



**COLORADO DIVISION OF
WATER RESOURCES**

DEPARTMENT OF NATURAL RESOURCES

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2004 Annual Report

Message from Hal Simpson, State Engineer

The Division of Water Resources (DWR) dealt with many significant issues in 2004, including the on-going drought, funding of the agency's programs, assuring compliance with interstate compacts, and implementing new legislation. The Legislature enacted HB04-1402 which repealed the fee program for water rights administration established in accordance with SB03-278. Strong water user opposition to this new concept of funding a portion of this important part of our mission resulted in the repeal. Fortunately, the Legislature provided other sources of funds (\$1,527,449) so that the DWR could continue proper water rights administration, and this support from the General Assembly is appreciated.

Other legislation important to the DWR include: SB04-032, which authorizes the loan of agricultural irrigation water rights between owners on the same stream for up to 180 days if the Division Engineer approves the loan in advance; SB04-222, which provides principles and guidelines for the State Engineer to administer ground water use in the Rio Grande basin, and encourages the use of ground water management sub-districts to assist in the implementation of this important legislation; and SB04-235, which established the fourth water conservation district in Colorado, the Republican River Water Conservation District (RRWCD), to fund and implement some of the requirements of the Republican River Compact Settlement Agreement signed in December 2002. The Board of the RRWCD met for the first time in August in Wray and over the

next four months took several proactive actions to assist Colorado in complying with the Settlement Agreement. The Board adopted a water use fee that will provide over \$3 million in annual revenues. It started immediately to develop an application for a Conservation Reserve Enhancement Program through the Natural Resources Conservation Service. This program, with an 80 percent federal to 20 percent local funding, could result in the voluntary cessation of irrigation on 40,000 acres. The Board is considering other programs to reduce stream depletions, especially in dry years. The staff of the DWR and the Attorney General's Office provided much up-front assistance until the Board was able to hire its staff and advisers.

In October of 2004, the U.S. Supreme Court approved the Fourth Report of the

Special Master in the Arkansas River Compact litigation without any modifications and remanded the case to the Special Master for preparation of a final decree. The Special Master has indicated that the remaining technical issues must be resolved by negotiation or arbitration if no agreement can be reached. Thus, the many days of trial are over and Colorado overall came out about as well as could be hoped for considering what Kansas claimed for possible damages in 1985 (over \$300 million).

Again, I must thank the staff of the Division of Water Resources for their dedication, loyalty, perseverance and honesty during another challenging year. They met these "opportunities" and overcame them without complaining and by serving the public in many untold ways.

Office of the State Engineer
Colorado Division of Water Resources

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Deputy State Engineer
Jack G. Byers
Engineering, Designated Basins, Technology,
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Assistant State Engineer
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South Platte

Steven J. Witte, Division 2
Arkansas

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Rio Grande

Frank J. Kugel, Division 4
Gunnison

Alan C. Martellaro, Division 5
Colorado

Robert M. Plaska, Division 6
Yampa / White

Kenneth A. Beegles, Division 7
San Juan / Dolores

South Platte River Basin—Division 1

The 2004 water year began on November 1, 2003 with irrigation reservoir levels on the plains at very low levels once again. Storage conditions for municipalities and irrigators on the tributaries were in much better shape. The winter was dry and snowpack lagged average. On the positive side, early winter weather was warm, limiting the times storage was prohibited by ice conditions. March was extremely dry in the South Platte basin causing snowpack to decrease to only approximately 60 percent of average throughout the basin. With the extremely dry, warm conditions, we expected, and did have, a direct flow irrigation call on the South Platte on April 1, 2004.

Precipitation events in April improved the snowpack from the beginning of the month, but snowpack still lagged significantly behind average at the end of the month. With many reservoirs not full, the number of days of storage was not near enough to fill the remaining

capacity of these reservoirs, both on the mainstem of the South Platte and on the tributaries. Major reservoirs that did not fill on the mainstem of the South Platte included Prewitt, Empire, Milton, and Barr Lake. With the dry conditions, users were also forced to irrigate their crops up with storage water, further reducing supply for even those who had full reservoirs going into the season.

