

IBCC Meeting of Four Western Slope Roundtables
Ute Water Conservancy District, Grand Junction, 970-242-7491, May 26, 2011
Main topics: Colorado River Cooperative Agreement, Water Bank, Statewide Water Plan

1. **Reporter:** These minutes were prepared by Ken Ransford, Esq., CPA, 970-927-1200, kenransford@comcast.net.
2. **Colorado River Cooperative Agreement – Eric Kuhn.**
 - a. **Agreement is Final:** The agreement was presented as final; it is not expected to be negotiated, but it is open to public discussion.
 - b. **Participants:** Permitting agencies such as the Bureau of Reclamation were not signatories, nor were the Northern Water Conservancy District or other Front Range interests. The 35 participants included Denver Water, the Colorado River District, Summit, Eagle, and Grand Counties, 8 cities from the Colorado River headwaters in Grand and Summit Counties to Glenwood Springs and Rifle, 6 ski resorts, and 16 metro and irrigation water districts. A 6-page summary is available at: http://www.crwcd.org/media/uploads/20110506_6_page_Summary_Briefing_FINAL.pdf
 - c. **Goal of the Agreement:** (1) Enlarge Gross Mountain Reservoir west of Boulder on Upper South Boulder Creek to increase storage from 42,000 af to 119,000 af; and (2) permit Denver to reuse unused effluent in the Blue River Decree, aka the WISE Project.

Denver’s water sources	Decree Date	Water provided from this source in a normal year	Water provided from this source in a dry year
South Platte River	1859	50%	20%
Moffatt Collection System	1930s	25%	30%
Blue River Collection system – Dillon Reservoir and Robert’s Tunnel to the North Fork of the South Platte	1955	25%	50%

- d. **Denver’s right to fill Dillon Reservoir is junior to storage rights in Green Mountain Reservoir** downstream on the Blue River. Green Mountain Reservoir was constructed as part of the Colorado Big Thompson agreement in 1937 in order to protect West Slope water interests. Today, there is still no agreement about how Green Mountain Reservoir should be administered.
- e. **The WISE Project pumps unused effluent in the South Platte River back to Denver** where it can be reused; WISE stands for Water, Infrastructure and Supply Efficiency. It will use excess capacity in the Aurora Prairie Waters Project and the East Cherry Creek Valley (ECCV) pipeline; <http://awracolorado.havoclite.com/newsletter/water-infrastructure-and-supply-efficiency-wise-project-mar-30-2010/>
 1. The WISE Project is expected to reduce the need for groundwater pumping to 2 of 10 years on average; WISE reuse will cover the other 8 years.

- f. **Prairie Waters Project:** Aurora collects water it already owns from wells near the South Platte River's bank near Brighton, and then pumps it 34 miles south to the Southeast Metro Denver area. The water collected will be piped to a new purification facility near the Aurora Reservoir for reuse by Aurora citizens; see <http://www.prairiewaters.org/faqs.asp>.
- g. **The Windy Gap project also needs more East Slope storage.** Since the Northern Water Conservancy District is not a party to the Colorado River cooperative Agreement, it will also be requesting additional storage in the future.
- h. **The Shoshone Call has an 1895 decree for 1,250 cfs and a 1941 decree for 125 cfs.** Releases from Wolford Mountain, Williams Fork, and Green Mountain reservoirs will be timed to ensure that the 1895 right for 1,250 cfs is met if possible during low flow periods in the summer and fall.
- i. **Denver Water agrees to support Grand County's RICD application (Recreational In Channel Diversion).**
- j. **Spot sale revenue sharing.** Denver Water agrees to share 12.5-15% of all revenue it receives from spot sales of Colorado River Basin water to be used in West Slope river restoration efforts.

3. **Abstention provisions in the Colorado River Cooperative Agreement – Peter Fleming, Esq.,** Colorado River District. These refer to the provisions in the agreement that require municipalities in the Denver Water service area to abstain from seeking additional water diversions from the Western Slope. Note that Denver Water and municipalities that did not sign the agreement or that are outside Denver Water's service area are not subject to abstention provisions, which means they are free to seek additional West Slope diversions to the Front Range.

