



Modernizing Idaho's Water Infrastructure

An Ongoing Story Series on the Idaho Water Resource Board's Aging Infrastructure Grant Program **ISSUE NO. 11**

TFCC High Line Canal-Lining Project



Contractors unfurl large sheets of geomembrane canal liner on the 105-foot-wide High Line Canal. (courtesy TFCC)

Project description: The Twin Falls Canal Company (TFCC) serves 4,500 water users in Murtaugh, Kimberly, Hansen, Filer, Buhl, Castleford and Twin Falls who irrigate approximately 203,000 acres of farmland to raise a variety of crops.

TFCC diverts water out of the Snake River at Milner Dam under an October 11, 1900, natural flow water right of 3,000 cubic feet per second. Once diverted at Milner Dam, the water flows to Murtaugh Lake, located about eight miles downstream. Below Murtaugh Lake is the Forks Diversion. This diversion splits the Twin Falls canal system into the High Line Canal and Lowline Canal.

In 2022, TFCC applied for a \$245,547

- **Type of project:** Canal-lining, irrigation efficiency project.
- **Location:** Rock Creek crossing of High Line Canal
- **Total project cost:** \$818,490
- **AIG:** \$245,547
- **BOR WaterSmart grant:** \$401,060
- **Local cost-share:** \$171,883
- **Start/end date:** Winter 2024

Leading Idaho Aging Infrastructure Grant from the Idaho Water Resource Board (IWRB) to assist in lining 4,500 feet of the High Line Canal to reduce seepage losses. The total cost of the project was estimated to be \$818,490. The IWRB awarded the AIG grant to TFCC in January 2023. The grant provides about 30 percent of the total project costs, officials said.

Current water losses in this section of the High Line Canal are attributable to seepage into the canal sides and bottom during the irrigation season, officials said. This canal reach was constructed through coarse alluvium rock. Numerous large gravels and paving companies operate pits adjacent to the canal. The gravel pits fill with water each year when



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TFCC High Line Canal-Lining Project (cont.)

irrigation water starts flowing through the High Line Canal.

The High Line Canal was designed to operate at 1,400 cubic feet per second (cfs). Throughout the irrigation season, the flow in the High Line Canal can range from 1,050 cfs to 1,450 cfs depending on demand, officials said. The overall loss of water due to seepage can change throughout the season depending on the flow through the High Line Canal.

Losses along various stretches of TFCC's system are verified each year using the Acoustic Doppler Current Profiler technology. TFCC also visually monitors the system each week by driving the canal banks to look for seepage through the canal banks.

This particular canal reach (with the geomembrane liner) has an estimated seepage rate of 18 – 25 cubic feet per second per mile. At a seepage rate of 18 cfs, the water losses amount to about 6,800 acre-feet each irrigation season; at a rate of 25 cfs, the water losses can reach about 9,400 acre-feet per season, officials said.

The solution: By placing 60-mill High-Density Polyethylene (HDPE) geomembrane liner over the top of 4,500 feet of earthen canal, TFCC expects to conserve a significant amount of water. That will provide for better reliability of water for farmers downstream of the location where the geomembrane is installed, and that will lead to better crop production, TFCC officials said.

Construction of the project occurred during the winter of 2023-24. Three



Above, location of canal-lining project near Rock Creek gravel pits. Below, contractors prepare the canal embankments for the geomembrane liners. (TFCC photos)



steps were required – excavation, liner placement and backfill.

The liner was unrolled along the canal bottom and then unfolded to allow for placement of the liner panel across the entire 105-foot width of the canal. Then, the canal bottom and sides were re-established to pre-project widths and slopes. All told, the project required the use of 620,400 square feet of geomembrane liner.

Project benefits: TFCC conservatively estimates that more than 6,800 acre-feet of water will be saved as a result of lining the High Line Canal. The savings could go as high as 9,400 acre-feet. The water savings will provide better water reliability for water users and lead to better crop production, TFCC officials said.

For more information, go to: <https://twinfallscanal.com>.