

# Division 1 Annual Report



Idaho Spring Reservoir  
Picture by Jason Smith

## Irrigation Water Year 2016

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## **WATER SUPPLY AND ADMINISTRATION**

### **Water Supply Conditions**

*November 2015 - January 2016*

The first quarter of the 2016 Irrigation Year started off in fine fashion in Division 1. Temperatures were generally near normal over the entire Division for this period. Precipitation was generally near or above normal over most of the Division. An indication of this “normalness” is that by the end of January 2016 the South Platte Basin snowpack was 108% of normal snow water equivalent. The exception to the “normalness” was the southeast corner of the Division where precipitation was significantly below normal for this period.

The good first quarter precipitation in the Division, along with the excellent moisture conditions that ended Irrigation Year 2015, were reflected in the well above normal mainstem river flows at the two key index river flow gages at Kersey and especially Julesburg. The overall first quarter Kersey gage mean flow was approximately 137% of the long term first quarter mean flow. The first quarter Julesburg mean gage flow was approximately 210% of the long term first quarter mean flow.

The call regime on the South Platte during the first quarter of Irrigation Year 2016 was very stable and more junior than normal. The South Platte mainstem remained under free river conditions for the entire first quarter, which is unusual, but not a surprise given the favorable hydrologic conditions just discussed. There were calls in three of the major Front Range tributary basins (Big Thompson River, Boulder Creek, and Clear Creek) for most or all of the first quarter. However, though calls in these basins are not unusual during this time frame, the calls on these tributaries were mostly more junior than the seniority of calls generally expected in these basins this time of year.

Another indication of the good start to Irrigation Year 2016 was the generally above average amounts of water storage in the South Platte basin. For the first quarter of Irrigation Year 2016 storage consistently ran about 5% ahead of normal.

*February thru May 2016*

These four months of Irrigation Year 2016 are grouped together because they all displayed similar weather/hydrologic patterns of very cold and wet periods interspersed with very warm and dry periods. This odd alternating pattern resulted in months with both red flag warnings for fire danger and well above average total precipitation amounts. In some ways though, this odd pattern was a blessing because it allowed the above average snowpack (113% of normal snow water equivalent on May 1) to come out fairly slowly. This resulted in only some minor flooding in spots such as the Cache la Poudre near Greeley where low-land pastures and the Poudre River bike trail were flooded during runoff. The flip side to this odd pattern was that several county roads were damaged by flash flood type events from severe thunderstorms in eastern Weld as well as Kit Carson and Yuma counties.

The cyclical weather pattern seemed to have no real impact on the South Platte River flows at both the Julesburg and Kersey index gages as flows remained very strong throughout this period. The overall flow at the Kersey gage was approximately 250% of the long term February through May mean flow. The overall flow at the Julesburg gage was even better than the Kersey gage on a percentage basis as it was approximately 315% of the long term February through May mean flow.

As one would expect with the very good flow conditions, the South Platte River mainstem remained under the free river conditions that began in late September 2015 (during the previous Irrigation Year) for this entire four month period. In addition, the major tributaries discussed in the November through January section were under call for

most of the February through May period. However, these calls generally became more junior to the point that by the end of May, only a portion of South Boulder Creek remained under call.

Also as a result of the very good flow conditions discussed above, reservoir storage during the February through May period remained above average. In fact, overall storage as a percent of average grew throughout the period to the point it was at 92% of capacity by the end of May. This compares to an end of May average of about 82% of capacity.

#### *June thru October 2016*

The weather pattern from June through the end of Irrigation Year 2016 was in sharp contrast to the first seven months of the Irrigation Year. Things turned hot in June and basically stayed there through the end of October (Denver recorded the 5<sup>th</sup> hottest October on record). Precipitation was more mixed with the eastern plains generally getting more precipitation (near average) than the mountains (below average). An indication of this precipitation difference is that the USDA Drought Monitor, which indicated only a small “Abnormally Dry (D0)” area west of I25 at the end of June, grew to include all of northeast Colorado by November 1. In addition, by November 1 the area covered by the next drought rating, D1 “Moderate Drought”, covered the northern Front Range; all of the mountains north of Park County; and most of Division 1 due east of Adams County.