Water Division	Abstention period
Division 5 upstream of the Gunnison River confluence	Permanent
Divisions 4 & 6	25 years
Division 7	No abstention

- a. **Feasibility studies are still permitted** as set forth in Article VIII, page 46 of the agreement. So, although certain entities are required to permanently abstain from seeking additional diversions of water, they may still conduct feasibility studies for additional diversions.
 - b. **Water outside of Colorado is still available for diversion, such as the Flaming Gorge pumpback proposed by Aaron Million.** This is true even though it is within the Colorado River Basin.
 - c. **Abstention provisions do not apply to the Eagle River** memorandum of understanding.
4. **Colorado River Water Availability Study update – Ted Kowalski.** A draft of Phase 1 (how much Colorado River Basin water is available for future development by Colorado) is due June 6; it incorporates the comments received from stakeholders.

- a. **A fourth scenario describing environmental flows has been added** to the CRWAS report to indicate how additional diversions would impact stream health. This does not address minimum stream flows decreed by the CWCB pursuant to its In Stream Flow program; rather, it attempts to address flows needed to maintain stream and riparian health. It will attempt to address how the river responds to different flow regimes.
- b. **All 7 Colorado River Compact states are conducting their own water availability studies** to determine how much water is available for further development in their respective states.
- c. **CRWAS update at June 27 CBRT meeting.** Ray Alvarado, ray.alvarado@state.co.us, will update the CBRT at its June 27 meeting in Glenwood Springs. Rachel Richards commented that much of the potential available water is on small tributaries high in basins where it is not particularly accessible and, if available, its impact on small streams should be determined.

5. Water Bank update – Steve Harris. The Colorado River District and the Southwestern Water Conservation District are heading up the Water Bank project. The Southwestern Water Conservation District, which covers the approximately one-quarter share of the Colorado River Basin in Colorado not within the Colorado River District service area, was created in 1941 by Colorado statute.

- a. **\$300,000 funding has been raised for a Water Bank feasibility study.**

Participant	Funding
Colorado Water Conservation Board	\$180,000
Colorado River District	30,000
Southwestern Water Conservation District	30,000
Front Range Water Council	30,000
The Nature Conservancy	30,000
Total	\$300,000

- b. **Feasibility study objectives include:**
 1. **Phase 1: Estimate the supply available for critical needs during Compact curtailment.**
 2. **Do scenario testing to see how the Water Bank will operate.**
 3. **Determine environmental and economic impacts of a curtailment.** Funding has not been appropriated for this objective.
- c. **Critical needs include both municipal and industrial needs, as well as irrigation** needed to maintain agriculture such as orchards that would be permanently damaged by a Compact Call.

- d. **Other Water Bank participants include** the Bureau of Reclamation, Southern Ute and Ute Mountain Tribes, the Upper Gunnison Water Conservancy District, and three western slope irrigators.
- e. **3 goals of the Water Bank:**
 - 1. Avoid Colorado River Compact curtailment.
 - 2. Protect pre-1922 water rights.
 - 3. Identify critical uses to protect if a curtailment occurs.
 - i. It is estimated that critical needs amount to 1 million acre feet on each of the West and East Slopes.
 - ii. Address the concern that the Front Range will purchase pre-1922 Western Slope water rights.
- f. **Protecting only pre-1922 water rights is problematic** since there are many beneficial water uses (such as municipal water supplies used by Silverton) that began well before 1922 but did not receive decreed rights until after 1922.

6. **Alternative way of *Filling the Gap* – Bart Miller, Western Resource Advocates.** WRA, Trout Unlimited, and the Colorado Environmental Coalition together produced *Filling the Gap*, an alternative way to fill Denver’s projected 2050 gap of 365,000 af. *Filling the Gap* was covered in the April 2011 CBRT meeting minutes; those notes are appended to these minutes. Highlights of Millers presentation were:

- a. **Conservation can fill 34% of the gap; 10% from passive savings, and 24% from active savings.** Passive savings require no action by the consumer, such as the use of low flow toilets or showerheads; active savings, such as watering only on even numbered days or converting a lawn to xeriscape, require action on the part of the consumer.
- b. **Large municipalities must update water conservation plans every 7 years;** this provides an opportunity for cities to evaluate their conservation program 5 times between now and 2050.
- c. **Conservation is the least expensive way to develop additional supplies.**
- d. **Acceptable projects and processes have been culled from a list of all identified projects and processes.** Bart Miller emphasized that *Filling the Gap’s* list does not include any new big projects. Steve Harris asked if WRA would support using existing facilities for future water needs and Miller agreed that as a rule this is preferable to new projects.
- e. **Louis Meyer mentioned that 73% of Denver residents favor water conservation** efforts, and that they are ahead of water providers who are reluctant to reduce future demand projections since they are planning for new growth. Bart Miller said that most Denver Water conservation savings are behavioral – that is, they result from consumer behavioral changes, such as reducing lawn watering times when it rains.

