

Division 2 Annual Report  
2011



Steven J. Witte  
Division Engineer  
Division 2

June 1, 2012

**Water Division 2 • Pueblo**

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DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF WATER RESOURCES

John W. Hickenlooper  
Governor  
Mike King  
Executive Director  
Dick Wolfe, P.E.  
Director/State  
Engineer  
Steven J. Witte, P.E.  
Division Engineer

June 1, 2012

Mr. Dick Wolfe  
State Engineer  
Colorado Division of Water Resources  
1313 Sherman St.  
Denver, CO 80203

Dear Sir,

Please accept this executive summary report describing some of the principle activities and accomplishments of Division 2 personnel during 2011.

I want to thank you for your untiring support and assistance to me throughout the year. Your leadership and personal involvement have contributed significantly to the accomplishment of our shared objectives.

I would also like to publicly acknowledge and thank the men and women of Division 2 who have worked faithfully and diligently to provide such excellent service to the people of Colorado. As you know, we are indeed fortunate to have such talented and committed staff members. While there is always a risk of inadvertently failing to specifically acknowledging the commendable efforts of certain individuals, I have attempted to give credit where particularly due throughout the report. I also want to acknowledge those that have significantly contributed to this report, including Bill Tyner, Wendy Hunker and Julie Pearson.

As we are now almost half through what is proving to be a very challenging year, in both fiscal and hydrological terms, please be assured that we will continue to do our best on your behalf and for the State.

