

## **SPDSS Memorandum Final**

**To:** Ray Alvarado and Ray Bennett  
**From:** LRE, Erin Wilson and Duane Herring  
**Subject:** Task 3 – Identify Key Diversion Structures  
Notes from Water District 7 Meeting  
**Date:** March 1, 2005

### **Introduction**

This memorandum provides notes from the March 1, 2005 meeting with Water District 7 Water Commissioner, Gray Samenfink. Meetings are being held with Water Commissioners in each Water District in the SPDSS study area. The objectives of these meetings are 1) to develop an initial basin understanding; 2) to determine what irrigation structures should be included as “Key Structures” in future detailed modeling efforts, and 3) to determine which reservoirs and diversions warrant more detailed investigation and technical documentation. These objectives support both Task 3 – Identify Key Diversion Structures and Task 5 – Identify Key Storage Reservoirs and Develop Operating Memorandum.

### **Approach**

Prior to the meeting, potential Key Structures for Division 7 were identified using the following procedure outlined in the SPDSS Scope of Work:

1. Identify net absolute water rights per structure. Select initial key structure cutoff value based on the 85 percent recommendation (SPDSS Feasibility Study, October 2001) for each water district.
2. Determine average annual diversion data for structures during three average hydrologic years, one year each during the 1950s, the 1970s, and the 1990s. Add additional structures to the key list that diverted an average of 1,000 acre-feet per year on the main stem during any of the representative years. Note that this step will allow the inclusion of larger diversion structures having active water rights during the earlier years of the study that were subsequently transferred to other ditches or other uses.
3. Review readily available straight-line diagrams and include additional structures as appropriate, based on water rights and location.

Table 1, provided in the Results Section of this memorandum, lists the initial list of key diversion structures, the total of their decreed water rights, the period of record of available diversion records, their average annual diversions for the period of record, and the water source. In addition, as noted in the comment line, it includes new structures

added during the interviews, or structures that were removed as key and will be modeled in an aggregated fashion. On-going Task 3 efforts include review of irrigated acreage, water rights, and diversion records. It is expected that the key structure list shown in Table 1 will be further refined during these, and model development, efforts.

The interview with the Water Commissioner and the Division Engineer was intended to determine additional structures that should be considered key based on seniority, water administration, or basin operations (including structures with supplemental reservoir water). Prior to the meeting, a brief description of the purpose and goals of the interview was provided to the Water Commissioner. The following is a summary of the meeting agenda:

1. Review straight-line diagrams for accuracy
2. Develop a list of major projects, reservoirs, and ditches in the water district, including names of knowledgeable contact people
3. Gather information on dry-up points in the river, calling rights, augmentation plans, and administration specific to the water district
4. Gather general information on the preliminary list of irrigation diversions selected to be included in future detailed modeling efforts (key structures), and solicit input on their final inclusion
5. Develop information on reservoirs, such as owner entities, ditches that get reservoir deliveries, assigned delivery losses, etc.

LRE developed maps of the water district to facilitate the discussions and provided preliminary straight-line diagrams of Water District 7. Maps displayed reservoirs, diversion headgate locations, and canal layouts on a quad-sheet background. David Ellington, Division 1, plans to digitize the preliminary straight-line diagrams following the standards set for Division 1 straight-line diagrams. Information in this memorandum is believed to be accurate. However, information should not be relied upon in any legal proceeding.

## **Meeting Attendance**

The meeting was held at Leonard Rice Engineers, Inc. in Denver. The following people attended part or all of the meeting:

Gray Samenfink - District 7 Water Commissioner  
Jim Hall - Division 1 Engineer  
Ray Bennett - State Engineer's Office  
David Ellington - State Engineer's Office - Division 1  
Claudia Engelmann - State Engineer's Office - Division 1  
Erin Wilson - Leonard Rice Engineers  
Duane Herring - Leonard Rice Engineers

## Meeting Notes

The meeting included discussion of water use by key municipalities, transbasin imports, general administration in the district, stream gages used for administration, an outline of a typical water year administration, and a description of specific ditches in the district. Information gathered during the water commissioner interview was supplemented with information from HydroBase.

