

DIVISION 2 Annual Report 2008



Pueblo Reservoir

Photograph used with permission by the Pueblo Chieftain

Table of Contents

Topic	Page
<u>Activities and Accomplishments in Water Year 2007</u>	
Surface Water Administration	1
Water Supply	1
Administration of Plans for Augmentation and Substitute Water Supply Plans	3
Enforcement Support Provided to Field Personnel	3
Trinidad 10-Year Review	4
Ground Water Administration	4
Administration of Ground Water Use and Measurement Rules	4
GWDMS Progress	5
Arkansas River Compact	6
Developments in Kansas vs. Colorado	6
Arkansas River Compact Administration	6
Recognizing Improvements to Irrigation Efficiency as a Potential Compact Issue	7
Legal and Litigation	8
Division Two Water Court Activity	8
Cases of Interest	9
Safety of Dams	10
Hydrography	14
Gaging Stations	14
Hydrographic Records	16

Streamflow Measurements.....	17
Stream Gage Improvements and Refurbishments.....	17
Specialized Training	20
Information Technology.....	20
Organization/Personnel/Workload Issues	21
Personnel.....	21
Budget.....	21
Training.....	22
Pay for Performance	22
Agency Meetings	22
Employee Recognition.....	22
Involvement in the Water Community	22
Innovative Administration Processes	23
Using XMAP GIS Enterprise to Maximize Efficiency of Field Operations	23
<u>Objectives for 2009</u>	28
<u>Water Administration Data Summaries</u>	
Transmountain Diversion Summary	29
Water Diversion Summary – Use Type by Water District.....	30
Water Diversion Summary – Various Statistics by Water District.....	30
Arkansas River Calls.....	31
Water Court Activity.....	39
<u>Organizational Chart</u>.....	40

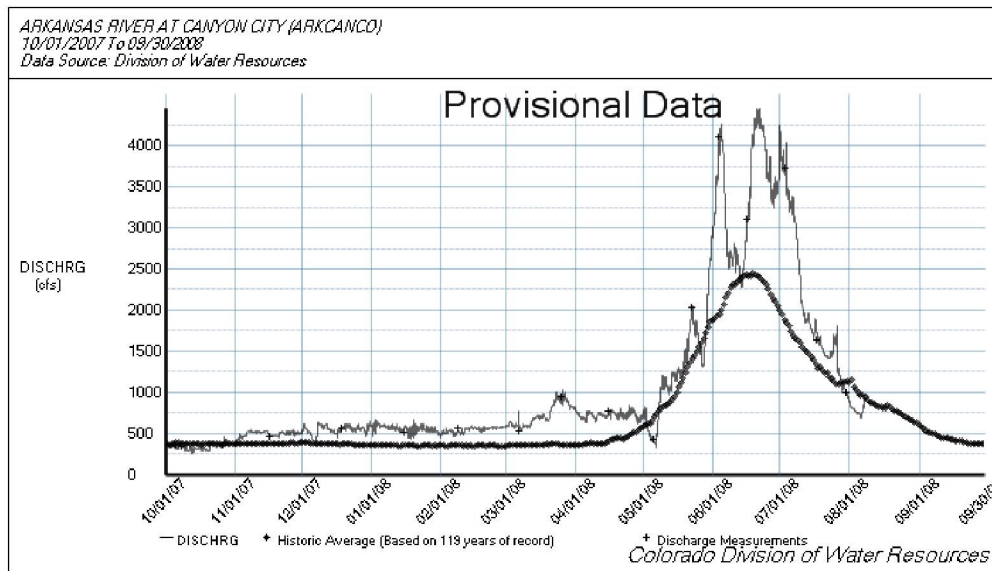
ACTIVITIES and ACCOMPLISHMENTS in WATER YEAR 2008

Surface Water Administration

Water Supply

Based on the reported snowpack which peaked at 149% of normal on April 14th, water users began 2008 with high expectations of having an ample water supply and there were forecasts of flooding for locations near Canon City and La Junta. Long range forecasts provided by John Henz 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. (See attached hydrograph of flows at Canon City) Basin-wide Snow Pack, 2008.

Figure 1



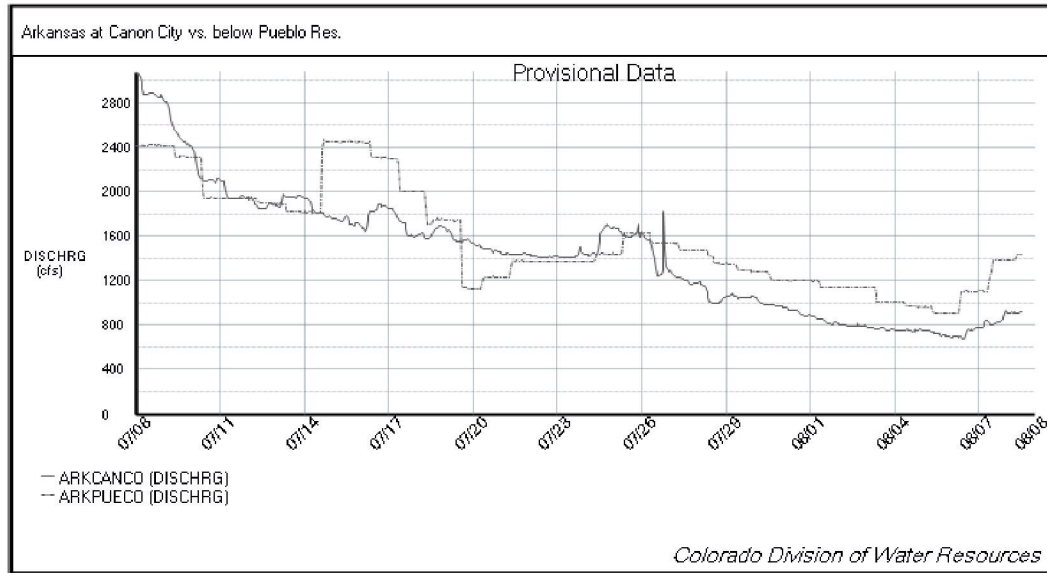
As of the end of the Pueblo Winter Storage Program on March 14, 2008, a total of 153,035 acre-feet were diverted for direct use or stored in various reservoirs pursuant to the provisions of 84CW179. This is 143% the most recent five year average and 107% of the historical average over the last 18 years that the program has been operated.

The amount of Compact water stored in John Martin Reservoir as of March 15, 2008 was 20,820 acre feet or 117% of the 1950-1975 average. The initial allocation of Fry-Ark project water made on May 15, 2008 was 83,021 af. This amount is approximately the same as the average allocations made by the SECWCD during the period 1995-1998

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. The second figure illustrates that releases from Pueblo Reservoir

surpassed inflow after July 11th. The State of Kansas initiated a run of all of the water available to them in John Martin Reservoir (28,952 af) during the period June 23 through July 27.

Figure 2



July 2008 proved to be the driest July on record in the City of Colorado Springs with than .3 in of precipitation recorded. The city set another record for the most water utilized for any single month on record. Colorado Springs Utilities produced 4.33 billion gallons for distribution to its customers. However, it is noteworthy that both Colorado Springs and Pueblo maintained lower per capita usage than existed prior to the drought of 2002.

A monsoonal pattern brought some welcome relief from high temperatures to southern Colorado during the first week of August, however the precipitation was localized. The water supply from the first of April until August 15th was inadequate to permit the relatively junior water rights associated with reservoirs to come into priority. At that point conservation storage in John Martin Reservoir was justified for a period of 7 days resulting in the storage of 14,571 acre-feet which was distributed into Colorado and Kansas accounts pursuant to the 1980 Operating Plan. Additionally, the Amity Canal Company was able to store just under 3000 af of water in John Martin under its transferred Great Plains Reservoir storage right.

High capacity well pumping, which is primarily used for irrigation, was above average. Rule 14 Pumping Approved: 137,998 af or 105% of the 1996-2007 average and 125% of the 2003-2007 average. Total pumping for all wells in the three largest Arkansas River replacement plans (pursuant to the amended Arkansas River Use Rules) during calendar year 2008 was 100,434 af,. Total pumping for Rule 3 wells (irrigation wells in the Arkansas River alluvium below Fountain Creek) during the same period was 85,625 af, which is 148% of the 2003-2007 average.

Submitted by Steve Witte

Administration of Plans for Augmentation and Substitute Water Supply Plans

The following table provides statistics on the status of efforts to prompt augmentation plan compliance through reporting of out of priority usage as of December 31, 2008. It is believed that replacement is being made for a majority of the decreed plans for augmentation.

Water District	Decreed Aug Plans	Decreed Number of Wells	Reporting Received Water Year 2008
10	228	3646	37 plans-16%
11	114	1955	43 plans-38%
12	30	1488	12 plans-40%
13	25	1063	2 plans-8%
14	5	4	0 plans-
15	7	9	0 plans-
16	13	13	1 plans-7.5%
17	11	93	2 plans-18%
18	1	2	0 plans-
19	4	763	1 plans-25%
67	6	158	3 plans-50%
79	1	1	1 plans-100%
Total	445	9195	102plans – 23%

- All decreed wells are not yet drilled.
- Many augmentation plans replace evaporation losses from ponds and reservoirs. If recognized as such, the pond(s) were not included in the well count.
- “Reporting Received” includes only those reports received in this office and do not include reports received only by the District Water Commissioners. For example, WD 10 estimates they received reporting from 70% of their augmentation plans (160 plans) vs my receipt of reports from only 16% (37 plans).

In an effort to improve on the number of plans reporting, Division 2 sent 972 letters to individual augmented well owners in 2008. Plans for 2009 include post card reminders to those people as well as letters requesting reporting to augmentation plan users not yet contacted.

Submitted by Bill Richie

Enforcement Support Provided to Field Personnel

Monthly meetings to review the status of administrative orders and to discuss situations where such orders may be necessary were held throughout 2008 and have continued to provide the emphasis for successful disposition of numerous cases. However, the Plan of Administration (POA) initiative, which is intended to summarize and document the key elements of complex decreed plans for augmentation, assign responsibilities for execution of the various aspects of these plans and determine the appropriate coding needed to describe quantities of water diverted, corresponding out of priority stream depletions to be replaced and replacement operations has not been as successful. Disagreement concerning the proper coding of various quantities of water within the Hydrobase system was disruptive and led to a recognition of the need to refine the process to work through such differences in advance so as to make a more efficient use of

meeting times. Never-the-less, this POA process is believed to hold promise for improve administration and will be resumed as soon as the press of completing other priorities has been completed and all key positions are staffed.

Submitted by Steve Witte

Trinidad 10-Year Review

The Trinidad 10-Year Review (WY 1995 – WY 2004) process was initiated by the Bureau of Reclamation with a meeting in Trinidad on October 5, 2005. Very little work product was released by the Bureau during 2008, although work on the review continued.

Submitted by Steve Witte

Ground Water Administration

Administration of Ground Water Use and Measurement Rules

Rule 14 Plans Approval, Administration and Enforcement

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. Approximately 4,200 Wells are subject to the Amended Rules and Regulations Governing the Diversion and Use of Tributary Ground Water in the Arkansas River Basin, Colorado. The number of Wells subject to both the Measurement and the Use Rules is slightly less than 4,000.

Measurement Rules

Metered Wells

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. There were over 2,000 Meters with 88 of the meters being “batteries” for two to 32 Wells, serving 300 Wells. The remaining 2,000 Wells are single structures on individual meters.

Meter Accuracy Verification Tests

615 Measurement Tests were reviewed and entered by Ground Water Operations in 2008. 472 Tests were for Totalizing Flow Meters (77%) and 143 (23%) for Power Consumption Coefficients. Six PCC systems were changed to TFMs during 2008.

By the end of the year, 1,961 Wells had valid Measurement Tests with the majority of the Wells having one meter (1,884). 1,709 of the Wells used TFMs (87%) and the remaining 252 (13%) remained on the PCC method of measurement.

Measurement Test Quality Control Program

A total of 43 Quality Control Tests were conducted in 2008. 17 for PCC Tests and 26 for TFM Tests or 12% of the PCC Tests and 7% of the total Tests. The goals of the Measurement Test Quality Control Program are 15%-20% of the PCC Tests and 10%-15% of the total Tests.

Well Tester Recertification/Certification

Certification of Water Well Meter Testers

A New Testers Class was conducted in Burlington in 2008. This class was specifically targeted towards gaining more testers in the area of the Republican River Basin. 40 students participated in the class with 29 receiving passing scores.

108 previously certified Water Well Meter Testers recertified through attendance at one of three classes held in 2008.

Use Rules

Rule 14 Plans Review and Approval

Eleven Plans were submitted for both the 2007 and the 2008 Plan Years. One of the 2007 Plans (FNMC) merged into another (CWPDA) for the 2008 Plan Year. The City of Lamar separated from the LAWMA Plan Year and created a separate Rule 14 Plan for the 2008 Plan Year.