The flows in the South Platte reflected the weather change that started in June. Though the overall monthly flows at both the Kersey and Julesburg index gages continued to be above normal in June there was a distinct “break” from well above average to near or even below average in mid-June. Subsequently, flows at both the Kersey and Julesburg index gages for the July through October period were well below normal. The overall mean flows at the Kersey gage for July through October were approximately

69% of the period of record mean. The overall July through October mean flows at the Julesburg gage were approximately 53% of the period of record mean.

The call on the South Platte mainstem also reflected the June weather change. For the first time since September 30, 2015, the South Platte mainstem above approximately the town of Brush went under call on June 27, 2016. This run of practically 9 continuous months of free river on the mainstem is almost unprecedented. Many of the major South Platte tributaries were under internal calls senior to the South Platte call by the end of June as well.

The call on the South Platte mainstem did not improve in July and August as the mainstem was under a continuous call and the South Platte Compact call was on for a total of 34 days during this 62 day period. The call situation improved slightly in September and October by going more junior, primarily due to decreased demand as crop irrigation requirements went down and maintenance projects being done on almost all the major reservoirs below metro Denver, preventing them from diverting water. Also, virtually all the major South Platte tributaries were internally controlled (under an internal call senior to the South Platte mainstem call) the entire period.

Storage in the South Platte basin in June remained good, though storage was drawn on significantly in July, August and September. This was due to both the low stream flows and, in September, the need of some reservoir operators to lower the reservoir storage levels to facilitate previously planned infrastructure maintenance activities. The storage picture in October remained largely unchanged from September.

#### **Well Administration - South Platte River Basin**

The South Platte Well Measurement Rules (Case No. 11CW292) were finalized in water court, with a required compliance date of 12/31/2015. Compliance with the Rules initially required approximately 6,000 wells

within the scope of the South Platte Measurement Rules to either be equipped with a measurement device that is verified as accurate, primarily a totalizing flow meter, or declared as inactive. Great effort by the Division One Ground Water Team and other key Division One staff has been focused on working with the well users of approximately 1,000 active wells in augmentation plans that were not in compliance 01/01/2016. These efforts of DWR staff and the water users resulted in less than five-percent of these wells being out of compliance during 2016. The staff continues to work with augmentation plans and well users to allow more efficient and effective reporting and recording of well diversions and status for more than 4,000 wells.

Efforts continued throughout 2016 in the administration of the South Platte Measurement Rules, including the Well Team conducting approximately 40 installed flow meter verification field tests, processing over 560 measurement tests into DWR's database, the inventory of more than 450 wells, inspection of more than 160 wells filed as inactive in accordance with the Measurement Rules, and responding to many questions from water users. The well team administered two Well Tester certification training classes, recertification and collaboration with existing certified testers. These efforts support the requirements of the South Platte Well Measurement Rules, and other Basins Ground Water Measurement Rules, that measurement devices be verified by a person qualified by the State Engineer.

The well enforcement program continued administration by sending out approximately 600 Notice of Violation and Cease and Desist Orders. Additionally, the team mailed out 233 Notices for Expiring Flow Meter Tests and 186 flow meter correction factor notifications. The Well Team continued efforts in support of the upcoming 2020 Abandonment List, providing field inspections and research.

## **Well Administration - Republican River Basin**

The Republican River Well Team continued their efforts of administering the Republican River Basin Groundwater Measurement Rules (Rules) in 2016, including conducting approximately 175 well measurement device verification field tests, inventory of more than 500 wells, and field inspection of more than 160 wells filed as inactive in accordance with the Rules. The well team assisted with Well Tester certification training classes, recertification and collaboration with existing certified testers. These efforts support the requirements of the South Platte Well Measurement Rules, and other Basins Ground Water Measurement Rules, that measurement devices be verified by a person qualified by the State Engineer.