Municipalities and utilities diverting water in District 7 include:

- Silver Plume
- Georgetown
- Empire
- Downieville/Dumont
- Idaho Springs
- Central City
- Blackhawk
- Golden
- Arvada
- Lookout Mountain Water District
- Consolidated Mutual Water Company
- Coors Brewery Company
- Xcel Energy (formerly Public Supply Company)
- Municipalities under Standley Lake (Westminster, Thornton, Northglenn)

## Transbasin Diversions and Non-Tributary Water

Transbasin diversions enter District 7 through four structures:

- Vidler Tunnel brings water into Clear Creek from the Blue River Basin via Argentine Pass. The Vidler Collection System, owned by Golden, diverts water from the headwaters of the Blue River at six locations. Water flows by gravity through the tunnel to the headwaters of Clear Creek.
- Berthoud Pass Ditch diverts water from the headwaters of the Fraser River in the Upper Colorado River basin to Hoop Creek in the Clear Creek watershed. The diversion is owned and operated by Northglenn. By agreement, Golden gets the first 2 cfs delivered through the ditch. Northglenn's water is carried from Clear Creek to Standley Lake via Church Ditch.
- Gumlick Tunnel is owned and operated by Denver Water. It can physically deliver water to Clear Creek from the Williams Fork Basin, but the water is typically re-diverted through Vasquez Tunnel to the Moffat Tunnel Collection system in the Fraser River Basin, then to the South Platte River Basin via South Boulder Creek.
- The Straight Creek Tunnel is the third bore of the Eisenhower Tunnel and collects transbasin water from the Blue River Basin and Straight Creek in Division 5. The tunnel also collects some tributary groundwater from granite fractures. The

percent of delivered water attributed to transbasin sources is specified by decree. Coors Brewing Company (Coors) is the primary recipient of Straight Creek water.

Henderson Mine generates water that is non-tributary to Clear Creek. This water is used by several municipal entities in the basin to augment junior water rights as discussed in the Municipal Use section.

## **Compacts and Agreements Affecting District 6 Administration**

Josh Nims and Mike Happe from the City of Westminster provided information for the following summary of the major agreement affecting water use and administration in District 6.

The Clear Creek Water Quality Settlement has been nicknamed the “Cosmic Agreement” due to the wide berth of issues and conflicts over water rights and water quality on Clear Creek between its signatories the Cities of Westminster, Thornton and Golden and the Coors Brewing Company. During the late 1970s and early 1980s, Coors and Golden were exploring a concept to divert additional water from Clear Creek in replace for treated wastewater discharge. Westminster and Thornton would be the recipients of the wastewater discharge and fought this concept very strenuously in a number of forums, including the Water Quality Control Commission and the Water Courts. The parties decided to sit down and negotiate an innovative settlement to this problem that involved the joint funding of a physical solution to the problem that gave Coors and Golden additional water supplies from Clear Creek while preserving the quality of Westminster’s and Thornton’s water supply. The agreement committed all parties to specific methods of operation of water rights so as to avoid the introduction of Coors and Golden sewage into Standley Lake. This water quality goal is achieved without a significant loss of water yield for any party to this agreement and without injury to other water users not a party to this agreement. The parties also put to rest over 30 separate legal disputes that had arisen between them over this issue. The agreement was signed in 1988 and has been successfully implemented for 17 years.

The core of the Cosmic Agreement is that Coors and Golden discharge their wastewater effluent to Clear Creek below the point of the diversion of the Croke Canal. During the winter operation season (Croke Season: November 1 through March 31) when the Croke Canal is diverting under its 1902 priority, Coors’ and Golden’s effluent, which was previously discharged above the Croke Canal is discharged below the Croke Canal and stored in West Gravel Lakes and Jim Baker Reservoir. Coors makes out-of-priority diversions in the manner described in its Augmentation Plan and are limited to a weekly average of 11 cfs and a volumetric limit of 2,836 acre-feet in any Croke Season. Coors’ shortages to Standley Lake are accounted for, and adjusted for ditch losses and evaporation that would have occurred had the water been diverted to Standley.

During the irrigation season (Non-Croke Season: April 1 through October 31), the effluent stored from Coors' and Golden's out-of-priority diversions against the Croke Canal is exchanged back upstream for distribution to FRICO shareholders. Coors' effluent generated from Coors' rights that were stored downstream can be diverted at an alternate point upstream to Coors. The effluent discharges that were stored under the Standley Lake alternate points of storage and Coors entitlements will be released to Clear Creek and the South Platte River to replace the upstream diversions.

The storage and exchange decrees entered in to as a result of the Cosmic Agreement include Case Nos. 88CW268, 88CW269, 88CW270, 88CW271, and 88CW272. The conditional water exchange rights were originally decreed in Case No. 88CW268 on July 20, 1990, with common appropriation dates of August 26, 1985. Case 04CW078 is the diligence case for 88CW268.

## **Stream Gages and General Administration**

Gray has been the water commissioner for District 7 since June, 1993.

Stream gages are not extensively used to administer water rights in District 7 due to problems with their reliability and accuracy. The following gages are useful to access water availability:

- 06714800 – Leavenworth Creek at Mouth Near Georgetown
- 06715000 – Clear Creek Above West Fork Clear Creek Near Empire
- 06716100 – West Fork Clear Creek Above Mouth Near Empire, CO. This gage is used some to account for Golden's transbasin sources.
- 06716500 – Clear Creek Near Lawson
- 00619505 – Clear Creek at Golden
- SOCLACCO – South Clear Creek Above Cabin Creek Reservoir. Public Service uses this gage to account for their use. They provide the charts to State Hydrographers.