The total Wells in the 2008 Rule 14 Plans were 1,945 with 1,276 Wells active during the Plan Year representing less than a 1% increase from the 2007 Plan Year. The original approved total pumping estimate for all Plans was 122,150 AF, a 9% increase over the original approvals for the previous Plan Year. The final approved total pumping estimate for the 2008 Plan Year is currently 156,161, a 28% increase over the course of the Plan Year. Projected total pumping for the 2008 Plan Year is 102,163 AF, approximately 65% of the final approved total estimate and a 32% increase over the previous Plan Year.

Administration - Monthly and Annual Reporting:

In 2008, Ground Water Operations received, reviewed and processed monthly usage reports for 14,432 meters on 1,740 Wells.

In addition to the monthly reports, another 86 Wells report monthly usage on an annual basis accounting for 3,400 AF of ground water diversions.

Enforcement Actions

Office Enforcement Actions: During the 2008 Plan Year, Written Enforcement Actions were processed for 307 Wells. 307 Wells received Written Orders with nine resulting in Requests to the State Attorney General's to file a Complaint against the Owner for violations of State Statute, the Amended Measurement Rules and/or the Amended Use Rules Amended Measurement Rules.

Field Inspections and Enforcement Actions in 2008 included 4,019 site visits to 2,387 Wells; 388 Wells visited more than once. 3,114 meter readings were collected from 2,347 meters.

43 Field Requests for Written Orders were submitted as a result of those site inspections. 732 Wells were under Well Head Orders all or part of 2008. Well Head Orders were placed on 31 Wells and were removed from 65 Wells.

Submitted by Chris Lytle

GWDMS Progress

Ground Water Data Management System (GWDMS)

The design of the Ground Water Data Management System (GWDMS) within the HydroBase environment continued in 2008 with significant progress for the Meter and Measurement Test module and preliminary design of the Meter Reading module.

The Republican River Basin staff began using the system as soon as data was available to enter. Division 3 continues to use the GWDMS for Meters and Measurement Tests and for receiving

Meter Readings. Some peripheral design work has been done to address enforcement and compliance issues in Division 3.

In 2008, Division 2 incorporated all Wells from the Legacy data management system into HydroBase. Other work to merge the Legacy system into GWDMS is awaiting the development of tools to bridge between the two systems so that Division 2 can continue its work in administering both Measurement and Use Rules.

Submitted by Chris Lytle

Arkansas River Compact

Developments in Kansas vs. Colorado

As noted in last year's report, Kansas filed an exception to the Special Master's fifth Report to the United States Supreme Court on the single question of whether limiting costs for Kansas' experts to \$40 per day is appropriate on April 11, 2008. Oral arguments on this matter were not set until December 1, 2008.

The proposed Judgment and Decree submitted with the Special Master's fifth Report contained a limited retained jurisdiction provision that extended through the end of 2008 to allow completion of an evaluation of the sufficiency of the Arkansas Use Rules and of their administration. Bill Tyner and Dale Straw met with Kansas' experts and the States exchanged evaluations of the Use Rules on October 3, 2008. On December 16th, Kansas gave notice that it was submitting the issues of the sufficiency of the Use Rules and their administration to the Dispute Resolution Procedure as Non-Fast Track Issues (see Appendix H to the proposed Judgment and Decree), thereby continuing the limited retained jurisdiction.

The proposed Judgment and Decree also allows Kansas to invoke retained jurisdiction to review Water Court decrees for replacement sources, although Kansas would first have to submit any dispute to the Dispute Resolution Procedure. On May 19, 2008 Kansas provided a list of 15 issues of concern related to the LAWMA decree entered by the Colorado Water Court in case 02CW181 on March 2, 2007. These matters were discussed with Kansas, but not resolved, during a telephone conference on May 28, 2008.

On July 2, 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.

Arkansas River Compact Administration

The Operations Committee (Committee) met on one occasion during the 2008 Compact Year. This meeting was held in conjunction with the December 11, 2007 meeting of the Compact Administration. The Committee recommended continued dialog between the Operations Secretary and the Assistant Operations Secretary regarding the procedure used to apportion the inflow to John Martin during the winter storage season and directed that separate reports be provided to the Committee. As suggested by the Operations Committee, there were continued discussions related to procedures used to apportion inflow to John Martin (a.k.a., the "Winter

Storage Split” issue. This primarily occurred on May 5, 2008. A record of this meeting was made and distributed to the Operations Committee on May 23, 2008.

Although no meetings of the Special Engineering Committee were held during Compact Year 2008, the Committee was able to reach agreement on a recommendation to potentially resolve several issues referred by the Compact Administration. Recommendation G, approved May 1, 2008 provides for conditioned and qualified approval of Reports of the Operations Secretary for Compact Years 1994-2006 inclusive; provides for restitution for transit losses on releases of water from the Kansas Section II account that resulted in past deficits during Compact Years 1996-2006 (inclusive); and recommends that no restitution be made for water lost to evaporation during times when John Martin Reservoir was spilled, prior to 2006. This recommendation was approved by the Arkansas River Compact Administration with certain exceptions, as Resolution 2008-3 at the regular meeting held December 9, 2008. As a result, the Division Engineer acting in his capacity as the Operations Secretary issued an addendum report entitled “Addendum to the 1994 through 2005 Annual reports of the Operations Secretary Concerning the Operation of John Martin reservoir” and distributed corresponding proviso language for each affected report on December 12, 2008.

Recognizing Improvements to Irrigation Efficiency as a Potential Compact Issue

A description of the initial steps that have been taken to raise awareness of the potential for a future violation of Article IV- D of the Arkansas River Compact as a result of improvements made to irrigation systems may be found in the 2007 Report of the Division Engineer.

On May 12, 2008 State Engineer, Dick Wolfe issued an Order Establishing Advisory Committee for Arkansas River Compact Rules to Govern Improvements to Surface Water Irrigation Systems in the Arkansas River Basin. To ensure that the Advisory Committee included a wide representation of interests and expertise, the State Engineer invited 20 different organizations, including water districts, water associations, State and federal agencies, and counties to nominate representatives. Additionally, Colorado’s three Arkansas River Compact delegation members and several other water users, engineers and attorneys having knowledge and experience relevant to the Arkansas were asked to participate. The objectives assigned to the 32 members were to provide advice and recommendations to the State Engineer on rules and regulations to facilitate compliance with the terms of Article IV-D of the Compact with regard to surface water irrigation systems and to provide recommendations on ways to achieve benefits from improving such systems while still complying with the terms of the Compact. A draft of the proposed “Consumption Rules”, as they had been revised and develop up to that point in time were submitted to Kansas prior to the ARCA meeting on December 9, 2008.

The Advisory Committee met five times in 2008 which resulted in substantive changes to the draft Rules. Additionally an Engineering Subcommittee and a Solutions Subcommittee were formed from among the members. The principle purpose of the Engineering Subcommittee was to peer review and recommend improvements to a spreadsheet based tool that utilizes HI model derived factors developed by Bill Tyner to allow evaluation of various types of proposed irrigation system improvements with minimal input requirements. This tool was developed primarily in response to concerns expressed by Committee members that the cost and complexity of analysis would make regulation prohibitively expensive. The Solutions Subcommittee was

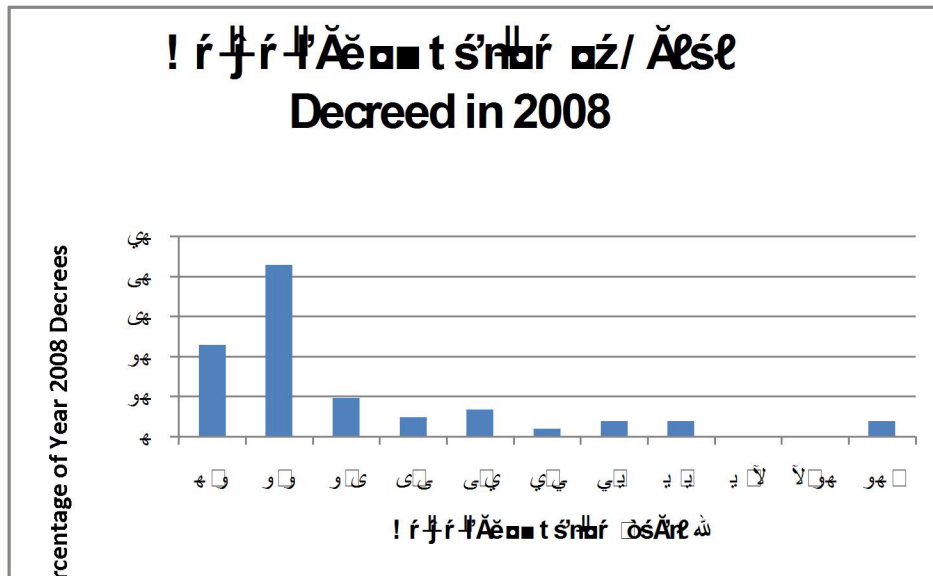
convened to identify efficient and inexpensive ways to assist farmers with compliance under the proposed Rules. This Subcommittee only met on one occasion in 2008.

Submitted by Steve Witte

Legal and Litigation

Division Two Water Court Activity

One hundred and fifteen individual applications were filed with the court during 2008. This was a decrease of 19% from 2007. A summary of the types of claims being made can be found on page 39. As seen on this table, plans for augmentation and claims for new underground water rights continue to be the two most frequent types of applications. Statements of Opposition were filed by the State and Division Engineers in eleven of these one hundred fifteen new applications (10%). Also illustrated below is a graph showing the adjudication period for the cases decreed in 2008. This graph shows that of the cases decreed in 2008, 66% had been applied for less than two years previously with the remaining one third of cases distributed fairly evenly out to eight years in time.



Written consultations are made to the court for all new applications and as warranted for amended applications. The Division Engineers Office attempts to participate in all referee hearings including the participation of water commissioners when needed. There were only a handful of referee hearings during 2008. The number of these types of hearings continue to decrease. The need for this type of communication between parties, the court and the Division Engineers Office appears to be satisfied more and more through email between the above entities and an iterative review of draft decree procedure. This process seems to have generally replaced the more formal referee hearing process in Division Two. Cases with active pro se parties are the typical situation where referee hearings continue to be conducted.

Two Expert Report 26(a)(2) filings were filed by State and Division Engineer Office staff during 2008. Both of these cases, the St. Charles Mesa Water District (04CW008) and the Tri-State Generation and Transmission Association (07CW074) were eventually resolved through

stipulation prior to trial. The Division Engineers Office did not participate in any trials during 2008 in which this office was a party.

Cases of Interest

Tri-State Generation and Transmission Association (07CW074)

Tri-State filed an application during 2007 to change the water rights and compact entitlements of the Amity Mutual Irrigation Company from irrigation use to also add augmentation uses. Approximately one-half of the shares in the Amity Canal are involved in this change application. A plan for augmentation, a large conditional water storage right, and several tributary underground water rights were also sought by the applicant. The State and Division Engineers were parties in the case. After extensive negotiation with the applicant the SEO/DEO stipulated to an acceptable ruling at the end of 2008. This case was eventually decreed in March of 2009.

The applicant's plan involves constructing a coal fired electric generation type power facility on purchased lands under the Amity Canal. Water represented by the applicant's shares in the case are to continue to be taken through the same historic canal and continue to be taken in the normal shareholder rotation. The water will then be stored in a future on-site reservoir or released through the canal lateral and waste ditch system back to the Arkansas River for augmentation and return flow maintenance purposes. The physical water supply for the power plant will be from tributary groundwater sources with the canal shares being used for well augmentation purposes. Until the power facility is constructed the applicant's water in the canal system can continue to be used for irrigation purposes. At this point in time, the applicant appears to have made constructing a similar type facility in Kansas a higher priority.

St. Charles Mesa Water District (04CW008)

The St Charles Mesa Water District (District) serves as a domestic and commercial water supplier for rural and unincorporated lands both under and above the Bessemer Ditch in Pueblo County. The District has been acquiring Bessemer Ditch shares since the late 1960's. Shares were typically acquired when ditch lands were dried up for subdivision developments with the shares being traded by the developer in exchange for water taps. By 2004, the District had acquired approximately 10% of the shares in the ditch. Following administrative pressure from the Division Engineers Office to change the decreed use of the water rights under the Bessemer Ditch as represented by the District's shares from irrigation use to domestic and municipal types of uses, the District applied for such a change of water right case in 2004. The State and Division Engineers became parties in this case. Extensive negotiations were conducted during 2008 with the SEO/DEO eventually reaching a stipulation with the District early in 2009.

