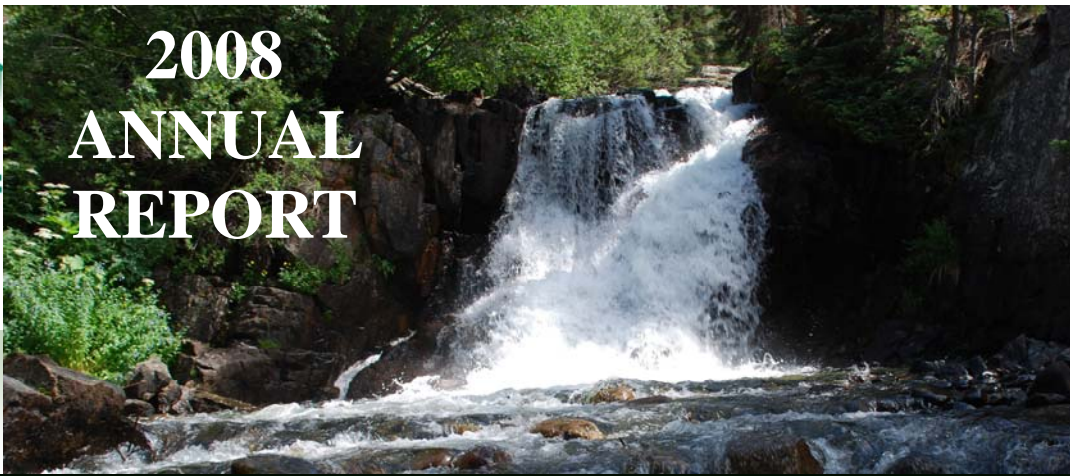


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2008 ANNUAL REPORT

Message from Dick Wolfe, Director/State Engineer

With the retirement of two Deputy State Engineers in July 2008, the Division of Water Resources (DWR) underwent a variety of organizational changes. The Deputy State Engineer was designated the Chief Operating Officer for DWR and is responsible for Interstate Compacts, Division Operations/Administration, and Special Projects. This position also oversees the two Assistant State Engineer positions. The Assistant State Engineer for Public Safety oversees the Hydrogeological Services, Dam Safety, Hydrography, and Modeling branches; and the Assistant State Engineer for Intrastate Water Supply Development and Litigation oversees the work of the Water Supply and Designated Basins branches.

Colorado's continued slowing economy could be seen during 2008 in regard to the decrease in the total number of permit applications received and the total number of permits issued by the DWR. In addition, many wells in the South Platte continued to be curtailed. It is unlikely that most of these wells will be allowed to pump in the future as there is inadequate water for all the users.

Colorado experienced the best runoff since 1997 due to the excellent snowpack. There were three or four distinct periods of warm up and cool down, which extended the peak runoff three to four weeks, minimizing the occurrences of flooding. The snowpack also allowed for most of the reservoirs, even on the tributaries, to fill. Municipal supplies along the Front Range continued to be in good shape because of significant storage reserve.

Litigation continued to consume a significant amount of time, effort, and expense for the Division of Water Resources. In particular, we continue to be actively involved in the adjudication of many large augmentation plans involving wells in Water Divisions 1 and 2. The DWR successfully stipulated to most of the cases in which we were a party, thus avoiding significant trial expenses.

In October, Governor Bill Ritter announced that that he was imposing a freeze on state hiring for all state agencies except higher education, education and departments headed by statewide elected officials. The freeze impacted filling many of our positions, however, we received exemptions to fill critical vacan-

cies for personnel responsible for protecting the health, life and safety of Colorado citizens. This was the second hiring freeze imposed by the state in the last six years. In March 2002, just as the state was entering a budget crisis, then-Governor Bill Owens imposed a similar freeze.

I want to take this opportunity to thank each member of the staff for the support, dedication and teamwork during 2008. With the many staffing changes in the Denver and the division offices, and the consequences of the economic downturn and hiring freezes, the employees have taken on additional workload with only my personal thanks, and I am very proud to work with each and everyone of them.

Office of the State Engineer
Colorado Division of Water Resources
 Executive Director, Department of Natural Resources
Harris D. Sherman
 Governor
Bill Ritter, Jr.