Very Truly Yours,

Steven J. Witte  
Division Engineer

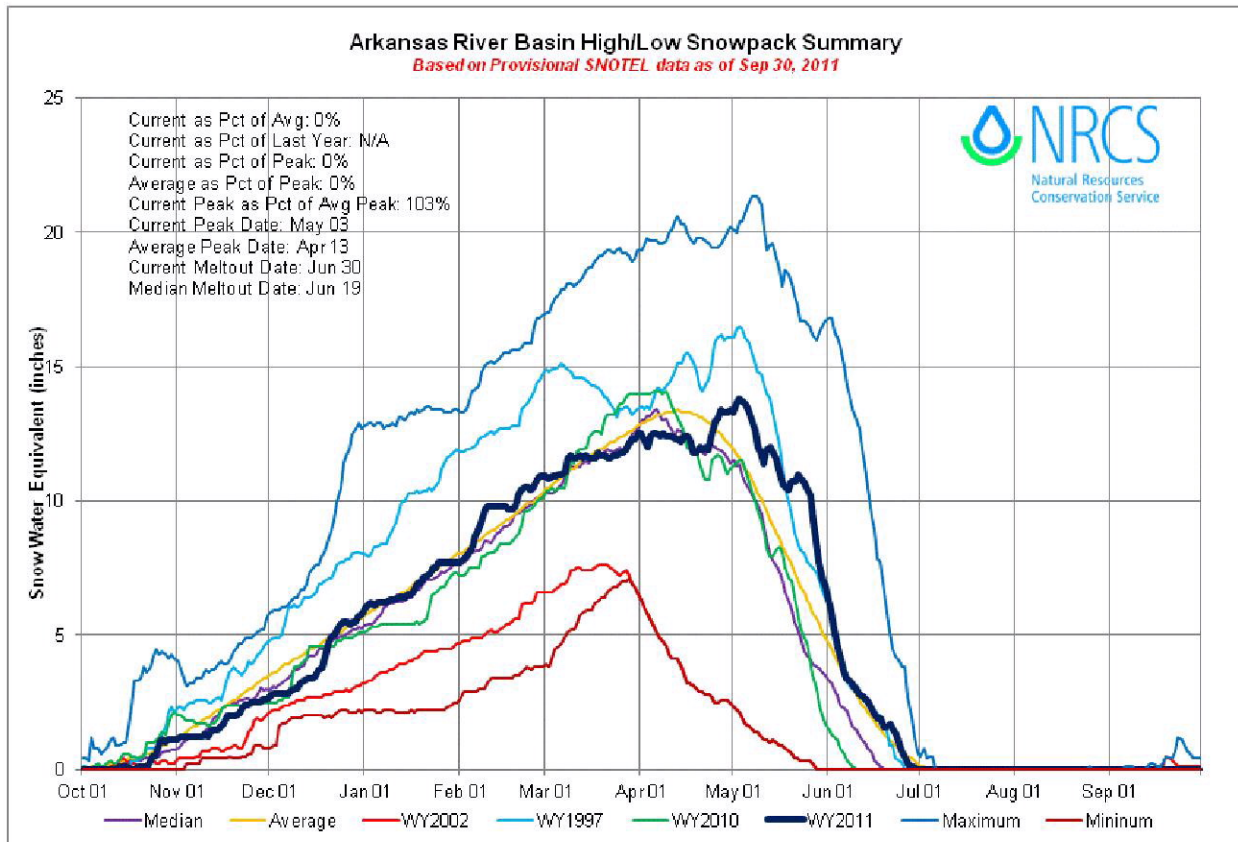
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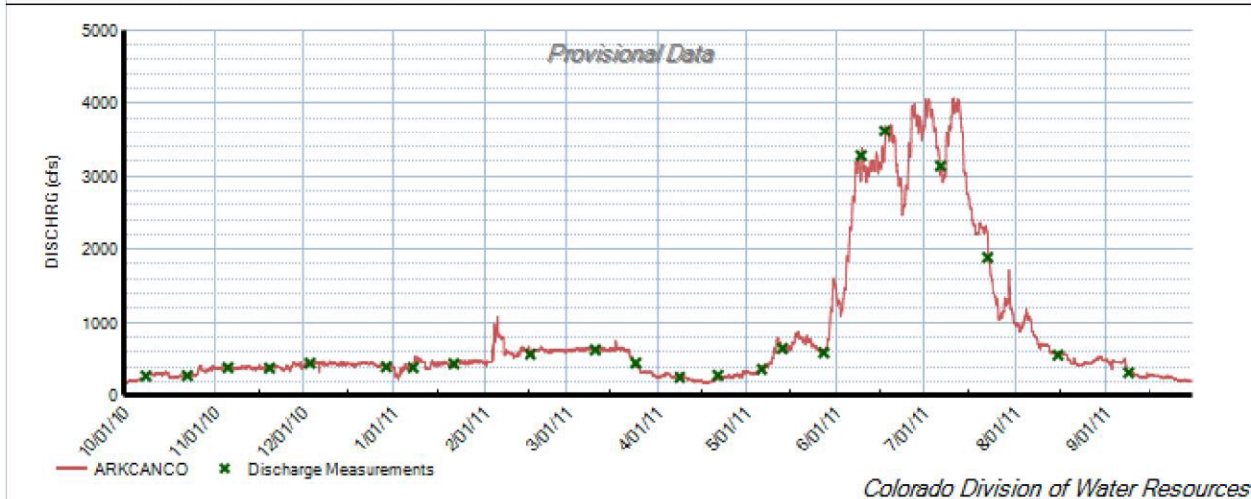
**Arkansas River Basin High/Low Snowpack Summary**

Show pack in the Arkansas River Basin for 2011 was above average as shown by the comparison graph below:



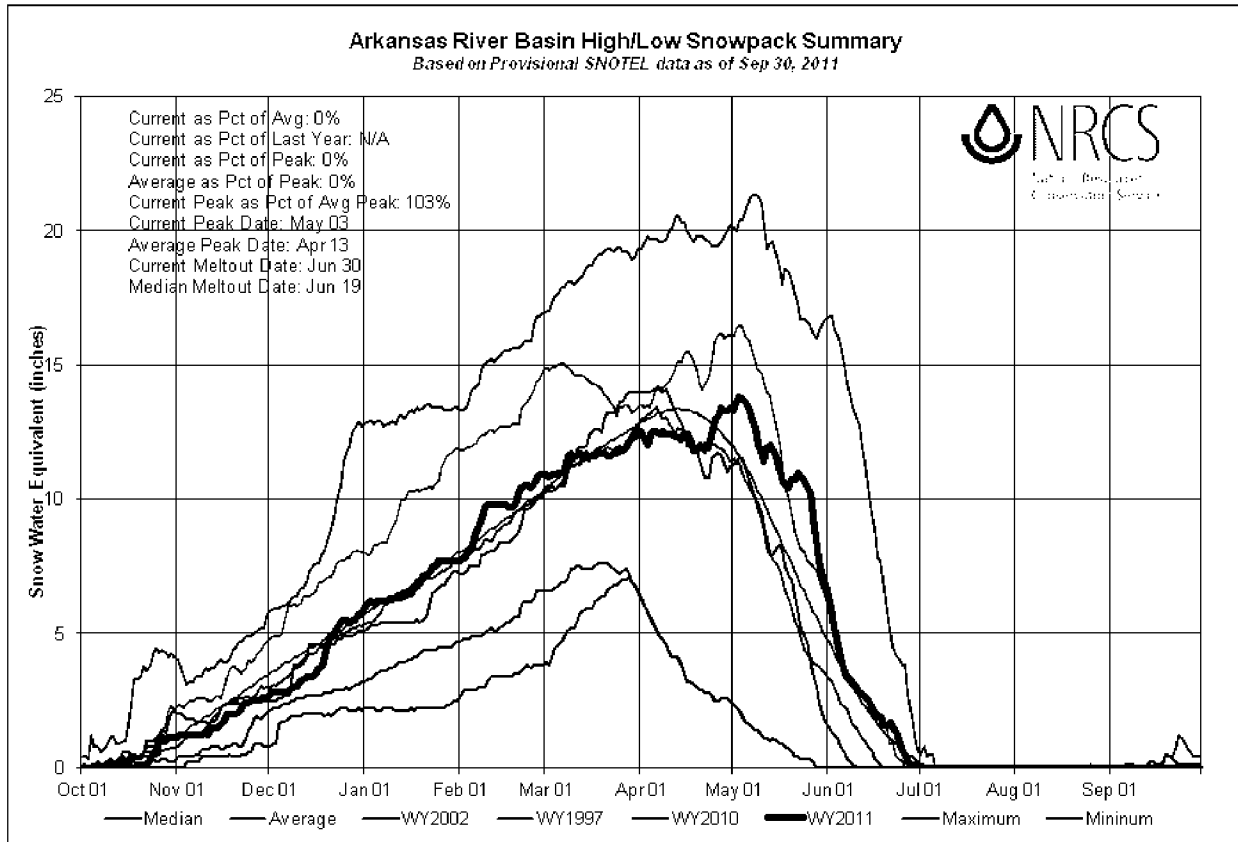
As a result, the runoff as measured at Canon City reflects a rise in the second week of July.

**ARKANSAS RIVER AT CAÑON CITY (ARCCANCO)**  
Data Source: Co. Division of Water Resources



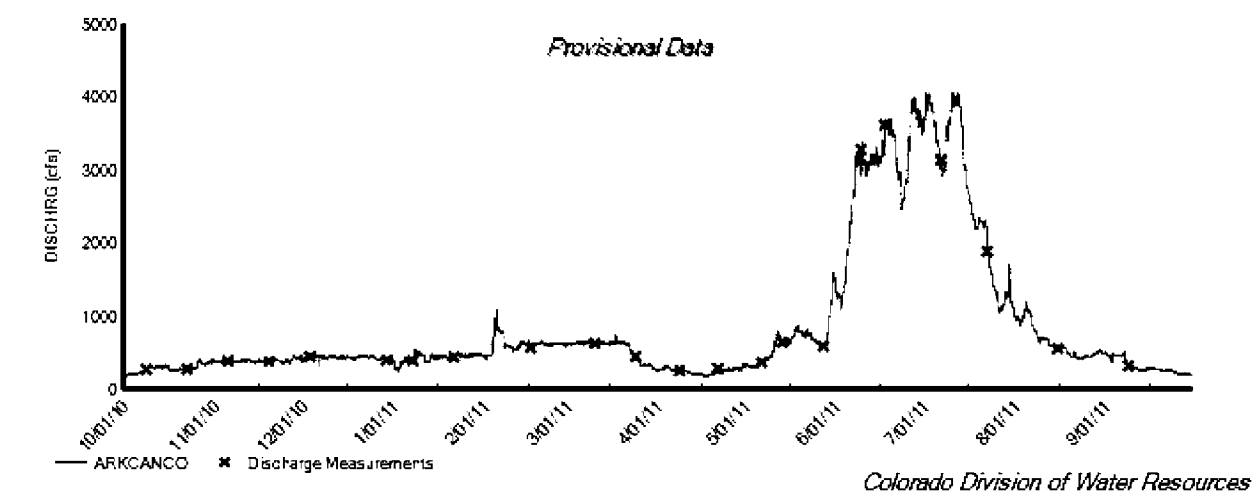
**Section 1 – General Description of 2011 Operations**