Because of the low streamflow conditions, direct flow calls continued throughout the month of May. As a result, there was no reservoir storage on the mainstem or tributaries and many reservoirs remained significantly below capacity. With the low snowpack, it became apparent that there would not be a large runoff in June on the mainstem. In years with low snowpack, most or all the water from snowmelt ends up being used on the various tributaries to the South Platte as the senior rights are generally on the tributaries. Due to the dry conditions, Division 1 had to require

that all upstream out-of-priority storage be released within the basin to satisfy senior users. In most years, there is no requirement to release out-of-priority storage on most of the tributaries as senior reservoirs fill.

Division 1 continued to respond to the changing administrative situation created by urban growth, recent Supreme Court decisions and the drought. In 2004, several rain events caused rapidly changing surface flow conditions in the South Platte. These rapid changes required extensive efforts by the hydrographers to ensure that the gages on the sand channels of the South Platte were accurate and enabled commissioners to correctly administer the rapidly changing flows to the correct water users, many of whom were short of reservoir and other supplies from the last few years of drought. Thousands of irrigation well users were most affected by recent legal rulings and physical conditions in the South Platte.

Arkansas River Basin—Division 2

Although much of the Arkansas basin continued to be officially designated as a drought disaster area in 2004, there were also signs of hope that this condition might be lessening. During the winter storage program period, 81,439 acre-feet were stored, which is almost nine percent more than the previous year. The snowpack for the Arkansas basin fell short of the nearly average conditions observed in 2003, so that by June 1, the snowpack for the upper Arkansas was only 29 percent of average and the projected inflow to Pueblo Reservoir was only 70 percent of average.

On January 30, 2004, a Substitute Water Supply Plan was approved pursuant to Section 37-92-308(5),

C.R.S., that allowed the City of Aurora to utilize consumable water from dry-up of lands irrigated by 840 shares out of 2,250 shares of Rocky Ford Highline Canal Company to supplement Aurora's municipal water supply that had been severely depleted during the drought years of 2002 and 2003. The plan involved the dry-up of 8,251 acres under the Highline Canal, and was complex in nature with 36 conditions of approval developed through review of detailed comments by eight objectors to the plan application and numerous meetings between Aurora, Highline and State Engineer's Office staff and Division 2 staff. The plan operated by determining the daily consumptive use total that was to be credited to Aurora by exchange into Pueblo Res-

ervoir based on the amount of water the Highline Canal was in-priority to divert and physically did divert. The plan called for return flows to be quantified and either delivered back to the Arkansas River through an augmentation flume just down canal from the main Highline measuring flume or measured into unused reaches of the canal for recharge that would help create timing of return flows similar to the historical pattern. The success of the plan was less than Aurora had hoped to achieve in terms of net consumable water available to be exported for Aurora's municipal use. Aurora netted just under 7,000 acre-feet of consumable water delivered to the Otero Pump station where the water was pumped to Aurora's South Platte storage locations.

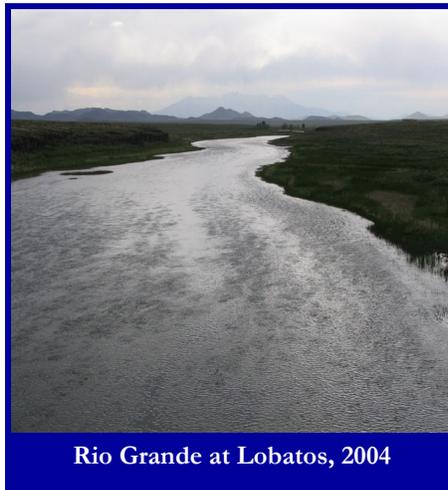
Rio Grande Basin—Division 3

The year started out looking good for snowpack with early snow water being over 100 percent of normal. However, an unseasonably warm March caused an early melt of a portion of the snowpack and April storms couldn't recover the deficit left by the unusual weather pattern. The descending limb of the snowmelt hydrograph was virtually straight down and the runoff was quickly over. This third consecutive year of much below runoff provided enough streamflow for most ditches to divert some water for about five to six weeks. The streams were back down to base flows that were much below normal. This lack of diversions once again resulted in a dramatic shortage of surface water for irrigation as well as for recharge of the aquifer that the wells are so dependant on. It also prevented any reservoir storage and most junior rights from being able to divert in all of 2004. This situation, along with very little natural recharge and very heavy pumping from both aquifers, caused another heavy draft on the aquifers of the San Luis Valley.