<p>Director / State Engineer <i>Dick Wolfe</i></p> <p>Deputy State Engineer <i>Michael Sullivan</i> Interstate Water Supply Protection and Litigation</p> <p>Assistant State Engineer <i>Kevin Rein</i> Intrastate Water Supply Development and Litigation</p> <p>Assistant State Engineer <i>Scott Cuthbertson</i> Public Safety</p> <p>Public Information Officer <i>Marta I. Ahrens</i></p>	<p>Division Engineers/ River Basins</p> <p><i>James R. Hall, Division 1</i> South Platte</p> <p><i>Steven J. Witte, Division 2</i> Arkansas</p> <p><i>Michael J. Sullivan, Division 3</i> Rio Grande</p> <p><i>Wayne I. Schieldt, Division 4</i> Gunnison</p> <p><i>Alan C. Martellaro, Division 5</i> Colorado</p> <p><i>Erin C. Light, Division 6</i> Yampa / White</p> <p><i>Rege W. Leach, Division 7</i> San Juan / Dolores</p>
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South Platte River Basin—Division 1

The complexity of administration continues to grow in Division 1. This year, the Division improved its inter-district coordination of deliveries of augmentation and other water; this has taken on dramatically increased significance with multi-district augmentation plans such as the Central GMS plan. Division 1 also implemented a systematic program for the auditing of well user accounting; previously, this had been a source of criticism for the Division. Division 1 also extended its cooperative program for the installation of data loggers and telemetry and is taking the lead to improve the efficiency and precision of diversion records and administration of well augmentation plans.

Six complaints were brought to Water Court against well owners in 2008. The steady decline in complaints is attributed to the systematic approach to the curtailment of illegal well pumping and an active presence in the water districts. At the end of 2008, the well enforcement program began redirecting their focus to curtailing well pumping within the tributary river districts.

Water supply conditions were in good shape as the 2006-07 water year wound down. This was due in large part to late-season precipitation events. Reservoir levels at the beginning of the 2007-08 water year were better than 2007 and generally in good condition, especially for Denver area water suppliers with many of their reservoirs nearly full. Even with the colder conditions, the river flow and beginning of the year storage levels gave hope that all major irrigation reservoirs on the plains would fill by the spring of 2008, providing a good start to the irrigation season.

Though snowpack was average or above average throughout the basin, generally the demand by the senior users along the tributaries and the upper part of the South Platte took all of the available supply. Thus, there were senior calls on the main stem below Kersey in May and June, unlike the spring of 2007 when there were seven weeks of free river. The very dry conditions continued in July with precipitation averages of less than 75 percent of normal over most of the front range. It was the

third driest July in Denver during the period of record with only 0.24 inches of precipitation. Fortunately, August was significantly wetter than the previous portion of the irrigation year on the plains with several significant widespread storms in the basin.

Currently, there are no rules governing ground water measurement within the South Platte River basin. There are also currently at least twelve Water Court augmentation plan cases (either decreed or pending) involving approximately 1,980 large capacity wells that contain the language, "*Meters must be tested and certified to be accurate at least once every four years by a registered professional engineer or other person qualified to test and certify well meters.*". However, without rules, it is very difficult to meet the decree requirements as there is no definition of what the terms "tested", "certified", "accurate", or "other person qualified" mean. Division 1 intends to address this situation by promulgating measurement rules to become effective in Irrigation Year 2011.

Arkansas River Basin—Division 2

Based on the reported snowpack that peaked at 149 percent of normal mid-April, water users began 2008 with high expectations of having an ample water supply, including forecasts of flooding for locations near Canon City and La Junta. Long range forecasts in late April indicated alternating periods of warming and cooling would cause a prolonged runoff and reduce flooding concerns. These predictions proved remarkably accurate. However, the actual runoff occurred at times that matched the long-term average very closely and the peak flows were substantially higher than normal.

Although the prevailing late spring temperatures throughout the Arkansas basin were very moderate, there was very little precipitation. Precipitation continued to be scarce in the early part of the summer causing irrigators to begin drafting their reservoir supplies

of Winter Water and Fry-Ark Project water. July proved to be the driest on record in the City of Colorado Springs with less than .3 inches of precipitation recorded. The city set another record for the most water utilized for any single month on record. A monsoonal pattern brought some welcome relief from high temperatures to southern Colorado during the first week of August, however, the precipitation was localized.