Snow pack in the Arkansas River Basin for 2011 was above average as shown by the comparison graph below:



As a result, the runoff as measured at Canon City reflects a relatively high sustained runoff which extended into the second week of July.

**ARKANSAS RIVER AT CAÑON CITY (ARKCANCO)**  
Data Source: Co. Division of Water Resources



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The above-average snowpack in the Arkansas River Basin was also complimented by above-average snowpack in the Upper Colorado River Basin, namely the Frying-Pan River Basin, which is the source of water imported by the Fryingpan-Arkansas Project.

The Bureau of Reclamation provided the information in the following table in their 2011 annual report of the Fryingpan-Arkansas Project activities:

Fryingpan-Arkansas Project Imports  
Charles H. Boustead Tunnel Outlet  
Unit: 1,000 Acre-feet

Year	Imports	Accumulated Imports	Twin Lakes Exchange	Allocations
2002	13.2	1,500.7	1.5	8.5
2003	54.9	1,555.6	2.4	37.5
2004	27.4	1,583.0	1.3	15.3
2005	54.6	1,637.6	3.0	40.8
2006	61.2	1,698.8	3.0	49.2
2007	54.2	1,753.0	3.0	40.4
2008	90.0	1,843.0	3.0	83.0
2009	82.7	1,925.7	3.0	78.0
2010	56.5	1982.2	3.0	44.0
2011	98.9	2081.1	2.9	75.0

The 98,900 acre-feet of Fry-Ark Project imports was the second highest import by the Fry-Ark Project.

A late season thunderstorm in El Paso and Pueblo Counties caused the flows of Fountain Creek to peak just below 14,000 cfs on September 15, 2011. This event was later determined have a recurrence interval of 12 years. Flows of the Arkansas River were detained in accord with the flood control criterion for Pueblo Reservoir, however the flow at Avondale reached approximately 8500 cfs early on September 16<sup>th</sup>.

Well pumping in 2011 was higher than in the previous ten years except for 2002. The 2011 calendar year actual pumping and stream depletions for AGUA, CWPDA and LAWMA were as follows:

Plan	Actual 2011 Calendar Year Pumping (AF)	Actual 2011 Calendar Year Rule 3 Irrigation Pumping (AF)	Actual 2011 Calendar Year Stream Depletions (AF)
AGUA	9,135	7,469	4,497
CWPDA	63,964	54,397	29,191
LAWMA	55,045	44,094	17,729
TOTALS	128,144	105,960	51,417

The AGUA, CWPDA and LAWMA plans were operated for calendar year 2011 in compliance with the Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado and operations were intended to ensure protection of senior vested water rights and compliance with the Arkansas River Compact.

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## **Section 2 – Compact Issues**

Colorado remains in compliance with the requirements of the Arkansas River Compact. At the meeting of the Arkansas River Compact Administration, held December 8, 2011 a copy of the Ten-year Accounting of Depletions and Accretions to Usable Stateline Flow for the period 2001-2010 was submitted into the record which shows that for the most recent compliance period, Colorado is credited with an accretion of 44,034 acre-feet.

Rules pertaining to improvements to surface water irrigation practices were implemented in 2011 to insure continued compliance with the Arkansas River Compact. These will be discussed at greater length in the Highlights of 2011 section of this report.