Calls on the mainstem South Platte are sometime satisfied by Metro Waste Water Treatment Plant return flows, therefore don't always affect District 7 administration. Dry up locations vary from year to year and depend on rainfall and the specific call sequence for that year. However, some diversions are more likely to cause a physical or paper dry up a low flow year as follows:

- Upper Urad Reservoir
- Little Mattie Dam on Chicago Creek
- Mill Creek
- Wannamaker Ditch
- Miles Eskins Ditch
- Lower Clear Creek Ditch (diversions for Thorton and for irrigation) generally sweeps the river during the irrigation season

### Recent Year River Call Sequence

<p>Non-Irrigation Season Nov 1 to April 1 “Cosmic Season”</p>	<ul style="list-style-type: none"> <li>▪ Croke Ditch call to fill Standley Lake (1860 right)</li> <li>▪ Coors treated effluent is bypassed for storage in Happe West Gravel, and Brannon Reservoirs</li> <li>▪ Typically, water does not need to be bypassed to meet South Platte storage calls. In a normal to wet year, there is about 20-25 cfs leaving the district</li> </ul>
<p>Early Irrigation Season</p>	<ul style="list-style-type: none"> <li>▪ Early irrigation season (April 1 until runoff) internal Clear Creek calls are senior to South Platte calls.</li> <li>▪ South Platte calls are senior during peak runoff (mid June). In dry years, this may begin as early as the 3<sup>rd</sup> week in May, and extend to the end of July. During this time, Clear Creek provides a significant amount of water to the lower South Platte, especially in good snow pack years</li> </ul>
<p>Mid to Late Irrigation Season</p>	<ul style="list-style-type: none"> <li>▪ The Lower Clear Creek Ditch sweeps the river during the summer. Bypass calls to the Lower Clear Creek Ditch are from many of the larger upstream ditches</li> <li>▪ Church Ditch can be out by the end of July/early August</li> </ul>

## Municipal Use

### ▪ **Silver Plume**

The City of Silver Plume has an 1890 water right that is used for municipal needs. They also provide water for the Georgetown Loop Railroad. The town plans to augment their diversions under the Clear Creek County Water Bank (CCCWB) augmentation plan. The CCCWB plan is currently being filed on based, in part, on cooperative efforts of Silver Plume, Golden, and Henderson Mine to provide an augmentation source for commercial and residential wells in Clear Creek County. The water will be provided by several small storage reservoirs, Henderson Mine non-tributary water, and transbasin water from the Vidler Tunnel.

- **Georgetown**  
The City of Georgetown operates under an 1860's water right that is out of priority when the Church Ditch calls. Georgetown Reservoir (upstream of Georgetown on Leavenworth Creek) is used to generate a small amount of hydropower by Xcel Energy (formerly Public Service Company). Georgetown Lake (downstream of Georgetown on Clear Creek) is used for recreational purposes. There are no storage rights associated with the Georgetown Lake and the State does currently account for evaporation.
- **Empire**  
Empire operates under an 1864 municipal right and a decreed commercial well. The city has a small augmentation plan using non-tributary water from Henderson Mine.
- **Dumont/Downieville**  
These towns rely solely on commercial and residential wells for their water supply. There is a combination of exempt wells, permitted wells, and decreed wells. Downieville and Dumont are both filing augmentation plans under the CCCWB.
- **Saint Mary's Water and Sanitation District**  
Saint Mary's Water and Sanitation District owns Silver Lake and Quivera Reservoir.
- **Idaho Springs**  
Idaho Springs' primary diversion is under the 1861 Miner's Ditch right. The city also has rights on Soda Creek, Devil's Canyon, and Chicago Creek Reservoir. Idaho Springs uses their Chicago Creek Reservoir right for augmentation. Town water use was reported daily under the Idaho Springs Combined Ditch (0702200) until 1999, after which diversions are recorded as "infrequent" diversions in HydroBase. The hot springs resort in Idaho Springs gets their water from permitted geothermal wells.
- **Black Hawk and Central City**  
Black Hawk and Central City, and their primary raw water sources, are located on North Clear Creek. Central City has 1.7 cfs from a 1901 surface water right that is supplemented by additional water rights with priority dates in the early- to mid-1990s. Black Hawk has a water rights portfolio of predominantly junior surface and ground water rights. Black Hawk also has a junior surface water diversion and adjacent riverside ground water diversion, located on Clear Creek above the North Clear Creek confluence that is pumped up to its water treatment plant in the North Clear Creek basin. Central City currently uses storage space in Chase Gulch Reservoir within its water resources system. Black Hawk intends to utilize additional space within this reservoir and/or additional reservoir sites in the North Clear Creek basin in the future. Both cities use credits in downstream Clear Creek ditches within their respective systems. A cooperative waste water treatment

plant, located on North Clear Creek below the Four Mile Gulch confluence, is used by both cities.

