

# Committee on Resources

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## **TESTIMONY OF HAMLET J. BARRY III MANAGER OF DENVER WATER**

COMMITTEE ON RESOURCES  
Subcommittee on Forests and Forest Health  
July 15, 2004

Mr. Chairman and Members of the Committee:

Thank you for allowing me to appear before you to address the important issues of forest health and the attendant protection of municipal water supply. The Denver Water Board is a municipal corporation that supplies water to almost 1.2 million people: that is one of every four people who live in Colorado. Denver Water's supply is almost entirely dependent on water generated within the boundaries of watersheds located on Forest Service and other public lands. Denver's water system gathers diffuse surface flows originating on public watersheds and moves the water to treatment plants and drinking water systems located as much as 80 miles away from the water's origin. [See Exhibit "A"]

Denver Water has extensive experience in responding to and trying to prevent wildland fires in our watershed, while continuing service to our broad customer base. Since 1996 Denver Water has been the victim of six fires in its Upper South Platte watershed, a major water supply and delivery system for Denver Water. [See Exhibit "B"] The effects of these fires on Denver's system have varied, but the overall result is one of vitiated water quality and diminished reservoir capacity due to large amounts of fire-related debris and sediment filling our reservoirs. For example, approximately twenty miles of the South Platte River is subject to fire erosion that has resulted in severely reduced water quality, high stream turbidity, and diminished reservoir capacity due to foreign debris caused by the fire. To date, the costs of responding to the fire damage has been almost \$8,000,000 and continues to grow. [See Exhibit "C"]

As a result of dealing with forest fire issues, Denver Water provides the following information that may be useful in your decisions regarding the appropriate level of federal response, including appropriations, to assist in recovering fire-degraded watersheds as well as establishing an effective fire prevention program:

1. Fuel reduction can control or limit forest fires -- Select cutting and fuel reduction limited damage to Denver Water's property during the 2002 Hayman Fire. The fire began during times of drought, and was fueled by an overgrown, under-managed forest. The fire burned for six weeks and consumed 138,000 acres in Denver's South Platte watershed. [See Exhibit "D"] The Hayman fire completely consumed trees on acreage surrounding Denver Water's Cheesman Reservoir. Denver Water was in the process of thinning our trees on its own 8,000 acres prior to the Hayman Fire.

In the areas where fire-prevention treatment was completed, the fire dropped from the tops of the trees to the ground, and fire intensity was diminished. Four caretaker houses, an office and maintenance facilities survived the fire. Of the 8,000 acres owned by Denver Water at the Cheesman site, everything burned to extinction except for the treated areas. [See Exhibit "E"]

2. Ongoing water quality and reservoir clean-up issues continue long after a fire is contained. Forest fires themselves are only the initial onslaught on the integrity of Denver Water's system. Denver Water's facilities and its water quality have suffered from the Upper South Platte Fires. For example, the Buffalo Creek Fire of 1996, dumped 400,000 cubic yards of sediment in Denver's terminal Strontia Spring Reservoir. This debris meant that after the fire and related flooding, Strontia Springs Reservoir received as much fire debris and sediment as had accumulated in the prior eleven years. [See Exhibit "F"] For this relatively small fire the water quality and clean-up costs were nearly a million dollars, with an estimated future cost of 15 to 20 million dollars to dredge this reservoir. It is estimated the after effects of erosion will negatively affect water quality at a cost of \$250,000 annually for the next ten years.

Six years later, the Hayman fire dealt another blow to the Denver Water delivery system. As a result of the Hayman fire alone, it is estimated that more than 2,000,000 cubic yards of debris and sediment could erode

into Denver's Cheesman and Strontia Springs Reservoir.

3. Restoring a watershed destroyed by fire is an expensive, continuous, and long-term process. Since July of last year, the following restorative efforts have occurred on the Cheesman Reservoir property:

- To stabilize soils and reduce erosion Denver Water crews and aerial contractors have applied more than 210,000 pounds of grass seed over 7,000 acres. [See Exhibit "G"]
- 2,000 temporary sediment dams have been created by placing nearly 30,000 straw bales in gullies to slow the flow of debris carried in rain runoff. Sediment dams are also created by contour felling of dead trees which is the process of cutting and aligning trees perpendicular to the slopes to prevent erosion.
- Mulching of standing dead trees helps break up hydrophobic soils and returns organic materials to the soil, replacing those destroyed in the fire. This was done in areas that were already seeded, providing mulch over the seed as well as removing unsightly burned trees.
- Salvage logging was very effective combined with the aerial seeding. Under private contract, 1,700 acres of burned land were logged by timber salvage companies. About 10 million board feet of lumber were salvaged. [See Exhibit "H"]
- To reforest the burned area on its property, Denver Water planted 25,000 ponderosa pine seedlings for each of the past two years and plans to plant the same amount annually for the next eight years.
- Aerial applied PAM (polyacrylamide) treatment was used to temporarily bind the soil and thereby reduce erosion. Use of PAM continues to be evaluated.
- Denver water spent \$1,500,000 on two sediment dams in order to prevent filling Cheesman Reservoir with the large amount of debris and sediment from burned areas on federal lands. [See Exhibit "I"] The Goose Creek sediment dam contains about 14,000 tons of rock. The Turkey Creek sediment dam will be 140 feet long with a 40 foot high span. Both sediment dams are designed to be water permeable.

4. Costs of remediation to protect fire ravaged watersheds are high, but the aforementioned techniques are proven to control erosion and return the landscape to a native forested condition over a long period of time. -- The costs of the Denver Water response to the Hayman fire at Cheesman have totaled nearly \$6,500,000. Federal help from the National Resources Conservation Service and the EPA has taken the form of technical advice and reimbursement of \$2,490,000. Of course, future dredging costs have not been estimated, but fire debris and sediment have filled reservoirs, diminished storage capacity, and shortened their estimated useful life. As mentioned before, the costs of the Buffalo Creek fire are over \$1,000,000 with anticipated reservoir and dredging costs of \$15,000,000 to \$20,000,000. Again the need for reservoir dredging has been accelerated by the fire-caused erosion filling the reservoir.

It is important for the federal government to stabilize their own land, not only to reduce the erosion that is fouling the water for Denver and other municipal suppliers, but also to assure a restoration of the forest environment. While expenditures are always of concern to a government, the damage caused on federal land has created a dangerous condition and endangered the public water supply that is an integral part of forest management.

5. Fire conditions on federal lands have not been sufficiently remediated, so that adverse impacts on municipal watersheds will continue and wildfire danger will remain high. -- In my opinion, Denver Water's experiences with the forest fires in the Upper South Platte can serve as a baseline for how to respond to large scale wild fire watershed damage involving federal and private lands.

First, potential damage from forest fire can be significantly reduced by careful, deliberate forest management. Passage of the Healthy Forest legislation last year demonstrates Congress is aware of the activities that need to occur to protect watersheds from irreparable harm. It is useless, and perhaps unconscionable, to legislate a well-defined forest protection policy and fail to fund it adequately. There is too much fuel load in our forests, and these forests need to be treated and thinned regularly and scientifically.

Second, sediment control measures, most of them small in scale, have helped to control fire caused erosion, but have not been severely tested by a large rain event. I am hopeful, but not particularly optimistic that we will succeed in preventing two million cubic yards of decomposed granite from moving downhill into our waterways.

Third, the federal government agencies, namely the Natural Resources Conservation Service, the United

States Forest Service, and the Bureau of Land Management are occasionally helpful and usually sympathetic. However, their budgets are limited and the acreage they deal with is vast compared with our own. Following the Hayman fire, we out-spent these agencies nearly ten to one on an acre-for-acre basis comparing our land to theirs. The point is that to date municipal systems injured by a forest policy that failed to protect municipal watersheds cannot depend on the Federal Government to do a great deal for you no matter how big your problem is and no matter how much their actions contributed to it.

Fourth, Denver Water remains concerned about over-grown forests both publicly and privately owned. The "red zone" is the urban/wild land interface west of Denver over the entire Front Range. We have not discovered the right mixture of carrot and stick that will motivate private or federal landowners to treat and thin the forest on their property to avoid catastrophic wildfire.

The above observations lead clearly to the conclusion that the local government agencies know as much or more than anyone about the issues of watershed/wildfire and what will help alleviate future water quality, sediment and erosion problems. Based on our experience, any combination of these measures will work, but we need help from the federal agencies to solve problems on their own lands and to protect the watersheds that serve the forest as well as the people of Colorado. Congress has a blueprint in the Healthy Forest Act, now it needs to provide the money so restoration and wise forest management can occur on all federal land. I urge your support of the requests for funds to carry out the Healthy Forest mandates.