Once again, the summer monsoon season never developed, which only added to the woes of those using surface water. Ironically, the warm, dry conditions again made ideal growing conditions for those with a ground water supply and helped yield record crops. Most valley streams had low flows during the summer and fall. At one point in the latter part of August on the Conejos, there was only enough water to be able to deliver 40 percent

of the number one priorities. At the same time the Rio Grande was delivering to Priority Number 163 with less than 180 cfs available for distribution. Stream losses were again a significant factor that had to be dealt with on most streams.

The administration of the Rio Grande Compact was rather challenging in 2004. The dry weather conditions, the poor antecedent conditions, the lack of summer precipitation and the low base flows created another below average runoff. As the year proceeded and the forecasted and actual index dropped, the curtailment was reduced to zero in the late summer. The Rio Grande curtailment was significant even though the index supply was forecasted to be below normal. Further decreases in the index supply forced the curtailment to be removed from mid-August through the end of October. The ditches were shut off and the pre-compact reservoirs went into storage on November 1.



Rio Grande at Lobatos, 2004

Gunnison River Basin—Division 4

The 2004 water year continued the dry trend of the previous six years. Water supply conditions were somewhat worse than those of the previous year, and numerous water shortages were again experienced across the Gunnison and San Miguel Basins. The April snowpack was 74 percent of normal, which was less than the 78 percent of normal averaged over the previous five years. This prolonged dry trend has had an adverse impact on the aquifers and reservoirs of the basin. Office personnel continued to receive numerous reports of wells and springs going dry.

Division 4 generally experienced below-normal to normal peak flows during the spring runoff in 2004. The Gunnison River at Gunnison experi-

enced a daily peak flow of 1,700 cfs on June 7, which compares to a normal spring peak of around 2,600 cfs. The near-normal peak flows during an otherwise dry year resulted in significant additional storage because it allowed a number of junior reservoirs to be in priority and capture some of the limited volume of runoff. Fortunately, late-summer rains during each of the last two years have bolstered the content of area reservoirs such as Blue Mesa, helping to offset the impact of back-to-back dry years.

The Gunnison Tunnel began experiencing shortages in their supplies of natural flow on July 8. These shortages continued throughout August and most of September. Fortunately, the first- and second-fill storage accounts

in Taylor Park Reservoir were of sufficient quantity to meet Tunnel demands. This was the first year since 2001 that the Upper Gunnison Basin was not called out due to shortages at the Gunnison Tunnel. The Upper Gunnison River Water Conservancy District is pursuing a basin-wide plan of augmentation for the area upstream of Blue Mesa Dam.

The accounting techniques for Paonia Reservoir were improved. This information made it possible to keep better track of the Ragged Mountain exchange, in which 2,000 acre-feet of storage is exchanged to upstream diverters. This exchange began on July 6 when the Paonia Ditch called out the North Fork.

Colorado River Basin—Division 5

The very dry ending to the 2003 irrigation season changed abruptly in November to begin the 2004 irrigation season, when impressive storms left well above average precipitation for that month, which was tempered by December's less than average precipitation. On January 1, the runoff forecast and water supply outlook were more optimistic than had been since 2001. Basin-wide precipitation was 89 percent of normal and snowpack was 91 percent of normal. Reservoir storage on January 1, 2004 was 222 percent of January 1, 2003 and 87 percent of normal storage.

Each month following the January forecast produced below average precipitation through May. Reservoir storage stayed ahead of the previous year, but dropped from 222 percent to 139 percent of 2003 year-to-date levels on June 1. Even though storage was ahead of the previous year, the June runoff forecasts degraded to extremely dire conditions.

Though reservoir storage started the year significantly higher than the previous two years, and the Shoshone Power plant delayed its call allowing over 37,000 acre-feet of additional storage on the tail end of the snow-melt runoff, the only major reservoir in the basin to physically fill was Vega Reservoir. Green Mountain Reservoir did reach a paper fill on June 25, 2004, but on that date was nearly 40,000 acre-feet short of a physical fill. Ruedi Reservoir, which generally fills in dry years, was over 9,000 acre-feet short at the end of the storage season. Dillon, Homestake, Granby, Wolford Mountain, and Rifle Gap were all considerably below full when they began to be drawn upon. For the third consecutive year, Xcel Energy reduced its Shoshone Power Plant demands. However, the 2004 reduction was not the result of power interference agreements, but major repair to the tunnel and headwork, and also the installation of remote operation equipment. The daily opera-

tions of the power plant are now controlled at Cabin Creek near Georgetown, Colorado. This work continued through the entire storage season and was the reason the reservoir storage conditions exceeded 2002 and 2003.