Central City is responsible for augmenting out-of-priority water diverted from Clear Creek for the Walstrom Quarry mining operation at the base of Floyd Hill. The State is currently working with both entities to enforce requirements that these river diversions and subsequent use be measured.

- **Lookout Mountain Water District**

Residents on Lookout Mountain divert approximately 3/4 cfs off Beaver Brook into Beaver Brook Reservoirs 1, 2, and 3 (aka Lookout Mountain Reservoirs 1, 2, and 3). The reservoirs were originally owned by the City of Golden and served as Golden's municipal water supply. There is no central sewer system; residents use septic systems. The local school has an infiltration gallery on Beaver Brook, which typically is in operation intermittently because of minimum streamflow requirements. Some of their use is junior to a minimum stream flow requirement on Beaver Brook.

- **Golden**

Golden has an 1873 right for 4.4 cfs that serves as the city's main winter water source. The city also relies on several changed agricultural rights in the summer. Golden owns several reservoirs, including Guanella Reservoir, Upper Urad Reservoir, and Lower Urad Reservoir. Golden owns Vidler Tunnel Ditch, and non-tributary Henderson Mine water, and owns shares in Berthoud Pass Ditch. By agreement, the first 2 cfs through Berthoud Pass Ditch is delivered to Golden. The city has been a primary sponsor of the CCCWB. Golden has a junior 840 cfs decree for the Golden White Water Course.

- **Coors**

Coors Brewery owns shares in Straight Creek trans-basin, Church Ditch, Rocky Mountain Ditch, Wannamaker Ditch, Farmers Highline Canal, and Lee Stewart Eskins Ditch. Additionally, Coors has contracted with Golden for transbasin or non-tributary water from Vidler Tunnel, Berthoud Pass Ditch, and Henderson Mine. It uses these sources primarily for augmentation. Coors owns several gravel pit reservoirs, two of which (B3 and B4) have the capacity to store greater than 2,000 acre-feet (2,500 and 4,000 acre-feet respectively). These reservoirs are used to store fully-consumable water from Rocky Mountain Ditch. Process effluent from Coors is delivered for downstream storage via Clear Creek under the Cosmic Agreement. Coors does not operate any exchanges which could potentially be limited based on exchange potential. Instead, they augment all out-of-priority use.

- **Xcel Energy (formerly Public Service Company)**

Xcel Energy operates several facilities in District 7. There is a small hydropower generating plant at the bottom of Georgetown Reservoir that uses run of the river water. They operate a hydropower facility between Upper and Lower Clear



Creek Reservoir and the Cherokee Power Facility off Fisher Ditch. Public Service augments evaporation from their equalizing reservoirs.

- **Standley Lake Cities (Westminster, Thornton, Northglenn)**

Standley Lake (~40,000 acre-feet) was historically able to store some water from Woman Creek which, due to contamination concerns from Rocky Flats, now bypasses the reservoir. This change has increased the use of the Church Ditch and Croke Canal filling rights from Clear Creek. The lake currently fills from Clear Creek through Church Ditch and Croke Canal. There is also a small amount of water that comes off of Coal Creek to fill Kinnear Reservoir, which was the original reservoir that existed before construction of Standley Lake. Most of the fill rights in Standley Lake are agricultural rights that have been changed to municipal use.

- **Arvada**

Arvada owns Blunn Reservoir and Tucker Reservoir, both of which are filled from Ralston Creek and located below Ralston Reservoir. Blunn Reservoir is about 5,000 acre-feet and is currently under construction for expansion. Tucker reservoir was the first reservoir built on Ralston Creek and remains as the number one storage right. It is filled from Hains & Piquette Ditch. Arvada also has transferred shares in several agricultural ditches on Ralston Creek, Leyden Creek, and Clear Creek.

## **Ditch Specific Information**

In general, ditches are described in upstream to downstream order.

### **Clear Creek**

There is only a minor amount of irrigation, municipal, or industrial use on Clear Creek tributaries above the mouth of Clear Creek Canyon. For the most part, the municipal and industrial uses have been discussed in previous sections of this memorandum. The following discussed the larger “key” structures or structures that are important to administration.

- **Silver Plume Pipeline (0700662)** has a 0.824 cfs right from Clear Creek for town use.
- **Georgetown Ditch (0700681)** has a junior 3 cfs water right for use by the town. Diversions are limited to 1.14 cfs between October 1 and May 1 and are often out of priority.
- **Empire Town Water Right (0700567)** has a right 1.82 cfs water right on Mad Creek. This right is supplemented by a commercial well and augmentation water from Henderson Mine.