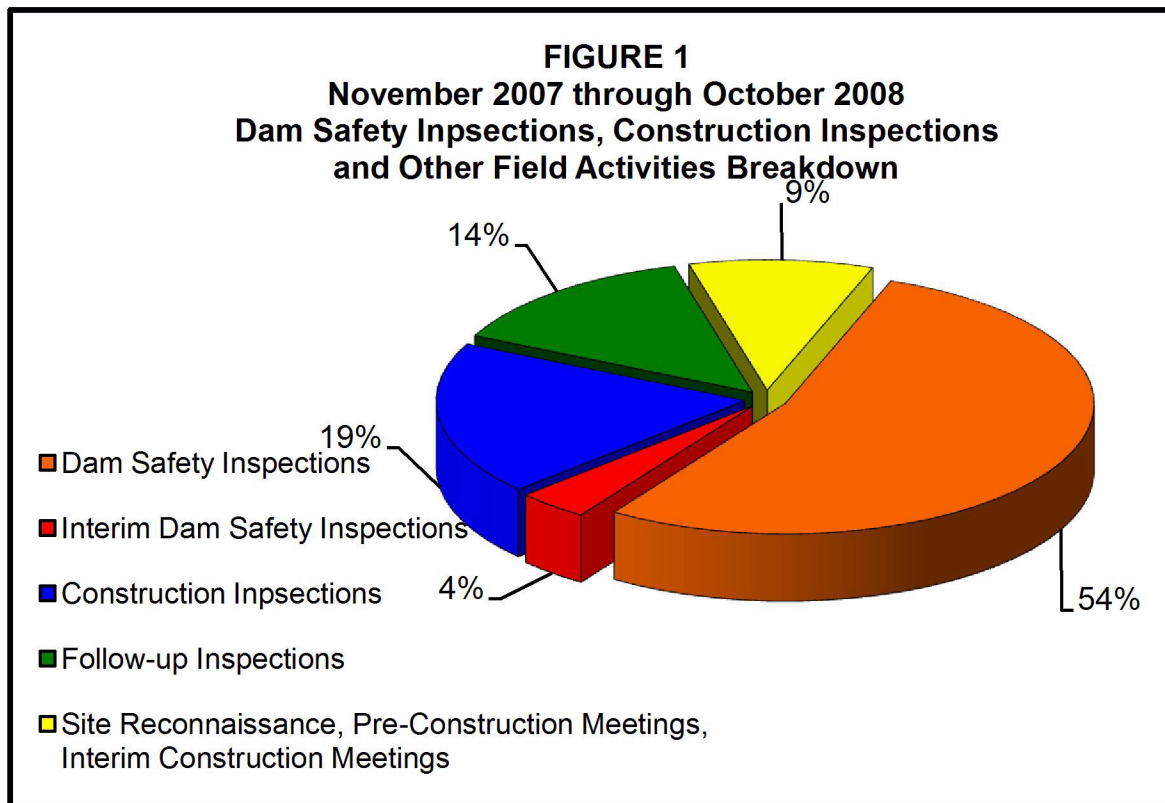
An appropriate study period to use for the analysis of the historic use of these shares and the appropriate amount of historic consumptive use credit to the District over the time period the District owned these shares but often did not seek to use their entitlements were significant issues in the case. Although the Bessemer Ditch is a mutual ditch system, the final decree requires the applicant to take in proportion to their share ownership their maximum entitlement and either use these waters directly or store them in the District's on-site reservoirs for municipal purposes or release these waters back to the river for credit towards maintenance of historic return flows or simply as excess water in the plan.

Submitted by Steve Kastner

Safety of Dams

Mike Graber and Bill McCormick divide the work load geographically with Bill having dam safety responsibilities for the northern portion of Division 2 and also the southern portions of Division 1 while Mike has responsibilities for the southern portion of Division 2 and WD 24 and 35 in Division 3. The prime objectives for 2008 were to complete all scheduled dam safety evaluations and determine the safe storage level for each dam evaluated, perform timely design reviews of designs, plans and specifications for dam repairs and rehabilitation and to assist owners with the safe operation and maintenance of dams and reservoirs.

Figure 1 below shows the general activities of the dam safety engineer's in the state of Colorado. The Division 2 dam safety engineer's activities general follow the trends presented in the figure.



Several dam safety improvement projects were completed in Division 2 including Big Tooth Dam, Palmer Lake #5 Dam Woodmoor Lake Dam. Design review projects completed for projects that are intended to begin next year include the Leo and Grace Lake Dams project, Crystla Creek Dam and the Nichols and Northfield Dam projects. Pictures of work in progress are shown below.



Photo No. 1 – Parapet wall completion and cleaning of upstream face in preparation for Carpi geomembrane lining installation at Big Tooth Dam in the mountains above Manitou Springs.



Photo No. 2 – Drained reservoir and work progressing on the outlet works rehabilitation project at Woodmoor Lake Dam.

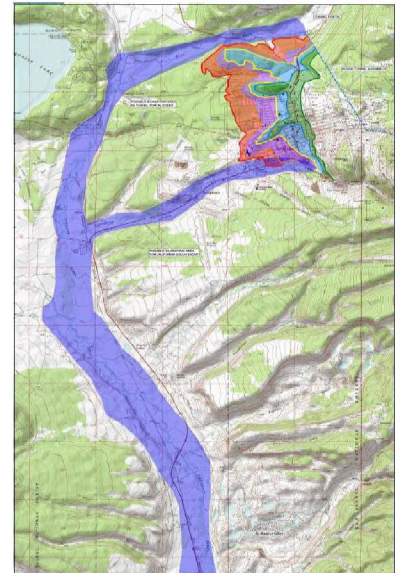


Photo No. 3 – View looking down on the new outlet works discharge structure at the toe of Palmer Lake No. 5 Dam.



Photo No. 4 – Inlet area on the upstream face of the new Sand Creek Detention Dam No. 2 in Colorado Springs.

Special projects completed by Division 2 dam safety personnel include the Leadville Mine drainage Tunnel flood impact evaluation. At the request of the Colorado Department of Emergency Management (DEM), the Dam Safety Branch was asked to perform an analysis to estimate the potential impacts of a sudden and catastrophic release of water built up within the U.S. Bureau of Reclamation Leadville Mine Drainage Tunnel. The volume of water in the tunnel was estimated at 1.5 billion gallons of water. An analysis was performed to estimate the potential impacts of the failure of the tunnel. The Army Corps of Engineers HEC-HMS hydrologic Modeling program was used to determine the peak flow as a result of the sudden release of the estimated volume of water in the tunnel. Using published documentation, the attenuation of the peak flow downstream of the tunnel was estimated. Arkansas River historical flow data obtained from Colorado's Decision Support System (CDSS) was used to estimate the effects of the attenuated flows on the areas downstream of the tunnel. The study was completed in a short period of time and was intended to provide DEM with information to be used for planning and evacuation purposes only.



Inundation map downstream of the Leadville Mine Drainage Tunnel, Lake County

A Dam Safety Branch internal evaluation of the Extreme Precipitation Analysis tool (EPAT) was performed. The analysis led to presentation of a professional paper at the 2008 national conference of the Association of State Dam Safety Officials (ASDSO) by a Division 2 dam safety engineer.

One dam safety incident arose and was attended to by a Division 2 dam safety engineer in the summer of 2008. On August 15, 2008, Bill McCormick received a phone call that informed him that the reservoir behind Sand Creek Detention Dam #6 was full and spilling. Bill visited the site and observed a large sinkhole about 20 feet wide and 4 feet deep along the upstream side of the embankment and one foot below the grade along the downstream side of the embankment. Observations indicated the hazard classification of the partially completed structure was low or possibly significant category. To prevent further rise in the reservoir and possible failure, a temporary spillway was excavated in the right abutment of the dam and the reservoir was lowered. In the interest of public safety and at the request of the Dam safety engineer, the City of Colorado Springs police department closed Woodmoor Road to traffic during the incident.



Sand Creek Detention Dam, El Paso County Division 2

Submitted by Bill McCormick

Hydrography

Assistant Division Engineer, Bill Tyner, PE III, provided overall program leadership of the Division 2 Hydrographic Program during water year 2008. He was supported by Lead Hydrographer, Mark Perry, PE I; Hydrographic Engineer, Lou Schultz, EIT; and Hydrographic Technicians, Anthony Gutierrez and Adam Adame. Lou Schultz retired after 32 years of service with the State. Lou operated a network of 19 stream gages in the Upper Arkansas River basin day-in, day-out with careful attention to detail and without fanfare. Lou ensured that quality data was provided to Division 2 decision makers, including data from a remote system of trans-mountain diversions. Lou was off for the month of August 2008 but returned to Division 2 as a temporary employee on Sept 15th to help with the transition to a new hydrographer in the Upper Ark. On October 1, 2008, Cheston Hart (formerly of Division 7) was hired as the new permanent full-time Upper Ark Hydrographer.

Each of the Division 2 hydrographers continued their assigned work with specific gaging stations and geographic areas. Routine work includes responsibility for regular streamflow measurements, gaging station operation and maintenance, satellite monitoring equipment operation and maintenance and the complete development and computation of streamflow records for specific gaging stations. Lou Schultz was responsible for gaging stations in WD 11 (now Cheston Hart). Tony Gutierrez is primarily responsible for gages in WD's 10, 12, 14, 15, 16, 79, 18 and 19, with assistance from Mark Perry. Tom Ley is responsible for gages in WD 13 and provided other support as needed. Adam Adame is responsible for WD's 17 and 67. Additionally, hydrographers respond to requests of water commissioners for water measurement assistance in their respective districts.

GAGING STATIONS:

SMS gages:

Division 2 is the sole operator and maintainer of 104 stream, diversion and reservoir gages on the Satellite Monitoring System (NOTE: This does NOT include 85 cooperator gages that require periodic involvement from Division 2 Hydrographic staff). The breakdown of Division 2 operated gages is as follows:

Record Stream Gages:	34
Record Diversion Gages:	13
Administrative Stream Gages:	11
Administrative Diversion Gages:	39
<u>Reservoir Gages:</u>	<u>7</u>
TOTAL	104 gages operated solely by Division 2

Gages operated solely by Division 2 require hydrographic measurements, monitoring equipment diagnostics via WebHMS, stage-discharge rating development, normal maintenance, and periodic gage improvements. Normal maintenance includes but is not limited to pumping wells; purging bubbler lines; breaking ice; replacing floats; changing charts; changing float tape; replacing mufflers; replacing malfunctioning DCPs, shaft encoders, antennas, GPS antennas, and batteries; downloading DCP log data; maintaining a gage log. Periodic gage improvements can include any construction or maintenance items required to preserve the integrity of a gage and

data. Specific gage improvement projects performed in WY08 are discussed in more detail below.

In addition, 85 cooperator gages on the SMS network in Division 2 require a non-trivial time commitment from the Division 2 Hydrographic staff. For example, Division 2 staff worked closely with Colorado Springs Utilities and the City of Aurora to complete high data rate upgrades of data collection platforms at 12 gages this year. We continue to be the liaison between water commissioners and gage cooperators when cooperator gages needed for water administration are not working. Division 2 hydrographers made hydrographic measurements at the USGS's Arkansas River at Las Animas and Purgatoire River at Las Animas gages in order to satisfy ARCA compact requirements.

Support of Water Administration:

Division 2 provides all types of hydrographic support to aid water administration. In WY08 we did the following water administrative support work at non-record gages:

- Check measurements and flume inspections at Empire Lodge and Beaver Lakes diversions. We worked with water users to ensure stilling wells and flumes were installed correctly, and we installed and setup SDRs.
- Provided extensive support to District 19 water commissioner and to State Parks to ensure that the Model Return flume was installed correctly. We sized the flume, procured a new flume for Parks and helped their contractor set it. We worked with Parks' contractor to build a stilling well and to install baffles to dissipate high approach velocities, and we performed numerous check measurements.
- Worked extensively with District 19 WC and State Parks on the installation and operation of an Acoustic Doppler Velocity Meter at the Hoehne Return gage. Our effort included many site visits, meetings, literature reviews, phone consultation, etc. and culminated in a mass balance study performed to verify the accuracy of the ADVDM at this installation.
- Performed a mass balance study of the Enlarged Southside Ditch in Trinidad at the request of the District 19 water commissioner to assess operation of divider boxes. The study identified operational problems with differential weir submergence on opposite sides of the divider box resulting in an incorrect flow distribution and resulted in new procedures by the ditch rider.
- Helped Lamar Light and Power Company install a new flume and put it on satellite telemetry.
- Coordinated with Nine Mile Canal ditch rider to improve their operations by cleaning their diversion dam (gage control) so that we can provide better data to the Water Commissioner to administer their futile call.
- Ran levels on Collier ditch and helped set new flume.
- Installed satellite telemetry at Talcott and Cotton Ditch on Fountain Creek in support of the Fountain Creek Transit Loss Model.
- Took over the operation of the Pueblo Reservoir gage from the USBR. Developed new program to sample data from via 2 radio links to reduce missed transmissions.
- Put Fort Bent Ditch on satellite telemetry. Helped ditch rider make improvements to intakes and stilling well.
- Worked with numerous ditch companies to do needed maintenance at gages like excavating stilling basins upstream of flumes, cleaning intakes and stilling wells, and relocating staff gages to the correct position.