Well Team enforcement efforts continued with the Greeley office and Republican field crew distributing approximately 314 Notice of Violation and Orders to Cease & Desist. Additionally, 313 Notices for Expiring Meters and 585 Annual Usage Reporting Forms were mailed to well users in the basin.

The Republican River well team continues work related to the Republican River Compact, including monitoring and verifying the accuracy of the currently operating Republican River Compact Pipeline; verification and coordination of measurements of the official delivery measurement flume for the Compact Pipeline; and publishing official diversion records of all high capacity wells within the Republican River Ground Water Measurement Rules boundaries. The well team staff is assisting the State Engineer in Public Meetings and outreach in Advisory Committee meetings being held as part of the Republican River Compact Use Rules rulemaking process. In addition, in coordination with the State and Division Engineer's offices, the Republican River staff worked closely with the USGS on three stream flow compact gages and the Bureau of Reclamation regarding the administration of stream flows through Bonny Reservoir.

The Republican River Ground Water Measurement Rules (originally decreed in 2009) were amended through the Rulemaking process, and adopted by the State Engineer on September 16, 2015. The amended Rules included an additional 350 wells that were required to comply by April 1, 2016. The well team staff focused their efforts on working with the well users towards compliance with the Rules with nearly all beginning in compliance in 2016.

In addition, the Republican River well team has been busy assisting the Designated Basins Team in the administration of well permit volume limits by investigating more than 12 wells and posting and documenting Orders on approximately 3 wells that exceeded their annual limitation in the 2016 Irrigation Year. These Orders are being administered by the Designated Basins Team in Denver, and require the reduction of the annual pumping limits for 2017 Irrigation Year by the amount over-pumped in 2016.

## **COMPACT ADMINISTRATION**

Division One is responsible for administration of the State of Colorado's obligations under the South Platte River Compact, the Republican River Compact, the Laramie River Decree, and the Sand Creek Agreement (1997 Addendum) to meet the requirements of those respective documents.

Under the terms of the South Platte River Compact, if there is not 120 cfs in the South Platte at the state line between Colorado and Nebraska between April 1 and October 15, Colorado will curtail all diversions in the Lower Section of the river with priority dates junior to June 14, 1897. There were 37 days of South Platte Compact call during the 2016 Irrigation Year, which is a notable increase to the 7 days recorded in Irrigation Year 2015. During Irrigation Year 2016 the Republican River Compact was administered by staff in both Division One and the Denver Office in conjunction with the Republican River Water Conservation District. The Republican River Compact Compliance Pipeline was once again

operated in Irrigation Year 2016 with the provisional approval of Kansas and Nebraska delivering a total of 10,045 acre-feet to the Colorado/Nebraska state line. The recorded delivery in Irrigation Year 2016 is similar to the delivery recorded in Irrigation Year 2015.

On August 24, 2016 the Republican River Compact Administration approved a resolution establishing Colorado's permanent approval of the Republican River Compact Compliance Pipeline for full credit in the compact accounting for its augmentation deliveries on the North Fork Republican River. This approval supersedes Colorado's requirement to obtain a provisional approval prior to operating the pipeline. Finally, to assist with Compact compliance, diversions by surface water rights junior to the signing date of the Compact (December 31, 1942) in the Republican River basin within Colorado continue to be curtailed.

During Irrigation Year 2016 Division One personnel regulated all diversions in the Laramie River basin in compliance with the terms of the U.S. Supreme Court decree in *Wyoming v. Colorado*. Division One personnel also regulated Sand Creek in compliance with the terms of the Sand Creek Agreement.

## **COMMUNITY INVOLVEMENT**

Division One personnel continued to be active and involved in many issues important to the water community. When requested or needed, Division One personnel attended, participated in, and presented at ditch company meetings, conservancy district meetings, groundwater management district meetings, Colorado Water Congress, and in numerous meetings with water users, realtors, and homeowner groups. In addition, Division One personnel continued to assist the Natural Resources Conservation Service (NRCS) with snow survey measurements.