This calendar year marked the eighth year of Coordinated Reservoir Operations under the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River. It was also the seventh consecutive year of below-average precipitation. The objective of the program is to coordinate operations of and releases from various reservoirs to enhance habitat in the 15-Mile Reach of the Colorado River below the Grand Valley Irrigation Canal for the benefit of endangered fish species. The plan bypasses storable inflow to increase the maximum peak at the Colorado River near Cameo gage. Cooperators limit such bypasses to amounts that would spill after the Cameo gage peaks.

Yampa/White River Basins—Division 6

Water year 2004 saw a return to the drought conditions that has been experienced for the last seven years. Spring runoff was significantly below average throughout Division 6, but summer precipitation helped ease the water supply problems in many areas. The year began on a very favorable note with early season snowfall accounting for an above-average snowpack. However, as the winter progressed, the precipitation amounts decreased, as did the snowpack. Above-average temperatures, coupled with below-normal precipitation, caused a rapid decline in the snowpack from March to May. By the beginning of May, the snowpack, as a percent of average, was well below normal and not much higher than that of 2002.

Precipitation amounts varied widely, but the general trend was for average precipitation early in the year, followed by a warm dry spring and a wet late-summer and fall. Some areas, such as North Park, saw substantial amounts of summer rains while other areas, such as the White River Basin, were dry all summer long. Stream flows were well below average even with the summer rains. The warm spring weather caused much of the snowpack to melt early, resulting in the peak runoff flows occurring on all the major rivers and tributaries.

Water administration began early in many parts of the Division as warm spring temperatures caused many rivers and streams to peak earlier than normal. With much of the snowpack

gone by the middle of April, irrigators sought to get as much water on their fields as early as possible. In many areas, the early irrigation start meant early calls for administration.

Pot Creek is a small tributary to the Green River. The headwaters are in Utah, and it enters the Green River in Colorado. Water in Pot Creek is apportioned between the two states under a Memorandum of Understanding. During 2004, no water was available for direct flow users in Colorado. At the annual water users meeting, it was reported that 413.5 acre-feet was stored prior to May 1, the start of the direct flow irrigation season. A determination was made that there was insufficient water available to satisfy downstream Colorado storage rights.

San Juan/Dolores River Basin—Division 7

The 2004 season began on a much more positive note for the water supply than in the last five years. Conservation of reservoir storage and the fall rainstorms in 2003 had allowed for carryover and some soil moisture increase for the mountain spring areas. Early in the year, snow accumulation kept pace with normal, but in March, a warm spell cut severely into the snowpack with premature runoff and temperatures 15 to 25 degrees higher than normal. The rivers did not rise as high as the previous year, with four separate peaks in May and one later in the summer, therefore, the distribution of flow was extended over time. The snowpack dropped from 85 percent of average at the beginning of May to 26 percent of normal water content.

Water administration was required in most areas that were short during previous years. With the adequate supplies in many areas, the early snowmelt stored in reservoirs along

with late summer rains, water users enjoyed recovery from the severe drought with the hope of better times to come. Vallecito Reservoir filled and McPhee and Lemon Reservoirs received over 90 percent fill.

A forty-inch plus snowstorm in January raised the snow-water equivalent to over 100 percent at the Wolf Creek Summit and the Upper San Juan SNOTEL stations for the first time in four years. By January 23, the stations reported 122 percent and 168 percent respectively. Snowpack on March 1 was nearing 120 percent, but a warm dry month acted like a "Chinook." In all, water supply in April in the Upper San Juan Basin was improved in 2004.