In July, 2010, Kansas Chief Engineer David Barfield, expressed concern about the impact of groundwater irrigation efficiency improvements due to center pivots and drip irrigation systems being installed in the Arkansas River basin and proposed a change to the H-I Model to apply different irrigation efficiencies for the Compact and Historic in runs the annual updates. Colorado's experts accepted the proposal in concept but offered a modification to the proposed methodology which ultimately was accepted by Kansas' experts and led to an agreement to modify Appendices B.1 and C.1 to the United States Supreme Court's Decree in Kansas v. Colorado (no. 104 Original).

## **Section 3 – Problems Solved**

Monthly meetings of staff members, including field personnel, either in person or by telephone, continue to provide an effective means of addressing water administration issues. This meeting, referred to as the Orders Committee, allows for new issues to be discussed for strategy to be developed to accomplish principled, consistent remedies to problems encountered in the field. These meetings also promote communication and accountability between office and field staff regarding the execution of agreed upon plans to address problems.

The resignation of personnel in several key positions, including the Reservoir Operations Coordinator and the River Operations Coordinator positions at critical times created a substantial problem in terms of how to deliver one of our most critical services of water regulation and distribution. The problem was solved through the selfless efforts of other personnel pitching in to do double duty until the vacancies could be filled. Special acknowledgement is due to John Van Oort and Bill Tyner for their exemplary efforts.

Mount Pisgah Reservoir was drained in early August 2011 to facilitate repairs of the outlet works. Pursuant to a 1998 Memorandum of Understanding between the Colorado Division of Water Resources, the Colorado Division of Wildlife and the Colorado Department of Health- Water Quality Control Division, an advisory was distributed by this office to the other agencies in advance of the release of water from the reservoir. As the reservoir level dropped, inflows into the reservoir began transporting previously deposited sediment downstream. On August 29, 2011 the United States Army Corps of Engineers issued an order to the Catlin Canal Company which alleged a violation of the Clean Water Act, ordered that all work resulting in additional discharges of sediment or other dredged/fill material into Fourmile Creek cease and noted that violations of the Clean Water Act are punishable by civil fines of up to \$25,000 per day. In support of its authority and jurisdiction of this matter, the Corps produced a copy of a Regulatory Guidance Letter dated August 19, 2005. According to the Corps' local representative, this instance is the first time in which authority has been asserted over a matter associated with dam maintenance activities anywhere in Colorado. On September 2, 2011, the Division of Water Resources hosted a meeting which was attended by representatives of the Catlin Canal Company, the Corps and many of the other interested parties for the purpose of exchanging information and to determine a course of action which might lead to an amicable resolution of the matter. As a result, the Division Engineer agreed to allow a small quantity of water to be stored out of priority for the purpose of emergency mitigation of sediment discharge through the creation of a settlement pool and the Catlin Canal agreed to present to the Corps a more

detailed mitigation plan which was instrumental in diffusing the immediate tension while the Catlin Canal Company developed plans for accomplishing the needed repairs in a manner acceptable to the Corps.

#### **Section 4 – Community Involvement**

Throughout 2011, Division 2 personnel sought to be accessible to the citizens of Colorado. In addition to more routine activities such as attending monthly meetings of the various water conservancy districts, staff members provided presentations at community forums including those in Custer County addressing future growth in that region, presentations to the Arkansas River Basin Water Forum where the topic of wetland restoration was explored. Additionally, in our efforts to initiate operation of long neglected plans for augmentation, we have found it useful to organize community meetings to explain unfamiliar concepts to homeowners. Similarly, a meeting of landowners was held in Aguilar to diffuse concerns and misinformation associated with our efforts to fulfill responsibilities recently imposed on this office regarding coal bed methane wells and produced water discharged from those wells.