- **Miners Ditch Pipeline (0700622)** has a right for 32 cfs on Chicago Creek.
- **Idaho Springs Combined Ditch (0702200)** is the “structure” which the State records Idaho Springs combined diversions from their surface water sources. The water rights associated with this ditch are recorded as infrequent diversions.
- **Hidden Valley Surface Diversion (0700786)** is the point of diversion for Black Hawk’s mainstem Clear Creek water. The water is pumped to their treatment plant on North Clear Creek via the Hidden Valley Pipeline. All of Black Hawk’s diversions are recorded under identifier 0702202 – Black Hawk Combined and their groundwater diversions are recorded separately. Since 1993, records have been kept as infrequent diversions.
- **Welch (Golden) Ditch (0700699)** can physically divert above the Golden gage for agricultural irrigation, however Welch water is typically taken through Agricultural Ditch headgate then pumped into the Welch Ditch. Welch Ditch water is used to irrigate Fossil Trace golf course in Golden. Most of the original irrigation rights were transferred to all uses in 1997.
- **Golden City Ditch (0700542)** delivers municipal water to the City of Golden through transferred agricultural rights from Swadley Ditch, Lee Stewart & Eskins Ditch, Ouelette Ditch, and Cort Graves Hughes Ditch.
- **Church Ditch (0700540)** shares (~2/3) are owned by Northglenn. Westminster owns most of the rest of the shares (called “inches”). Church Ditch is decreed as an alternate point for Northglenn and Westminster to convey water to Standley Lake. Other contract holders own inches which continue to be delivered for agriculture. In addition, Arvada owns inches transferred for storage in Blunn Reservoir.
- **Agricultural Ditch (0700502)** is used to carry both Agricultural Ditch and Welch Ditch water. It is a decreed alternate point to Welch Ditch, and there is often more Welch Ditch water diverted through the headgate than Agricultural Ditch water. The ditch is largely owned by Consolidated Mutual Water Company. Coors, Lakewood, and Denver Water also have shares in the ditch. Most of the original irrigation rights have been changed for all uses. The ditch carries storage rights to several reservoirs in the west metropolitan area, however many of the reservoirs are filled under direct rights. These reservoirs, which include Main, East, and Smith, have a combined capacity of around 1,000 acre-feet. The Agricultural Ditch and Reservoir Company also supplement diversions with water from a group of high-mountain reservoirs in the Fall Creek drainage (~1,000 acre-feet combined) and on Loch Lomand Creek (~1,800 acre-feet combined).
- **Coors Industrial Ditch (0700725)** Coors takes their cooling water here. Water can be pumped back upstream of the Farmers Highline Canal to meet demands elsewhere.

- **Farmers Highline Canal (0700569)** is used as a carrier for storage in Standley Lake (and other smaller reservoirs) and to make deliveries for irrigation and other uses in District 2. Most of the original irrigation rights have been changed for all uses. Entities with changed shares include Westminster, Arvada, Thornton and Coors. It is a decreed alternate point to many of the ditches diverted on Clear Creek downstream of Golden.
- **Wannamaker Ditch (0700698)** is owned (73%) and operated by Coors, which uses its shares mainly for augmentation of out-of-priority river and spring diversions; and cooling water and reservoir evaporation. Wannamaker is a carrier ditch to other shareholders and carries Coors water to reservoirs B2, B6, and B7. There continues to be down ditch irrigation for lawns and gardens, even though the original irrigation rights have been changed for all uses. It is a decreed alternate point of diversion to many of the ditches diverting on Clear Creek downstream of Golden.
- **Lee Stewart Eskins Ditch (0700601)** majority rights were changed to municipal or all uses by Consolidated Mutual Water Company in 1993. Prior to that time, the use was irrigation. There is still some minor irrigation (lawn and garden) use under the ditch.
- **Croke Canal (0700553)** is owned by the Farmers Reservoir and Irrigation Company (FRICO) and diverts off Clear Creek to make deliveries to Standley Lake. The ditch can also divert off Ralston Creek, but these diversions are not measured. Croke Canal crosses Leyden creek, but does not divert off of it. The ditch also served as an alternate point of diversion to Church Ditch and Farmers Highline canal.
- **Rocky Mountain Ditch (0700652)** is owned (73%) and operated by Coors. It is a carrier ditch for about 500 customers, mostly lawn and garden irrigators. Larger customers include City of Denver Parks, and Consolidated Mutual Water Company. Coors carries their Rocky Mountain Ditch storage shares and other transferred water to reservoirs B3 and B4. In addition, their Rocky Mountain Ditch inches are used for augmentation.
- **Miles Eskins Ditch (0700620)** is also called Coors Alternate Point #3. The ditch can be used to fill reservoirs B3 and B4 and is preferred over filling from Rocky Mountain Ditch during low flows.
- **Reno Juchem Ditch (0700647)** is mostly owned by the City of Arvada, who has changed much of the rights to municipal use, leaving some irrigation rights for parks and lawn irrigation.
- **The slough** diverts from Clear Creek below the Reno and Juchem Ditch Headgate. It is a general carrier that historically brought water to several ditches.

