



PROTECTING PRECIOUS WATER

Project aims to keep city water safe from wildfire dangers



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High above the town of Rimini, a group of Helena National Forest scientists is traipsing along Helena's municipal water supply system, marveling at its century-old simplicity yet aware of the dangers facing it today.

Rain and melted snow from the Upper Tenmile watershed drains into Scott Reservoir, which then flows into Chessman

Reservoir via five miles of the Red Mountain Flume, as do other tributaries. Eventually the water empties into the Tenmile Water Treatment Plant, where it's filtered before being distributed to some 30,000 city residents.

Although the water is only between three and six inches deep in the flume, the structure is key to the distribution system. It delivers about 3 million gallons per day to the treatment plant, and up to 7 million gallons per day during peak use.

City officials have long feared that a wildfire will roar through the steep mountainsides here, burning the trees and the trestles, knocking the flume out of commission. They fear that the loss of vegetation after a wildfire will send tons of dirt and debris into the unlined ditch for years, further impeding their ability to supply the city's residents with water. They fear that the standing dead trees will fall onto the flume and knock a portion of it over.

So using \$312,800 in federal grants and \$104,000 of its own money, the city is helping private landowners remove dead trees and live ones considered too close to the flume. It's costing an average of \$4,000 per acre to do so.

"In some respects this is a good demonstration project of what can be accomplished," said Ron Alles, the Helena city manager.

But the city can only do so much, since the majority of the Tenmile Watershed is on the Helena National Forest. So at the urging of city officials, the Forest Service has put together a 148-page document outlining its proposal to create a buffer zone around 4.8 miles of the flume. The public can comment on the proposal until July 26.

"If a major wildfire was to occur that damages the flume and increase sediment into the flume and reservoir, the city would likely not be able to use this municipal water system for a minimum of 23 months," the report notes. "Post fire results could lead to accelerated

erosion, ash deposition, and physical damage related to debris torrents that could impair the functionality of both the flume and reservoir.”

Don Clark, who operates the water distribution system for the city, notes that if the city loses the Tenmile treatment plant, it can always turn to the Missouri River for water. They already do that when demand for water is high. But it comes at a cost, which includes the probability of water restrictions.

“We would survive, but the costs would go up because we have to buy the water from the Bureau of Reclamation, and then pump it up-gradient,” Clark tells the Helena forest scientists. “We really can’t afford to lose this for multiple reasons.”

Considering the scope

On this warm July morning, the Helena forest staff is looking over the city’s work to see how the landscape might change if they undertake the same effort on their public lands interspersed among the private property.

“They took out about 150 feet above and 300 to 350 feet below,” says David Nunn, a fire management officer for the forest, as he pauses to talk to the group about the work. The national forest is considering a similar scope of work, much of it on slopes with 45-degree angles.

The Red Mountain Flume includes 13,000 feet of unlined ditch, 11,800 feet of a sheet-metal half-pipe and 500 feet of pipeline between Scott and Chessman reservoirs, which rests on scores of elevated wooden trestles in nine locations. The system was created in the 1880s and sold to the city around 1910, and it’s situated on both private property and Helena National Forest lands.

“The flume is eligible for listing on the historic register because of its age, being in the same location and being used as originally intended,” notes Arian Randal, an archaeology technician on the Helena forest.

The wooden trestles hold up about 2 ½ miles of metal half pipe and culvertlike tubes. Along most of it, the flume is in the shade of pine trees that have grown in after decades of fire suppression activities on the forest. Today, the majority of them are dead, victims of the recent mountain pine beetle epidemic.

Treatments proposed by the Helena forest include cutting and removing dead and dying trees, thinning out live tree stands, removing large fuels already on the ground, and prescribed burning. That includes clearcutting trees on about 332 acres, not just near the flume but around Chessman Reservoir.

Walk and talk

Initially, the forest staff walks beside the flume under a canopy of trees. The water flows in the dirt ditch on their uphill side, through lush vegetation and Indian paintbrush, wild roses and yarrow that all are nourished by the moisture.

Suddenly, the flume enters into the half-pipe and the footpath is now above the open culvert, on three 2-by-6 boards placed side by side over its top. The boards aren’t nailed down, to allow for easier access to the flume, and they move under the Forest Service

staff's feet. Downhill sit piles of jumbled boards, covered in pine needles, which were replaced over the flume in the 1970s.

Pink flagging denotes where public land ends and private property begins. As the group steps out of the shade into the sunlight, they don't need the flags to see where the city has done its work.

On this piece of private ground, trees only dot the landscape, and none towers over the flume. Slash piles dot the landscape and are slated to either be removed or burned.

Sharon Scott, the timber management officer, tells people to look up.

"It's not just the distance between the trees but the size of the crown," she said. "We want that crown spacing."

The project also calls for giving the city a 100-foot right of way on either side of the flume, which would allow the municipality to maintain the open area around the flume. That's up from the current 7.5-foot easement.

The Forest Service noted that it considered some other options, including having the city rebuild the flume out of other materials. The city undertook a feasibility study in 2010 but said that funding wasn't available.

Forest Service staff also considered an option that didn't include any commercial logging but said that would cost more, result in a larger proportion of treatment units and expose the soil to high-severity fires.

Heather DeGeest, the acting Helena district ranger, is quick to add that the current proposal only looks at the forest land adjacent to the flume; a watershed-wide project would have to go through a lengthy environmental review.

"This project does not replace other landscape-level vegetation analyses, specifically those in the Tenmile and Telegraph drainages that are scheduled to occur in the future," DeGeest says.

Mitigation efforts

DeGeest knows that any logging proposal on the Helena forest will be closely scrutinized, which is why they worked with the city to create the Tenmile Working Group. That group included people with numerous diverse interests, who worked out the compromise that the forest hopes to implement.

The project comes with some stipulations to protect wildlife, recreation and wildlife habitat while the work is being done.

To provide elk with habitat options, logging activity would be confined to a single drainage at a time. Any treatment unit larger than 100 contiguous acres would be divided into smaller subunits by a forested buffer, capable of providing hiding cover for elk.

After the trees are removed, various areas would be burned prior to May 1 or after July 31 in order to protect nesting birds. If any species listed as endangered or threatened is found in an area, the project could be modified.

Nunn said along with removing and/or burning the slash piles, they'll also burn the leftover wooden planks.

Logging operations also would be prohibited during the first two weeks of the general rifle season to maintain big game habitat and hunting opportunities. Log truck traffic will be limited to weekdays in order to avoid conflicts with the public, and instead of going through Rimini the trucks will exit out near Clancy.

The Forest Service said it will try to make the clearcuts look as natural as possible, with asymmetrical openings and no straight lines.

DeGeest said they haven't gotten any feedback about the current proposal.

"Since we went out with the preliminary document, we haven't heard a word from the public," DeGeest said. "I think folks are generally supportive and want to get this done before the fire comes.

Mike Garrity, executive director of the Helena-based Alliance for the Wild Rockies, is known for challenging forests on logging plans. On this one, he was a member of the Tenmile Working Group and said it's more palatable than other projects because of its limited scope. But at least one aspect of the plan — it calls for an amendment to the forest management plan by decreasing the allowable amount of elk hiding cover because they're violating that standard — does cause him some heartburn.

"I thought there was an agreement to follow the laws, and now they're looking at changing the laws to make them fit the project," Garrity said. "This isn't ideal, but I hope to work with them on it."

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