DISTRICT COURT, WATER DIVISION NO. 1, COLORADO Court Address: 901 9th Avenue, Greeley, CO 80631-1113 Mailing Address: P.O. Box 2038, Greeley, CO 80632-2038	
CONCERNING THE APPLICATION FOR WATER RIGHTS OF: **FARMERS RESERVOIR AND IRRIGATION COMPANY, BURLINGTON DITCH, RESERVOIR AND LAND COMPANY; HENRYLYN IRRIGATION DISTRICT; UNITED WATER AND SANITATION DISTRICT; AND EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT** IN ADAMS, ARAPAHOE, DENVER, DOUGLAS, ELBERT, JEFFERSON, AND WELD COUNTIES.	**▲COURT USE ONLY▲** **Case No. 02CW403** **(previously 02CW105(B) and 04CW362(A))**
FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER	

I. Table of Contents

Section and Section Title **Page**

This matter comes before the court on several water rights claims and a contractual dispute adjudicated in Case No. 02CW403 (also referred to in this order as "this matter"). A sixteen-day trial to the court was held between April 21, 2008 and May 13, 2008. Having reviewed and considered the pleadings, lay and expert testimony, documentary and other evidence, and the arguments of counsel, the court makes the following findings of fact, conclusions of law, and orders.

II. Case and Procedural History

A. Procedural History of Case No. 02CW403

1. The claims adjudicated in this matter were originally filed in Case Nos. 02CW105 and 04CW362. As discussed in detail below, these and other related cases have been consolidated, bifurcated, and renumbered.

2. In Case No. 02CW105, the original application was filed on May 31, 2002. The applicants in that case were Farmers Reservoir and Irrigation Company ("FRICO"), Burlington Ditch, Reservoir and Land Company ("Burlington" or the "Burlington Company"), and Henrylyn Irrigation District ("Henrylyn"). These three entities are often referred to collectively as the "Companies" in this order and the evidence. The First Amended Application for Alternate Points of Diversion and Change in Place of Storage; Application for Water Rights (Surface); Application for Rights of Exchange; Application for Water Storage Rights (the "First Amended Application") was filed on September 29, 2004. Numerous parties filed statements of opposition.

3. The First Amended Application in Case No. 02CW105 contains several claims. Paragraph 4 concerns a claim for a decreed right of exchange for the benefit of South Adams County Water and Sanitation District (also referred to as the "South Adams exchange"). Paragraph 5 concerns a claim for decreed rights of exchange on the South Platte River. Paragraph 6 concerns a claim to confirm an in-ditch exchange. Paragraph 7 concerns claims for alternate points of diversion and alternate places of storage. Paragraph 8 concerns FRICO's claim for a conditional direct flow and storage water right, which is also referred to as the

"multipurpose water right." Paragraph 9 concerns a claim for a conjunctive use project in the alluvium of the Beebe Draw.

4. In addition to Applicants' claims in Case No. 02CW105, the statement of opposition of the City of Englewood ("Englewood"), dated July 30, 2002, raised issues regarding a 1999 settlement agreement between the Companies and the City and County of Denver, acting by and through its Board of Water Commissioners ("Denver") (the "1999 Agreement"). Englewood asserted that the 1999 Agreement was relevant or amounted to an undecreed change of water right.

5. In Case No. 04CW362, the Application for Change of Water Right, Decreed Right of Exchange, and Application for Approval of Plan for Augmentation was filed on December 31, 2004. The applicants in that case are FRICO, United Water and Sanitation District ("United"), and East Cherry Creek Valley Water and Sanitation District ("ECCV"). Numerous parties filed statements of opposition, including Henrylyn.

6. The application in Case No. 04CW362 contains several claims. Paragraphs 2 through 6 concern change of water right claims to change Burlington shares and FRICO shares in its Barr Lake and Milton Lake Divisions. Paragraph 7 concerns a claim for an appropriative right of substitution and exchange. Paragraphs 8 through 11 concern a claim for approval of a plan for augmentation.

7. Case Nos. 02CW105 and 04CW362 were subsequently bifurcated and consolidated with several other related cases through several orders of the court.

8. Case No. 02CW105(A) was bifurcated by order dated April 7, 2006. That case concerned the Companies' claims for the South Adams exchange and the in-ditch exchange claimed in the First Amended Application in Case No. 02CW105. The court granted FRICO's motion to dismiss the South Adams exchange with prejudice by order dated October 19, 2006. Regarding the in-ditch exchange claim, the Companies stipulated with the majority of the parties and presented a *prima facie* case to this court on December 19, 2006. The court entered the stipulated Findings of Fact, Conclusions of Law, Ruling and Decree ("Case No. 02CW105(A) decree") that same day.

9. The remaining claims in the First Amended Application in Case No. 02CW105 were further bifurcated and consolidated with the claims in Case No. 04CW362 and other related cases by order dated October 26, 2006.

10. Case No. 02CW105(B) contained claims from Case No. 02CW105 and 04CW362. That case included the Companies' claims from paragraphs 5, 7, and 8 of the First Amended Application in Case No. 02CW105 for decreed rights of exchange on the South Platte River, for alternate points of diversion and alternate places of storage, and for the multipurpose water right. That case also included FRICO, United, and ECCV's claims from Case No. 04CW362 for approval of a plan for augmentation and changes of Burlington and FRICO shares used in FRICO's Barr Lake Division. Finally, that case concerns the dispute regarding the 1999 Agreement.

11. Case No. 02CW105(C) contained claims from Case No. 02CW105, 04CW356, and 04CW362. That case includes the Companies' claim from paragraph 9 of the First Amended Application of Case No. 2CW105 for a conjunctive use project. The case also includes claims for changes of various water rights listed in the application in Case No. 04CW356. Finally, the case includes FRICO, United, and ECCV's claims from Case No. 04CW362 changes of Burlington and FRICO shares used in FRICO's Milton Lake Division.

12. By order dated January 17, 2007, Case Nos. 02CW105(B) and 02CW105(C) were renumbered. Case No. 02CW105(C) was renumbered as Case No. 02CW404 and is now scheduled to be tried to this court in April of 2009. Case No. 02CW105(B) was renumbered as Case No. 02CW403. Thus, this matter concerns the claims and includes the parties from Case No. 02CW105(B).

B. Pretrial Orders in Case No. 02CW403

13. The court entered numerous orders in this matter following the renumbering of Case No. 02CW403. The court has entered orders approving stipulations and partial stipulations between Applicants and several Opposers, including the Town of Lochbuie ("Lochbuie"), City of Greeley acting by and through its Water and Sewer Board, Northern Colorado Water Conservancy District, and South Adams County Water and Sanitation District ("South Adams"), and a partial stipulation with Denver. All of the court's orders in the record in this matter are hereby incorporated by reference. Certain orders are further discussed below.

14. The Order Denying the City of Englewood's Motion for Determination of Questions of Law and Motion to Consolidate was entered on August 24, 2007. This order denied Englewood's motion to consolidate the adjudication of the claims in this matter with a protest that Englewood filed to a written instruction of the State Engineer in Case No. 07CW141. This order also declined to rule on a question of law regarding potential injury to Englewood under the State Engineer's challenged written instruction. The court granted Englewood's motion to dismiss its protest in Case No. 07CW141 on June 11, 2008.

15. The Order Denying Motion for Determination of Question of Law of Public Service Company and Determining Burden of Proof Regarding Alleged Change of Point of Diversion of the Burlington Headgate was entered on April 1, 2008. This order declined to rule on a question of law regarding whether a flood control construction project in and around the Burlington headgate constituted a change of water right.

16. The Order Denying the City of Englewood's Motion for Determination of Question of Law Regarding Allocation of Releases from Barr Lake was entered on April 1, 2008. This order declined to rule on a question of law concerning what decree and water right accounting is necessary regarding the change of water right claims to protect other water rights from injury.

17. The Order Regarding the 1999 Agreement was entered on April 1, 2008. This order made numerous legal determinations regarding the 1999 Agreement. The court denied Englewood's motion for reconsideration by order dated April 18, 2008.

18. The Order Granting in Part and Denying in Part The City of Englewood's Motion for Determination of Question of Law Regarding Bowles and Meeks Reservoirs was entered on April 8, 2008. This order declined to rule on a question of law regarding the effect of wetlands mitigation projects that may overlap the multipurpose water claim. This order also approved an agreement between FRICO and Englewood that FRICO must store water under its 1910 and 1911 priorities before storing water under any 2002 priority.

19. The Order Re: Withdrawal of Claim Pursuant to U.L.R. 5 was entered on April 21, 2008. This order withdrew Henrylyn's claim for an alternate point of diversion of its direct flow water right from the South Platte River, in the amount of 300 cubic feet per second ("cfs") with an appropriation and priority date of November 28, 1907.

C. Pretrial Stipulations among the Parties, dated April 18, 2008

20. Opposers participating at trial entered into a pretrial stipulation with Applicants, filed with the court on April 18, 2008, concerning proof of water rights, expert witnesses, trial exhibits, and factual and legal stipulations. The parties stipulated that evidence of their water rights would be admitted by filing an exhibit with the court containing a list of the parties' water rights to be considered by the court. The parties also stipulated to the expertise of the expert witnesses that appeared at trial. The stipulation is hereby incorporated by reference and certain substantive factual and legal stipulations are detailed in the remaining paragraphs of this section below.

21. Applicants will not initiate a call, including any call that may be administered as a bypass call (i.e. a call for the water rights decreed as an alternate point of diversion administered by the State and Division Engineer as a call on the river junior thereto), from the United Diversion Facility No. 3 (also, "United Diversion") or the Metropolitan Wastewater Treatment Plant station ("Metro Pumps") for the rights that are being diverted at the United Diversion or the Metro Pumps as alternate points of diversion.

22. Municipal use may be granted to Applicants as a permitted use for any water right or changed water right sought by FRICO, ECCV or United in Case No. 02CW403. This stipulation shall not be construed to limit FRICO's claim to additional non-municipal uses, with uses may be subject to further stipulation or may be requested for decree by FRICO in the pending application.

23. Opposers will not argue that FRICO, ECCV, or United should make "Pagosa Water and Sanitation" showings of need for any water right or changed water right sought by FRICO, ECCV, or United in Case No. 02CW403. *See Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007). None of the parties need to present *Pagosa* witnesses in this trial.

24. Exchanges can only be operated when a live stream exists between the upstream and the downstream point of the exchange reach and all exchanges with priority dates senior to May 30, 2002 operating within the exchange reach are satisfied.