The La Plata River Compact was called out on March 29. The majority of the ditches were able to run during that time. However, as flows dropped off, the weather cooled down and there was no chance for the river to

totally dry up. Also, return flows were observed in the middle reach. This caused a gain, but not enough to supply compact requirements. Eventually, the only recourse was to shut all Colorado users off on July 21; however, the Compact was still short. A rotation schedule was proposed where Colorado would keep the river running during its rotation, but turn completely off for the New Mexico ditches. It was believed that this year was the first time rotation was implemented since 1963. It was a natural consequence of the falling river flows, since without this tool, Colorado would have needed to leave all the ditches off while the stream evaporated and seeped yielding less than what was required to the state line. The proposal was accepted by New Mexico, but certain additions that were added were not well clarified. A final agreement was not reached, but the water was run through two rotations to each state before the river went dry after August 18, 2004.

Dam Safety Activities

The State Engineer's Office approved plans for five new dams and thirty-four plans for alteration, modification, or enlargement. Twelve separate hydrology studies were also approved for determination of the inflow design flood for spillway design. The estimated cost of construction for the submitted plans was over \$39 million.

A total of 621 dam safety inspections and 238 construction inspections were conducted for a total of 859 inspections. In addition, 163 follow-up inspections were performed. At the conclusion of the reporting period, there were 186 dams restricted from full storage due to various structural deficiencies such as significant leakage, cracking and sliding of embankments, and inade-

quate spillways. The total storage restricted was 137,559 acre-feet. The restrictions provide risk reduction for the public and environment until the problems are corrected.

To increase storage capacity, new reservoirs are being contemplated and some have already been built. Pictured is the City of Loveland's new Green Ridge Lake Reservoir. The development of gravel pits along the South Platte River downstream of Denver to Fort Lupton is another alternative being utilized for increased storage. Many of these pits are being lined and the water stored in

them will be used either by exchange or piped to metro area users.

A Memorandum of Understanding was executed with the Division of Wildlife (DOW) regarding the responsibilities of each agency in carrying out the safety inspection of DOW dams. The DOW is making safety inspections of their low hazard dams. Routine inspections of federal dams by Dam Safety Engineers have been curtailed in accordance with a legislative audit recommendation. Memorandums of Understanding have been executed with the U.S. Bureau of Reclamation, the U.S. Bureau of Land Management, and the Air Force Academy relating to dam safety activities in Colorado.



Green Ridge Lake Reservoir

Well Inspection Program

The well inspection program was created under Senate Bill 03-45 and was instituted for the protection of ground water resources and public health through enforcement of the *Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation, and Monitoring and Observation Hole/Well Construction, 2 CCR 402-2*. Specific duties include inspection of water well construction and pump installation; monitoring/observation hole/well construction; well and hole plugging and abandonment; and to conduct complaint investigations;

provide education and outreach; and general support of the State Engineer and Board of Examiners. The well inspectors also administer the private well driller and private pump installer examinations in the Division offices where they reside.

The Chief Well Inspector was hired in February 2004 and the remaining inspectors were hired in July 2004. As of December 2004, over 900 well inspections and contacts were made with contractors and well owners. As identified by the Board of Examiners as a high priority, the inspection

program identified and documented 24 unlicensed contractors working in the state of Colorado. Currently, the inspectors are averaging 150 inspections a month.

A key focus of the well inspectors and the inspection program is to locate and initiate action against unlicensed contractors working illegally in the state. With regard to licensed contractors, the most frequent violation discovered by the well inspectors has been contractors drilling outside the distance limits allowed by the permit (usually 200 feet).

Hydrography and Satellite Monitoring Activities

The DWR is cooperating with the USGS and the CWCB on numerous activities this year. Work continued to upgrade the DWR and USGS gaging sites, with monetary assistance from the CWCB to “flood harden” areas that may have likely been damaged and unable to report stage during a flood event. Part of this work included extending rating curves at 17 gaging sites. In cooperation with the CWCB, an alert was launched, which is a notification system to notify key staff in the event of low flows, high flow, or rate of change of stage.

The cableway at the Rio Grande at Wagon Wheel Gap gage was replaced this year. The previous cableway, constructed by the USGS approximately ten years ago, did not meet the safety criteria and had been condemned. Nearly the entire cableway, with the exception of the mass anchors, was replaced, making cabling at this site much safer. The cableway located at Saguache Creek near Saguache gage was rehabilitated. The concrete control at Carnero Creek near La Garita was also rehabilitated this year. The concrete weir had developed some small

cracks in it over the last several years. A new gage was constructed on Boulder Creek at Boulder for minimum stream flow and flood monitoring.