#### **Section 5 – Highlights of 2011**

##### Surface Water Improvement Rules

On January 1, 2011 the Surface Water Improvement Rules became effective pursuant to an order of the Division 2 Water Court in case 09CW110. These Rules were promulgated under the State Engineer's compact rule making authority in order to assure that the waters of the Arkansas River allocated to Kansas under the terms of the Arkansas River Compact, will not become materially diminished through adoption of more efficient irrigation methods than those which existed at the time when the Arkansas River Compact was negotiated. On April 1, 2011 the Lower Arkansas Valley Water Conservancy District submitted a Rule 10 Plan which addressed the estimated reduction of return flows from improvements on 78 farms through March 31, 2012 in reliance upon 1500 af of water stored in Pueblo Reservoir. State Engineer Wolfe provisionally approved this plan on July 1, 2011 and the District responded by submitting the additional information requested on August 8, 2011. Six enforcement orders were issued to individuals whose improvements were believed to be subject to the Surface Water Improvement Rules that were not included in any approved maintenance Plan on October 5, 2011. These were included in the District's Rule 10 plan by an amendment submitted on December 15, 2011 which increased the District's estimated maintenance obligation to 1058 acre-feet during the period April 1, 2011 through March 31, 2012, not including transit-losses. Three releases were made during the plan year to maintain return flows. More frequent and timely maintenance releases are expected to improve the credibility of the program in the future.

##### Abandonment

In July 2010 a listing of 362 water rights believed to meet statutory criteria evidencing abandonment was published. Persons wishing to do so were afforded an opportunity to object and provide a basis for their objections. By the July 1, 2011 deadline, 143 such objections were received. These were evaluated and a revised abandonment list containing 326 rights was published and a petition for abandonment of those rights listed on the revised list was filed with the Division 2 Water Court in Case 11CW83 in December 2011. Steve Kastner and Bill Tyner are credited with organizing the initial effort to identify qualifying rights and Steve did an exceptional job in following through by coordinating with others in the statewide effort to publish the initial list, by investigating objections raised and following consistent criteria to develop the revised list which is expected withstand formal protests.

##### Enforcement of priority administration on tributaries

Case 10CW26 was filed to enforce an administrative order issued to Lance Verhoeff, d.b.a. Vehoeff Farms, concerning out of priority diversions, including storage in reservoirs, diversions at undecreed points of diversion, and diversions made without adequate measurement and control structures. The orders sent to Mr.

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Verhoeff were among those issued to numerous water users on tributaries in Water District 67 intended to re-establish allocation by priority. With the assistance of Mr. Scott Stenbrecher, we were able to negotiate a settlement stipulation with Mr. Verhoeff which was entered by the Court on May 12, 2011. In order to enforce the terms of that stipulation, Mr. Steinbrecher filed a motion for contempt on September 2, 2011 and the court entered an order finding contempt on 1/11/12. The State and defendant filed a joint report dated March 22, 2012 describing things to be accomplished for Mr. Verhoeff to purge himself of contempt and those specific actions have been satisfactorily accomplished.

#### CBM Inventory

Pursuant to the decision of the Colorado Supreme Court in Vance, et.al. v. Wolfe (Colo. 2009), coal bed methane (CBM) wells that withdraw tributary produced water are subject to water well permitting and water rights administration requirements. Pioneer Natural Resources USA, Inc., XTO Energy Inc., El Paso E&P Company, L.P., and Red River Ranch Holdings, LLC operate CBM gas wells in the Central Raton Basin, which includes the drainages of the Purgatoire River and portions of the Apishapa River and jointly applied for a plan for augmentation and substitute water supply plan (SWSP) to replace lagged depletions that are expected to occur as a result of withdrawing tributary produced water. The SWSP was originally approved on July 22, 2010 and remained valid through March 31, 2011 and was renewed through March 31, 2012.

In the most recent plan approval 1552 active wells are anticipated to remove a maximum of 5823 af from the Raton formation and 1956 active wells are anticipated to remove a maximum of 8679 acre-feet from the Vermejo formation for a total withdrawal of 14,502 acre-feet from 3508 wells, averaging only 4.1 acre-feet per well. However, the total model-estimated depletions for the SWSP period resulting from past and anticipated future pumping are only expected to be 5.081 acre-feet...a very significant number of wells that are expected to have a relatively minor impact within a year's time.