25. The appropriation date for the exchanges shall be May 30, 2002.

26. First, Second, and Third Creek inflows have, except in relatively large flood events, historically been intercepted by the Enlarged Burlington Canal. In addition, the basins downstream of the Enlarged Burlington Canal are not adequate to safely convey significant flood flows to the South Platte River. FRICO and Burlington acknowledges that diversion of water from First, Second, and Third Creek is legally permissible only when the First, Second and Third Creek rights are in priority; however, bypassing out-of-priority flows to the basins downstream of the Burlington Canal would likely result in damage to property and risk of personal injury. To address these conditions, FRICO and Burlington shall construct measuring weirs capable of accurately measuring flows from First, Second, and Third Creek up to a maximum flow of 50 cfs at the confluence of each creek at the Enlarged Burlington Canal within five years from the date of this decree. Within five years from the date of this decree FRICO and Burlington shall additionally construct gates or bypass structures sufficient to convey a minimum of 50 cfs from each of First, Second, and Third Creeks across or through the Enlarged Burlington Canal when the rights of FRICO and Burlington from First, Second, or Third Creek are not in priority. Once such structures are constructed, FRICO and Burlington will by-pass any flows up to 50 cfs in each of the First, Second, and Third Creek basins when FRICO and Burlington rights are not in priority as directed by the Water Commissioner or Division Engineer's office.

27. High capacity flood flow structures in each of the First, Second, and Third Creek basins are expected to be constructed as regional flood control structures in accord with the master plan adopted by the Urban Drainage and Flood Control District. FRICO and Burlington will support and assist the Urban Drainage and Flood Control District and its participating governmental agencies in constructing the regional flood control structures for First, Second, and Third Creeks conveying such flows across or under the Enlarged Burlington Canal. At such time as the regional flood control structures are constructed to convey out of priority flows across the Enlarged Burlington Canal, FRICO and Burlington will divert First, Second, and Third Creek water only in priority with their decrees.

28. Until such time that the regional flood control structures are in place at the Enlarged Burlington Canal allowing bypass of flows from each basin in excess of 50 cfs, at the direction of the water commissioner or Division Engineer the following operational procedures shall be administered by the applicants:

> (1) At such time that out-of-priority flows from First, Second, or Third Creek are being intercepted by the Enlarged Burlington Canal and measured at the weirs as described above (up to a maximum of 50 cfs at the confluence of each creek at the Enlarged Burlington Canal), and
>
> (2) If at such times there are in-priority diversions being made at the Burlington headgate on the South Platte River that are being delivered for beneficial use below the Little Burlington bifurcation, then FRICO and Burlington will bypass an amount of water equivalent to that being intercepted at First, Second, and Third Creek, limited to the amount of water in the Enlarged Burlington Canal diverted in priority at the Burlington

Canal Headgate at the South Platte River then being delivered for beneficial use below the Little Burlington bifurcation, minus ditch loss as determined by the Burlington Company for use by the Little Burlington.

29. No storage is allowed under the 2002 right sought for Bowles/Meeks until an area/capacity curve is approved by the Opposers.

30. To the extent that any junior storage right that is decreed in Case No. 02CW403 remains in storage in Barr Lake on October 31, and such water occupies storage space in Barr Lake that is otherwise required for the storage of "current year" storage rights in Barr Lake for the 1885 Burlington "Oasis/Barr" rights or the 1909 FRICO Barr Lake First Enlargement storage right, the junior water carried over in Barr Lake shall be released or booked over to the senior storage right then legally and physically in priority for diversion from the South Platte River. The rate of book over to the senior storage right shall be 72 percent of the water physically and legally available for diversion at the Burlington Canal Headgate, up to a maximum rate of 648 cfs, which is premised upon 72 percent of 900 cfs of Burlington Canal capacity.

31. The source of substituted supply for the exchange is limited to the water delivered by Denver pursuant to the 1999 Agreement and the use of such exchanged water shall be governed by the terms and provisions of the 1999 Agreement.

32. Regarding the augmentation plan projection tool, ECCV stipulates that it will include in its augmentation plan a projection tool that limits annual pumping of the ECCV wells augmented by this plan to the amount of augmentation replacement water it projects to be available to replace its out-of-priority depletions. The following assumptions will apply to the projection tool:

(1) ECCV shall assume that its wells cause depletions and are out of priority 365 days a year. The streams depleted are the South Platte River and/or its tributaries including water rights located within and/or diverting water from Beebe Draw.

(2) The length of the projection shall be the number of years where 95% of the ECCV well depletions reach the Beebe Canal, not to exceed 240 months.

(3) For the initial year of the projection, the amount of augmentation water available from storage or recharge rights decreed in Case Nos. 02CW404 or 03CW442, for augmentation use shall be the amount actually in storage.

(4) For the subsequent years, the amount of augmentation water available shall be based on the historical yield of the water right from period April 1, 2002 through March 31, 2003 (the "Dry Year Yield"). For any storage or recharge right junior to May 25, 1910 the yield shall be projected as zero.

(5) Direct flow rights to be used shall be projected based on the right's Dry Year Yield.

(6) Return flows for rights used for augmentation shall also be projected based on the Dry Year Yield.

(7) Evaporation and seepage losses shall be subtracted from the amounts of storage water projected.

(8) ECCV shall only include replacement sources that are decreed for augmentation use or that are approved for augmentation use through a SWSP.

(9) If leased or other temporary supplies are used, the projected total volume of water shall be the amount of water which ECCV has a fixed and definite right to use during the projection period by virtue of their lease of such water rights for the term of the lease.

(10) ECCV will update the projection if the projected augmentation supplies will be less than previously projected, if its well pumping will be more than previously projected, or if it has sold or otherwise transferred an augmentation supply previously projected.

III. Evidence Presented At Trial

33. Pursuant to a stipulation of the parties, the trial in this matter was divided between the trial of Applicants' water rights claims and the dispute regarding the 1999 Agreement.

A. Applicants' Water Rights Claims

34. Most of the 45 parties that filed statements of opposition in this matter did not participate or actively participate at trial, even if they did not stipulate with Applicants. The parties that opposed the water rights claims and actively participated are generally referred to as "Opposers" and are referred to with more specificity as necessary.

35. Applicants called the following lay witnesses in support of their water rights claims: Manuel Montoya, William Presley Bailey, Alvin Dechant, Drew Damiano, Robert Lembke, Robert Stahl, David Kanusto, James Lester, and Heather Thompson.

36. Applicants called two expert witnesses in support of their water rights claims. Applicants called Dan Gillham as an expert in water resources and water resources engineering. Duane Helton was called as Applicants' primary expert and the parties stipulated that Mr. Helton was an expert on the areas on which he testified.

37. After Applicants rested, the State and Division Engineers (the "Engineers") orally made two motions pursuant to C.R.C.P. 41. The first motion concerned Applicants' claim for an exchange on the South Platte River. The second motion concerned Applicants' claim for a conditional multipurpose water right. The court reserved ruling and took the issues raised under advisement to be addressed post-trial.

38. Opposers called numerous witnesses in opposition to Applicants' water right claims. In addition, the following parties filed statements of water rights pursuant to the stipulation, dated

April 18, 2008: Aurora, Central, City of Boulder, City of Brighton ("Brighton"), Centennial Water and Sanitation District, Colorado Division of Wildlife, Denver, Englewood, Lower Latham Reservoir Company ("Lower Latham"), Public Service Company, and South Adams.

39. Englewood called Katherine Griffin as an expert in change of water rights, historical consumptive use analysis, design and implementation of augmentation plans, SWSPs, historical use of FRICO and Burlington and expansion thereof, capture and reuse of seepage and irrigation return flows, accounting methods, forms and standards, and GIS applications. Englewood also called Joe Tom Wood as an expert in water resource engineering, water rights engineering, augmentation plans, and interpretation of degrees.

40. Central Colorado Water Conservancy District and its two subdistricts, the Groundwater Management Subdistrict and the Well Augmentation Subdistrict (collectively, "Central"), called Ed Armbruster as an expert in civil engineering, water resources engineering, water rights analysis, water rights accounting and administration, and hydrology.

41. Public Service Company of Colorado ("Public Service") called Gary Thompson as an expert in water rights engineering, water resources engineering, and water supply planning. Public Service also called David Love as an expert in civil engineering.

42. The City of Aurora, acting by and through its Utility Enterprise ("Aurora") called Daniel Ault. The parties stipulated to Mr. Ault's expertise on the areas on which he testified.

43. Denver called Larry Dirks as an expert in water resources engineering.

44. The Engineers called Division Engineer James Hall as an expert in surface and groundwater hydrology, water rights administration, and resource engineering.

45. During trial the following agreements between the parties were presented to the court. These agreements were not reduced to formal stipulations, but were proposed to the court as proposed terms and conditions for the determination of issues in Case No. 02CW403. The court considers these agreements binding on the parties.

> (1) The "system-wide" applicability of the change of water right requested in Case No. 02CW403 shall be applicable only to those shares that have been applied through gravity-based systems and to those farms that do not have irrigation water other than provided by Barr Lake (both FRICO and Burlington company shareholders). A revised Table 8 was submitted to the court identifying those lands under Barr Lake that are the subject of claim for system wide applicability. In such agreement Opposers reserved the right to challenge the concept of "system-wide" applicability in whole.
>
> (2) All matters that relate to the Beebe Draw alluvium and diversions in the Beebe Canal and diversions at the Platte Valley Canal headgate (Milton Fill Ditch) were reserved for determination in Case No. 02CW404. These issues include: (1) the diversion of the FRICO multi-purpose right at the Platte Valley Canal headgate and along the Beebe Canal; (2) replacement of historical return flows from changed FRICO and Burlington

shares by accretion to the Beebe Draw alluvium; and (3) replacement of depletions from the United/ECCV Well Field by accretion to the Beebe Draw alluvium.

B. Dispute Regarding 1999 Agreement

46. Following Applicants' rebuttal case, trial proceeded on the dispute regarding the remaining disputed issues regarding the 1999 Agreement. The court heard extensive argument from counsel for Burlington and FRICO, Henrylyn, Denver, and Englewood. Englewood called Mr. Wood to testify as an expert.

47. Denver made a motion to dismiss pursuant to C.R.C.P. 41 following Englewood's presentation of evidence. Applicants joined in Denver's motion. The court deferred ruling until post-trial.

C. Post-Trial Proposed Rulings

48. Pursuant to the court's oral order on May 12, 2008, the parties submitted proposed rulings. Applicants submitted their initial proposed order on May 30, 2008. Applicants filed a Notice of Errata on June 5, 2008, correcting several citations to the transcripts.