7. **IBCC Vision Statement.** Michelle Pierce, chair of the Gunnison Basin Roundtable and Lake City Town Manager, led a discussion about the IBCC Vision Statement and how to move forward to fill the gap; michellepierce@townoflakecity.us, 970-944-2333. Town of Lake City, PO Box 544. Lake City, CO 81235. Member comments are highlighted below.
 - a. **George Sibley said that basins where water is taken justifiably have expectations** that water should be well used when it reaches the destination basin.
 - b. **Eric Kuhn said that the state should commit to conservation first and prioritize new supply projects with due regard to timing and risk.**
 - c. **Rachel Richard questioned why basin of origin legislation fails every time.** She said there should be equity for the Western Slope and protection for 1041 powers.
 - d. **Conservation should be emphasized.** Jim Spehar, Grand Junction Mayor, said that *Filling the Gap* showed that conservation is the low hanging fruit, and that water saved from conservation produces money while water produced from new supply projects costs money.
 - e. **John Porter said that 2 basins have a perceived surplus** – the Colorado and Yampa-White-Green basins – and that the Western Slope should coordinate a response so the IBCC agenda.
 - f. **Bill Trampe said Colorado should create criteria to control development,** and develop processes that decrease consumption based on the water available in Lake Powell. The tricky part is determining how to coordinate the free market system with this, since water flows toward money.
 - g. **Stan Cazier stated that 1041 powers should be protected against all challenges.**
 - h. **Russell George recommended that West Slope basins begin meeting with East Slope Basins.** Other participants commented that additional storage in the basin of origin would benefit both the West and East Slopes.
 - i. **John Stolp said that creating a statewide water plan within 5 years is realistic.**
8. **Green River Pumpback.** Western Resource Advocates and the Colorado River District each handed out letters critical of the current push to do a feasibility study of the Flaming Gorge pump back.

Notes on *Filling the Gap* from the April 25, 2011, CBRT Meeting

Alternative way to fund the gap: The Front Range needs 600,000 additional acre feet by 2050 (IBCC Vision Statement, page 8), and 365,000 of that demand is projected for the South Platte drainage. This can be met without new supply development according to Western Resource Advocates, Trout Unlimited, and the Colorado Environmental Coalition. Their recent publication *Filling the Gap* suggests that 574,900 acre feet is available for the South Platte drainage from the following sources:

Source	Water Available
Reuse current West Slope diversions to the East Slope to extinction	199,300
New water supplied from active water conservation	153,600
Temporary agricultural water transfers	120,000
Acceptable planned projects – i.e., IPPs that Western Resource Advocates, Trout Unlimited, and the Colorado Environmental Coalition believe are acceptable if done with appropriate environmental safeguards	102,000
Total	574,900

a. **Nearly 200,000 af is available if West-to-East Slope diversions are reused to extinction.** Water that can be reused to extinction comes from the following sources:

1. Water imported to the South Platte from other basins
2. Nontributary groundwater in the Denver Basin Aquifer.
3. Water rights changed from agricultural to municipal use.
4. Water diverted under a water right that has been decreed to allow for reuse.

The Metro Denver area reused 54,300 af in 1999 (CWCB Metropolitan Water Supply Investigation final report, 1999). *Filling the Gap* estimates that 500,000 af is available for reuse; this approximates the annual transbasin diversions from the West Slope to the East Slope. Thus, **only about 10% of existing West-to-East Slope diversions is being currently reused.** *Filling the Gap* estimates that 199,300 additional acre feet is available from reuse to fill the projected Front Range water gap in 2050; p. 32.