High capacity well pumping, which is primarily used for irrigation, was above average. Total pumping for all wells in the three largest Arkansas River replacement plans during calendar year 2008 was 100,434 acre-feet. Total pumping for irrigation wells in the Arkansas River alluvium below Fountain Creek was 85,625 acre-feet, which is 148 percent of the 2003-07 average.

Of the 6,568 wells listed in the Ground

Water Operations database, almost 4,300 are subject to the Amended Rules Governing the Measurement of Tributary Ground Water Diversions Located in the Arkansas River Basin. Of the 4,300 wells subject to the Measurement Rules, approximately 2,300 were shown in the Ground Water Operations records as having valid measurements methods and tests during some or all of 2008.

During the summer and fall, members of the Division 2 ground water operations team utilized some creative applications of the XMAP GIS Enterprise system while performing their routine site visits. The current ground water field process was streamlined by using the XMAP process already in place. Field personnel are able to manage their daily work flow more efficiently by grouping field visits, display sites that have already been visited, and avoid repeat visits to the same area.

Rio Grande Basin—Division 3

The snowpack in the basin as of January 1, 2008 was 137 percent of normal, and by February 1 it was at 168 percent of normal. The snowfall continued through February, with the resulting snowpack at 164 percent of normal by March 1. In March, employees from the Division 3 office began attending meetings in various areas of the valley to warn residents of the probability of high and possibly damaging flows to come. However, by mid-March, the snowfall stopped. The April 1 snowpack dropped to 136 percent of normal, and the promise of a very large runoff evaporated along with the snow.

The Well Metering program picked up in 2008 where it left off in 2007. Meters were required to be installed on all non-exempt wells by March 1, 2007 and to be verified in accurate working condition within one year or March 1, 2008. The beginning of 2008 was spent preparing for the March 1, 2008 compli-

ance deadline regarding flow meter verifications. With an estimated 6,000 wells in the basin, this was a huge task. Initially, staff were kept in the office to grade and process the huge volume of paperwork involved in the required Meter Verification forms. Metering staff reviewed additional forms submitted, inspected meter installations accuracy, inspected one-half of the wells filed as inactive, and completed the field inventory of all the wells within the scope of the Measurement Rules.

For the last several years, the Rio Grande Water Conservation District (RGWCD) encouraged the formation of ground water subdistricts. These subdistricts were recognized in SB-222. They would have as their goals to stabilize the aquifers associated with each subdistrict, prevent injury to senior rights, restore the historic stream aquifer connection, and promote a sustainable system. During the summer of 2006, the Court ap-

proved the formation of Subdistrict #1 located in the closed basin north of the Rio Grande. A second subdistrict, the Trinchera Subdistrict, was formed in 2008. This subdistrict encompasses the wells in the area of Trinchera Creek. Currently, the petitions for formation of Subdistrict #2 (alluvium south of the Rio Grande) are being recollected for submission to the RGWCD for formal review and filing with the Water Court.

Well metering has not been accepted by all. The division has had to post 731 Well Head Orders including 254 cease and desist orders, 317 violation orders, and 160 cease and desist or violation orders. The division had to use the Attorney General's Office to prod folks into compliance. In one case, after repeated attempts to bring an individual into compliance, the court awarded a \$6,000 fine for pumping without a meter in violation of the rules.

Gunnison River Basin—Division 4

The 2008 Water Year was an exciting water year. It started out with very dry and warmer than average conditions in October and November of 2007. By December 1, 2007, snowpack conditions were only 52 percent of average. Then, a dramatic change of events occurred. Winter storms came with regular frequency and intensity and by April 1, 2008, the basinwide average snowpack climbed to 128 percent of average. With such extreme snowpack conditions in the basin, the potential for flooding in various areas such as Delta and Gunnison was a very real concern going into the spring runoff season. However, intermittent cooling periods throughout the spring, extended the duration of the runoff and reduced the peak runoff flows to containment within stream banks.

The spring runoff turned out to be far above normal. The measured runoff into Blue Mesa for the April to July 2008 spring runoff was 1,006,000 acre-feet. During the irrigation season, especially from June through October, the Gunni-

son Basin experienced one of the driest irrigating seasons on record, in terms of precipitation. If it were not for the generous carry over storage from 2007 and the near record snowpack conditions resulting in extended live stream conditions, farmers would have been singing a different tune in 2008.