49. On June 20, 2008, numerous parties opposing the applications in this matter filed responses. A joint response and proposed order was filed by Aurora, the City of Boulder ("Boulder"), Centennial Water and Sanitation District ("Centennial"), Central, Englewood, The Harmony Ditch Company, South Adams, the Engineers, and Public Service. As explained in detail in the tender of the joint proposed order, several of these Opposers only joined certain parts of their proposed order. For simplicity, the term "Opposers" is used as shorthand for any number of Opposers and specific Opposers are referred to only as necessary. The Town of Lochbuie filed Response to Proposed Decree, and Brighton and Lower Latham filed a separate joint response. Finally, Denver filed a proposed ruling regarding the 1999 Agreement.

50. Applicants filed a compilation draft findings, rebuttal, and comments July 14, 2008.

51. On July 28, 2008, the court granted in part and denied in part Opposers' Motion to Strike or in the Alternative to File a Surrebuttal to Co-Applicants' Rebuttal and Comments. The court denied the motion to strike and ordered that Opposers may file surrebuttal that same day.

52. The Response of Co-Applicants FRICO and Burlington to Opposers Motion for Surrebuttal and Request for Reconsideration of Approval of Surrebuttal was filed on July 29, 2008. The motion is denied.

53. On August 7, 2007, Brighton and Lower Latham filed a joint surrebuttal and Lochbuie also filed its surrebuttal. That same day, Aurora, Central, Englewood, and the Engineers filed a surrebuttal.

IV. Analysis of Applicants' Water Rights Claims

54. This matter concerns numerous water rights claims, counterclaims, and legal issues in a highly complex factual context. Using the parties' post-trial briefs and proposed orders as a guide, the court herein addresses the issues raised by the parties.

A. Notice

55. Proper notice is fundamental to the court's jurisdiction over parties, in part, "[b]ecause a water rights decree issued without adequate résumé notice is void and can be challenged at any time." *Bd. of County Comm'rs of Arapahoe v. Collard*, 827 P.2d 546, 552 (Colo. 1992); *Danielson v. Jones*, 698 P.2d 240, 244-46 (Colo. 1985) (water judge may only consider those matters that are properly presented in an application and in a manner that provides appropriate notice to potential objectors).

56. Applicants must strictly comply with the résumé notice system. *In re Water Rights of Columbine Ass'n*, 993 P.2d 483, 491 (Colo. 2000); C.R.S. § 37-92-302. "[C]ompliance with the notice provisions of the [1969] Act must be judged with reference to the underlying purpose of the notice: to put interested parties to the extent reasonably possible on inquiry notice of the nature, scope, and impact of the proposed diversion." *Closed Basin Landowners Ass'n v. Rio Grande Water Conservation Dist.*, 734 P.2d 627, 634 (Colo. 1987); *City of Black Hawk v. City of Central*, 97 P.3d 951, 959 (Colo. 2004). "Inquiry notice requires sufficient facts to attract the attention of interested persons and prompt a reasonable person to inquire further. The receipt of inquiry notice charges a party with notice of all the facts that a reasonably diligent inquiry would have disclosed." *Monaghan Farms, Inc. v. City and County of Denver Bd. of Water Comm'rs*, 807 P.2d 9, 15 (Colo. 1991).

57. Persons reviewing résumé notice are entitled to assume that all legal presumptions apply to the applications described therein. *Stonewall Estates v. CF&I Steel Corp.*, 197 Colo. 255, 258-59, 592 P.2d 1318, 1320 (1979).

58. Despite the complex procedural and factual nature of the claims in this matter, there is no dispute regarding the adequacy of notice. A review of pleadings and the record in this matter establishes the following:

> Timely and adequate notice of the application was given in the manner required by law. The application is complete and covers all matters required by law. This Court has jurisdiction over the subject matter of this proceeding and over all persons and property affected hereby, whether those persons or owners of property have appeared or not. The land and water rights involved herein are not included within the boundaries of a designated groundwater basin.
>
> Summaries of consultation. The Water Referee has consulted with the Division Engineer regarding the application as required by law. The Division Engineer submitted summaries of consultation dated September 6, 2002, December 8, 2004, February 2, 2005, and April

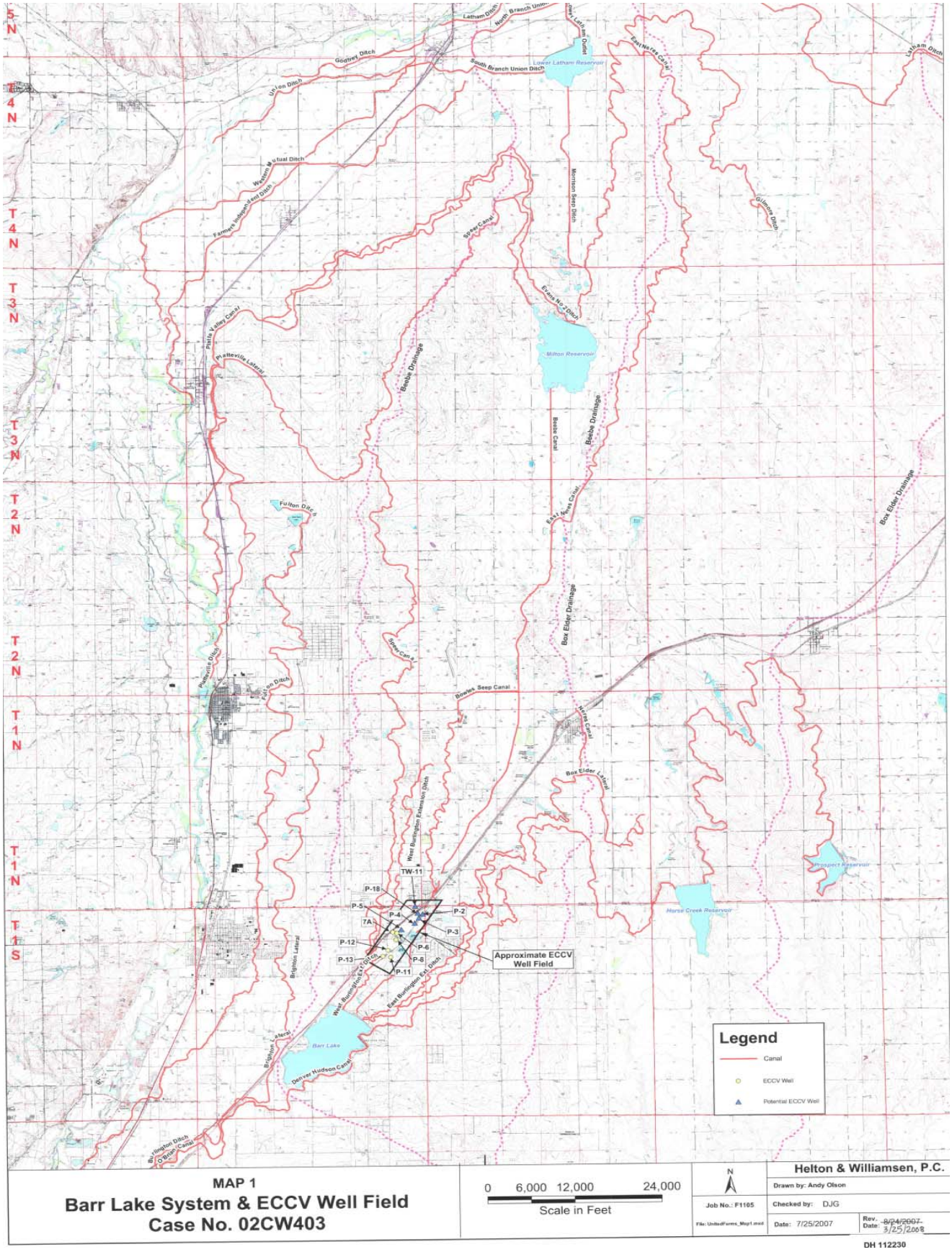
28, 2005. Copies of the summaries of consultation were properly served on all parties to the case.

B. Background on Applicants and Structures at Issue in This Matter

59. Applicants' water rights claims concern the Companies' large and intertwined irrigation systems. The Companies' common, primary point of diversion and means of delivering water into the Burlington system, the FRICO Barr Lake Division, and the Henrylyn system are the Burlington headgate and the Burlington Canal. These irrigation systems include numerous structures that extend north and east from the Burlington headgate on the South Platte River in Denver, north to Kersey and east of Hudson in the South Platte River basin, Beebe Draw, and Box Elder Creek basin. These irrigation systems divert the Companies' numerous water rights, the distribution of which is affected by the Companies ownership of shares in each other, as well as various agreements between the Companies and third parties.

60. Applicants' water rights claims also concern the United-ECCV Water Supply Project. This project involves the transfer of water from areas of historical irrigation within the Companies' irrigation systems in the vicinity of Barr Lake some 31 miles south and up gradient to the growing southeastern metropolitan area.

61. The following factual background will thus be helpful as an introduction and to provide context to the court's subsequent analysis of disputed issues. Exhibit 1269 is displayed below and shows the general location of the majority of the structures relevant to this matter, with the exception of the primary point of diversion, which is not shown.


Godfrey Ditch
South Branch Union Ditch
Lower Latham Reservoir
Latham Ditch
East Heath Canal
Union Ditch
Western Mutual Ditch
Farmers Independent Ditch
Morrison Seep Ditch
Spicer Canal
Gilmore Ditch
Evans No 2 Ditch
Milton Reservoir
Prairie Valley Canal
Platteville Lateral
Beebe Drainage
Beebe Canal
Fulton Ditch
East Heath Canal
Box Elder Drainage
Platteville Ditch
Bowles Seep Canal
Heath Canal
Box Elder Lateral
West Burlington Extension Ditch
TW-11
P-18
P-5
P-4
P-2
7A
P-3
P-12
P-6
P-13
P-8
P-11
Approximate ECCV Well Field
Brighton Lateral
West Burlington Ext Ditch
East Burlington Ext Ditch
Prospect Reservoir
Horse Creek Reservoir
Barr Lake
Brighton Heath
Denver Hudson Canal
Brighton Ditch
Ogilvie Canal
T5N
T4N
T4N
T3N
T3N
T2N
T2N
T1N
T1N
T1S
Legend
Canal
ECCV Well
Potential ECCV Well
MAP 1
Barr Lake System & ECCV Well Field
Case No. 02CW403
0 6,000 12,000 24,000
Scale in Feet
N
Helton & Williamsen, P.C.
Drawn by: Andy Olson
Checked by: DJG
Job No.: F1105
Date: 7/25/2007
Rev. Date: 8/24/2007 3/25/2008
DH 112230

1. Burlington Ditch, Reservoir and Land Company

62. Manuel Montoya, general manager of Burlington and FRICO, described Burlington and FRICO infrastructure. Mr. Montoya also described the delivery canals that were constructed in the Burlington Company system by the Brighton Lateral Ditch Company, the Burlington Extension Ditch Company, and the Hudson Ditch Company.