Never-the-less, since depletions in the future should become greater and will be determined as a function of pumping, it was determined to be important to make the resource commitment necessary to verify the claims made regarding this class of wells that recently fell within our jurisdiction and to attempt to equitably administer them consistent with other wells for which this office is responsible. Our field efforts involved on site verification of producer supplied information on well head inventories and the posting of WDIDs. This was accomplished during the summer of 2011 with the temporary employees who, with the remarkable cooperation with the producers, were able to visit all wells covered under the SWSP. Unfortunately, the largest producer, Pioneer Resources, had no meters installed in time to be captured as part of this effort; so a second run was made to visit approximately a third of their wells that are required to be equipped with flow meters. The producers all met the deadlines set forth in the SWSP for metering and certification of those meters. Division 2 field personnel worked with the producers to accomplish this goal in addition to performing well tester quality assurance verifications on certified meters. Approximately 70 such quality assurance verifications and have received around 2900 well tests from the CBM companies this plan year. The final challenge is the workload impacts related to the sheer number of tests to be entered and quality checked into our data system and the time it takes to accomplish this task.

Our goals include incorporating production data that is now coming to Division 2 under a format as required by the SWSP for administration. We will need to assess our handling of this data, both to integrate it into the same data sets as all other wells in Division 2, and in planning for the eventual migration to the state wide data management system (HBDMS). Additionally, we need to work on QA/QC processes to insure not only the quality of the data, but that we are getting necessary data and compliance to the Rules and conditions of the SWSP for newly drilled wells.

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## Arkansas River Decision Support System Feasibility Study

The efforts of Bill Tyner, Mary Halstead, Dale Straw and James Heath are acknowledged as members of the State Management Team representing the Division of Water Resources, which directed the project consulting team from Brown & Caldwell in the conduct and reporting of the Arkansas River Decision Support System Feasibility Study. The Feasibility Study Report was prepared and published by the Colorado Water Conservation Board and the Division of Water Resources. From the report it is apparent that direction provided by these Division staff members was effective in helping identify practical needs and objectives to be attained by development of an Arkansas Decision Support System.

### **Section 6 – Organizational Changes**

During 2011 there was only one permanent structural organizational change, which resulted in the reallocation of a vacant hydrographic engineer position to Division 2. Steve Anselmo was hired to fill this position. Additionally, four other individuals were hired to fill vacant positions. These include Garrett Markus, Rachelle Zancanella, Philip Reynolds and James Swank. Four vacant positions were filled through internal transfers or promotions and one promotion occurred following reallocation of a position. Four positions were vacated by resignation or retirement, one through transfer and one through termination. The retirees were David Jones and Dan Neuhold and we are indebted to them for their service to the State of Colorado. The retirement of Dale Straw is also noted because although Dale transferred to the Modeling / DSS unit a number of years ago, he continued to serve the people of the Arkansas Basin by conducting annual updates to the Hydrologic-Institutional Model used to evaluate Compact compliance and his contributions in establishing many of the fundamental procedures used to administer the Arkansas Ground Water Use Rules fifteen years ago continue to be relied upon at the present time. A copy of the organizational chart as it existed at the end of 2011 is included following this section.

A reallocation of temporary man-power was made in 2011 to focus effort on bringing Coal Bed Methane wells which produce water as a by-product of the extraction process under administration. This is described more thoroughly in Section 5, above.

Three Division 2 employees received statewide recognition by State Engineer, Dick Wolfe for their exemplary service at the Annual Spring Staff Meeting held April 25, 2011. Donna Smith was granted the Administrative Support Employee of the Year award in recognition of her cheerful and competent assistance. Bill Richie was recognized as the Technical Staff Member of the Year in appreciation for his diligent and progressive efforts to implement plans for augmentation and supervise well administrators. Bill Tyner was acknowledged as the Manager of the Year for his extraordinary abilities to be personally involved in a wide variety of technical issues while also teaching, mentoring and supervising a capable and motivated staff.

Jeff Montoya, Water Commissioner for Water District 19 (Purgatoire River), was selected as Water Commissioner of the Year. Jeff has developed a remarkable degree of confidence among water users and demonstrated significant poise in dealing with the challenges presented by a dramatically reduced water supply during the 2011.

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