The Gunnison Basin Roundtable was created to cooperatively develop long-term solutions to conserve, protect and defend the waters of the Gunnison Basin for the use, enjoyment and benefit of the people of the Gunnison Basin. The Division Engineer or Assistant Division Engineer has attended most all regularly scheduled meetings of the Roundtable group to provide technical assistance.

The proceedings over the quantification of the Black Canyon National Park water right continued through 2008. This application by the federal government to quantify the federal reserved water right for the Black Canyon of the Gunnison National Park was followed by the most

statements of opposition against a water court filing in Colorado Water Court history. A successful outcome was achieved through over two years of negotiations by a composite group of water users, environmental coalitions, and government officials. The work secures a legal water right that protects a national treasure and simultaneously provides certainty to Colorado citizens that depend upon our water resources. Successful negotiations averted a potentially expensive water court trial, scheduled to begin June of 2009. Department of Natural Resources officials reported that Judge Steven Patrick entered an order on December 31, 2008 approving the decree which quantifies the federal reserved water right in the Black Canyon of the Gunnison National Park.

Division Engineer Wayne Schieldt retired on December 31, 2008 after 28 years of state service. Assistant Division Engineer Bob Hurford was appointed as Acting Division Engineer.

Colorado River Basin—Division 5

The 2008 irrigation year began with a wet October and a very dry and warm November. However, reasonable snow accumulations in December resulted in a slightly above average snowpack by January 1 at 105 percent of average basinwide. October through December produces on average 32 percent of the annual snowpack accumulation. It was the third consecutive year that January snowpack was above normal. However, reservoir storage began the calendar year slightly below average and below last year on this date.

January and February precipitation were both well above average, with snowpack on March 1 at 128 percent of average for the entire basin, with the Roaring Fork sub-basin attaining the highest sub-basin average at 154 percent of normal. March reservoir storage was a slight improvement over January 1 at 102 percent of average. With the tremendous snowpack and runoff projections varying from 102 percent of normal at Granby to 141

percent in the Roaring Fork, reservoir operators began to make space for some flood mitigation.

By the end of the storage season in early July 2008, all the major reservoirs in Water Division 5 had filled with the exception once again of Granby Reservoir. Storage at Granby Reservoir peaked at 437,128 acre-feet, which is 106,678 acre-feet below the spillway and a fraction greater than the maximum storage in 2007.

With the Shoshone Power plant down for repair the entire winter, the 2007-08 winter river flows were below average but continued to be propped up by releases through the Green Mountain power plant. The repair of the June 20, 2007 rupture of the Shoshone Power plant penstock was not completed until April 25, 2008. The lack of main stem calls throughout the year resulted in improved storage supplies.

The irrigation year began on November

1, 2007 without a main stem call. High flows and operational issues at Shoshone delayed a call from the power plant until October 6, 2008. The Shoshone call was effective a total of only 26 days during the 2008 irrigation year. Meanwhile, a Cameo call was never implemented during the 2008 irrigation year.

There are an estimated 1500-plus wells in Summit County that are not in compliance with their well permits and/or the conditions of their decree. Of these, 1,200 are estimated to be exempt household use only wells, while nearly 300 are augmented household use only wells, and a few are wells that are augmented for uses other than household use only. Through the Summit County and Vidler Water Company Umbrella Plans, contracting and review procedures are in place. With the budget crisis limiting operating, particularly travel, progress in 2009 will be limited to follow-up on previously issued orders.

Yampa/White River Basins—Division 6

In water year 2008, the snowpack or snow water equivalent (SWE) started well below average, but gradually grew to near average by January. The SWE for the North Platte and Yampa River basins was well above average by the end of April, whereas the SWE for the White River basin was well below average.

Cooler weather in the months of April and May resulted in a prolonged and slower runoff, which was fortunate given the high snowpack in the North Platte River and Yampa River basins. Even with the prolonged runoff, many stream basins still experienced flooding.

As a result of the higher snowpack and runoff, the Michigan and Illinois Rivers in the North Platte River basin were not subject to administration this year. Likewise, as a result of both the higher snow-

pack and oil and gas activities, which resulted in many acres of land not being irrigated, Piceance Creek was also not subject to administration. Releases were made to the Yampa River from Elkhead Creek Reservoir for the endangered fish recovery program that Division 6 is responsible for protecting down the river.