Boulder Creek at Boulder

An interagency agreement with the Division of Wildlife was entered into with the Division 2 office to refurbish two abandoned DOW gauges on Rule Creek and Muddy Creek south of Las Animas Colorado. The DOW needs accurate flow information at these two locations for determination of potential

additions to the permanent conservation pool in John Martin Reservoir when certain hydrologic conditions are met. The two gaging stations were refurbished and high data rate satellite monitoring equipment installed during late summer 2004.

This year, a long-standing issue was resolved with the Denver Water Department over the operation of their new Cipolletti weir below Antero Reservoir. The weir had severe approach velocity problems due to inadequate baffling in the stilling basin below the outlets. During one of the rating measurement series, the hydraulics in the basin were so bizarre that the gage height at the weir actually dropped when the flow was increased. Denver installed more baffling and agreed to operate the outlets in such a way that basin turbulence can be monitored. The theoretic rating for the weir was replaced by one developed from measurements.

Finally, after an extensive period of holding the Chief Hydrographer vacant for various reasons, Mr. Thomas Ley, from the Division 2 office in Pueblo, was appointed to this position in June 2004.

Arkansas River Compact

The final week of the *Kansas v. Colorado* trial in Pasadena, California, was completed in January 2004. Following the trial, closing briefs were prepared and submitted. Work was initiated to accomplish the anticipated and required tasks in the findings of the Special Master in his fourth report, completed in late 2004. Some of the *Kansas v. Colorado* litigation support tasks that were accomplished in 2004 include:

- A budget request for \$750,000 was approved by the Colorado Water Conservation Board from the CWCB Litigation Fund for use on Arkansas River litigation projects.
- A project to design the lysimeters to be constructed at Rocky Ford, CO was initiated.
- A project to implement changes to the H-I Model in

accordance with the findings in the Special Master's Fourth Report was continued.

- A project to obtain estimations of potential evapotranspiration in the Arkansas Valley using satellite imagery was initiated.

Hearings on exceptions taken by Kansas to the Special Master's Fourth Report in the matter of *Kansas v. Colorado*, No. 105 Original, were held on October 4, 2004 by the U.S. Supreme Court. On December 7, 2004, the Court denied all exceptions and approved the recommendations of the Special Master.

The Division of Water Resources has begun a number of studies in cooperation with Colorado State University as a result of the *Kansas v. Colorado* litigation.

Republican River Compact

Irrigation year 2004 saw a major change in the Republican River basin as a result of the Final Settlement Stipulation in *Kansas v. Nebraska and Colorado*. Perhaps the most significant part of this change was the passage of Senate Bill 04-235 that created the Republican River Water Conservation District. The primary purpose of the District is to provide a local body to assist and cooperate with the state to assure compliance with the Compact as outlined in the Final Settlement Stipula-

tion. The District is authorized to raise funds through the use of fees, bonds, assessments and taxes. These funds will be used to both fund the operation of the District and, more importantly, to assist in reducing water use in the Republican River basin.

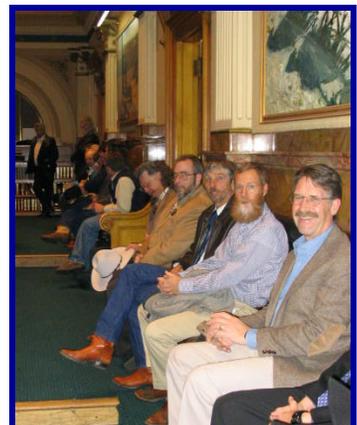
In Irrigation Year 2003, the first year of the five-year rolling average used to determine Compact compliance, Colorado exceeded its water allocation by several thousand acre-feet. The District and state are seeking to

bring the five-year rolling average water use into compliance by the voluntary retirement of irrigated lands and the associated water rights using monetary compensation. This voluntary retirement may be either permanent or temporary as part of either federal or state programs. Since the bill did not become effective until August 4, 2004, the District was not officially formed until after that date, thus no land was officially retired in 2004. It is expected that this will change in 2005.