- Installed 'oil tubes' for isopar at Smith Ranch (2 reservoir gages) and Nine Mile Canal. Worked with Colorado State Land Board to purchase isopar and to improve operations at their reservoirs to prevent stilling wells from freezing during winter. Also provided support of rain gage at Smith Ranch to help with water administration.
- Performed flume inspections and check measurements at the Avondale Augmentation flume, Camp Creek flume (for the Navigator's), Amity Canal, Consolidated Ditch, to name a few.
- Worked with water user on the Box Springs diversion to design gage improvements and a measuring bridge at an old weir and established a procedure for obtaining high flow measurements there in order to establish a rating.
- Worked with the Fort Lyon Canal Co. on gage changes and establishing a new gage rating at the Adobe Creek below Adobe Reservoir gage. Over a dozen measurements were performed there in WY08 to support this effort.
- Assisted Rocky Mountain Steel Mills in designing and placing a 10-ft steel Parshall Flume and 'a' and 'b' stilling wells. Installed satellite telemetry equipment and made check measurements of the flume.
- Evaluated a measuring device at the Enstrom Spring as part of the Tri-State Generation water case. Did research on measuring device and worked with the water user's engineer on an acceptable measuring device for water administration.
- Installed SDRs at numerous gages to support water commissioners including Adobe Creek, Catlin Canal, and the Fort Bent Ditch.
- Coordinated with Denver IT staff to display data from USBR gages at Twin Lakes, Turquoise Reservoir and the Mt. Elbert Forebay to the State website to aid Division 2 reservoir administration.
- We have several on-going administrative efforts including:
 - o Setting up a flow meter to communicate with an SDR for the Town of La Veta
 - o Consulting on new gages for seep ditch diversions in Lamar
 - o Installing satellite telemetry at Mt. Pisgah Reservoir
 - o Installing three new gages and satellite telemetry for the City of Walsenburg
 - o Consulting with the City of Trinidad for flume and SDR installations
 - o Continued design work with the Upper Arkansas Water Conservancy District on their proposed South Arkansas River gage. Worked closely with contractor to make gage happen in Fall 2008 and obtained needed permits but high water prevented in-stream construction.
 - o Working with Fountain Mutual Ditch Company to redesign diversion of Spring Creek Augmentation gage in order to provide adequate approach to flume.
 - o Working with District 14 water commissioner to improve the gage on the Huerfano River near Undercliffe.

HYDROGRAPHIC RECORDS:

Published Records:

Division 2 hydrographic staff will complete 47 streamflow and diversion records in WY08 for publication in the DWR Annual Streamflow Report. In addition, Division 2 provided the ARKCANCO record to the USGS for publication. We also provided timely trans-mountain diversion records to Divisions 4 and 5, the Upper Colorado River Commission, and the USGS for their reporting; and we provided timely ditch and canal diversion records to appropriate

Division 2 water commissioners in order to ensure consistent records where diversion numbers are worked jointly.

Division 2 has experienced numerous setbacks to our records schedule this year including the transition to a new hydrographer in the Upper Arkansas River basin (responsible for 18 record gages), new records software to learn, the transition to Office 2007 software, and the loss of a family member of one Division 2 hydrographer.

Unpublished records:

Division 2 hydrographic staff also work hydrographic records at several administrative gages at the request of the Division Engineer; they are the Fort Lyon Storage Canal and the Adobe Creek below Adobe Reservoir gages.

STREAMFLOW MEASUREMENTS:

During WY07, Division 2 hydrographers made a total of 662 discharge measurements as follows:

Measurements at Record Gages:	592
<u>Measurements at Administrative Gages:</u>	<u>70</u>
TOTAL	662

High snowpack in the Upper Arkansas River basin resulted in high and prolonged Spring runoff period. Division 2 hydrographers rose to the occasion and performed many cableway and bridge measurements – measuring on the day of the WY08 peak discharge at numerous gages.

In addition to discharge measurements, Hydro staff made many visits to reservoir gages and Coagmet weather stations. We operate 7 reservoir gages: Pueblo, Adobe, Bret Gray, Clear Creek, Cucharas, Douglas, and Skaquay. In addition we support cooperator reservoir gages at Lake Henry and Lake Meredith. We did routine maintenance work at 7 Coagmet weather stations.

STREAM GAGE IMPROVEMENTS:

During WY08, Division 2 hydrographers completed the following stream gage improvement projects:

Flood Hardening:

- A sheetpile retaining wall was installed at the ARKCANCO stream gage. The old shelter was removed and a new shelter was installed. New intakes, flush risers and gate valves were installed.



- The ARKPORCO gage shelter and electronics equipment were moved up to the top of the streambank after a 2006 event flooded the old shelter. A new Constant Flow Bubbler, bubbler line and muffler were installed.



Stream Gage Refurbishment:

- ARKSALCO: Replaced cableway mass anchor on left side, replaced main cable, and replaced backstays and hardware.

- ARKSALCO: Created new boulder weir control structure in order to back water up and create a better cableway measuring section.
- ARKCANCO: made structural improvements to the right side cableway frame.
- Installed Constant Flow Bubblers at ADOBARCO, HRC194CO, PURNINCO, PURHILCO, ARKPORCO, ARKWELCO, PURTRICO, ARKLAJCO, ARKCATCO, and CUCRESCO in order to upgrade old or malfunctioning gages.
- Tipping bucket rain gages were installed at DOURESCO, ADORESCO and CHIDITCO.
- An angle iron was mounted on the floodblock at ARKROCCO to serve as an RP for a drop tape reference gage. The old reference gage (bridge mounted wire weight gage) was in a different cross-section than the automated gage.
- ARKLAJCO: Thick tamarisk and willows were cleared from the high water measuring section, the channel was surveyed at the gage, a new rating was developed, and an outside reference staff gage was installed on the Hwy 109 bridge pier. Division 2 attended an emergency flood preparedness meeting held in April 2008 by Otero County. The above work completed by Division 2 was in part an effort to improve high water gaging and emergency response.
- RULTOOCO and MUDTOOCO gages were dug out. These gages are continually buried in heavy silt. Division 2 coordinated with the Sheriff's Dept to provide labor.
- UPBVCRCO: dug near weir pool, installed energy dissipater, new intake and repaired gate valve on intake.
- Provided consultation to Comanche Power Plant and Lamar Light and Power Co. for adding water temperature sensors to satellite telemetry for compliance with new State environmental regulations. Our SMS agreement states that the water user can add sensors to satellite telemetry if they are compatible with existing equipment.

New Stream Gages:

A total of 4 new gages were brought onto the SMS system in Division 2:

- (1) Salt Creek near the Mouth below Pueblo (SALTMOCO)
- (2) Fort Bent Ditch (FTBDITCO)
- (3) Talcott & Cotton Ditch (TACODICO)
- (4) Lamar Light and Power Return Flow (LLPRETCO)

High Data Rate DCP Upgrades:

HDR upgrades were completed at the following Division 2 gages:

- Bob Creek (BOBCRKCO)
- Fountain Mutual Ditch (FOMDITCO)
- Fountain Creek at the Mouth (FOUMOUCO)
- Lake Henry Reservoir (HENRESCO)
- Lake Henry outflow (HENOUTCO)
- Lake Meredith Inflow (MERINFCO)
- Lake Meredith Reservoir (MERRESCO)
- Lake Meredith Outflow (MEROUTCO)

- Rocky Ford Ditch near Manzanola (RFDMANCO)
- Rocky Ford Ditch Return Flow for Aurora (RFDRETCO)
- Spring Creek Augmentation (SPRAUGCO)
- Sugar City Flume Sugar City (SUGARCCO)

Specialized Training:

- Three Div 2 hydrographers completed the USGS Stream gaging Cableway Principles for Inspection course in Sept 2008.
- Four Div 2 hydrographers attended the annual DWR Hydro Meeting in Oct 2008. There were 2 days of training on the GRSAT rating development software.
- Lead Hydro provided informal training for Hydrographic staff on new records program, HydroApp, WebHMS, GRSAT and the Rating Curve Spreadsheet.
- Lead Hydro completed the 3-day USBR's Basic Principles and Developments in Flow Measurement.
- Lead Hydro made a presentation to the Upper District 10 Water Users Association on using the State's Current Surface Water Conditions website and explained why DCP equipment upgrades were required in District 10.

Submitted by Mark Perry

Information Technology

Implementation of a statewide plan to consolidate "IT" services began to affect Division 2 operations as of July 1, 2008. In such a sweeping reorganization, it is inevitable that there are winners and losers. Unfortunately the Division of Water Resources' previous attempts to be forward thinking and proactive by making staffing decisions to hire expertise and reallocate existing positions to perform IT functions has been rewarded with sacrifices of FTE positions at the altar of the unproven god of governmental efficiency and improved services for other agencies. Leading up to that point attempts were made to classify most IT positions as providing either "Desk-top Support" or "Line of Business" functions. Regrettably the IT professional position in Division 2, like all other such positions in field offices was wrongly determined to be a Desk-top Support, when in actuality this position has served both needs.

In addition to the legacy ground water data system, the IT professional located in the Division 2 office responded to a variety of real world water administration needs:

- By developing a reservoir accounting application used to administer the Arkansas River Compact. This led to an adaptation used to administer Trinidad Reservoir.
- Consistent with the objective of "...increasing data access efficiency and effectiveness to both the public and (DWR) employees..." the IT professional developed an application that automatically accesses telemetered stream flow and diversion data in order to populate data for reports of the status of water distribution throughout the basin that are internet accessible and relied upon by water users and water administration officials.
- In collaboration with more than 10 different municipalities within the Fountain Creek drainage, the largest of which is the City of Colorado Springs, the IT professional developed applications which facilitate their ability to electronically submit approximately 100 daily user inputs to a regional transit loss model developed by the USGS. The near real time

operation of this model is absolutely critical to the administration of the native and imported waters within Fountain Creek.

These are but a few of the applications that have been developed locally and that are in daily use.

In the short run, delays in the consolidation process worked to the advantage of this office by allowing Vivian Beal to continue to commit at least 40% of her efforts toward Division initiatives including conceptualizing the operations of an GIS enterprise database, designing a database and data transfer mechanisms to facilitate augmentation plan enforcement, compilation of diversion records from spreadsheets into Hydrobase and defined user needs for Fountain Transit Loss reporting tools and/or automated data transfers.

Submitted by Steve Witte

Organization/Personnel/Workload Issues

Personnel

In 2008 Division 2 experienced a variety of changes in staffing. Three employees retired this year. They were Rich Snyder (retired February 29, 2008), Lou Schultz (retired July 31, 2008) and Mike Graber (retired November 30, 2008). Lou Schultz did return to work for Division 2 as a temporary employee to train his replacement and help with records starting September 2008. Two employees resigned from State service; they were Scott Lorenz (resigned September 2008) and Monique Morey (resigned October 2008). Brian Sutton was appointed lead Water Commissioner in Water District 10 in April 2008 (filling the position vacated by Snyder's retirement). Permanent employees hired during this year were Cheston Hart (who transferred from Division 7) and filled the Hydrographer position in the Buena Vista area (after Schultz retired) and Doug Hollister as Deputy Water Commissioner in Water District 10 (Colorado Springs area). Temporary employees hired this year were Jake DeWolfe (Deputy Water Commissioner in WD10), Drew Pritchard and Russ Dash who both worked for the groundwater group during the busy summer season. See Organization Chart on page 40.

Submitted by Wendy Bogard

Budget

The budget situation experienced highs and lows this year, mostly due to gasoline prices. Gasoline prices soared to a high of \$3.99/gallon by June 2008 and then dropped to a low of \$1.42/gallon by December 2008. Charges imposed by Fleet were high while gas prices were high and then were reduced in November 2008 to adjust for the decreasing fuel prices. At the same time POV (private owned vehicle) rates were up during most of the year and then were to drop in reimbursement rate effective January 2009. Operating funds for Division 2 were adequate for our needs during the year. Also, a mileage supplement was not approved so the State Engineer requested an eight percent reduction of miles driven.

This year we were allocated the same overtime budget amount as the previous year. This funding allowed for managers to plan to keep permanent part-time employees working a little longer in the fall and to bring that back a little earlier in the spring but those plans changed when Governor Bill Ritter initiated a hiring freeze effective October 1, 2008.

Submitted by Wendy Bogard

Training

Division 2 staff were able to participate in a number of training or continuing education events. Mark Perry participated in the Nuts and Bolts of Supervision class. Wendy Bogard attended DWR's EDSys training in Denver with the other Program Assistants. Fourteen employees attended the Division 2 GIS training class. Kim Pulis was able attend an Excel classes sponsored by Pueblo County and an Access class through New Horizons. Mark Perry and Adam Adame attended Cableway training. Don Taylor was approved to attend Excel and Word classes through Pueblo County and Steve Kastner attending a Merging in Word class through Pueblo County. Doug Stenzel provided Hydrobase training to Division 2 staff at the Pueblo office. The Division 2 Training Budget of \$1500 was depleted during this year.