63. Burlington is a Colorado corporation that was incorporated in 1885. It is a mutual ditch company, diverting and providing water for the benefit of its shareholders. *See* C.R.S. § 7-42-101 -118. There are 4,000 Burlington shares authorized, of which all are issued and outstanding.

64. The historical development of the Burlington and Barr Lake system, including the involvement of FRICO and Henrylyn, is discussed in detail below in section IV.H.4.a, beginning with paragraph 273 of this order.

65. The Burlington system currently consists of the Little Burlington Canal and the Burlington-O'Brian Canal (including contractual rights in the "Enlarged Burlington Canal", addressed below), both of which diverts from the South Platte River at Denver-Adams County line at the Burlington headgate.

66. The Little Burlington Canal is the original Burlington Canal. The Little Burlington Canal and the Burlington O-Brian Canal share a point of diversion and overlap for several miles to a bifurcation where the Little Burlington Canal separates off, flowing generally to the north of the enlarged Burlington Canal. This can be seen in Applicants' Exhibit 1465, which is displayed below in section IV.C.1, at paragraph 106. Of the 4,000 Burlington shares, 1,838.9 shares are allocated for delivery of the water diverted under Burlington's direct flow decrees to shareholders between the South Platte River and Barr Lake. This part of the Burlington system is referred to as the "Little Burlington" system.

67. Sixty-nine percent of the Burlington shares allocated for delivery above Barr Lake in the Little Burlington system have been adjudicated for municipal uses by the City of Thornton (Cases No. 87CW107 and 90CW229,) and by the South Adams (Case No. W-8440-76 and W-8440-76A) or are pending change by the South Adams (Case No. 2001CW258); and by the City of Brighton (Case No. 02CW202).

68. The Burlington-O'Brian Canal is also known as the "enlarged Burlington Canal" and is referred to generally in this order as the "Burlington Canal," except when necessary to distinguish between various sections or time periods of the canal. It extends northeasterly approximately 18 miles from the Burlington headgate and terminates in Barr Lake. The Burlington Canal intercepts First, Second and Third Creeks, which only flow during heavy rains events. Barr Lake is a reservoir that is an enlargement of the two original Burlington Company reservoirs, Barr and Oasis Reservoirs.

69. The Burlington Canal reaches the Barr bifurcation. At the Barr bifurcation, water may be turned into Barr Lake for storage or delivery below Barr Lake. Alternatively, water may be turned into the Denver-Hudson Canal, which is in essence a physical continuation of the Burlington Canal that carries water to the Henrylyn system. There are also numerous laterals divert off the Burlington-Barr Lake system.

70. Among various agreements between the parties, the Companies entered into a Water Division Agreement dated July 1, 1921 (the "1921 Agreement"), that provides for the allocation of various water rights that are diverted through the Burlington-O'Brian Canal, a structure in which the Companies have ownership, contractual, or carriage rights. Pursuant to the 1921 Agreement, Henrylyn owns a contractual right for the delivery of one-half of the amount of water diverted by Burlington under its direct decrees and reaching the Barr bifurcation of the Burlington-O'Brian and Denver-Hudson Canals. Henrylyn has a right to this water, however, only after satisfaction of the Burlington shareholders under the Little Burlington system. Henrylyn diverts the water into Henrylyn's Denver-Hudson Canal for the irrigation of lands within Henrylyn's boundaries.

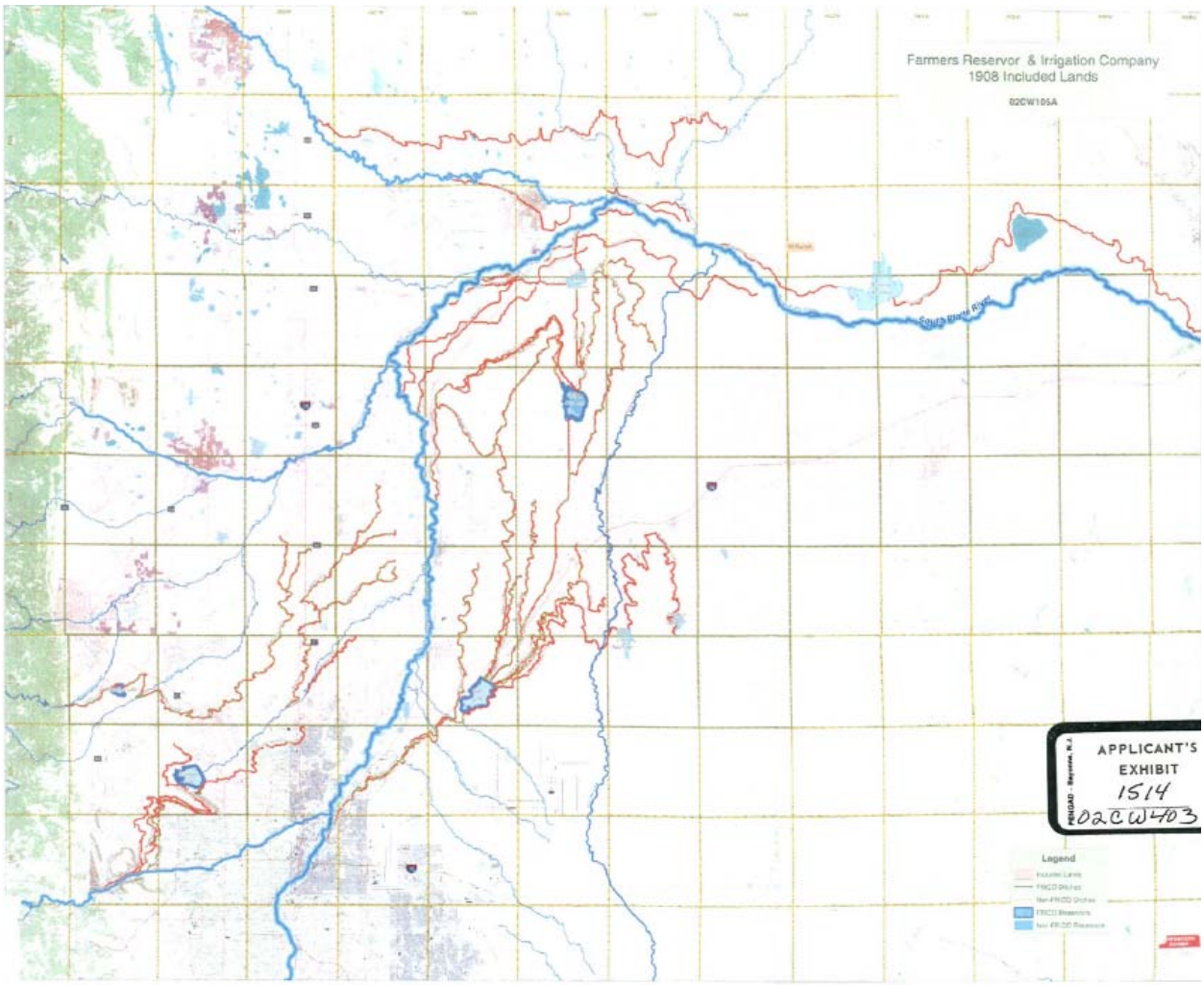
71. The water diverted under Burlington's direct flow decrees remaining after the allocation to the shareholders under the Little Burlington ditch, the contractual delivery to Henrylyn and any water diverted under Burlington's storage decrees is allocated to the 2,111 Burlington shares for delivery to the Burlington shareholders under the Burlington-Barr Lake system, including FRICO and Henrylyn as Burlington shareholders. FRICO is the owner of 1,257 shares of the 2,111 Burlington shares allocated for water delivery to the Burlington-Barr Lake system.

72. FRICO and Henrylyn reallocate their entitlement of Burlington water to the shareholders and landowners within the FRICO and Henrylyn systems.

2. Farmers Reservoir and Irrigation Company

73. FRICO is a Colorado corporation that was incorporated in 1902. The articles of incorporation were amended in 1980. It is a mutual ditch company, diverting and providing water for the benefit of its shareholders. *See* C.R.S. § 7-42-101 -118.

74. FRICO currently operates a ditch and reservoir system that extends across approximately 3,500 square miles along the Front Range corridor from Denver to Kersey. The FRICO system presently consists of four major reservoirs, numerous smaller reservoirs, and approximately 400 miles of diversion and delivery canals. A map of the entire FRICO system was introduced as Applicants' Exhibit 1514 and is displayed below.