Reuse is far cheaper. The CWCB estimates that the cost to develop non-potable reuse is \$7,000 per acre foot while potable reuse would cost \$13,500 per acre foot. By contrast, the cost to develop new supplies is \$30-40,000 per acre foot; Statewide Water Supply Initiative 2010, Appendix N, Denver, February 2011.

Carlyle Currier commented that downstream users already rely on return flows, so that if Denver reuses them to extinction, downstream users including farmers will suffer and more irrigated farmland will be lost to production. Further, the Colorado Supreme Court has held twice that Denver cannot reuse water coming through the Moffatt Tunnel.

b. **Active conservation could provide 153,600 acre feet as new water supplies by 2050:**

Water savings from 34% reduction in demand assumed in the “high” conservation strategy proposed by SWSI 2010:	362,000
Less: water savings from passive conservation requiring no effort on the part of the consumer:	(106,000)
Equals: Water savings from active conservation measures	256,000
Portion of active water conservation savings that can be devoted to new supplies on the Front Range:	x 60%
Equals: Water savings available for use on the Front Range by 2050	<u>153,600</u>

Passive conservation occurs naturally without requiring any action by the consumer; examples include low flow toilets or shower heads. California and Nevada have adopted regulations that require wasteful appliances and plumbing fixtures to be replaced with low-flow equivalents every time a house sells in order to mandate passive conservation.

Active conservation requires action on the part of the consumer. Examples include residents who replace blue grass lawns with xeriscaping or who turn the faucet off while brushing their teeth. Cities also practice active conservation by, for example, adopting block rate structures which charge residents successively higher rates for increasing water use.

Demand hardening is a term that expresses the concern that once water users adopt efficiency measures, there will be less water available to conserve during a later drought because conservation savings have already been “wrung out of the system.” Several studies demonstrate this is not the case. For instance, Long Beach California had the same potable water consumption from 1965 to 1987, but water use decreased 17.2% below the 10-year average during a recent drought; see the Long Beach Press Telegram, Eakins, 5/4/2010; http://www.presstelegram.com/ci_15017305?IADID.

A “high” water conservation strategy would reduce 2050 consumer demand by 34% from 2008 levels according to the CWCB. It’s also cheaper — the cost for water conservation measures is only \$8,183 per acre foot, less than a fourth the cost to develop new supplies; Statewide Water Supply Initiative 2010, Appendix L, Denver, February 2011

An aggressive high conservation strategy could reduce water demand by 50%, as occurred in Tucson. See, DeOreo, How Much Water Conservation Should Be In Your Water Supply Portfolio, presented at Regional Water Symposium in Tucson, August 29-Sep 1, 2007, and Maddaus, Gleason, and Darmody, 1996, Integrating Conservation into Water Supply Planning, *Journal AWWA* 88(11), 57-67.

Front Range citizens want to conserve. In a 2005 Denver Water survey, 73% of the customers agreed that they should conserve to reduce impacts on mountain regions in Colorado, and 71% believed that new homes should have reduced area devoted to lawns. Sixty percent said their lives weren’t negatively impacted by the 2002 drought. One-third said they had permanently changed their water use since the 2002 drought, and the number one reason given was because “it’s the right thing to do.” Source: Denver Water Customer Perceptions, June 3, 2005, report by BBC Research & Consulting.

- c. **Temporary agricultural water transfers can provide 120,000 acre feet.** *Filling the Gap* estimates that farmers upstream from Greeley divert 495,000 af from the South Platte and its tributaries, and

that 190,000 af of this water is clean water that has not been previously diverted and is therefore untainted with agricultural chemicals or leached. Native flows in Boulder Creek and the Poudre, Big Thompson and St. Vrain Rivers total nearly 700,000 af per year.

Filling the Gap estimates that roughly 25% of the 495,000 af agricultural diversions, or 120,000 af, could be transferred to cities while preserving agriculture. This will require additional infrastructure such as a pipeline to transfer water from Northern’s collection system to Denver. Techniques to transfer water from farms to city include:

1. Fields are fallowed and not irrigated on a rotating basis.
2. Interruptible supply agreements, where cities purchase the right to call on farmers’ water supplies in times of drought.
 - a. The Super Ditch is a concept where a group of farmers on the Arkansas River between Pueblo and John Martin Reservoir agree to fallow their land in return for payments from cities in El Paso County. To date, it is an untried concept – according to Carlyle Currier, not a single farmer has signed up. Twenty-eight objections were filed against the Super Ditch in Division 2 Water Court in 2010, ranging from farmers who are concerned that the resulting decreased flows will harm agriculture and the state’s ability to meet its Arkansas River compact obligations to Kansas, to water rights holders who claim the plan is speculative.
http://www.chieftain.com/news/local/article_4ebf8804-84d2-11df-b5f0-001cc4c03286.html
3. Change to crops that consume less water.
4. Deficit irrigation, in which less water is applied to crops than needed for full growth.