Active diversions off the slough, also called the North Branch of Clear Creek, are recorded in HydroBase under the Slough Ditch (0700527). Arvada owns many of the original water rights and has transferred them to upper ditches. Other owners include Golden, Westminster, and Coors. Continued diversions at the original headgates are generally for lawn and garden irrigation. Active ditches include the following:

- **Slough Ditch (0700527)** is the identifier used to record diversions carried from Clear Creek to the individual ditches described below. Since 1988, individual ditch use has been recorded in HydroBase using a *source* code as “6” and a *from* code identifier of 527 (to keep diversions from being double counted). Prior to that time individual use was recorded under each ditch. For future modeling, it is recommended that ditches diverting off of the Clear Creek Slough be combined into a diversion system.
  - **Lees Baugh Ditch (0700602)**
  - **Slater Moody Ditch (0700664)**
  - **Slater Ditch (0700663)**
  - **Swadley Ditch (0700677)**
  - **Lane Ditch (0700599)**
  - **Brown Baugh Ditch (0700528)**
  - **Wadsworth Ditch (0700528)** has the most senior right on Clear Creek.
  - **Sayer Lees Ditch (0700655)**
  - **Bluff Ditch (0700523)**
  - **Wolff Ditch (0700705)**
  - **Rhodes Middle Ditch (0700649)**
  - **Wadsworth Graves Ditch (0700695)**
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- **Ouelette Ditch (0700632)** original irrigation rights were mostly transferred to the City of Golden. There continues to be irrigation for lawns and gardens.
  - **Cort Graves Hughs Ditch (0700551)** original irrigation rights were mostly transferred to the cities of Golden and Arvada. There continues to be diversions for irrigation of lawns and gardens.
  - **Kershaw Ditch (0700597)** diverts for irrigation. Return flows enter Clear Creek below Fisher Ditch. This ditch can serve as an alternate point of diversion for several ditches, including; Church Ditch, Farmers Highline Canal, and Croke Canal. Kershaw Ditch also diverts for storage in Happe Pond and Sheets Pond.
  - **Fisher Ditch (0700570)** is owned by the United Water Company and carries water for irrigation to several vineyards and for cooling water at the Cherokee Power Plant. The ditch is an alternate diversion point for Kershaw Ditch and Manhart Ditch to store water in Gordon Lake (0704033). Thornton, Public Supply, and Western Mobile have changed rights under this ditch to municipal, industrial, and augmentation, respectively.

- **Colorado Agricultural Ditch (0700549)** is owned by the City of Thornton, who has changed the original irrigation rights to fill West Gravel Lakes and for municipal use. There is still significant irrigation under the ditch. Water can be delivered directly to Thornton's Columbine Water Treatment Plant.
- **Lower Clear Creek Ditch (0700547)** shares its headgate with Colorado Agricultural Ditch. The ditch is used to fill the West Gravel Lakes and for municipal use. Lower Clear Creek Ditch is owned by the Lower Clear Creek Company and is also called Clear Creek and Platte River Ditch. There is still significant irrigation under the ditch.

### ***Ralston Creek***

- **Long Lake Ditch (0700711)** diverts off of Ralston Creek, above Ralston Reservoir, and is used to fill Upper and Lower Long Lakes. The ditch is owned by Denver Water and diverts both under its original storage rights and via exchange.
- **Ralston Reservoir (0703324)** is owned by Denver Water and is filled mostly with transbasin water diverted through the Moffat Tunnel and brought into Water District 7 from Water District 6 via the South Boulder Diversion Conduit (0600590).
- The following ditches have all been purchased by Arvada and changed for municipal and other uses and for storage in **Tucker Reservoir (0704459~1,100 acre-feet)** and **Blunn Reservoir (0703308 ~6,000 acre-feet)**. For future modeling, it is recommended that the following ditches on Ralston Creek that are owned by Arvada be combined into a diversion system.
  - **Haines and Piquette Ditch (0700586)** fills Tucker Reservoir.
  - **Haines and Ballinger Ditch (0700585)**
  - **Haines Ditch (0700584)**
  - **Piquette Ditch (0700637)**
  - **Ballinger Ditch (0700513)**
  - **Bunny and Ballinger Ditch (0700530)**
- **Church Ditch Ralston Creek (0700942)** sometimes diverts from Ralston Creek, but diversions are not recorded.
- **Farmers Highline Ralston (0700872)** crosses Ralston Creek and has a right but no physical means to divert.
- **Croke Canal Ralston Creek (0700728)** sometimes diverts from Ralston Creek, but diversions are not recorded. They recently put in a new diversion structure.
- **Swadley Longan Ditch (0700678)** diverts off Ralston Creek below Leyden Creek for municipal uses by Arvada. The original irrigation rights were transferred to storage in Blunn Reservoir in 1981 and 1987 and to Croke Canal in 2000.