A peak of record (1905 through 2008) did occur in water year 2008 on the Elk

River near Milner. The peak occurred on May 22, 2008 at 6,290 cubic feet per second (cfs). The previous peak of record occurred on May 24, 2005 at 6,060 cfs. The Yampa River at Steamboat Springs peaked on June 4 at 3,850 cfs.

The increase in the required number of Water Court field inspections continued this year with several cases having an unusually large number of structures. Twenty-seven illegal, jurisdictional dams were discovered primarily during these field inspections.

The Steamboat Springs ski area recorded over 100 inches of snow per month during December, January and February; the first time three consecutive months reached 100 inches. The total record snowfall was just below 500 inches by the end of the ski season.



Elk River at County Road 42 near Milner on May 22, 2008

San Juan/Dolores River Basin—Division 7

The 2008 water year was a year of contrasts as far as precipitation is concerned. The water year started out with a whimper. Precipitation was scarce across the Division with just 0.48 inches in Durango from September 22, 2007 to November 23, 2007. A change in the weather pattern provided southwestern Colorado with one of the snowiest periods in many years. Over the next 88 days, from November 24, 2007 to February 25, 2008, Durango received 89 inches of snow containing 12.38 inches of precipitation. Just as quickly as the precipitation started it ended. The next 79 days, to May 14, 2008, less than 2 inches of snow fell and Durango only received 0.43 inches of precipitation. The weather pattern returned to a more normal summer pattern with the remainder of the water year receiving 7.84 inches of precipitation. Overall for the water year, Durango received 21.52 inches of precipitation, ten percent above its normal of 19.52 inches.

Areas in the Division that do not have a large reservoir to rely on for irrigation, water rely on snowpack. Snowpack was off to a poor start until the last week of November. SNOTEL data indicated that from November 23 to December 12, the basin accumulated 430 percent of the average snow water equivalent for that time period. By January 1, 2008 the snow pack was 129 percent of normal. This was the highest January 1 snowpack percentage since 1997 and the second highest since 1988.

There was a significant order issued by Judge Lyman this year regarding water as the by-product of Coal Bed Methane (CBM) production. The Vances and Fitzgeralds (plaintiffs) asked the Court, in Case No. 05CW63, to “ascertain the statutory obligation of the State Engineer to require well permits and augmentation plans when ground water, which is hydraulically connected or tributary to the surface streams in which Plaintiffs hold water rights, is

diverted in the course of coalbed methane production.” The State Engineer (Defendant) and BP America Production Company (Defendant-Intervener) asserted that “water extracted in the process of oil and gas drilling is ‘produced water’ over which the State Engineer has no jurisdiction”. The judge found that the Motion for Summary Judgment filed by the plaintiffs should be granted and that the Motions for Summary Judgment filed by the Defendants are denied. The State requested a stay in the implementation of the Judge’s decision pending appeal and that stay was granted. The State Engineer’s Office then appealed the decision to the Colorado Supreme Court. Oral arguments were held before the Court on September 10 and no decision has yet been released.

Rege Leach was appointed Division Engineer on July 7, 2008. Rege brought over 30 years experience with the Bureau of Reclamation with him.

Dam Safety Activities

During water year 2007-08, the State Engineer’s Office approved seven plans for new dams and 37 plans for alteration, modification, or enlargement of existing dams. Hydrology studies for seven dams were also approved for determination of the inflow design flood for spillway adequacy or design. The estimated cost of construction for the submitted plans was over \$24.4 million. Six new dam construction projects and one reservoir enlargement project were approved for full water storage resulting in 20,000 acre-feet of additional storage in the State of Colorado.

A total of 575 dam safety inspections and 204 construction inspections were conducted by dam safety engineers for a total of 779 inspections. In addition, 147 follow-up inspections were performed. At the conclusion of this reporting period, there are a total of 168 dams restricted from full storage due to inadequate spillways and vari-

ous structural deficiencies such as significant leakage, cracking and sliding of embankments.

A landslide progressing into the San Juan River at a rate of approximately four feet per day on the East Fork of the San Juan River above Pagosa Springs generated concern over the potential flooding hazard that would result should the landslide form a natural dam across the river. The slide was located about 14 river miles upstream of Pagosa Springs. Dam safety engineers performed an analysis to determine the peak discharge as a result of a failure of the natural dam. After the spring snowmelt runoff season, the slide stabilized and did not continue to advance forward.

