

The 72 hours that saved Loveland's water

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Editor's note: This is the the first of a two-part series.

LOVELAND -- Loveland Water and Power officials knew one thing was certain last month when the final link between the Water Treatment Plant and the city was in imminent danger: if they didn't do something, Loveland would go dry.

That something? Wrestle with a white-capped river that had dramatically shifted course, cut through a meadow downstream from the Water Treatment Plant and exposed the city's main, 48-inch water transmission line. Move a river -- and do it before the muddy, bacteria-laden flow breached the line or a car-size boulder smacked into it and cut off treated water to the city of Loveland.



Last month's flood exposed water transmission lines near the city of Loveland's Water Treatment Plant. This 48-inch line survived with minimal

In a 72-hours stretch starting Sept. 14, a group of city workers, private contractors and engineers succeeded in saving the city's water supply with an on-the-fly project that in normal circumstances could have taken years to design, acquire permits for and build in phases.

Simultaneously, city officials worked with neighboring utilities to prepare for the possible loss of water in the event that the mammoth project was unsuccessful, Loveland Water Utilities Manager Chris Matkins said.

"No one had ever done it before and no one had ever seen it done," Matkins said. "We were confident, but it wasn't a slam dunk."

The Last Line

The Chasteen's Grove Water Treatment Plant that supplies 25,000 taps for Loveland Water and Power customers sits east of the mouth of the Big Thompson Canyon, near where the river cuts through the red sandstone ridge that funnels the city's Green Ridge Glade Reservoir outlet from the north. Three major lines deliver that water to town: a 20-inch diameter pipe, 36-inch and 48-inch line. The lines had been buried more than 100 feet north of the Big Thompson River -- or at least where the channel used to be.

Though September's flood didn't surpass the peak flow rate the Big Thompson experienced in the 1976 flood, it caused more erosion and damage because the high water lasted longer, meaning much more water passed through.



Following completion of an unprecedented project to divert the flooded Big Thompson River last month, city workers evaluate a 48-inch water transmission

"We're still seeing five to 10 times the typical flow," said Loveland utility information manager Tom Greene, who ran field operations at the plant with Tanner Randall and Craig Weinland. "We were still seeing what we would consider flood flows for weeks."

Gauges were destroyed early in the flood, but city officials estimate the peak flow was more than 10,000 cubic feet per second near the Water Treatment Plant. It was more than 18,000 cubic feet per second downstream where the river, bolstered by the flooded Buckhorn Creek,

crosses U.S. 34 at Glade Road.

Flooding started Thursday, Sept. 12, and by the next morning, both the 20-inch and 36-inch water lines were wiped out, destroyed in sections along the river and leaving only the 48-inch line -- which was furthest from the river -- operational. Communication and primary access to the plant was also lost. Before he was able to make his way up there, Matkins could only radio in a question: "What do you see?"

"It was hard because you're trying to make really big decisions and you're making those decisions in an atmosphere of chaos and darkness," he said.

On Saturday, Sept. 14, workers at the Water Treatment Plant began to understand the remaining water line was in jeopardy. Near the underground water tank, the 36-inch line was exposed and water was edging toward the buried 48-inch line.

Loveland Water and Power managers mobilized their staff with a need to start the project -- part construction, part diversion -- immediately. A difficult task on a typical day, it was only a part of the statewide disaster.

"We worked Saturday in an emergency fashion to get private contractors, private engineers to start installing rock to protect that line," Matkins said.

They knocked on doors to nearby quarries. They sought help wherever possible -- lights where brought in from Wyoming for anticipated night-long work, the city's Public Works team came with equipment and personnel -- and by 9 p.m. that Saturday a team was assembled and met at the Water Treatment Plant. Private sector help came from CH2M Hill Engineers, Ayres Associates and contracting firms Concrete Express Incorporated, Ward, Connell and GE.

"It was remarkable," Matkins said. "It was a great job of getting people and resources mobilized in a very short period of time."

But when crews from the various companies converged that night, the continuing rain made work impossible.

They were forced to abandon the site until the next day, when an even larger problem was identified by the chilling sound of rock hitting metal.

Coming Monday: Loveland workers look for ways to push the Big Thompson River back into place.

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