Modernizing Idaho's Water Infrastructure

An Ongoing Story Series on the Idaho Water Resource Board's Aging Infrastructure Grant Program Issue No. 19

# Last Chance Canal Company Main Flume Resurfacing Project

***Overview:*** The Last Chance Canal Co. began diverting and delivering irrigation water in 1897-98 when construction was completed on the Last Chance Diversion Dam. In 1918, the Bench B Diversion from the Bear River added additional water to the system. In all, Last Chance operates and maintains about 67 miles of open canals and laterals throughout the system.

Last Chance provides water to irrigate approximately 29,000 acres of farmland in the Gem Valley. Typical crops include potatoes, barley, winter and spring wheat, alfalfa, and grass hay. Last Chance holds the water rights and owns and operates the diversion structures and main canals, which deliver water to eight lateral canal companies.

The eight lateral companies are: Bench, Brown, East Branch, Niter, North Extension, Tanner, Turner, and West Branch.

A primary component of the irrigation system is the Last Chance Main Flume, which conveys water diverted from the Bear River to its service area. Approximately, 60 percent of the water Last Chance diverts into the system passes through the Main Flume.

Constructed in 1918, the Main Flume plays a critical role in conveying water across the Bear River. Originally built as a steel and wood flume supported by a concrete arch, the structure was replaced with a steel flume supported by a steel frame in 1948. Since that time, the flume has undergone numerous protective measures to prevent leaks and potential damage. The existing lining, installed over 10 years ago, was used, in part, because of its ability to bond together and pass the weight of the water to the truss structure. This was necessary due to the weight of the water continually adding holes to the extensive rust-damaged bottom of the flume.

*Last Chance Main Flume old liner was replaced with a fresh coating of "Aqualastic" after contractors did extensive repairs and grinding to prepare the surface for the new liner material (photo courtesy Mark Mathews, Last Chance Canal Co.).*

- ***Type of project:*** Flume resurfacing and rehabilitation project
- ***Location:*** Grace, Idaho
- ***Total project cost:*** $211,000
- ***Idaho Water Resource Board Aging Infrastructure Grant:*** $70,326
- ***Start:*** October 2024
- ***Finish:*** April 2025

# Last Chance Main Flume Resurfacing and Rehabilitation Project (cont.)

***The Challenge:*** The existing liner has been showing significant signs of deterioration. It is failing in certain areas, with the emergence of cracks leading to water leakage. To ensure the continued reliability of this essential water conveyance system, there is an urgent need for the replacement of the deteriorating liner.

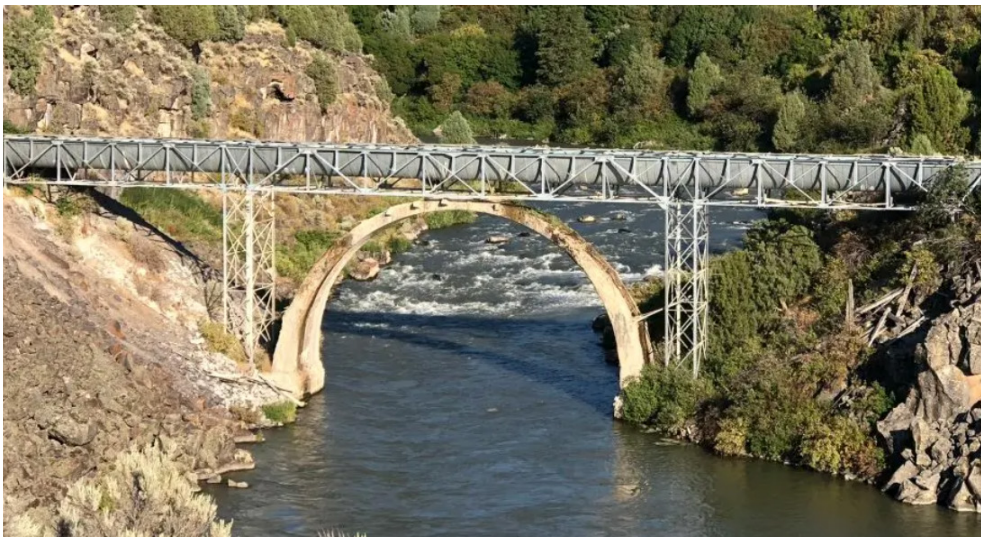
***The Solution:*** To repair the liner, the contractor has run a grinder over the surface of the old liner to roughen and remove imperfections that could prevent proper adhesion to the new liner. This is particularly important as the liner needs to be able to pass the weight of the water into the truss structure, officials said.

Further, two different solvent wipes were applied to activate the surface for bonding with the new liner. All 718 feet of the flume had to be treated and have solvent applied in preparation for relining the flume.

Once the flume has been prepared, a new liner material, called "Aqualastic" was sprayed onto the flume at an 80- to 100-millimeter thickness. The new liner is a different color than the blue-shaded old liner so that wear spots in the future may be identified.

To support the chemical bond between the old and new liner, a metal bar will be anchored through the new and old liners at the entrance and exit of the flume. The metal bars were installed and then sprayed over with liner material. In all, approximately 12,270 square feet of flume was relined.

Project benefits include:



*Above: Last Chance Main Flume (courtesy Bear River Heritage Area). Below, constructtion crew grinds down the surface of the flume and repairs cracks in preparation for new liner coating (courtesy Last Chance Canal).*

- Water supply sustainability for irrigation of about 17,000 acres of the 29,000 acres of farmland served by the Last Chance system.
- Conserve water by eliminating water loss due to leaks in the flume.

For more information, contact admin@lastchancecanal.com.