Submitted by Wendy Bogard

Pay for Performance

Pay for Performance was funded with pay outs in July 2008. Each employee that was rated at Satisfactory or above received a 1% Achievement Pay increase. This was in addition to an average 3% to 5% Salary Survey adjustment. Employees that were successfully rated at the outstanding level also received a one-time bonus of 2% of their yearly base pay.

Submitted by Wendy Bogard

Agency Meetings

The staff of Division 2 are involved in a variety of agency meetings. These include the Dam Safety Engineers' annual meeting, the Hydrographers' annual meeting, and the SEO Spring meeting. The Program Assistant Annual Meeting was cancelled due to budget constraints. Also, Steve Witte attended the scheduled Leadership Team meetings either in person or by teleconference. Division 2 hosted a Spring Meeting (May 7, 2008) and a Fall Meeting (September 30, 2008). There was only one other staff meeting and that was on January 17, 2008 with Dick Wolfe. There were no Senior Staff meetings during the year. Other groups that met routinely through the year were Groundwater and Orders Committee.

Submitted by Wendy Bogard

Employee Recognition

Water Commissioner of the Year was awarded to Jerry Livengood, Water District 13. He was recognized on September 30, 2008 at the Fall Staff meeting. Janet Kuzmiak received Support Staff of the Year and Steve Witte received Leadership of the Year and were recognized at the SEO Spring meeting in Denver. Wendy Bogard and Kim Pulis were awards an Above and Beyond Award for their assistance to Tom Ley.

Submitted by Wendy Bogard



Involvement in the Water Community

Division 2 staff attended numerous meetings throughout the year. The five water conservancy districts within the Arkansas River basin each hold their own meetings and are normally attended by someone on the Division 2 staff. Ditch companies, groundwater associations, various water users associations, and special interest groups conduct

meetings and many times seek Division 2 personnel's attendance. Kathy Trask and Monique Morey participated in the annual CSU-Pueblo DWIP program in May 2008 and State Fair booth volunteers (August/September 2008) were Steve Witte, Brian Sutton, Gary Hanks, Jeanette Bryan, Kathy Trask, Viv Beal and Kim Pulis.

Submitted by Wendy Bogard

Chief Justice Mary Mullarkey issued an order on December 4, 2007 establishing a Water Court Committee of the Colorado Supreme Court to review the water court process and identify possible ways through statutory and/or rule changes to achieve efficiencies in water court cases, while still protecting the quality of outcomes and ensure the highest level of competence in water case participants. Justice Greg Hobbs was appointed to chair the committee and Steve Witte was among the other twenty appointees. The Committee issued its report to the Chief Justice on August 1, 2008. Subsequently on August 8, 2008, Chief Justice Mullarkey issued an order creating a Standing Water Court Committee which appointed Steve Witte as a member for an additional two year period.

Submitted by Steve Witte

Innovative Administration Processes

Using XMAP GIS Enterprise to Maximize Efficiency of Field Operations

Introduction

An Enterprise GIS provides access to geospatial data and applications throughout an organization by providing a central database managed by GIS personnel. Other employees can 'check out' data and import it into their XMAP software for their own needs. There are several advantages to using an Enterprise GIS. First, there is a common infrastructure on which to build and deploy GIS solutions to multiple users, including customers and colleagues. We can extend geospatial capabilities to nontraditional users of GIS, and we improve our overall operating efficiency through the more effective and consistent use of GIS across our organization. The key is that GIS experts maintain control of the information and applications, yet productivity skyrockets as more users have access to geospatial information.

Initial Use

The DeLorme XMAP GIS Enterprise system was implemented by DWR Division 2 personnel in spring 2008. This system combines the already familiar and easily utilized DeLorme XMAP software with select functions of the more complex ESRI ARCGIS software and a database manager. The intent was to streamline groundtruthing and dry-up verification activities that require many hours of time for both field and office personnel. This time is first spent in the office using ARCGIS to create paper maps of parcels to visit and tables for data collection. After data collection is completed in the field, more office time is required to enter the data from the tables into the database and check for errors and omissions. Additional time is spent clarifying data entries and map changes with field personnel. A tremendous amount of unnecessary paper is generated and oftentimes field personnel will return to the same area several times to collect data for different activities.

The GIS Technical Committee, consisting of Vivian Beal, Ina Bernard, Jeanette Bryan, Janet Dash, Kathy Trask, and John VanOort, held a group training session for field personnel in the Division 2 office on April 22, 2008. The GIS Tech Committee had begun meeting in January to get comfortable with the XMAP GIS software, set up the database manager, develop a naming system and set up file structures. After the initial training session and set-up of laptops with the software and database, one-on-one training was provided in the field with a member of the tech committee. Another group training session was held in the La Junta office later in May. Field personnel have completed two rounds of data collection for groundtruthing during this growing season and that information has been checked and verified by GIS staff for use in processing satellite imagery. The imagery will be used to determine irrigated versus non-irrigated acreage throughout the Arkansas Valley. In addition, dryup field verification has been ongoing throughout the summer and that data is also being entered into the database for irrigated acreage verification and determining compact compliance.

The XMAP GIS Enterprise made it easier for Division 2 employees to access the spatial information they needed to do their jobs efficiently and make sound decisions. It was a bit complicated to implement and required significant planning and support initially, but it delivered a high return on our investment.

New Uses

Groundwater personnel routinely prepare lists of wells that require action in the field such as placing a wellhead order for over-pumping or non-reporting, reading the flow meter, making a flow measurement, or locating by UTM coordinates (figure 1). The lists, usually sorted by township and/or range, are then given to field personnel. Last fall (2007) groundwater field personnel were using DeLorme XMAP to locate wells from these lists and navigate to them. They first had to plot the UTM coordinates (or lat/long) of each well on their laptop using the XMAP software. This was time consuming, but provided an online map to use with their GPS unit for navigation. Once at the well the particular task could be accomplished and the appropriate field form completed. Then the field person returned to the office to enter the data into the database and file the paper forms.

During the summer and fall of 2008, members of the Division 2 groundwater operations team have utilized some creative applications of the XMAP GIS Enterprise system while performing their routine site visits. The current groundwater field process was streamlined by using the XMAP process already in place for groundtruthing and dryup verification activities. After a groundwater enforcement list was generated in the office, a GIS coverage, or shapefile, was created linking the UTM coordinates and well information from the groundwater database to the well identification numbers in the list. This shapefile was placed in the Enterprise database so that it could be accessed by field personnel (figure 2). The shapefile was saved to the field laptop using the XMAP GIS software and could be opened and used with the GPS unit to navigate to the wells on the list. In addition to saving time entering the location data for all the wells to be visited, the accompanying well information (in a .dbf file) could be opened up on the computer screen to provide owner and contact information, prior site visit information, measurements, meter readings, etc. while in the field (figure 3). Because of the initial success this summer, shapefiles are being created that link well information to wells on various enforcement lists produced in the groundwater section. Each file is saved to the Enterprise database and can then

be checked out to the laptop of the field personnel assigned to visit those wells. By assigning different colors to the well symbols from each list, the field person can easily see on the monitor that not only is there a well requiring a wellhead order straight ahead, but there are also two wells without identification numbers to the left and a well requiring a meter read to the right, all within a mile of one another (figure 3). 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.

A future next step might be to produce an online form (or editable attribute table) that allows automatic entry or editing of field information while at the site, similar to the process used for groundtruthing and dryup verification this summer (figure 4). Currently the field person fills out the data on a paper form while at the site, then returns to the office to enter the data in the electronic database, sometimes several days later. This requires extra office time, and can lead to loss of data or transposing errors. By creating an editable version of the shapefile, field personnel can check out the layer of data for an area they need to visit and can enter data and comments to the attribute table while still in the field. Upon returning to the office the shapefile and attributes are checked back into the Enterprise database. As with the groundtruthing procedure, groundwater personnel review the checked in data for completeness and accuracy before they commit it to the groundwater database. This can be a more timely and efficient process than current field procedures.

Conclusions

The XMAP GIS Enterprise system will result in significant savings of time (both office and field), paper, ink, and fuel for Division 2. The initial outlay for purchasing laptops and software, and providing training has already been recouped in one field season. In addition, the potential use of the system for groundwater enforcement activities could lead to even more savings in the future. Other anticipated uses for the XMAP GIS Enterprise system include field mapping of surface water diversions and ponds throughout the Arkansas Valley, and mapping irrigated acreage in tributaries to the Arkansas River. The enterprise system enables Division 2 to share maps and data among users and across specialties while conforming to our existing systems and environments. The use of an interactive map allows us to target existing resources and cut down on redundancy. Enterprise GIS makes it easier for employees to access the spatial information they need to do their jobs efficiently and make sound decisions.

Figure 1

Example of a groundwater enforcement list. Note the structure identification number, or ident, the latitude and longitude, and the reason for inclusion on the list. Not shown are columns that include the northing and easting values.

GeoID	Latitude	Longitude	plan	wd	ident	owner	reason	mg	ts	sec	ctr
655	484	38.25468	-104.441		14	1405511 ANTHONY SALAMENO	Form 7 Filed	63	VV	21 S	3 NW
656	458	38.25507	-104.441		14	1405301 ANTHONY SALAMENO	Form 7 Filed	63	VV	21 S	3 NW
657	588	38.25541	-104.353		14	1405835 SANDRA SCOTT	Form 7 Filed	62	VV	21 S	5 SE
658	593	38.25586	-104.579	Pueblo	14	1405061 GCNC MICHAEL	Form 7 Filed	64	VV	21 S	5 NW
659	730	38.25592	-104.538		14	1406252 MAHLON WHITE	Form 7 filed, Dakota/Cheyenne Well.	64	VV	21 S	3 NW
660	517	38.25607	-104.345		14	1405682 THOMAS PATTERSON	Form 7 Filed	62	VV	21 S	4 NW
661	724	38.25616	-104.552		14	1406231 JOSEPHINE SIEGEL	Form 7 Filed	64	VV	21 S	3 NW
662	419	38.25661	-104.576		14	1405104 JOHN LINDSTROM	Form 7 Filed	64	VV	21 S	5 NW
663	501	38.25688	-104.367	AGUA	14	1405656 HUBERT AGUIRRE	In a replacement plan, but no water ordered.	62	VV	21 S	5 NW
664	511	38.25747	-104.326	AGUA	14	1405668 MICHAEL THOMPSON	Form 7 filed and no water ordered in a replacement	62	VV	21 S	3 NE
665	767	38.25765	-104.533		14	1406441 MAHLON WHITE	Form 7 Filed	64	VV	21 S	2 NW
666	761	38.25785	-104.54		14	1406417 MAHLON WHITE	Not in any replacement plan.	64	VV	21 S	3 NW
667	500	38.25792	-104.366	AGUA	14	1405655 STACEY I PHILLIPS	In a replacement plan, but no water ordered.	62	VV	21 S	5 NW
668	744	38.25813	-104.609		14	1406307 JOHN OR FRANK OR GARY PER	Form 7 filed, Dakota/Cheyenne Well.	65	VV	21 S	1 NE
669	509	38.25815	-104.331	AGUA	14	1405668 MICHAEL THOMPSON	In a replacement plan, but no water ordered.	62	VV	21 S	3 NW
670	742	38.25824	-104.692		14	1406298 PETE MELCHER	Not in any replacement plan.	65	VV	21 S	5 NE
671	587	38.25826	-104.574		14	1405872 MARK KLUNE	Form 7 Filed	64	VV	21 S	5 NW
672	486	38.25865	-104.543		14	1405600 MAHLON WHITE	Form 7 Filed	64	VV	20 S	34 SW
673	508	38.25878	-104.335	AGUA	14	1405665 MICHAEL THOMPSON	Form 7 filed and no water ordered in a replacement	62	VV	21 S	4 NE
674	708	38.25877	-104.581	BELTRAM	14	1406183 TIM BELTRAMO	No measurement method, but water ordered.	64	VV	20 S	32 SE
675	485	38.25893	-104.538		14	1405599 MAHLON WHITE	Form 7 Filed	64	VV	20 S	34 SE
676	494	38.25942	-104.535		14	1405594 MAHLON WHITE	Form 7 Filed	64	VV	20 S	34 SE
677	438	38.25946	-104.393	AGUA	14	1405142 MARK MORLEY	Form 7 Filed	63	VV	20 S	36 NW
678	793	38.25947	-104.393		14	1409028 KEN KOSLOWSKI & KEN MONT	Not in any replacement plan.	63	VV	21 S	1 NW
679	506	38.25948	-104.343		14	1405663 WILLIAM OR SANDRA, SHERMAI	Form 7 Filed	62	VV	21 S	4 NE
680	439	38.25956	-104.394	CWFPDA	14	1405143 KYLE FRISINGER	No measurement method, but water ordered.	63	VV	20 S	36 SW
681	437	38.25959	-104.393	AGUA	14	1405141 MARK MORLEY	Form 7 Filed	63	VV	20 S	36 NW
682	441	38.2596	-104.386	AGUA	14	1405145 MARK MORLEY	Form 7 Filed	62	VV	20 S	31 SW
683	440	38.25961	-104.392	CWFPDA	14	1405144 KYLE FRISINGER	Form 7 Filed	63	VV	20 S	36 SW

Figure 2

Example showing three shapefiles; 2008 ENF, inspections, and No_IDtags, placed in the Enterprise database. The shapefiles have been moved into the laptop workspace for future field use.