Because of the heavy snowpack that existed in the Western Slope mountains in 2008, dam safety engineers out of the Glenwood Springs and Grand Junction offices flew over dams with poor access

that are prone to heavy snow problems. These dams are on the Grand Mesa in Garfield, Mesa and Pitkin Counties. Approximately 70 dams were looked at in a two-hour period, which proved to be a very efficient way to identify major snow-pack related problems.

Mark Haynes was selected to serve as a state representative on the Dam Sector committee of the Department of Homeland Security Government Coordination Council (GCC). The purpose of the GCC is to bring together a diverse federal, state, local, and tribal interests to develop and identify collaborative strategies that advance critical infrastructure protection and security. Paul Perri was selected to serve a two-year appointment on the National Committee on Levee Safety (NCLS). The NCLS was tasked with developing recommendations for a National Levee Safety Program, including a strategic implementation plan by January 15, 2009.

Rio Grande Compact

The administration of the Rio Grande Compact was again challenging in 2008. With the high forecast at the beginning of the irrigation season, ditches on both rivers were held off from diverting until April 14. When the rivers were turned on at the beginning of the season, water users faced a large curtailment. As the forecasted streamflows continued to drop throughout the spring, the curtailment percentages also dropped. At the end of the irrigation season, the Rio Grande was looking at a forecasted over deliv-

ery of approximately 25,000 acre-feet. After the irrigation season was over, the ditches on the Rio Grande with winter recharge decrees were allowed to divert. These ditches diverted approximately 18,500 acre-feet of water.

Extensive use of recharge was made in the basin to avoid over-delivery of water to downstream states. In the lower part of the basin, endangered species issues and the Elephant Butte Operating Agreement were the larger issues. The Compact Commission con-

tinues to observe the impact of endangered species on New Mexico's water operations. The Operating Agreement was developed to incentivize the conservation of water in Elephant Butte Reservoir by allowing the two districts to build carryover pools in the reservoir. Finally, the Rio Grande Compact Commission is discussing salinity studies, via the formation of a salinity group that can access ACOE WRDA funding, in the lowest part of the upper basin (below Elephant Butte Reservoir to Ft. Quitman, Texas).

Republican River Basin Activities

Under the Final Stipulated Settlement, ground water was included in the Republican River Compact. Compact accounting indicates that Colorado is not in compliance with the Republican River Compact due to ground water use exacerbated by the extreme drought that started in 2002.

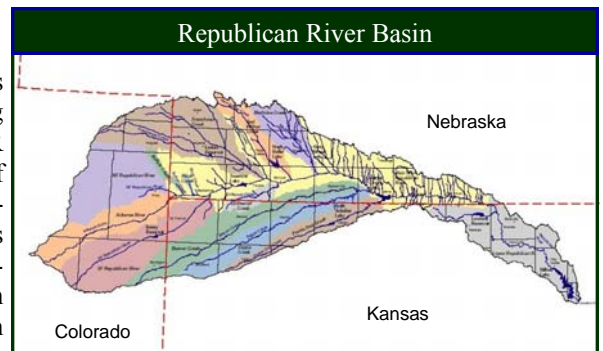
The State of Colorado and the Republican River Water Conservation District (RRWCD) proposed a pipeline to pump water to the Republican River near the Colorado stateline to assist in compact deliveries. In 2008, Colorado continued to work with Kansas and Nebraska to develop a resolution on accounting for water delivered to the downstream states via the proposed Colorado Compliance Pipeline. The RRWCD worked to secure a majority of the funding for the purchase of

water rights and construction of the pipeline from the Colorado Water Conservation Board.

Colorado prepared for an arbitration hearing on Kansas' claims against Nebraska for overuse/underdelivery of compact obligations and for Nebraska's claims for restricting of the ground water model used to determine ground water impacts on the streams in the Republican River Basin.

To further refine the amounts of water that are being diverted in Colorado, DWR completed the process of promulgating Well Measurement Rules and Regulations regarding metering of pumping all large capacity wells in the Republican River Basin

in July 2008. The rules require that by March 1, 2009 each well pumping over 50 gpm either install and have certified as accurate a totalizing flow meter, or have a power conversion coefficient (PCC) calculated by an authorized individual or be certified as inactive by the owner. In July 2008, four full-time positions were created to implement the Well Measurement Rules.



