

# Minimizing Costs and Timelines for Pipe Repair

Irrigation district addresses leaking seals with wraparound coupling

by Denny Setzer

**A** &B Irrigation is a co-op water irrigation district near Rupert, Idaho, that serves 82,000 acres of farmland, irrigating malt barley, sugar beets, potatoes, alfalfa, corn and bean crops. The district diverts 210,000 acre-feet of water per year, which is pulled from the Snake River and up a 140-foot-high canyon wall. The water continues through a 78-inch steel pipe over 1,400 feet to an open canal trench to supply water to more than 200 farmers and ranchers. Irrigation operations run from March or April through September or October, depending on weather conditions.

## The Situation

The A&B Irrigation pipeline was originally installed in 1953, connecting steel pipe sections with multi-bolt dresser couplings. Over time, the gaskets were increasingly leaking, and the couplings needed to be replaced. With the large sections of pipe sitting on cement stands, however, installing new couplings would require dismantling the sections of pipe, connecting them and then putting them back in place. A&B Irrigation manager Dan Temple was seeking a solution that would effectively seal the leaks while minimizing installation time, manpower and costs.



HYMAX's Denny Setzer after the HYMAX VERSA was installed on the pipe in less than one hour. All photos courtesy of HYMAX

## The Challenge

The district needed to find a solution that would quickly and cost effectively seal leaks originating from the couplings connecting 40-foot sections of 78-inch OD steel piping. A&B Irrigation would start by coupling two sections of the pipe with the intent to replace the rest of the dresser couplings if the solution it chose, the HYMAX VERSA, delivered as expected.

## The Solution

The wraparound coupling offered an ideal approach for replacing the dresser multi-bolt couplings. The coupling can open like a clamp but offers the durability, dynamic deflection and seal of a HYMAX coupling. Weighing in at 226 pounds with only six bolts to tighten on each side, the HYMAX VERSA is relatively lightweight and quick to install compared to a multi-bolt dresser, which can weigh 500–600 pounds with 24–30 bolts to tighten. Dresser bolts also need to be removed and then tightened when the coupling is in place whereas the HYMAX bolts only need to be loosened to open the coupling and then tightened upon installation.

Federal government engineers noted that the coupling required a higher pressure value than what the HYMAX VERSA



A&B Irrigation plans to save tens of thousands of dollars in labor costs and equipment rentals that would otherwise be needed to complete the project.





Originally installed in 1953, the A&B Irrigation pipeline consisted of steel pipe sections with multi-bolt dresser couplings that needed to be replaced because their gaskets were increasingly leaking.

provided, so a customized version was created to meet this requirement and also enable it to fit on the pipe's 78-inch OD (the coupling's regular sizes are 1.5 inches to 70 inches).

Made from stainless steel, the HYMAX VERSA can withstand harsh Idaho winters and features a weld-free construction to make it resistant to corrosion. The elimination of welds is crucial because these areas are where corrosion often starts. The coupling also has a patented hydraulic pressure-assisted gasket that inflates as the water pressure increases. This allows for dynamic deflection that provides a type of shock absorber to minimize damage due to shifts caused by extreme cold.

A&B Irrigation found that the sections between the pipes were sealed up with sediment, and the only way to separate the pipes was to tear them apart. The pipe ends were also severely corroded, and the pipe ends needed to be removed so the coupling could latch onto undisturbed steel. With the original connectors removed, the ends of the pipe standing at 2 inches apart were sandblasted and repainted to protect against corrosion. A crane was brought in to lift the huge coupling into place on the pipe. The coupling was closed around the pipe and then the 12 bolts were tightened to complete the installation. With the success of using the HYMAX VERSA, A&B Irrigation has made plans to replace all the old connectors by late March 2021 in a project that will be completed within two to three weeks.

### Advantages

This multi-purpose stainless steel coupling can be used for either joining or repairing pipes, reducing and simplifying inventory, which makes it highly versatile. For this project, the fact that the coupling could open and close to become a permanent part of the pipe gave A&B Irrigation the flexibility to not remove pipes from their stands and make the repair in place. That meant that thousands of dollars could be saved in terms of labor and equipment with the wraparound coupling.

Made from stainless steel with a weld-free construction, the coupling is exceptionally durable. It can withstand the wide



The HYMAX VERSA wraparound coupling opens like a clamp but offers the durability and seal of a coupling, providing an ideal solution for replacing the dresser multi-bolt couplings.

range of Idaho weather conditions, including heavy rain and snowstorms. The innovative radial closing design and sealing systems also eliminate installation errors and can adapt to out-of-round pipe shapes (up to 0.31 inches) for optimum fit on both ends.

Owing to its flexible connection, during installation the HYMAX VERSA allowed for up to 3° angular deflection on each end, as well as for misaligned pipes, meaning there was room for the pipes to not be perfectly aligned while still ensuring a durable connection. Post installation, the coupling's dynamic pipe deflection on each end reduces the risk of damage and cracking due to ground shifts and temperature changes.

### Conclusion

Without the HYMAX VERSA, A&B Irrigation predicted that the coupling replacement project would take two or three months to separate the pipes, take them off their stands, connect them and then put them back in place. With the wraparound coupling, the test section of the pipes was repaired without removing pipe sections from their location. As a result, A&B Irrigation plans to save tens of thousands of dollars in labor costs and renting the necessary equipment to otherwise complete the project.

"[It] offers a unique solution to our repair needs that is both durable and will enable the repairs to be made in a matter of weeks rather than months," said Temple. "Our co-op members look forward to many years of secure water distribution that will ultimately lead to lower water costs over the long term." **WTR**

**Denny Setzer** is the territory sales manager for HYMAX, a Mueller brand. Mueller Water Products Inc. is a leading manufacturer and marketer of products and services used in the transmission, distribution and measurement of water in North America. Mueller's product and service portfolio includes engineered valves, fire hydrants, pipe connection and repair products, metering products, leak detection and pipe condition assessment.