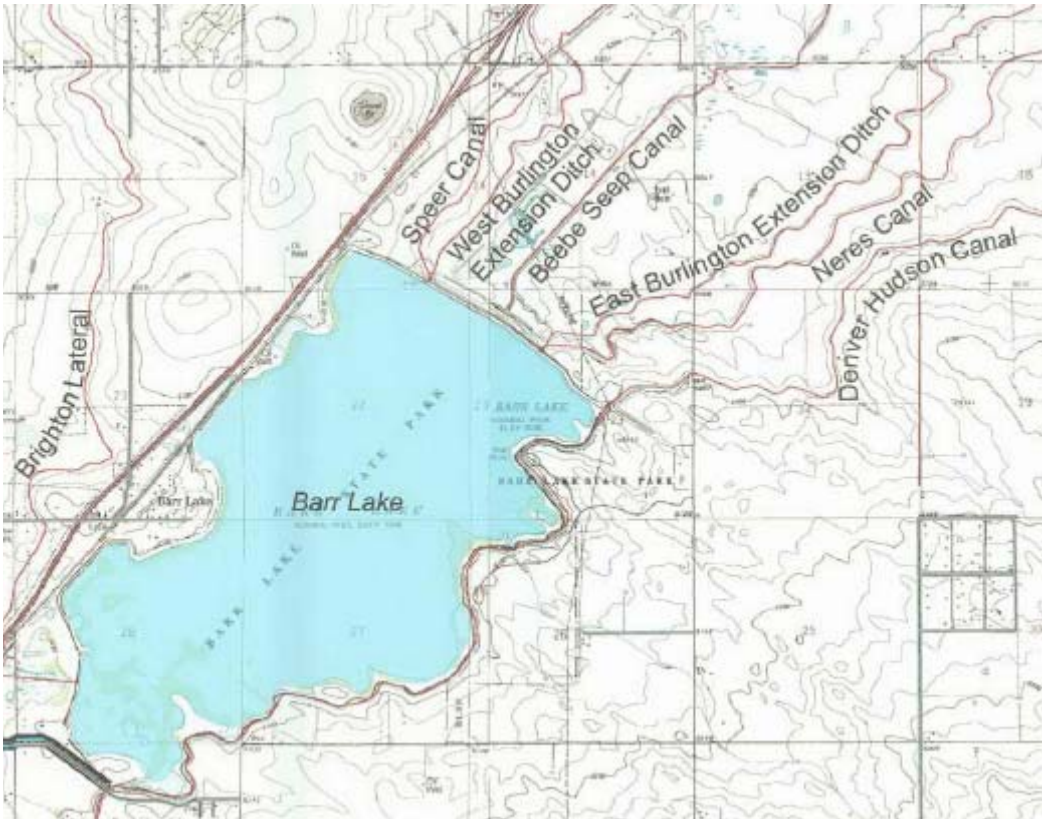


75. There are 10,000 FRICO shares authorized, 8,102 of which are issued and outstanding in FRICO's five divisions. The FRICO system is organized into four reservoir divisions: the Standley Lake and Marshall Lake Divisions are west of the South Platte River and the Barr Lake and Milton Lake Divisions are east of the South Platte. The Standley Lake and Marshall Lake Divisions are not the subject of this matter. The FRICO rights that are represented by shares allocated for water delivery purposes to the Milton Lake Division are not the subject of this matter, but are to be adjudicated as part of Case No. 02CW404, which is presently pending before this court. The Municipal Division is exclusively for providing water to South Adams, the supply for which is the 1999 Agreement. Although the Municipal Division has only South Adams as the beneficial shareholder of that division, FRICO has other municipal shareholders in each of its four reservoir divisions.

76. FRICO owns and operates numerous water rights in its Barr Lake Division. There are 2,759 FRICO issued and outstanding shares that are allocated for delivery in the Barr Lake Division. FRICO owns 1,257 of the 2,111 Burlington shares allocated for water delivery purposes at or below Barr Lake in the Burlington-Barr Lake system. The FRICO rights that are the subject of this application are allocated to the Barr Lake Division and are identified and discussed in greater detail below in relation to Applicants' specific water rights claims.

77. In addition to intertwined rights to use water between the Companies, the Companies share numerous structures in the operation of their irrigation systems. For example, the principle point of diversion of FRICO's Barr Lake Division is the Burlington headgate, which is also the point of diversion for both the Burlington and Henrylyn systems. Likewise, the Companies use various reaches of the current Burlington Canal (also referred to as the "Enlarged Burlington Canal") and Barr Lake to transport and store water. Maps of the Barr Lake system, inclusive of the Burlington system were introduced as Applicants' Exhibits 1269 (general map), 1270 (map with ECCV farm locations), 1274 (Barr Lake Irrigated acres) and 1465 (north Denver metro area gravel pit map).

78. The primary structures in FRICO's Barr Lake Division are the Burlington Canal and Barr Lake. As displayed below from Applicants' exhibit 1465, several ditches extend from Barr Lake for delivery of direct flow and storage water to shareholders. These canals are: Speer Canal (previously known as the West Hudson Lateral); West Burlington Extension Ditch, Beebe Seep Canal; East Burlington Extension Canal, and the Neres Canal (previously known as the East Hudson Canal). FRICO also operates numerous laterals in the Barr Lake Division.



79. The East and West Burlington Extension Ditches were originally part of the Burlington Extension Ditch Company system. FRICO managed the canals for the Burlington Extension Ditch Company until it negotiated an agreement to take over the system in February 2000.

80. FRICO also operates the West Hudson Lateral (now known as the "Speer Canal") and the East Hudson Canal (now known as the "Neres Canal"). The East and West Hudson Laterals were originally constructed by the Hudson Company. FRICO contracted with the Hudson Company to enlarge and to operate and manage the East and West Hudson Laterals in 1909.

81. No water other than that delivered to FRICO or Burlington shareholders is carried through any of the Burlington Extension ditches or the Hudson laterals. Additional history regarding the Burlington Extension Ditches, the Hudson laterals, and FRICO's historical involvement in the Burlington system is discussed below in section IV.H.4.a, beginning at paragraph 273 of this order.

82. FRICO operates the Burlington-Barr Lake system. As described by Mr. Montoya, FRICO's general manager, shareholders in the Little Burlington system have a right to the first 200 cfs of the 1885 Burlington direct flow right. If demand among shareholders in Little Burlington is less than the full 200 cfs, the manager of FRICO sends the balance of the water to Barr Lake. The manager of FRICO further distributes water among the Burlington Company, FRICO, and Henrylyn as shareholders pursuant to the 1921 Agreement. Mr. Montoya testified that FRICO does not always follow specific provisions; rather, the parties work out distribution based on demand and operational concerns. However, FRICO has not historically kept records of which particular priority was being diverted at specific times. Because there is not enough water in Barr Lake to be released to all of the outlet ditches at the same time, depending on demand and whether the outlet ditches are ready for deliveries, FRICO rotates through its outlet ditches by making five-day runs of water to one ditch before moving to the next.

83. Mr. Montoya also testified FRICO delivers an additional 10 percent of water to shareholders that is not recorded. This issue is discussed below in section IV.H.6, beginning at paragraph 420 of this order.

3. Henrylyn Irrigation District

84. Henrylyn is an irrigation district, formed on October 7, 1907, under the Irrigation District Law of 1905. *See* Laws 1905, H.B. 87, codified at C.R.S. §§ 37-41-101 -160.

85. Henrylyn, in its capacity as an irrigation district, is the owner of 560 of the 2,759 FRICO shares allocated for water delivery purposes to the Barr Lake Division. Henrylyn is also the owner of 123 of the 2,111 Burlington shares allocated for water delivery to the Burlington-Barr Lake system.

86. The Henrylyn system is identified in the maps included above and is located generally east of the Burlington system. Henrylyn takes deliveries of water from the South Platte River, which diverts into the Burlington Canal, and then into the Denver-Hudson Canal past the Barr bifurcation.

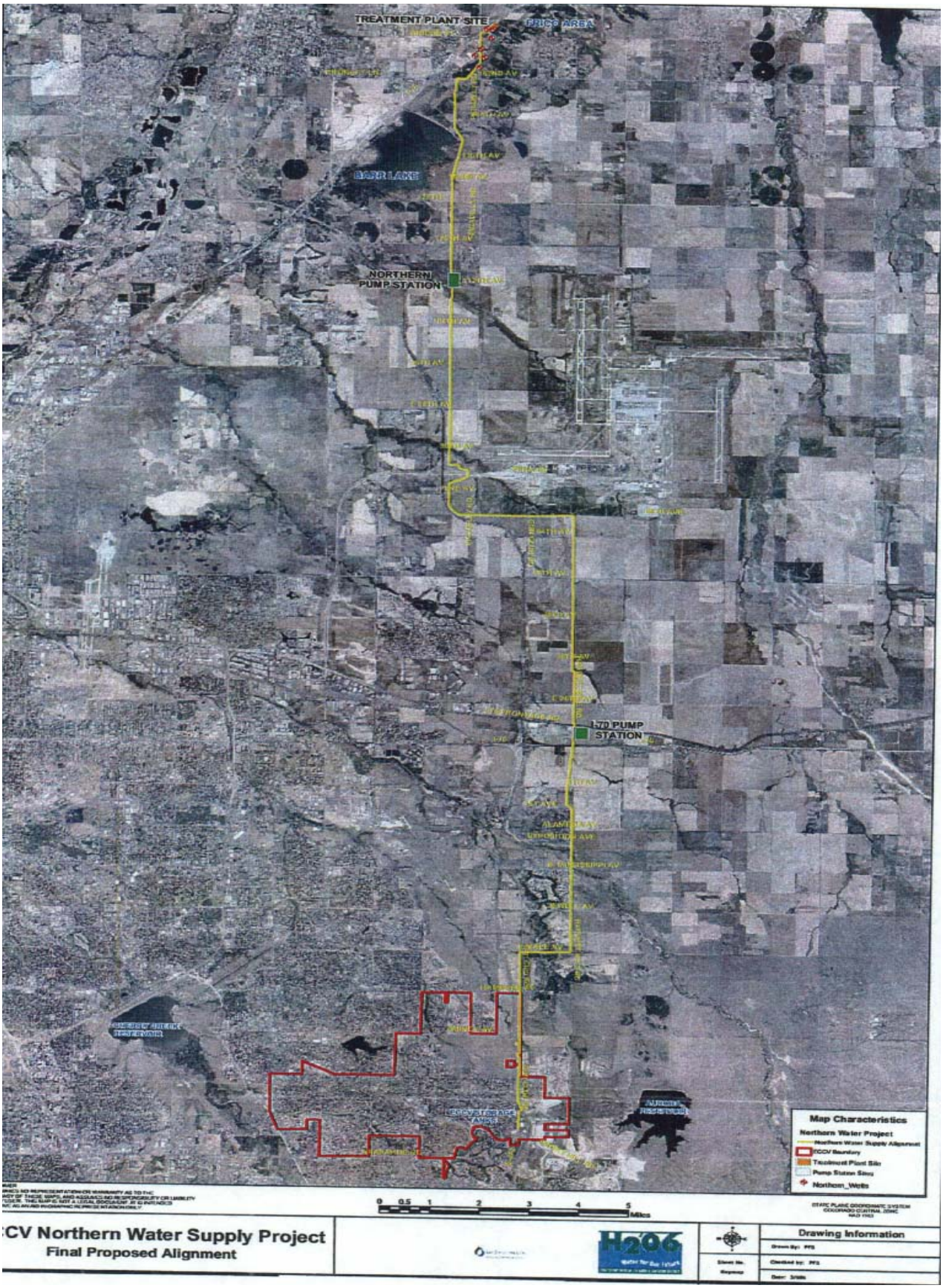
4. East Cherry Creek Valley Water and Sanitation District

87. David Kaunisto, manager of ECCV, described ECCV, its structures, and water supplies. ECCV is a special district that provides water and sanitation within an area comprising approximately 8,800 acres located in Arapahoe County in the southeastern metropolitan area. *See* C.R.S. §§ 32-1-101 – 32-1-1807. ECCV delivers water to approximately 50,000 customers for a total current water demand of 9,000 acre feet (af) per year. Upon build-out of its service area in approximately twenty years, ECCV projects that it will serve approximately 70,000 customers for a total annual water demand of approximately 14,000 af per year.