Meetings of the South Platte Basin Round Table, Metro Basin Round Table, and

Republican River Water Conservancy District are also regularly attended by Division One personnel. This past year, Division One staff continued to participate by attending and contributing to regular meetings of the South Platte Basin Roundtable Groundwater Technical Subcommittee.

The Republican River well team regularly attended local water management and public meetings within the basin to provide information to the public and water managers. This includes attending meetings and corresponding with eight different local Ground Water Management Districts and the Republican River Water Conservation District.

In addition to regular meetings, this year Division One personnel presented at a public technical forum organized by the State Engineer's Office in Denver, lectured at a training seminar for NRCS staff, and presented in Fort Collins at the Ninth International Conference on Irrigation and Drainage hosted by the U.S. Society of Irrigation and Drainage Professionals. Division One personnel were also involved in the filming of an episode of "Gold Rush" a reality based television show that featured gold mining operations in Fairplay. Division Engineer Nettles was interviewed and helped provide information that will be used in a new book being written about the City of Greeley and its water history.

# TABLES

## Table 1 - Transmountain Diversion Summary

### 2016 TRANSMOUNTAIN DIVERSION SUMMARY - INFLOWS (November 2015 - October 2016)

RECIPIENT								SOURCE		
WD	ID	NAME	STREAM	10 YEAR AVG		CURRENT YEAR		WD	ID	STREAM
				AF	DAYS	AF	DAYS			
3	4604	WILSON SUPPLY DITCH	CACHE LA POUFRE RIVER	1,202	85	914	90	48	4604	SAND & DEADMAN CR.
3	4608	DEADMAN DITCH	CACHE LA POUFRE RIVER	486	73	169	65	48	4608	DEADMAN CREEK
3	4606	BOB CREEK DITCH	CACHE LA POUFRE RIVER	131	35	187	36	48	4606	NUNN CREEK
3	4607	COLUMBINE DITCH	CACHE LA POUFRE RIVER	0	0	0	0	48	4607	DEADMAN CREEK
3	4600	LARAMIE-POUDRE TUNNEL	CACHE LA POUFRE RIVER	7,424	99	5,792	109	48	4600	LARAMIE RIVER
3	4605	SKYLINE DITCH	CACHE LA POUFRE RIVER	16	4	0	0	48	4605	LARAMIE RIVER
3	4602	CAMERON PASS DITCH	CACHE LA POUFRE RIVER	43	28	0	0	47	4602	MICHIGAN RIVER
3	4603	MICHIGAN DITCH	CACHE LA POUFRE RIVER	1,729	351	319	366	47	4603	MICHIGAN RIVER
3	4601	GRAND RIVER DITCH	CACHE LA POUFRE RIVER	8,166	157	7,142	162	51	4601	COLORADO RIVER
4	4634	ADAMS TUNNEL	BIG THOMPSON RIVER	117,747	327	123,851	334	51	4634	COLORADO RIVER
6	4655	MOFFAT TUNNEL	SOUTH PLATTE RIVER	20,987	359	12,869	360	51	4655	FRASER RIVER
7	4625	BERTHOUD PASS DITCH	CLEAR CREEK	312	102	372	80	51	4625	FRASER RIVER
7	4626	VIDLER TUNNEL	CLEAR CREEK	352	60	192	15	36	4626	MONTEZUMA CREEK
7	4682	STRAIGHT CREEK TUNNEL	CLEAR CREEK	133	365	129	366	36	4682	STRAIGHT CREEK
7	4650	A P GUMBLICK TUNNEL	CLEAR CREEK	263	10	51	5	51	4603	COLORADO RIVER
23	4611	BOREAS PASS DITCH	SOUTH PLATTE RIVER	73	56	69	67	36	4685	INDIANA CREEK
23	4612	HOOSIER PASS DITCH	ARKANSAS RIVER	3,904	184	3,697	166	36	4683	BLUE RIVER
23	4490	AURORA HOMESTAKE	SOUTH PLATTE RIVER	11,913	204	6,691	97	37	4644	HOMESTAKE CREEK
80	653	ROBERTS TUNNEL	SOUTH PLATTE RIVER	28,787	188	17,397	131	36	4684	BLUE RIVER