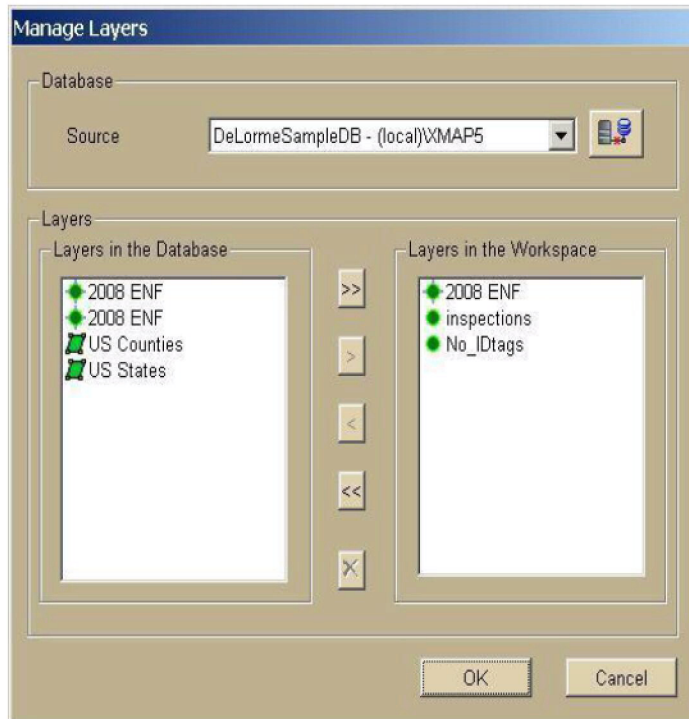


Figure 3

Example showing information contained in the attribute table for the shapefile 'NoIDtags'. Not shown are columns containing owner name, address, phone number, etc. Note also the map above the attribute table showing locations of wells in the file 'No_IDtags' (red dots) and the locations of wells in the file 'inspections' (green dots). As the technician completes a site visit, the color of the dot on the map is changed to indicate the site is done.

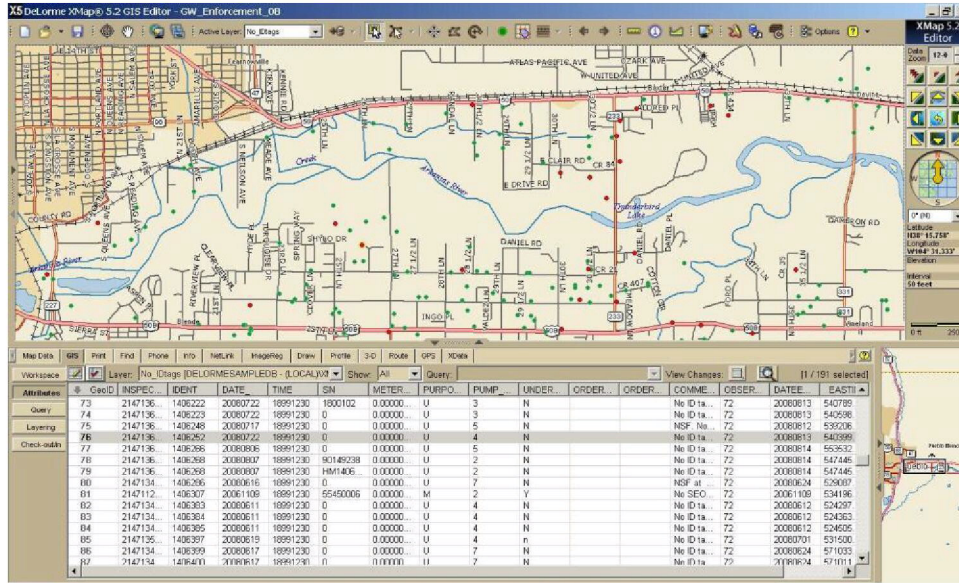
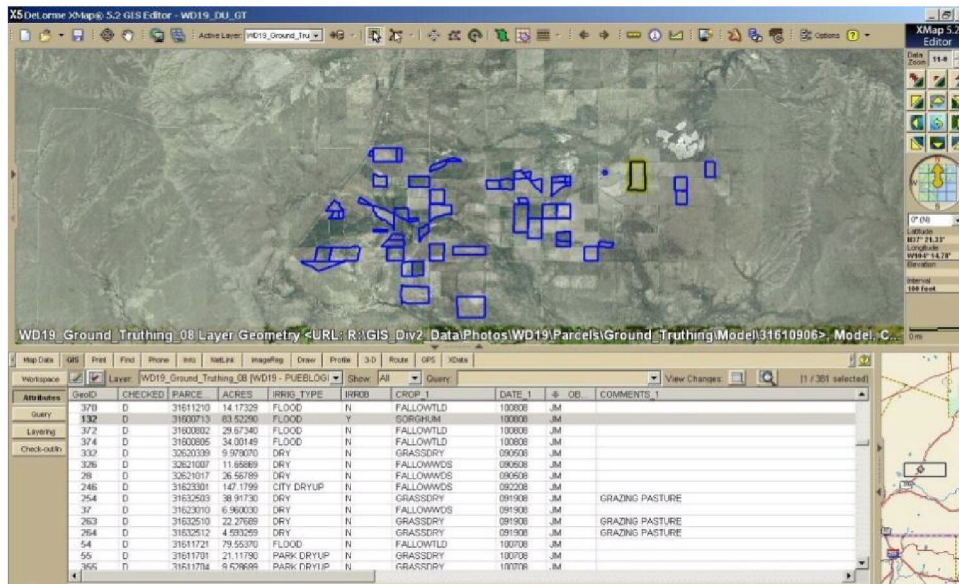


Figure 4

Example of an editable shapefile. This is the WD19 groundtruthing shapefile used this summer. The fields outlined in blue on the map were checked out by the water commissioner from the office computer and saved onto the laptop. The columns for IRRIG_TYPE, IRR08, CROP_1, DATE_1, OB, and COMMENTS_1 were all completed in the field and then checked back into the Enterprise database when the water commissioner returned to the office. After the GIS specialist reviewed the data in the attribute table, a 'D' was placed in the column 'CHECKED' to indicate that parcel was complete.



Submitted by Janet Dash

Objectives for 2009

The following is an incomplete and unprioritized list of objectives to be accomplished in the coming year that are in addition to our core mission of providing for the proper administration of the waters of the Arkansas River and its tributaries in accordance with the doctrine of prior appropriation and Colorado's Compact obligations under the Arkansas River Compact as well as by providing for public safety through the Dam Safety program:

1. Adapt and improvise to respond to the inevitable attempts to balance the current FY 08-090) and reductions of General Fund allocations in FY 09-10 caused by the current recession.
2. Attempt to improve morale and retain productive employees by correcting personnel problems and by addressing chronic intra-office cultural challenges.
3. Improvise and adapt programs to respond to unanticipated vacancies that occur and resource limitations.
4. Recruit and train personnel to the best of our ability by seeking exemptions to the hiring freeze, so long as it remains in effect and as aggressively as possible thereafter.
5. Evaluate the current and foreseeable office space needs of the Division 2 offices in Pueblo and LaJunta and secure new leases or lease renewals to meet those needs in the most cost effective manner possible in consideration of the market and available funds.
6. Complete negotiations with Kansas that will permit release of the retained jurisdiction related the adequacy of the Colorado Use Rules and their administration.
7. Complete the Arkansas River Compact Rules Advisory Committee review of proposed rules and promulgate these rules in a form that will elicit few, if any protests.
8. Advance efforts to require appropriate measurement and control devices and properly administer water rights from tributaries, especially below John Martin Reservoir.
9. Participate in an assessment of user needs for the purpose of developing a decision support system for the Arkansas river, work with IT development personnel to continue efforts that have been made to produce a statewide Ground Water Data Management System that is compatible with the existing Hydrobase database and continue to utilize and develop GIS applications to improve water rights administration capabilities.
10. Consider opportunities to recruit personnel and reorganize programs with an eye to succession planning and renewal to more effectively meet future needs.

Transmountain Diversion Summary

WY 2008 TRANSMOUNTAIN DIVERSION SUMMARY - INFLOWS

RECIPIENT					SOURCE	
DIV/WD	DIVERSION STRUCTURE	STREAM	ACRE-FEET	DAYS	DIV/WD	STREAM
2/11	COLUMBINE DITCH	ARKANSAS RIVER	87	92	5/37	EAGLE RIVER
2/11	EWING DITCH	TENNESSEE CREEK	1,440	139	5/37	EAGLE RIVER
2/11	WURTZ DITCH	TENNESSEE CREEK	1,280	130	5/37	EAGLE RIVER
2/11	HOMESTAKE TUNNEL	LAKE FORK CREEK	26,820	63	5/37	EAGLE RIVER
2/11	BOUSTEAD TUNNEL	LAKE FORK CREEK	90,790	366	5/38	FRYINGPAN RIVER
2/11	BUSK-IVANHOE TUNNEL	LAKE FORK CREEK	4,880	366	5/38	FRYINGPAN RIVER
2/11	TWIN LAKES TUNNEL	LAKE CREEK	64,540	366	5/38	ROARING FORK RIVER
2/11	LARKSPUR DITCH	PONCHA CREEK	461	133	4/28	TOMICHI CREEK
2/79	HUDSON DITCH	HUERFANO RIVER	631	74	3/35	MEDANO CREEK
2/79	MEDANO DITCH	HUERFANO RIVER	727	63	3/35	MEDANO CREEK
2/10	BLUE RIVER PIPELINE	FOUNTAIN CREEK	12,700	334	5/36	BLUE RIVER
	TOTAL:		204,356			

WY 2008 TRANSMOUNTAIN DIVERSION SUMMARY - OUTFLOWS

RECIPIENT					SOURCE	
DIV/WD	DIVERSION STRUCTURE	STREAM	ACRE-FEET	DAYS	DIV/WD	STREAM
5/36&37	STEVENS-LEITER WELL (AKA ARKANSAS WELL)	BLUE/EAGLE RIVERS	275	366	2/11	GROUNDWATER
	TOTAL:		275			

Water Diversion Summary – Use Type by Water District

2008 WATER DIVERSION SUMMARIES TO VARIOUS USES

WD	TRANS	TRANS-	EXPORT									HOUSEHOLD	
	MOUNTAIN	BASIN	FROM	STATE	MUNICIPAL	COMMERCIAL	INDUSTRIAL	RECREATION	FISHERY	FIRE	DOMESTIC	USE ONLY	STOCK
	OUTFLOW	OUTFLOW											
10	0	0	0	110016	461	152	0	0	0	0	27	0	8
11	0	296	0	7687	726	3	0	10255	0	114	0	0	0
12	0	2738	0	10629	23	54424	662	0	0	48	0	0	0
13	0	0	0	201	41	0	0	0	0	1	20	0	0
14	0	0	0	42230	751	142	0	0	0	312	0	1	1
15	0	0	0	1223	24	6253	1	0	0	57	0	1	1
16	0	0	0	4304	22	0	1453	300	0	32	0	0	0
17	0	11489	0	6695	343	3	0	761	0	8	0	0	0
18	0	0	0	134	0	0	0	0	0	0	0	0	0
19	0	0	0	3099	0	0	13	0	0	0	0	874	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	3295	1077	182	103	0	0	267	0	14	14
79	0	0	0	11	0	0	0	0	0	7	0	0	0
TOTAL	0	14522	0	189724	3468	61159	2233	11315	0	873	20	898	

WD	AUGMENTATION	EVAPORATION	FEDERAL			MIN		POWER		WILDLIFE	RECHARGES	OTHER	ALL BENEFICIAL	
			RESERVE	GEOTHERMAL	SNOWMAKING	STREAMFLOW	GENERATION	USE	USE					
10	17359	3	0	0	0	0	2958	0	984	0	0	14	14	
11	521	133	0	3	0	0	17274	0	0	2868	0	0	0	
12	94	92	0	0	0	0	30263	0	0	58	0	0	0	
13	1298	0	0	0	0	0	0	0	0	0	0	0	0	
14	1916	791	0	0	0	0	8180	0	1261	0	0	0	0	
15	418	3	0	0	0	0	0	0	0	0	0	0	0	
16	346	0	0	0	0	0	0	0	0	0	0	0	0	
17	9363	207	0	0	0	0	0	15498	0	0	0	0	0	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	
66	0	0	0	0	0	0	0	0	0	0	0	0	0	
67	18959	147	0	0	0	0	0	0	2638	0	0	0	0	
79	5	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	50279	1376	0	3	0	0	58674	15498	4883	2926	14			