Arkansas River Compact

Colorado continued to work with Kansas to finalize the settlement of the long running *Kansas v. Colorado* lawsuit regarding compact compliance. Kansas filed a motion under the retained jurisdiction of the Final Decree regarding the adequacy of the 1996 Well Use Rules at the end of the 2008. Colorado agreed to continue working with Kansas to demonstrate the adequacy of the Rules.

In an effort to avoid additional viola-

tions of the Compact, the State Engineer formed a special Advisory Committee to assist in developing rules and regulations regarding irrigation efficiency improvements made in the basin to surface water irrigation systems. These improvements are subject to the compact under certain circumstances. The Advisory Committee met five times in 2008 which resulted in substantive changes to the draft rules. It is hoped that the committee will assist in making the necessary rules work well

and to minimize the impact to the farming practices in the basin.

In July 2008, the states reached agreement that based on HI model runs for the period 1998 through 2007 and using the ten-year accounting procedure for depletions and accretions to usable stateline flow, there has been an accretion of 19,866 acre-feet; indicating that Colorado has remained in compliance with its Compact obligations.

New Legislation—House Bill 08-1014

New legislation was enacted (House Bill 08-1014) which affects residential water wells. First, owners of well permits are required pursuant to Colorado Revised Statutes §37-90-143 to file an update with the State Engineer regarding any change of owner name and/or mailing address. The buyer in a residential real estate transaction that includes the transfer of a registered/

permitted residential well must, prior to or at closing, complete a Change in Owner Name/Address form (GWS-11).

In addition, an application to register a well must be submitted to the State Engineer's Office prior to or within 60 days of the closing of the sale of residential real property, to register a residential well "not of record" with the

State Engineer. The legislation affects residential wells only and does not apply to other wells such as wells used for fire fighting purposes, commercial/industrial use, crop irrigation, and agricultural livestock watering. A guide to these changes and a copy of House Bill 08-1014 is posted on DWR's website at www.water.state.co.us.

Hydrography and Satellite Monitoring Activities

Hydrographers and water commissioners across the state made 3,767 measurements in streams, rivers, canals and ditches in 2008. These measurements were made to calibrate stage-discharge relationships at stream gaging stations, in canals and ditches in support of real-time water administration decision-making and in support of historic streamflow record development.

Several new and/or enhanced software tools were developed and released which support the collection, processing, and display of streamflow data. Among these are enhancements to the DWR Colorado Surface Water Conditions site <http://www.dwr.state.co.us/SurfaceWater/default.aspx>.

A number of new gaging stations were added to the satellite monitoring system in 2008. Typically, new gages are added as the result of the identification of a critical water administration need. Division 1 added 20 new gages as part of the South Platte Flow Monitoring Project. This project is a cooperative venture between DWR, Northern



Colorado WCD and Lower South Platte WCD. A total of four new gages were added to the satellite monitoring system in Division 2; Salt Creek near the Mouth below Pueblo; Fort Bent Ditch; Talcott and Cotton Ditch; and Lamar Light and Power Return Flow. One new stream gage was added to the system in Division 6, it was funded by the Upper Yampa Water Conservancy District and is located on Morrison Creek immediately below the confluence of Morrison Creek with Silver Creek. One new stream gage was added to the system in Division 7; East Fork San Juan River near Pagosa Springs.

The Hydrographic Branch continues to refurbish and maintain DWR's existing

stream gaging network sites. Gage maintenance and refurbishment funds amounting to \$55,000 were received from the Colorado Water Conservation Board (CWCB) for this purpose. These funds along with a portion of our General Fund appropriations were used to carry out several refurbishment projects throughout the state.

The high data rate (HDR) data collection platform upgrade project continued this year. CWCB funding in the amount of \$248,000 was received in support of this ongoing activity. Included in this funding is the cost of the replacement data collection platforms plus upgraded shaft encoders and grounding systems.

A new program was initiated in 2008 (along with the DCP upgrade program) to replace older Sutron Accububbler stage sensors with a new product from Sutron called a Constant Flow Bubbler. These units have a number of improved features and have proven to be much more accurate and reliable than the older Accububblers. A total of 13 Constant Flow Bubblers were installed.