88. ECCV's water supply has historically been provided from non-renewable Denver Basin nontributary groundwater that is located beneath its boundaries or is obtained through contractual arrangements. *See generally* C.R.S. § 37-90-137. During dry summer months, ECCV's nontributary supply occasionally lacks sufficient peaking capacity to serve its customers, despite ECCV's implemented watering restrictions.

89. ECCV entered into an agreement with FRICO and United ("Water Supply Agreement") on December 18, 2003, that provides for the development of renewable water supplies for ECCV. FRICO's role is to operate the project. The supplies include, but are not limited to the Burlington and FRICO shares that are the subject of this application. One purpose of the Water Supply Agreement, inclusive of the acquisition of the FRICO and Burlington shares that are the subject of this application for change of water rights, is to provide for a renewable source of water to replace the depletion of the nontributary aquifers that ECCV is presently dependent upon.

90. To implement the Water Supply Agreement and to put the changed water rights to beneficial use within ECCV's boundaries, ECCV has constructed a thirty-one mile pipeline and two major pump stations at a cost of $75 million dollars. The pipeline delivers water from the United-ECCV Well Field, located below Barr Lake, to ECCV's water storage tanks near Smoky Hill Road and Highway E-470. The capacity of the pipeline is 47 million gallons per day, equating to an annual capacity of approximately 50,000 af. Applicants' Exhibit 8 is displayed below. The structures and labels shown on Exhibit 8 are more easily viewed in electronic format.


TREATMENT PLANT SITE
PRICE AREA
BARR LAKE
NORTHERN PUMP STATION
LTD PUMP STATION
Map Characteristics
Northern Water Project
Northern Water Supply Alignment
FCCV Boundary
Treatment Plant Site
Pump Station Sites
Northern_Wells
0 0.5 1 2 3 4 5 Miles
CV Northern Water Supply Project
Final Proposed Alignment
H2O6
Drawing Information

5. United Water and Sanitation District

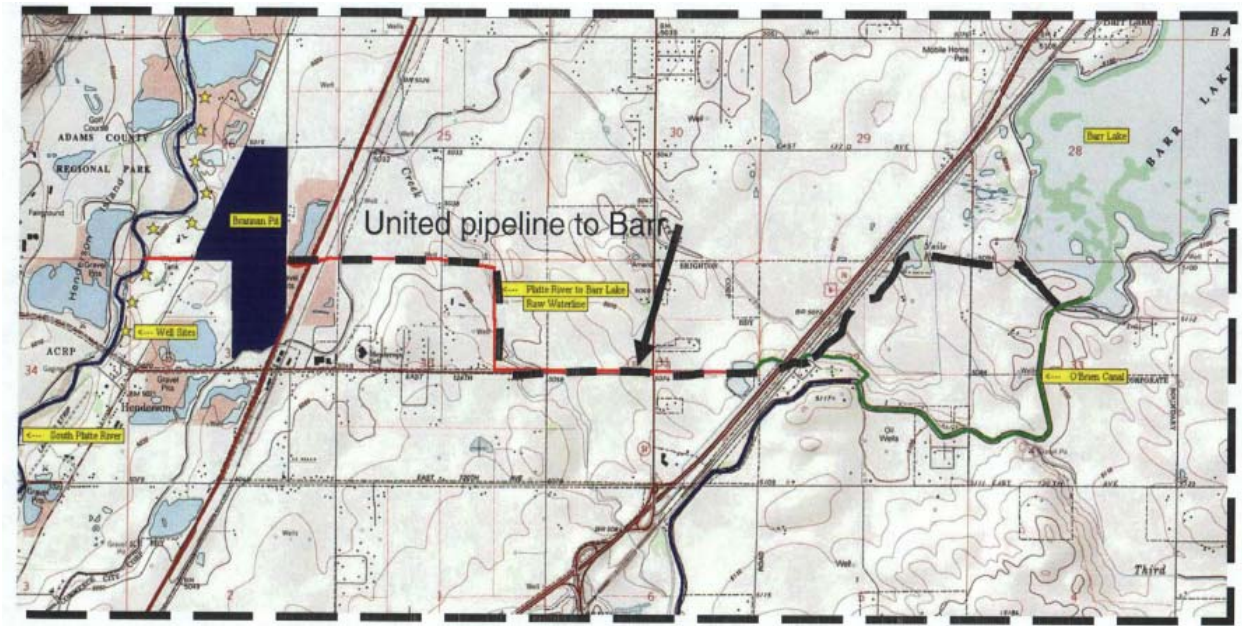
91. Drew Damiano, board member, project analyst, and construction manager for United, described United, its structures, water supply agreements, and the facilities for the ECCV project. Robert Lembke, board member and president of United, described United, its legal structure, contractual rights, interests, and the agreements relating to the ECCV Water Supply Agreement.

92. United is a special district established under Colorado law. *See* C.R.S. §§ 32-1-101 – 32-1-1807. United was formed to provide for the design, acquisition, construction, maintenance, and financing of public improvements for the use and benefit of water, sewer and storm drainage works and facilities, and for the ongoing maintenance of water, sewer and storm drainage facilities, within and outside of United's boundaries for those areas seeking service from United. The district is geographically small comprising of approximately an acre of land located in Elbert County. United was formed with a statewide service area and generally conducts its activities through defined enterprises. Currently, United owns facilities, water rights, or other property rights in Adams, Douglas, El Paso, Morgan, Summit, and Weld Counties.

93. To implement the ECCV project, United, FRICO, and ECCV concluded the Water Supply Agreement, dated December 18, 2003. The Water Supply Agreement was amended and restated. Pursuant to this agreement, United provided a substantial amount of the ECCV financing, extending to approximately $26 million for the ECCV Water Supply Project.

94. United and FRICO also entered into a mutual water carriage and storage agreement. Pursuant to that agreement, FRICO, Burlington and Henrylyn obtained the right to the use of the United Diversion Facility No. 3, the United Reservoir, and the Beebe Pipeline.

95. There are several United facilities that are part of the ECCV Water Supply Agreement. United Diversion Facility No. 3 is a diversion structure on the South Platte River downstream of the Burlington headgate and is located downstream of Henderson Road and East 124th Avenue. United Diversion Facility No. 3 diverts water into United Reservoir. United Reservoir, formerly known as the Brannan Reservoir, is a partially-completed storage reservoir that was formerly a gravel pit. The Beebe Pipeline runs from United Reservoir to Barr Lake. The United-ECCV Well Field is a well field with gathering lines in Beebe Draw north of Barr Lake. This well field connects to ECCV's pipeline, which is discussed above. Applicants' Exhibit 620 is displayed below. The structures and labels shown on Exhibit 8 are more easily viewed in electronic format.



96. United Diversion Facility No. 3 has been constructed in accordance with the "as-built" plans that the court received as evidence. No permit under § 404 of the Clean Water Act was required for the construction of United Diversion Facility No. 3. *See* § 33 U.S.C. 1344. The diversion structure is completed and water has been diverted through it. The court received the easement for the diversion structure and pipeline to United Reservoir as evidence.

97. From the United Diversion Facility No. 3 to United Reservoir and the Beebe Pipeline, there are two 25-cfs pumps, two 10-cfs pumps and one 5-cfs pump. All of the pumps have been installed and are in operation. Burlington, FRICO, and Henrylyn have an interest in one-half of the pipeline capacity and 2,000 af of storage in United Reservoir.

98. United acquired its interest in the Brannan Reservoir by deeds from the Brannan Sand and Gravel Company ("Brannan") and the E-470 Highway Authority. A mining agreement with Brannan provides for the completion of excavation of United Reservoir by 2013.

99. To permit fractionalization of the reservoir space in United Reservoir, the real property was fractionalized into "condominium interests," providing for independent real estate interests for participating users and management of the reservoir operations. The separate real estate interests in the United Reservoir were recognized by Land America Title Company.

100. United Reservoir has been lined with a slurry wall. The reservoir is divided into two sections. The southern section has been approved for use as a reservoir by the Office of the State Engineer. The non-jurisdictional capacity of the United Reservoir is projected to be 3,000 – 3,500 af

101. The Beebe Pipeline extends three miles from the United Reservoir to Barr Lake. It has been constructed in accord with the "as built" plans received at trial. The court also received right-of-way deeds for the pipeline.

102. The United-ECCV Well Field currently consists of six constructed wells and its location is shown on the maps displayed above. The wells are permitted. Six to eight additional wells are being considered to be added in the future. The existing six wells were constructed in accordance with the well specifications received at trial.

103. Water from the United-ECCV Well Field, collection lines, ECCV pump station, and ECCV pipeline is presently being delivered for municipal use in the ECCV district pursuant to an approved substitute water supply plan. *See* C.R.S. § 37-92-308.