Water Diversion Summary – Various Statistics by Water District

2008 WATER DIVERSION SUMMARIES

WD	STRUCTURES REPORTING					ALL STRUCTURES					TO IRRIGATION	
	With	No	No	No	Estimated	Total	Total	Total	Total	Total	Number	Average
	Record	Water	Water	Info	# of recorded	Diversions	Surface	Groundwater	Diversions	Diversions	of Acres	AF
	Available	Taken	Available	readings at	Structure	(AF)	(AF)	(AF)	(AF)	(AF)	Irrigated	Per Acre
(1)	(2)	(3)	(4)									
10	766	4	70	57	21008	182315	161516	20798	30787	36911	0	0
11	355	19	22	199	15002	185689	183308	2381	186688	144822	0	0
12	250	12	40	134	11806	246486	245546	939	2687	147113	0	0
13	348	4	35	28	1973	45601	45250	351	3059	45330	0	0
14	862	9	14	9	3222	151610	135263	16347	92588	97168	0	0
15	229	1	72	14	2966	21775	21102	673	929	13283	0	0
16	135	33	78	9	2804	24330	24271	58	2147	16072	0	0
17	1112	32	64	5	4422	881562	836452	45111	158371	692325	0	0
18	47	4	23	0	237	9066	8955	132	18	8935	0	0
19	119	49	46	68	3710	67758	67758	0	18520	63597	0	0
66	2	2	11	1	51	150	150	0	0	150	0	0
67	1039	6	34	17	2637	281997	227819	54178	103745	258007	0	0
79	191	49	41	4	4770	32678	32660	18	4025	28636	0	0
TOTAL	5455	224	550	545	74608	2131036	1990050	140986	603564	1552349	0	0

Definitions: (1) Count of structures with daily or infrequent diversion records
(2) Count of structures with NUC=B
(3) Count of structures with NUC=(A,C,D)
(4) Count of structures with NUC=(E,F)

Arkansas River Calls

<u>TransDate</u>	<u>PriorityDate</u>	<u>ArkansasRiverCall</u>
11/1/2007	3/1/1910	Winter Water
11/2/2007	3/1/1910	Winter Water
11/3/2007	3/1/1910	Winter Water
11/4/2007	3/1/1910	Winter Water
11/5/2007	3/1/1910	Winter Water
11/6/2007	3/1/1910	Winter Water
11/7/2007	3/1/1910	Winter Water
11/8/2007	3/1/1910	Winter Water
11/9/2007	3/1/1910	Winter Water
11/10/2007	3/1/1910	Winter Water
11/11/2007	3/1/1910	Winter Water
11/12/2007	3/1/1910	Winter Water
11/13/2007	3/1/1910	Winter Water
11/14/2007	3/1/1910	Winter Water
11/15/2007	3/1/1910	Winter Water
11/16/2007	3/1/1910	Winter Water
11/17/2007	3/1/1910	Winter Water
11/18/2007	3/1/1910	Winter Water
11/19/2007	3/1/1910	Winter Water
11/20/2007	3/1/1910	Winter Water
11/21/2007	3/1/1910	Winter Water
11/22/2007	3/1/1910	Winter Water
11/23/2007	3/1/1910	Winter Water
11/24/2007	3/1/1910	Winter Water
11/25/2007	3/1/1910	Winter Water
11/26/2007	3/1/1910	Winter Water
11/27/2007	3/1/1910	Winter Water
11/28/2007	3/1/1910	Winter Water
11/29/2007	3/1/1910	Winter Water
11/30/2007	3/1/1910	Winter Water
12/1/2007	3/1/1910	Winter Water
12/2/2007	3/1/1910	Winter Water
12/3/2007	3/1/1910	Winter Water
12/4/2007	3/1/1910	Winter Water
12/5/2007	3/1/1910	Winter Water
12/6/2007	3/1/1910	Winter Water
12/7/2007	3/1/1910	Winter Water
12/8/2007	3/1/1910	Winter Water
12/9/2007	3/1/1910	Winter Water
12/10/2007	3/1/1910	Winter Water
12/11/2007	3/1/1910	Winter Water
12/12/2007	3/1/1910	Winter Water
12/13/2007	3/1/1910	Winter Water
12/14/2007	3/1/1910	Winter Water
12/15/2007	3/1/1910	Winter Water
12/16/2007	3/1/1910	Winter Water
12/17/2007	3/1/1910	Winter Water

12/18/2007	3/1/1910	Winter Water
12/19/2007	3/1/1910	Winter Water
12/20/2007	3/1/1910	Winter Water
12/21/2007	3/1/1910	Winter Water
12/22/2007	3/1/1910	Winter Water
12/23/2007	3/1/1910	Winter Water
12/24/2007	3/1/1910	Winter Water
12/25/2007	3/1/1910	Winter Water
12/26/2007	3/1/1910	Winter Water
12/27/2007	3/1/1910	Winter Water
12/28/2007	3/1/1910	Winter Water
12/29/2007	3/1/1910	Winter Water
12/30/2007	3/1/1910	Winter Water
12/31/2007	3/1/1910	Winter Water
1/1/2008	3/1/1910	Winter Water
1/2/2008	3/1/1910	Winter Water
1/3/2008	3/1/1910	Winter Water
1/4/2008	3/1/1910	Winter Water
1/5/2008	3/1/1910	Winter Water
1/6/2008	3/1/1910	Winter Water
1/7/2008	3/1/1910	Winter Water
1/8/2008	3/1/1910	Winter Water
1/9/2008	3/1/1910	Winter Water
1/10/2008	3/1/1910	Winter Water
1/11/2008	3/1/1910	Winter Water
1/12/2008	3/1/1910	Winter Water
1/13/2008	3/1/1910	Winter Water
1/14/2008	3/1/1910	Winter Water
1/15/2008	3/1/1910	Winter Water
1/16/2008	3/1/1910	Winter Water
1/17/2008	3/1/1910	Winter Water
1/18/2008	3/1/1910	Winter Water
1/19/2008	3/1/1910	Winter Water
1/20/2008	3/1/1910	Winter Water
1/21/2008	3/1/1910	Winter Water
1/22/2008	3/1/1910	Winter Water
1/23/2008	3/1/1910	Winter Water
1/24/2008	3/1/1910	Winter Water
1/25/2008	3/1/1910	Winter Water
1/26/2008	3/1/1910	Winter Water
1/27/2008	3/1/1910	Winter Water
1/28/2008	3/1/1910	Winter Water
1/29/2008	3/1/1910	Winter Water
1/30/2008	3/1/1910	Winter Water
1/31/2008	3/1/1910	Winter Water
2/1/2008	3/1/1910	Winter Water
2/2/2008	3/1/1910	Winter Water
2/3/2008	3/1/1910	Winter Water
2/4/2008	3/1/1910	Winter Water
2/5/2008	3/1/1910	Winter Water

2/6/2008	3/1/1910	Winter Water
2/7/2008	3/1/1910	Winter Water
2/8/2008	3/1/1910	Winter Water
2/9/2008	3/1/1910	Winter Water
2/10/2008	3/1/1910	Winter Water
2/11/2008	3/1/1910	Winter Water
2/12/2008	3/1/1910	Winter Water
2/13/2008	3/1/1910	Winter Water
2/14/2008	3/1/1910	Winter Water
2/15/2008	3/1/1910	Winter Water
2/16/2008	3/1/1910	Winter Water
2/17/2008	3/1/1910	Winter Water
2/18/2008	3/1/1910	Winter Water
2/19/2008	3/1/1910	Winter Water
2/20/2008	3/1/1910	Winter Water
2/21/2008	3/1/1910	Winter Water
2/22/2008	3/1/1910	Winter Water
2/23/2008	3/1/1910	Winter Water
2/24/2008	3/1/1910	Winter Water
2/25/2008	3/1/1910	Winter Water
2/26/2008	3/1/1910	Winter Water
2/27/2008	3/1/1910	Winter Water
2/28/2008	3/1/1910	Winter Water
2/29/2008	3/1/1910	Winter Water
3/1/2008	3/1/1910	Winter Water
3/2/2008	3/1/1910	Winter Water
3/3/2008	3/1/1910	Winter Water
3/4/2008	3/1/1910	Winter Water
3/5/2008	3/1/1910	Winter Water
3/6/2008	3/1/1910	Winter Water
3/7/2008	3/1/1910	Winter Water
3/8/2008	3/1/1910	Winter Water
3/9/2008	3/1/1910	Winter Water
3/10/2008	3/1/1910	Winter Water
3/11/2008	3/1/1910	Winter Water
3/12/2008	3/1/1910	Winter Water
3/13/2008	3/1/1910	Winter Water
3/14/2008	3/1/1910	Winter Water
3/15/2008	3/1/1887	FT LYON II
3/16/2008	3/1/1887	FT LYON II
3/17/2008	03/01/1887	FT LYON II
3/18/2008	03/01/1887	FT LYON II
3/19/2008	03/01/1887	FT LYON II
3/20/2008	03/01/1887	FT LYON II
3/21/2008	03/01/1887	FT LYON II
3/22/2008	03/01/1887	FT LYON II
3/23/2008	03/01/1887	FT LYON II
3/24/2008	03/01/1887	FT LYON II
3/25/2008	03/01/1887	FT LYON II
3/26/2008	03/01/1887	FT LYON II

3/27/2008	03/01/1887	FT LYON II
3/28/2008	03/01/1887	FT LYON II
3/29/2008	03/01/1887	FT LYON II
3/30/2008	03/01/1887	FT LYON II
3/31/2008	03/01/1887	FT LYON II
4/1/2008	03/01/1887	FT LYON II
4/2/2008	03/01/1887	FT LYON II
4/3/2008	03/01/1887	FT LYON II
4/4/2008	03/01/1887	FT LYON II
4/5/2008	03/01/1887	FT LYON II
4/6/2008	03/01/1887	FT LYON II
4/7/2008	03/01/1887	FT LYON II
4/8/2008	03/01/1887	FT LYON II
4/9/2008	03/01/1887	FT LYON II
4/10/2008	03/01/1887	FT LYON II
4/11/2008	03/01/1887	FT LYON II
4/12/2008	03/01/1887	FT LYON II
4/13/2008	03/01/1887	FT LYON II
4/14/2008	02/21/1887	AMITY
4/15/2008	02/21/1887	AMITY
4/16/2008	02/21/1887	AMITY
4/17/2008	02/21/1887	AMITY
4/18/2008	02/21/1887	AMITY
4/19/2008	02/25/1887	OXFORD
4/20/2008	02/25/1887	OXFORD
4/21/2008	02/21/1887	AMITY
4/22/2008	02/21/1887	AMITY
4/23/2008	02/21/1887	AMITY
4/24/2008	02/21/1887	AMITY
4/25/2008	02/21/1887	AMITY
4/26/2008	02/21/1887	AMITY
4/27/2008	02/21/1887	AMITY
4/28/2008	2/21/1887	Amity
4/29/2008	2/21/1887	Amity
4/30/2008	2/21/1887	Amity
5/1/2008	2/21/1887	Amity
5/2/2008	2/21/1887	Amity
5/3/2008	2/21/1887	Amity
5/4/2008	2/21/1887	Amity
5/5/2008	2/21/1887	Amity
5/6/2008	02/21/1887	AMITY
5/7/2008	02/21/1887	AMITY
5/8/2008	2/21/1887	Amity
5/9/2008	2/21/1887	Amity
5/10/2008	2/21/1887	Amity
5/11/2008	2/21/1887	Amity
5/12/2008	2/26/1887	OXFORD
5/13/2008	2/26/1887	OXFORD
5/14/2008	2/21/1887	AMITY
5/15/2008	2/21/1887	Amity