125th Anniversary of Water Commissioners

February 19, 2004 marked the 125th anniversary of the creation of the Water Commissioner position in the State of Colorado, a historic day for the Colorado Division of Water Resources. An event was held to honor the Water Commissioners for their dedication to the citizens of the State of Colorado in administering water, the state's most valuable natural resource. This occasion was marked by a House Joint Resolution, the reading of an Honorary Proclamation signed by Governor Bill Owens on the floor of the State House Chambers, a poem written by Colorado Supreme Court Justice Gregory Hobbs, "*Ode to Water Commissioners*," and

praise from a number of high ranking government officials including Governor Owens, Department of Natural Resources Executive Director Russell George and State Engineer Hal Simpson. A water commissioner is a state water official, appointed by the State Engineer, who works under the direction of a Division Engineer, and performs the day-to-day distribution and allocation of surface and ground water in each river basin in Colorado, which includes turning headgates, issuing shut-down orders, and collecting water use and/or diversion data.



Some of DWR's Water Commissioners on the House Floor.

ADDITIONAL ACCOMPLISHMENTS AND STATISTICS

The DWR reviewed and acted upon 163 general substitute water supply plans (including emergencies) and 54 SWSPs related to gravel pits. One emergency substitute water supply plan was approved to provide drinking water to municipalities and other water suppliers to alleviate public health and safety concerns in Colorado. In addition, a total of 296 subdivision referrals were received and acted upon.

The Designated Basins staff issued 509 small capacity well permits, 334 large capacity permits/Determination of Water Rights, 89 change application approvals, and were involved in thirteen enforcement actions. Staff completed the issuance of final permits in the Upper Crow Creek Designated Ground Water Basin and continued the same process for the Southern High Plains Basin, issuing a total of 326 final permits. Staff also participated in 27 Ground Water Commission administrative cases.

The ground water evaluation staff received and acted upon 9,943 applications for well permits in 2004. Of this, 460 were emergency applications for replacement wells. The well permitting staff continues to process and analyze well permit applications, Monitoring-Hole Notices (1,256), Changes in Ownership/Address (6,165), Well Construction and Test Reports (8,380), and Pump Installation Reports (4,425). All of the applicable permit application forms and report forms were updated this year as a result of the passage of SB 04-185 and the datum change for the UTM coordinate system.

In 2004, 1,423 Water Court consultations and 49 formal Statements of Opposition and Motions to Intervene were filed on behalf of the DWR. The DWR participated as a formal party or litigant in only 3.4 percent of all Water Court cases filed. The number of applications or cases filed in Water Court continued to decline for the second consecutive year.

Information Technology in DWR has reached a level of maturity and reliability unmatched in the past. The achievements of 2004 include the ability to view critical documents on the web, interactive mapping on the web, increased accessibility through the VPN, a solid and stable Satellite Monitoring System, improved software for entering and using data in Hydro-Base, and reliable high-speed network connectivity. The DWR work force is becoming ever more adept at computers and is taking full advantage of our advancements. Imaging in DWR continues to be successful. Most large documents, such as maps and dam blue prints, were scanned into the system this year. After five years of unfulfilled promises from contract-consultants; our IT staff was able to create a web site for viewing images. This achievement allowed all of our field staff access to the images as needed.

The Rio Grande Decision Support System (RGDSS) development was completed. Future activities are expected to occur in 2005 and beyond as the project moves into the maintenance phase. The Modeling Branch worked vigorously to complete development and calibration of the RGDSS ground water models to promulgate Rules and Regulations for new wells located in the confined aquifer of the San Luis Valley. Legislation required the Rules and Regulations to be in place on July 1, 2004. The South Platte Decision Support System (SPDSS) moved into the second of six phases of implementation with most activities focused on data collection.

Hayman Fire Impacts

Sedimentation problems on Turkey Creek due to the Hayman Fire can be seen in this photo taken on November 9, 2004. Approximately two to three months before this picture was taken, a 42-foot sedimentation dam was constructed to block the sediment from flowing into Cheesman Reservoir. As can be seen in the photo, the dam has already silted in considerably. Efforts to dredge out the sand and silt have proved fruitless and more sedimentation dams upstream from this one are being contemplated. These sediment control dams are temporary structures that must be removed once the forests are reestablished. Unfortunately, the problems caused by the sedimentation of these mountain streams and reservoirs will be in existence for many years to come.

