- **Start:** October 2024
- **Finish:** May 2025

system. Water is pumped into the canals to maintain head, flow rate, and account for system losses. Water is lifted from the well field into the canal system where it then flows to the North Branch. A 10-foot lift is required at this point for the water to flow into the canal, where it then flows into the lateral network. There are over 10 miles of laterals in the project that will be eliminated by constructing pipelines to save water.

The North Branch of the canal has extensive water losses resulting from laterals that are filled by the lift station from the canal. The laterals act as reservoirs that need to be filled to a certain level for operations on the farm to work correctly for an antiquated irrigation system. The



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Jefferson Irrigation Co. water and energy efficiency project (cont.)

North Branch consumes 20 percent of the system shares to irrigate 1,681 acres.

The Solution: The Jefferson Irrigation Co. has built a series of new pipelines to eliminate the 10-plus miles of lateral ditches to conserve water and reduce pumping from the Eastern Snake Plain Aquifer (ESPA). The project is expected to save approximately 8.4 cfs from being pumped from the ESPA.

More about water savings:

Eliminating seepage from the laterals will reduce operational costs by reducing the amount of water that needs to be pumped from the wells. Each fill of the lateral system required over 50 acre-feet of water. The canals were five-foot deep on average and took only two days to drain—indicating seepage in excess of one foot per day. A conservative value of one foot per day was used to estimate water savings for the project. Total water savings is expected to be about 2,002 acre-feet of water per year including seepage, evaporation, and fills for the laterals.

Jefferson Irrigation Co. needs to reduce the total volume pumped to meet the terms of the SWC Mitigation Agreement. Reducing system losses will directly impact total volume pumped per year and mitigate groundwater usage.

As part of the mitigation agreement between the Surface Water Coalition (SWC) and the Idaho Groundwater users Association (IGWA), Jefferson Irrigation Company will reduce its allowed diversion by 24 percent, from 37,590 acre-feet per year to



New concrete pumping station structure and intake screens are in place during construction in the winter of 2024-25. (Courtesy Jefferson Irrigation Co.)

28,447 acre-feet per year. Water conservation is one way that Jefferson Irrigation Company will meet the requirements of the mitigation agreement.

The average consumption by the Jefferson Irrigation Co. has been 30,059 acre-feet per year for the last five years. The volume allowed to be pumped by the mitigation agreement is 28,448 acre-feet per year. The difference of 1,611 acre-feet per year will be resolved by this project alone.

Energy benefits: The project will reduce electrical use by 128 kilowatt (kw) per year, providing a savings of \$37,787 per year.

Farmers will be able to rely on the water supply for years to come, officials said. The efficiency improvements will maintain operations without fallowing crops or reducing the consumptive use of crops supported by the system.

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