- **Manhart Ditch (0700542)** continues to be used for irrigation of about 10 acres of alfalfa. The ditch is used as an alternate diversion point for Farmers Highline Canal, Kershaw Ditch, and Church Ditch for storage in Happe Pond. Several of the irrigation rights were transferred to Blunn Reservoir storage in 1988.

## **Recommended Detailed Documentation**

Technical memoranda should be developed and included in the basin information report for the following municipal and industrial water users in District 7:

- Standley Lake City Operations
- Public Service Operations in Water District 7 and throughout the South Platte basin
- Coors Brewing Company

Table 1

WDID	Name	Net Decree (CFS)	Source	Average Ann Div	Period of Record	Key	Comment
0700577	GOLDEN EMERGENCY PL	0.50	BLUE CREEK			No	Not Active
0700662	SILVER PLUME PIPELINE	0.82	CLEAR CREEK			No	No Diversions
0700681	GEORGETOWN DITCH	3.00	LEAVENWORTH CREEK	273.6	1981 - 2003	Yes	Georgetown Municipal Supply
0700567	EMPIRE TOWN WATER RIGHT	1.82	MAD CREEK	81.1	1981 - 2003	No	Trib not modeled
0700537	CENTRAL CITY WATER SUP	0.10	PECK GULCH			No	No diversions
0700575	GOLDEN CITY WTR WORKS PL	1.20	CLEAR CREEK	14976.4	1949 - 1952	No	Not Active
0700578	GOLDEN MILLING CO DITCH		CLEAR CREEK	29644.8	1974 - 1978	No	Transferred to Coors
0700579	GOLDEN WELCH DITCH DUPE		CLEAR CREEK	3411.8	1949 - 1981	No	Not Active
0700542	GOLDEN CITY DITCH	11.12	CLEAR CREEK	3239	1968 - 2003	Yes	
0700699	WELCH DITCH	125.53	CLEAR CREEK	1196.7	1954 - 2003	Yes	
0700503	AGRICULTURAL RES D		CLEAR CREEK	11906.3	1970 - 1972	No	Not Active
0700725	COORS IND DITCH	157.31	CLEAR CREEK	44605.5	1978 - 2003	Yes	
0700540	CHURCH DITCH	1055.25	CLEAR CREEK	11178.8	1951 - 2003	Yes	
0700502	AGRICULTURAL DITCH	525.99	CLEAR CREEK	8146.1	1949 - 2003	Yes	
0700501	ADOLPH COORS CO DITCH	33.00	CLEAR CREEK	1936.3	1977 - 1993	No	Diversions taken elsewhere
0700569	FARMERS HIGHLINE CNL	5692.98	CLEAR CREEK	35297.8	1949 - 2003	Yes	
0700698	WANNEMAKER DITCH	21.00	CLEAR CREEK	4005.4	1949 - 2003	Yes	
0700601	LEE STEWART ESKINS DITCH	41.93	CLEAR CREEK	2213.8	1949 - 2003	Yes	
0700553	CROKE CANAL	991.05	CLEAR CREEK	14806.4	1949 - 2003	Yes	Delivers Water to Standley Lake
0700652	ROCKY MOUNTAIN DITCH	610.61	CLEAR CREEK	9936.8	1949 - 2003	Yes	Primary DivSys with 620 -Water Rights for Miles Eskins Ditch
0700620	MILES ESKINS DITCH		CLEAR CREEK	1469.2	1949 - 2003	DivSys	DivSys with 652
0700647	RENO JUCHEM DITCH	27.44	CLEAR CREEK	1141.8	1949 - 2003	Yes	
0700527	SLOUGH DITCH		CLEAR CREEK	5966.7	1953 - 2003	Yes	Primary Structure for Slough ditch System
0700666	SLOUGH DRAINAGE	5.00	SLOUGH	7424.2	1949 - 1975	No	No records maintained
0700602	LEES BAUGH DITCH	3.28	CLEAR CREEK	497.8	1949 - 1987	No	Tranferred to Coors for Augmentation
0700663	SLATER DITCH	1.80	CLEAR CREEK	107.6	1977 - 1987	No	
0700664	SLATER MOODY DITCH	1.25	CLEAR CREEK	126.1	1977 - 1987	No	
0700654	SANDERSON SLATER DITCH	0.90	CLEAR CREEK	45.3	1979 - 1980	DivSys	Part of Slough Ditch System
0700677	SWADLEY DITCH	4.28	CLEAR CREEK	422.7	1977 - 1987	DivSys	Part of Slough Ditch System
0700599	LANE DITCH	10.39	CLEAR CREEK	520.9	1977 - 1987	DivSys	Part of Slough Ditch System
0700628	NORTH SIDE DITCH	2.00	CLEAR CREEK			No	Not Active
0700528	BROWN BAUGH DITCH	8.25	CLEAR CREEK	207	1977 - 1987	DivSys	Part of Slough Ditch System
0700694	WADSWORTH DITCH	9.10	CLEAR CREEK	722.6	1977 - 1987	DivSys	Part of Slough Ditch System
0700595	JUCHEM OUELETTE DITCH	1.61	CLEAR CREEK	0	1977 - 1983	Yes	Has Acreage
0700655	SAYER LEES DITCH	3.94	CLEAR CREEK	257.6	1977 - 1987	DivSys	Part of Slough Ditch System
0700523	BLUFF DITCH	2.65	CLEAR CREEK	134.5	1977 - 1987	DivSys	Part of Slough Ditch System
0700705	WOLFF DITCH	6.48	CLEAR CREEK	154.4	1977 - 1987	DivSys	Part of Slough Ditch System
0700649	RHODES MIDDLE DITCH	2.59	CLEAR CREEK	114.3	1977 - 1987	DivSys	Part of Slough Ditch System
0700650	RHODES SOUTH DITCH	2.80	CLEAR CREEK	56.4	1977 - 1987	DivSys	Part of Slough Ditch System
0700706	WOLFF NORTH DITCH	1.67	CLEAR CREEK	42.9	1977 - 1987	DivSys	Part of Slough Ditch System
0700550	CORT GRAVES DITCH	3.90	CLEAR CREEK	93.1	1977 - 1987	DivSys	Part of Slough Ditch System
0700695	WADSWORTH GRAVES DITCH	1.16	CLEAR CREEK	72.2	1977 - 1987	DivSys	Part of Slough Ditch System