Irrigated South Platte Basin acreage would decrease from 1,020,000 in 1976 to 630,000 acres in 2050 if 25% of existing irrigated agriculture is dried up. Over this same 75-year period, Colorado’s population is projected to quadruple.

Carlyle Currier commented that cities want certain flows, and that they prefer to purchase water from farmers and then lease it back to them, rather than leasing water from farmers.

- d. **Acceptable planned water storage projects can provide 102,000 acre feet.** Filling the Gap agrees that additional storage is needed to help meet the gap. By drawing on SWSI’s list of Identified Projects and Processes (IPPs), Filling the Gap estimates that 102,000 af can be produced by the projects listed below that are deemed acceptable from an environmental perspective.

Reservoir & Drainage	Yield	Description	Environmental Concerns
Chatfield, South Platte	8,000	Modify rec facilities and reallocate 20,600 af of storage from flood control to ag, urban, and instream uses	Minimize reservoir fluctuation impacts to recreation, wetlands, and bird habitats.
Gross, So. Boulder Creek	18,000	Increase reservoir storage by 72,000 af	Do urban efficiency measures 1 st . Protect Upper Colorado & So. Boulder Creek flows.
Halligan, No. Fork Poudre	7,000	Increase reservoir storage by 33,500 af	Do urban efficiency measures 1 st . Protect Poudre & No. Fork Poudre flows.
Rueter Hess, near Parker,	15,000	Increase reservoir storage by	Maximize use of in-basin surface

So. Platte		54,000 af	water supplies, reuse, and conservation.
Seaman, No. Fork Poudre	10,000	Increase reservoir storage by 38,000 af	Do urban efficiency measures 1 st . Protect Poudre & No. Fork Poudre flows.
Windy Gap, Colorado	32,000	Construct Chimney Hollow reservoir, 90,000 af	Do urban efficiency measures 1 st . Protect Upper Colorado flows.
Northern Project Pipeline, South Platte	5,000	Purchase additional water rights, construct reverse osmosis plant	Do urban efficiency measures 1 st . Protect Upper Colorado flows; brine disposal; minimize impacts to stream flow and quality.
South Platte and Beebe Draw Aquifer Recharge	7,000	Store water in the Beebe Draw Alluvium;	Minimize impacts to stream flows and quality.
Total	102,000	287,500 af additional storage.	

Additional storage is the most expensive option available to fill the gap. Storage-yield ratios for reservoirs designed to store wet-year water (i.e., additional runoff in wetter-than-average years) is at best, 5-to-1. This means that for 100,000 acre feet of additional firm annual supply, the reservoir would have to store over 500,000 acre feet and cost well over \$1 billion; *Filling the Gap*, page 13.

Additional storage is the most controversial with citizens since it floods existing ranches, depletes stream flows, causes environmental damage, leads to evaporation losses, and is expensive.

Additional storage is the most energy-intensive. Filling the Gap estimates that 2,959 KWh are needed for each acre foot produced by 8 new supply projects proposed for the Front Range; by contrast, conservation requires no energy and reuse requires only 947 KWh, or less than a third of the energy demanded by new supply projects; *Filling the Gap*, page 16.

Steve Ryken of the Ute Water Conservancy District said that regulations are preventing additional dams from being developed. He said that a proposal to create a new reservoir on Grand Mesa has generated an environmental impact statement now in its 8th year that has cost over \$1 million, and that a wilderness roadless rule is preventing its development. He said that Ute Water Conservancy District customers pay more for water than Aurora residents do, and that 21,500 additional acre feet is needed by 2025 if growth continues at the pace it experienced prior to 2009.

Carlyle Currier noted that if additional storage isn't provided for, agriculture will inevitably suffer the consequences.