La Plata River Compact

Hydrologic conditions in the southwest part of the state have remained dry. The La Plata Compact requires deliveries under varying hydrologic conditions. New Mexico has long been concerned about Colorado's administration during dry conditions.

The La Plata and Southwest Water Conservancy Districts are sponsoring

Long Hollow Reservoir as a potential solution to the long-standing controversy. Animas-La Plata settlement funds on reserve with the Colorado Water and Power Authority are a possible source of funding for this project.

The upper index for the La Plata River Compact at Hesperus remained above 100 cubic feet per second (cfs) from

April 20 to June 26 this year. As is the norm, the La Plata Compact was not without challenges this year and included a period when the number one water right in Colorado was totally shut off to meet New Mexico's Compact call. River conditions allowing for "split" river administration never occurred this year.

ADDITIONAL ACCOMPLISHMENTS AND STATISTICS

- ◆ The State Engineer's Office reviewed and acted upon **243 general substitute water supply plans** (SWSPs) (including emergencies) and **75 SWSPs related to gravel pits**. This includes **twelve Rule 14** replacement plans approved in Water Division 2 pursuant to the Arkansas Use Rules.
- ◆ Although subdivision water supply plans must be reviewed in 21 days to meet statutory time restrictions, the Denver staff often act on them in substantially less than 21 days. During 2008, the State Engineer's Office received and acted on a total of **304 subdivision referrals**. This function requires continuous information sharing and communication with all Colorado counties.
- ◆ The Designated Basins staff (the personnel who act as staff for the Colorado Ground Water Commission) issued **236 final permits, 570 small capacity well permits, 604 large capacity permits and Determination of Water Rights, 40 change application approvals, replacement plans**, and was involved in **enforcement actions**. The staff continued evaluation of Final Permits. The staff participated in a number of administrative hearings and court cases. The staff prepared for and testified in a hearing to amend the boundaries of the Kiowa-Bijou Designated Ground Water Basin and the prepared for and was involved in the litigation of Pioneer Irrigation District seeking to de-designate portions of the Northern High Plains Designated Ground Water Basin.
- ◆ The **well permitting staff** received and acted upon 5,582 applications for well permits. Of that total, 724 were applications for replacement wells. In addition, staff processed 489 monitoring-hole notices, 5,666 changes in ownership/address, 3,906 well construction and test reports, and 2,548 pump installation reports. The **well inspectors** conducted more than 1,750 inspections in 2008. As in previous years, nearly half of the inspections were conducted in Division 3.
- ◆ The Division of Water Resources receives referrals from other State and Federal agencies including the Colorado Division of Reclamation, Mining and Safety, the Army Corps of Engineers, and the Colorado Department of Public Health and Environment and miscellaneous federal agencies regarding environmental assessments and environmental impact statements. The Water Supply staff acted on 161 referrals from these agencies.
- ◆ The **Board of Examiners** licensed a total of 252 contractors in 2008, including ten new contractors. License renewal for 2008 marks the fourth year that each contractor is required to obtain a minimum of eight hours of continuing education (CE) for license renewal.
- ◆ Settlement was reached of the Pioneer Ditch litigation in the Republican River basin as result of successful passage of a bond issue in Yuma County on November 4 to purchase effectively all of the remaining surface water rights on the North Fork of the Republican River.
- ◆ Completed installation of remote sensing and telemetry systems on all major diversion and return flow structures on the mainstem of the South Platte River below Denver.
- ◆ The South Platte Decision Support System completed the remaining 20 percent of the Phase 4 activities and began activities scoped for Phase 5 of the 6-phase project. The Ground Water team completed data collection and began calibrating the model of the South Platte Alluvial aquifer based on a pre-stress model developed in Phase 4, which contained the stratigraphy, aquifer properties and stream system.

Tornado Damage at Windsor Lake Dam

Windsor Lake Dam is a High Hazard dam located in Weld County. On May 22, 2008, a large tornado passed through the northeast corner of the Town of Windsor and directly over Windsor Lake Dam. A tree located at the downstream toe of the dam uprooted, resulting in hole approximately ten feet in diameter and two to three feet in depth. No evidence of active seepage was observed due to the fact that there was no water being impounded on this portion of the dam at the time. Plans and specifications for repair of the hole left by the fallen tree as well as removal of other trees that are on the dam were prepared by the owner's engineer.