5/16/2008	2/26/1887	Oxford Farmers
5/17/2008	2/26/1887	Oxford Farmers
5/18/2008	2/26/1887	Oxford Farmers
5/19/2008	2/26/1887	Oxford Farmers
5/20/2008	2/26/1887	Oxford Farmers
5/21/2008	2/26/1887	Oxford Farmers
5/22/2008	3/1/1887	FT LYON II
5/23/2008	5/1/1887	Bessemer II
5/24/2008	3/13/1888	Consolidated III
5/25/2008	3/13/1888	Consolidated III
5/26/2008	3/1/1887	FT LYON II
5/27/2008	3/1/1887	FT LYON II
5/28/2008	3/1/1887	FT LYON II
5/29/2008	3/1/1887	FT LYON II
5/30/2008	3/1/1887 5/1/1887	FT LYON II BESSEMER II
5/31/2008	3/1/1887 5/1/1887	FT LYON II BESSEMER II
6/1/2008	6/8/1890	COLORADO CANAL
6/2/2008	6/8/1890	COLORADO CANAL
6/3/2008	6/9/1890	Colorado Canal
6/4/2008	6/9/1890	Colorado Canal
6/5/2008	6/9/1890	Colorado Canal
6/6/2008	7/16/1890	Lamar
6/7/2008	4/1/1893	Amity
6/8/2008	6/9/1890 - 4/1/1893	Colo Can / Amity
6/9/2008	1/6/1890	HIGHLINE
6/10/2008	05/01/1887	BESSEMER/EXCELSIOR
6/11/2008	01/06/1890	HIGHLINE
6/12/2008	01/06/1890	HIGHLINE
6/13/2008	01/06/1890	HIGHLINE
6/14/2008	9/25/1889	Holbrook
6/15/2008	9/25/1889	Holbrook
6/16/2008	1/6/1890	Highline
6/17/2008	1/6/1890	Highline
6/18/2008	6/1/1890	COLORADO CANAL
6/19/2008	6/1/1890	COLORADO CANAL
6/20/2008	6/1/1890	COLORADO CANAL
6/21/2008	6/1/1890	COLORADO CANAL
6/22/2008	3/2/1892	HOLBROOK
6/23/2008	03/02/1892	HOLBROOK
6/24/2008	3/2/1892	Holbrook Res
6/25/2008	3/2/1892	Holbrook Res
6/26/2008	8/12/1890	FORT BENT
6/27/2008	8/12/1890	FORT BENT
6/28/2008	6/9/1890- 8/12/1890	COLO CANAL/FORT BENT
6/29/2008	5/9/1890	COLORADO CANAL
6/30/2008	8/12/1890	FORT BENT
7/1/2008	6/9/1890	COLORADO CANAL
7/2/2008	6/9/1890	COLORADO CANAL
7/3/2008	6/9/1890	COLORADO CANAL
7/4/2008	6/9/1890	Colorado

7/5/2008	6/9/1890	Colorado
7/6/2008	6/9/1890	Colorado
7/7/2008	6/9/1890 - 4/1/1893	SPLIT CALL COLORADO CANAL/AMITY II
7/8/2008	3/3/1890 - 4/1/1893	SPLIT CALL OTERO/AMITY II
7/9/2008	3/3/1890 - 4/1/1893	SPLIT CALL OTERO/AMITY II
7/10/2008	1/6/1890	Highline
7/11/2008	3/1/1887	Ft. Lyon II
7/12/2008	9/25/1889	Holbrook
7/13/2008	3/1/1887	Ft. Lyon II
7/14/2008	3/1/1887	Ft. Lyon II
7/15/2008	3/1/1887	Ft. Lyon II
7/16/2008	3/1/1887	Ft. Lyon II
7/17/2008	3/1/1887	Ft. Lyon II
7/18/2008	3/1/1887	Ft. Lyon II
7/19/2008	3/1/1887	Ft. Lyon II
7/20/2008	3/1/1887	Ft. Lyon II
7/21/2008	2/21/1887	AMITY
7/22/2008	2/21/1887	AMITY
7/23/2008	2/21/1887	Amity I
7/24/2008	2/21/1887	Amity I
7/25/2008	4/1/1893 - 3/1/1887	Amity II/Ft. Lyon II
7/26/2008	4/1/1893 - 3/1/1887	Amity II/Ft. Lyon II
7/27/2008	4/1/1893 - 3/1/1887	Amity II/Ft. Lyon II
7/28/2008	4/1/1893 - 3/1/1887	Amity II/Ft. Lyon II
7/29/2008	3/1/1887	Ft. Lyon II
7/30/2008	3/1/1887	Ft. Lyon II
7/31/2008	3/1/1887	Fort Lyon II
8/1/2008	2/26/1887	OXFORD II
8/2/2008	2/21/1887	Amity I
8/3/2008	2/21/1887	Amity I
8/4/2008	2/21/1887	Amity I
8/5/2008	2/21/1887	Amity I
8/6/2008	2/21/1887	Amity I
8/7/2008	2/21/1887	Amity I
8/8/2008	2/26/1887-2/21/1887	Oxford II/Amity I
8/9/2008	2/26/1887-2/21/1887	Oxford II/Amity I
8/10/2008	2/21/1887	AMITY
8/11/2008	2/21/1887	AMITY
8/12/2008	2/21/1887	AMITY
8/13/2008	2/21/1887	AMITY
8/14/2008	2/21/1887	AMITY
8/15/2008	2/21/1887	AMITY
8/16/2008	08/01/1896- 12/14/1948	GREAT PLAINS/CONSERVATION
8/17/2008	8/01/1896- 12/14/1948	GREATPLAINS/CONSERVATION
8/18/2008	8/30/1893- 12/14/1948	HOLBROOK/JOHN MARTIN RESERVOIR
8/19/2008	1/6/1890-12/14/1948	HIGHLINE/JOHN MARTIN RESERVOIR
8/20/2008	1/6/1890-12/14/1948	HIGHLINE/JOHN MARTIN RESERVOIR
8/21/2008	1/6/1890-12/14/1948	HIGHLINE/JOHN MARTIN RESERVOIR

8/22/2008	1/6/1890-12/14/1948	HIGHLINE/JOHN MARTIN RESERVOIR
8/23/2008	3/1/1887	FT LYON II
8/24/2008	3/1/1887	FT LYON II
8/25/2008	3/1/1887	FT LYON II
8/26/2008	3/1/1887	FT LYON II
8/27/2008	3/1/1887	FT LYON II
8/28/2008	3/1/1887	FT LYON II
8/29/2008	3/1/1887	FT LYON II
8/30/2008	3/1/1887	FT LYON II
8/31/2008	3/1/1887	Ft. Lyon II
9/1/2008	2/21/1887	Amity I
9/2/2008	3/1/1887	Ft. Lyon II
9/3/2008	2/21/1887	Amity I
9/4/2008	2/21/1887	Amity I
9/5/2008	2/21/1887	Amity I
9/6/2008	2/21/1887	Amity
9/7/2008	2/21/1887	Amity
9/8/2008	2/21/1887	Amity
9/9/2008	2/21/1887	Amity
9/10/2008	2/21/1887	Amity
9/11/2008	2/21/1887	Amity
9/12/2008	2/21/1887	Amity
9/13/2008	6/9/1890 - 2/21/1887	Colo Canal - Amity
9/14/2008	6/9/1890 - 2/21/1887	Colo. Canal - Amity
9/15/2008	2/21/1887	Amity
9/16/2008	2/21/1887	Amity
9/17/2008	2/21/1887	Amity
9/18/2008	2/21/1887	Amity
9/19/2008	2/21/1888	Amity
	12/3/1884 -	
9/20/2008	2/21/1887	Catlin/Amity
	12/3/1884 -	
9/21/2008	2/21/1888	Catlin/Amity
	12/3/1884 -	
9/22/2008	2/21/1889	Catlin/Amity
	12/3/1884 -	
9/23/2008	2/21/1890	Catlin/Amity
	12/3/1884 -	
9/24/2008	2/21/1891	Catlin/Amity
	12/3/1884 -	
9/25/2008	2/21/1892	Catlin/Amity
	12/3/1884 -	
9/26/2008	11/4/1886	Catlin/Lamar
	12/3/1884 -	
9/27/2008	11/4/1886	Catlin/Lamar
	12/3/1884 -	
9/28/2008	11/4/1886	Catlin/Lamar
	12/3/1884 -	
9/29/2008	11/4/1886	Catlin/Lamar
	12/3/1884 -	
9/30/2008	11/4/1886	Catlin/Lamar
	12/3/1884 -	
10/1/2008	11/4/1886	Catlin/Lamar

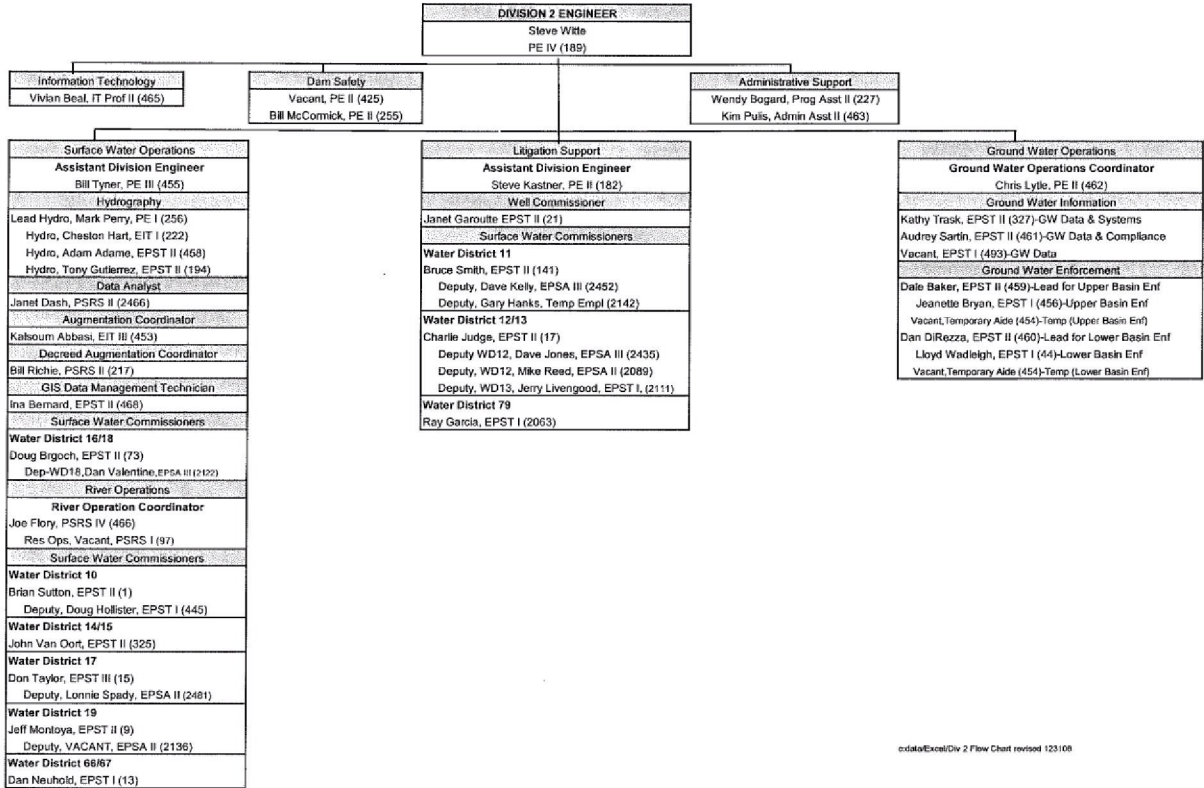
10/2/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/3/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/4/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/5/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/6/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/7/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/8/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/9/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/10/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/11/2008	12/3/1884 - 11/4/1886	Catlin/Lamar
10/12/2008	3/11/1886 - 11/4/1886	Highline/Lamar
10/13/2008	3/1/1887 3/1/1887 -	Ft. Lyon II
10/14/2008	12/14/1948 3/1/1887 -	Ft. Lyon II/ Conservation Storage
10/15/2008	12/14/1948	Ft. Lyon II/ Conservation Storage
10/16/2008	3/1/1887	Fort Lyon II
10/17/2008	3/1/1887	Fort Lyon II
10/18/2008	3/1/1887	Fort Lyon II
10/19/2008	3/1/1887	Fort Lyon II
10/20/2008	3/1/1887	Fort Lyon II
10/21/2008	3/1/1887	Fort Lyon II
10/22/2008	3/1/1887	Fort Lyon II
10/23/2008	3/1/1887	Fort Lyon II
10/24/2008	3/1/1887	Fort Lyon II
10/25/2008	3/1/1887	Fort Lyon II
10/26/2008	3/1/1887	Fort Lyon II
10/27/2008	3/1/1887	Fort Lyon II
10/28/2008	3/1/1887	Fort Lyon II
10/29/2008	3/1/1887	Fort Lyon II
10/30/2008	3/1/1887	Fort Lyon II
10/31/2008	3/1/1887	Fort Lyon II

Water Court Activity

2008 WATER COURT ACTIVITY		
NUMBER OF APPLICATIONS	115	
NUMBER OF DECREES ISSUED	105	
TYPE	TYPES OF APPLICATIONS *	TYPES OF DECREES *
ALTERNATE POINT OF DIVERSION	0	0
AUGMENTATION PLAN	34	32
CHANGE OF EXISTING RIGHT	18	13
COMPLAINT/INJUNCTION	11	3
NEW SURFACE RIGHT	21	18
NEW STORAGE RIGHT	7	13
NEW UNDERGROUND RIGHT	37	28
CONTINUING DILIGENCE/ABSOLUTE	19	21
EXCHANGE	5	3
PROTEST TO ABANDONMENT LIST	0	0
TOTAL	152	131
* SOME APPLICATIONS OR DECREES ARE OF MULTIPLE TYPES		

Organizational Chart

Colorado Division of Water Resources Division 2 Organizational Chart December 31, 2008



cdwr/Excel/Div 2 Flow Chart revised 12/1/08