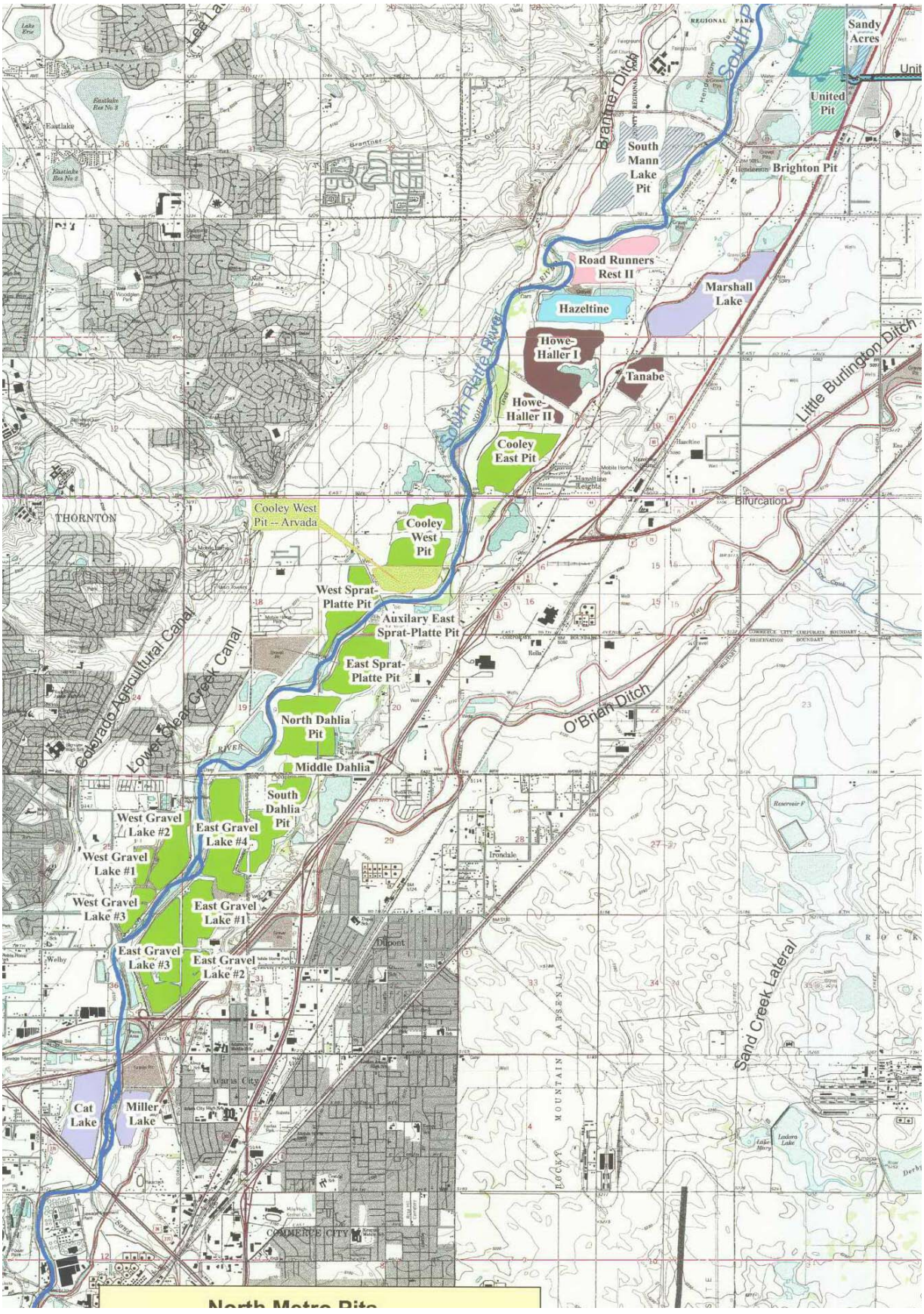
104. From the United-ECCV Well Field, a 31 mile pipeline extends to ECCV's storage tanks at E-470 and Smokey Hill Road. United is the owner of, or has the right of use of, all lands and facilities that are part of the ECCV project.

105. To provide water for the United-ECCV Water Supply Project, United has acquired shares of FRICO and Burlington that are allocated for water delivery at or below Barr Lake. Dry-up covenants that relate to the FRICO and Burlington shares that have been acquired for the United-ECCV Water Supply Project.

C. Appropriative Right of Exchange

1. FRICO's Claimed Exchange and Evidence Presented

106. As the operator of the Burlington Canal, FRICO has requested an appropriative right of exchange (the "exchange"), to be exercised for the benefit of the Companies. Applicants' Exhibit 1465, displayed below, shows the exchange reach and the location of structures involved. The Burlington headgate is located in the lower left-hand corner of the image.


Sandy Acres
United Pit
Brighton Pit
South Mann Lake Pit
Brantner Ditch
South Platte River
Road Runners Rest II
Marshall Lake
Hazeltine
Howe-Haller I
Howe-Haller II
Tanabe
Little Burlington Ditch
Cooley East Pit
Bifurcation
THORNTON
Cooley West Pit -- Arvada
Cooley West Pit
West Sprat-Platte Pit
Auxilary East Sprat-Platte Pit
East Sprat-Platte Pit
North Dahlia Pit
Middle Dahlia
South Dahlia Pit
O'Brian Ditch
Colorado Agricultural Canal
Lower Clear Creek Canal
West Gravel Lake #2
East Gravel Lake #4
West Gravel Lake #1
West Gravel Lake #3
East Gravel Lake #1
East Gravel Lake #3
East Gravel Lake #2
Irondale
Dupont
Sand Creek Lateral
Cat Lake
Miller Lake
COMMERCE CITY
North Metro Pits

107. The claimed appropriation date is May 30, 2002. The exchange was initiated by the boards of directors of the Companies entering into a Stock Purchase Agreement with South Adams. An overt public "first step" of the exchange was completed by filing the initial application in Case No. 02CW105. The parties stipulated to this date in the April 18, 2008 pretrial stipulation. The amount of the exchange requested is 150 cfs and up to 3,000 af per year.

108. The exchange reach requested by FRICO in the First Amended Application in Case No. 02CW105 extends from the Henderson gage on the South Platte River, as the downstream end of the exchange reach, and the Burlington headgate on the South Platte River, as the upstream end of the exchange reach. The Metro Pumps are considered to be within the exchange reach and FRICO request that they may be used as a point of diversion for the exchanged water to implement the exchange.

109. The source of substitute supply for the exchange is fully consumable water delivered by Denver pursuant to the 1999 Agreement (also referred to in the record as "5K water"). The 1999 Agreement contains terms and conditions that control the use and delivery of such water. The Companies are not in full control over the substitute supply. Under the 1999 Agreement, Denver is obligated to deliver 2,000 af at or above the Burlington headgate. The remainder can be delivered at any location above the Henderson gage on the South Platte River, such as from the Metro outfall of Denver's Cat and Miller pit gravel pit reservoirs.

110. Depending on where Denver delivers the 5K water and where the Companies divert that water, an exchange does or does not occur. For example, if Denver delivers water above the Burlington headgate where the water is diverted, there is no exchange because this is a direct contract delivery of water. If Denver elects to deliver water from its Cat and Miller pits below the Burlington headgate, an exchange is required to divert water into the Burlington Canal. No exchange occurs, however, if Denver delivers water below the Burlington Canal and the Companies divert the 5K water downstream at United Diversion Facility No. 3.

111. As proposed by FRICO, the exchange thus would have an "exchange point" and "turn-in point." The exchange point is the point on the stream where the effect of the exchange diversion is offset by introduction of the substitute supply. In this case, FRICO's exchange point is the Henderson gage. The turn-in points are the locations where the substitute supply is introduced to the stream. In this case, FRICO's turn-in points are the locations where Denver delivers 5K water to the South Platte River to effectuate an exchange. When the turn-in point is upstream of the exchange point, FRICO proposes to use the South Platte River to convey the substitute supply to the exchange point, completing the exchange. *See* C.R.S § 37-87-102(4).

112. Mr. Helton, FRICO's consulting engineer, analyzed the availability of water in the exchange reach. The analysis was made for the period of 1982 through 2007, premised upon the operation of the South Platte River gage at 64th Avenue, which is downstream of the Burlington headgate and within the exchange reach. Mr. Helton opined that the average exchange opportunity for the exchange occurred for 296 days per year, with a minimum of 185 days and a maximum of 366 days. His opinion is represented in Applicants' Exhibit 1251, Table 1. The volume of exchange opportunity during the study period was shown on Exhibit 1251, Table 2 as

being an average of 49,576 af per year and a maximum of 95,000 af. Both values are larger than the 3,000 af exchange volume requested.

113. Mr. Helton proposed terms and conditions to prevent injury to other water rights in the operation of the exchange. Some of the terms and conditions were added in response to Opposers' objections. Such terms and conditions have been rephrased and condensed in post-trial briefing and are listed as follows:

> (1) The exchange will be limited to the amount of consumable water that is being discharged into the South Platte River at or above the Henderson gage station, not to exceed 150 cfs at any time and 3,000 af annually.
>
> (2) The exchange will occur only during periods of live flow in the South Platte River through the exchange reach prior to the implementation of the exchange and shall not exceed the minimum stream flow between the point of delivery of the substitute supply to the surface stream and the point where water is withdrawn from the surface system.
>
> (3) Since this is an upstream exchange, conveyance or transit losses are neither necessary nor appropriate.
>
> (4) The exchange is an appropriative water right and will be exercised within the priority system, so that FRICO's right of exchange is subject to the legal call of water rights senior in priority, and is able to call out water rights junior in priority to FRICO's right of exchange as decreed herein. The exchange reach on the South Platte River shall extend from the Burlington Canal Headgate, as the upstream limit, and the Henderson Gage, as the downstream limit. The date of appropriation for the Exchange is May 30, 2002.
>
> (5) FRICO will notify and obtain the approval of the Water Commissioner prior to initiating the exchange and will properly account for the operation of the exchange as required by the Office of the State Engineer.
>
> > a. Replacement water shall be delivered to the stream through measuring flumes or weirs and self-registering devices at the point where the water is turned into the stream as near such point as is practicable so that the division engineer may readily determine and secure the just and equitable exchange of water. If such location is above the point on the river at which the effect of the exchange diversion into the Burlington Canal is offset by the replacement water, such replacement water shall be assessed a stream loss to such "exchange point" as other water administered under C.R.S. § 37-87-102.

114. As an alternative to subpart a. of the fifth proposed term and condition, FRICO proposes the following alternative subpart:

> > a. The replacement water for the exchange adjudicated herein shall be delivered to the South Platte River at one or more of the following locations: (1) the outfall of

the Metro Wastewater Reclamation District Treatment Plant or (2) the river outfall of Denver Reservoirs: Miller, Cat, or Tanabe Reservoirs.

115. Applicants further propose that they shall provide the specific legal description of these replacement locations in the final decree in this matter.

2. Opposition to Exchange

116. Opposers' position is that FRICO has not provided sufficient evidence regarding its proposed exchange. Opposers contend that exchanges are measured at the point of diversion by exchange and the point of turnout of replacement water to the stream. Opposers thus assert that the exchange in this matter must be decreed by the points of diversion and turn out within the applied for locations identified at trial.

117. Opposers' position is similar to the Engineers' C.R.C.P. 41 motion made during trial. That motion sought to limit FRICO's exchange to the evidence presented by Applicants. The Engineers thus requested that only the Metro outfall could be used as a source of substitute supply. The Engineers, through testimony of the division engineer, later identified additional points of potential replacement water turn-in points for the exchange such as Denver's gravel pit reservoirs. In post-trial briefing, Opposers concede the use of Denver's Miller, Cat, and Tanabe Reservoirs as additional turn-in points.

3. Legal Standards

118. Exchanges may be adjudicated as an independent claim. *City of Florence v. Bd. of Waterworks of Pueblo*, 793 P.2d 148, 152 (Colo. 1990). "The operator of an exchange may obtain a conditional or absolute decree with a priority for the exchange." *Empire Lodge Homeowners' Ass'n v. Moyer*, 39 P.3d 1139, 1155 (Colo. 2001).