**Table 1 - Continued**

WDID	Name	Net Decree (CFS)	Source	Average Ann Div	Period of Record	Key	Comment
0700580	GRAVES NORTH DITCH	1.62	CLEAR CREEK			No	Not Active
0700581	GRAVES SOUTH DITCH	0.12	CLEAR CREEK	2.8	1977 - 1987	DivSys	Part of Slough Ditch System
0700632	OUELETTE DITCH	1.13	CLEAR CREEK	549.3	1949 - 2003	Yes	Owned by City of Golden
0700603	LEES ISLAND DITCH	0.50	CLEAR CREEK			No	Not Active
0700669	SOUTH SIDE DITCH	1.00	CLEAR CREEK			No	Not Active
0700594	JOHN S RISDON DITCH	3.98	SLOUGH			No	Not Active
0700551	CORT GRAVES HUGHES DITCH	0.59	CLEAR CREEK	1006.1	1949 - 2003	Yes	
0700642	RAMBOZ DITCH	2.00	CLEAR CREEK			No	Not Active
0700532	CALABRESE DITCH	1.00	CLEAR CREEK			No	Not Active
0700525	BOYLES DITCH	1.50	CLEAR CREEK	363	1949 - 1988	No	Transferred to Arvada
0700597	KERSHAW DITCH	11.44	CLEAR CREEK	2042.6	1949 - 2003	Yes	
0700570	FISHER DITCH	70.03	CLEAR CREEK	7522.6	1949 - 2003	Yes	
0700834	HARRY HOLMES DITCH	2.50	CLEAR CREEK			No	Not Active
0700549	COLO AGRICULTURAL D	82.56	CLEAR CREEK	5416.9	1949 - 2003	Yes	
0700547	CLEAR CR PLATTE RIVER D	111.74	CLEAR CREEK	10069.8	1949 - 2003	Yes	aka Lower Clear Creek Ditch
0700711	LONG LAKE DITCH	47.54	RALSTON CREEK	1116.3	1969 - 1992	No	Fills Upper and Lower Long Lake
0700942	CHURCH DITCH RALSTON CR	305.50	RALSTON CREEK			Yes	Part of Church Ditch System
0700872	FARMERS HIGHLINE RALSTON	478.45	RALSTON CREEK			Yes	Part of Farmers Highline System
0700877	RALSTON CREEK INTAKE	212.00	RALSTON CREEK			No	Not Active
0700728	CROKE CANAL RALSTON CR	0.13	RALSTON CREEK			Yes	Part of Croke Canal System
0700614	MANHART DITCH	11.24	RALSTON CREEK	1924.3	1953 - 2003	Yes	
0700873	FARMERS HIGHLINE LEYDEN	519.35	LEYDEN CREEK			Yes	Part of Farmers Highline System
0700871	FARMERS HIGHLINE L DRY C	469.64	LITTLE DRY CREEK			No	Trib not modeled
0700709	RISDON EDWARDS		SOUTH PLATTE RIVER	1129.3	1949 - 1953	No	Not Active