## Table 2 - Water Court Activities and Staffing

### Water Court Activities

Calendar Year 2016

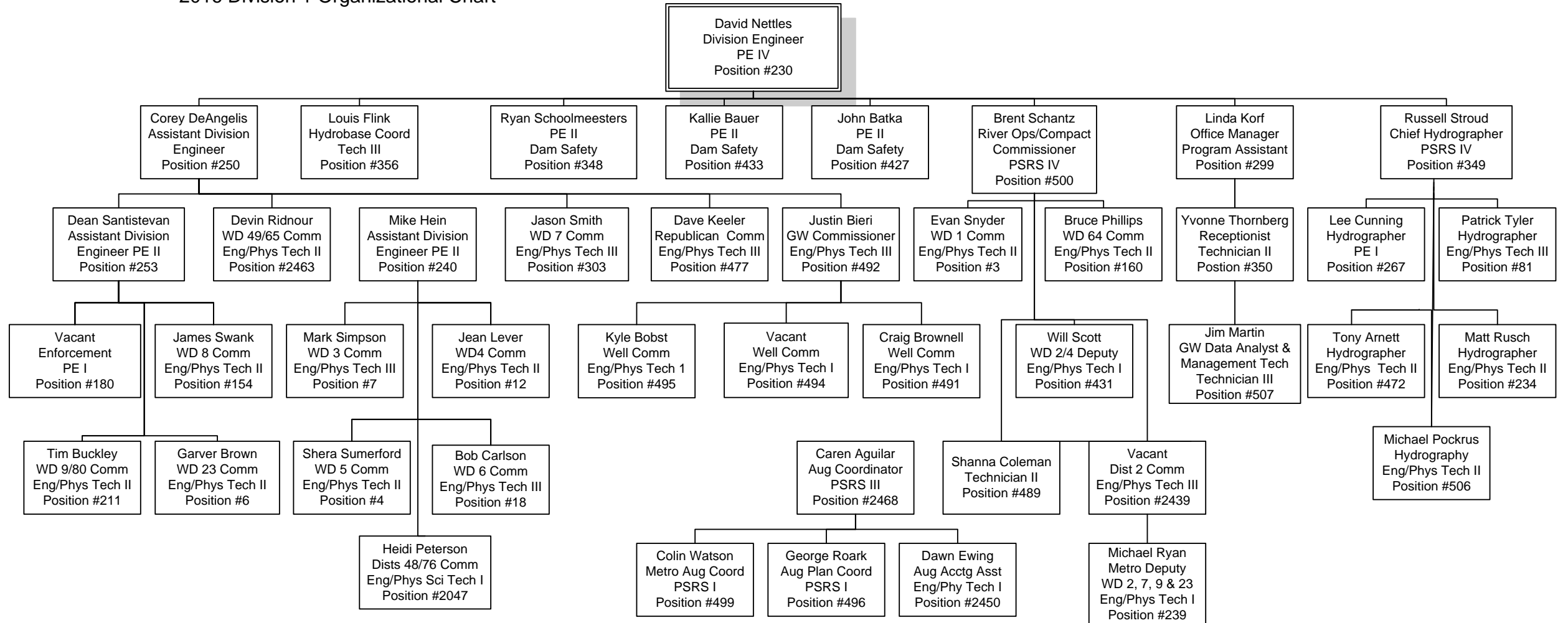
New Applications made to water court this year.....	252
Referee Rulings Reviewed.....	222
Decrees Issued by Court this year.....	277

### Staffing

Dam Safety Engineers	3
Water Resource Engineers	6
IT Professional	1
Engineering/Physical Science Techs/Assistants	10
Program Asst 1, Technician II, Tech III	4
Physical Science Researcher/Scientist	5
Full-Time Water Commissioners	27
Permanent Part-Time Water Commissioners	<u>2</u>
<b>TOTAL STAFF</b>	<b>58</b>

**Table 3 - Organizational Chart**

2016 Division 1 Organizational Chart



## 2016 Division 1 Organizational Chart for Water Commissioners