119. The Colorado Supreme Court has listed the "critical elements of an exchange" as:

> (1) [T]he source of substitute supply must be above the calling water right;
> (2) the substitute supply must be equivalent in amount and of suitable quality to the downstream senior appropriator;
> (3) there must be available natural flow at the point of upstream diversion; and
> (4) the rights of others cannot be injured when implementing the exchange.

Id. In addition, numerous statutes address exchanges. *See, e.g.,* C.R.S. §§ 37-83-104; 37-80-120(2), (4).

120. A conditional water right is "a right to perfect a water right with a certain priority upon the completion with reasonable diligence of the appropriation upon which such water right is to be based." C.R.S. § 37-92-103(6).

> To obtain a conditional water right, an applicant must demonstrate that: (1) it has taken a "first step," which includes an intent to appropriate the water and an overt act manifesting

such intent; (2) its intent is not based on a speculative sale or transfer of the water to be appropriated; and (3) there is a substantial probability that the applicant can and will complete the appropriation with diligence and within a reasonable time.

Pagosa, 170 P.3d at 314. *See City of Lafayette v. New Anderson Ditch Co.*, 962 P.2d 955, 958 (Colo. 1998).

4. Analysis

121. There is no dispute whether FRICO has met the standards for a conditional water right for its appropriative right of exchange. *See id*. Applicants presented undisputed evidence regarding the "first step and an overt manifestation of FRICO's intent. *See In re Application for Water Rights of Vought*, 76 P.3d 906, 912 (Colo. 2003). Applicants also presented undisputed evidence regarding the substantial probability that FRICO can and will complete the exchange in the form of Mr. Helton's analysis on availability of water in the exchange reach. *See* C.R.S. § 37-92-305(9)(b); *Mount Emmons Mining Co. v. Town of Crested Butte*, 40 P.3d 1255, 1258 (Colo. 2002). The court thus determines that FRICO has met its burden regarding its claim for a conditional water right for the exchange.

122. Disputes previously arose concerning the actual operation of the proposed exchange. It was previously unclear which deliveries of Denver 5K water FRICO sought to adjudicate as the exchange. However, as discussed above, it has since been clarified that only certain deliveries constitute an exchange and others are contractual deliveries.

123. Opposers do not object to the five terms and conditions for the exchange proposed by Mr. Helton. Several of these terms and conditions address concerns that Opposes raised during and after trial. Therefore, the final decree in this matter shall include such terms and conditions.

124. The remaining dispute regarding the exchange concerns whether it can be administered effectively and whether the decree in this matter must specifically identify the turn-in points where the substitute supply is introduced to the stream. Applicants contend that turn-in points do not need to be fixed to specific locations but merely requires measuring devices where the water is turned to the stream. *See* C.R.S. § 37-83-104(2).

125. The court determines that Applicants must identify the specific turn-in locations where the substitute supply will be returned to stream. Applicants are correct that C.R.S. § 37-83-104(2) does not expressly require that turn-in locations be fixed. However, the only evidence regarding turn-in points in this matter concerned the Metro outfall and Denver's Miller, Cat, or Tanabe Reservoirs. Further, the identification in the decree of specific turn-in points will assist in the administration on the decree. For example, Mr. Hall, division engineer, testified that "it's necessary" to have the actual discharge points of substitute supply to administer the exchange. Therefore, the final decree in this matter shall include both subpart a. and the alternative subpart a. to the fifth term and condition listed above in paragraphs 113 and 114.

D. Alternate Points of Diversion

1. The Companies' Claim for Alternate Points of Diversion

126. The Companies seek alternate points of diversion for the following decreed water rights of the Burlington Company that were adjudicated in Case No. 11200 in Arapahoe County District Court on July 8, 1893.

Structure	Source	Appropriation Date	Amount
Oasis Reservoir	South Platte River	November 20, 1885	9,090.90 af
Barr Lake	South Platte River	November 20, 1885	1,990.35 af
Burlington Ditch	South Platte River	November 20, 1885	350.00 cfs

127. The Companies seek alternate points of diversion for the following decreed water rights of FRICO that were adjudicated in Case No. 54658 in District Court for the City and County of Denver on August 2, 1918 and November 12, 1924.

Structure	Source	Appropriation Date	Amount
Barr Lake	South Platte River	January 13, 1909	3,930.00 af
Barr Lake	South Platte River	January 13, 1909	18,000.00 af
Barr Lake	South Platte River	January 13, 1909	33,011.26 af refill
Burlington-O'Brian Canal	South Platte River	January 13, 1909	900 af storage
Burlington-O'Brian Canal	South Platte River	March 9, 1908	600 cfs

128. The Companies also seek alternate points of diversion for the following decreed water rights of Henrylyn that were adjudicated in Case No. 54658 in District Court for the City and County of Denver on August 2, 1918 and November 12, 1924.

Structure	Source	Appropriation Date	Amount
Denver-Hudson Canal	South Platte River	November 28, 1907	300 cfs
Barr Lake	South Platte River	November 20, 1885	1,990.35 af
Burlington Ditch	South Platte River	November 20, 1885	350.00 cfs

129. The decreed point of diversion for all of these water rights is the Burlington headgate, which are collectively referred to in this section of the order as the "Burlington decrees." The safe carrying capacity for the Burlington Canal is 900 cfs. The requested alternate points of diversion are the United Diversion Facility No. 3 and the "Metro Pumps."

a. United Diversion Facility No. 3

130. United Diversion Facility No. 3 is described above in section IV.B.5 of this order, beginning at paragraph 91, and, in general terms, is located on the east bank of the South Platte River several miles downstream of the Burlington headgate. As described by Mr. Montoya, FRICO's general manager, the use of this alternate point of diversion will permit FRICO to operate the Burlington Canal to accommodate the interest of the City of Thornton by not

diverting effluent from the Metro Wastewater Treatment Plant (also, the "Metro Plant") directly into Thornton's municipal water supply.

131. United Diversion Facility No. 3 is operational and provides the ability to divert water from the South Platte River into United Reservoir, the Beebe Pipeline, and to Barr Lake. The capacity of United Diversion Facility No. 3 varies up to an estimated capacity of 500 cfs. The Companies own the right to the use of 50 percent of the capacity of United Diversion Facility No. 3 and 50 percent of future capacity.

132. One issue concerning the use of United Diversion Facility No. 3 as an alternate point of diversion for the Burlington decrees concerns the maintenance of historical seepage losses from the Burlington Canal if water is diverted downstream at United Diversion Facility No. 3 in a closed pipeline from which no seepage occurs.

133. Mr. Helton, Applicants' expert, testified regarding his analysis of how such historical return flows could be maintained. Mr. Helton proposed that the extent of the seepage loss would be maintained by delivering 26.6 percent of the total amount diverted on the Burlington decrees at the alternate point, and delivering that amount into either the Little Burlington Canal or the Burlington-O'Brian Canal below the Little Burlington bifurcation when one of the other of the canal segments is not being used for carriage of other water. Such water would then accrete into the South Platte alluvium, maintaining the historical regimen of the stream.

134. The operational details of this proposal were confirmed in a stipulation between Applicants and South Adams, which the court approved by order dated May 8, 2008. Paragraph 8 of that stipulation contains terms and conditions regarding return flows and such terms and conditions will not be restated here. Applicants agree that such terms and conditions shall be included in the final decree in this matter in order to maintain historical seepage losses from the Burlington Canal when United Diversion Facility No. 3 is being operated as an alternate point of diversion.

135. Applicants further propose the following three terms and conditions to avoid injury to other vested water rights:

> (1) Diversions into the Burlington Canal, when combined with the diversions at the two alternate points of diversion shall be limited at all times to the water available in priority under the water rights being exercised.
>
> (2) Any calls under the Burlington decrees shall be made at and administered as having been placed at the existing Burlington headgate.
>
> (3) Any South Platte River water originating in the basin above the Burlington diversion facilities to be diverted at these additional points of diversion shall be delivered and measured at the existing sand-out structure at the Burlington intake.

No Opposers have objected to these three specific conditions and they shall be included in the final decree in this matter.

b. Metro Pumps

136. In addition to requesting that the Metro Pumps be adjudicated as an alternate point of diversion for subsequent diversions, the Companies also seek to confirm the historical use of the Metro Pumps as alternate point of diversion to maintain the historical conditions that existed at the Burlington headgate prior to 1966 when the Metro Wastewater Treatment Plant was constructed.

137. Background on the Metro Pumps is generally not disputed and, as a result, it is not necessary to explain Applicants' position or the opposition to Applicants' position. Much of the background is described in *Metropolitan Denver Sewage Disposal District No. 1 v. Farmers Reservoir and Irrigation Company*, 179 Colo. 36, 499 P.2d 1190 (1972) ("*Metro*").

138. Prior to 1966, effluent from the Northside Wastewater Treatment Plant ("Northside") discharged effluent from the Denver metro area above the Burlington headgate. Northside thus provided potential supply for the Companies at the Burlington headgate. For the period 1952-1963, Northside discharged an annual average amount of 68,000 acre feet ranging from an average daily flow rate of 101 cfs in July to 89 cfs in November. It was not established at trial, however, how much of this Northside discharge was legally and physically available to the Companies and how much of this discharge was actually diverted by the Companies.

139. By 1966, Northside became inadequate due to population growth and higher health standards. *Id*. at 38, 499 P.2d at 1191. Metropolitan Sewage District No. 1 (the "Metro District") was created and the Metro Plant went into operation in about 1966 at a location 1.5 miles downstream from the Burlington headgate. *Id*. Denver effluent was thus no longer physically available at the Burlington headgate.

140. The Companies brought Civil Action 16364 in District Court for the City and County of Denver against the Metro District to enjoin the relocation of the point of return of Denver effluent to any point below the Burlington headgate. *Id*. The City and County of Denver acting by and through its Board of Water Commissioners ("Denver") intervened. The trial court awarded judgment in favor of the Companies on May 2, 1968.

141. While the case was pending on appeal, the Companies, Denver, and the Metro District entered into an agreement on July 29, 1968 concerning the operation of a pumping facility capable of delivering effluent from the Metro Plant into the Burlington Canal ("1968 Agreement"). Portions of the agreement were dependent upon the appeal of the action brought by the Companies against the Metro District and an action brought separately in *City and County of Denver v. Fulton Irrigating Ditch Co.*, 179 Colo. 36, 499 P.2d 1190 (1972) ("*Fulton*").

142. Denver completed construction of the Metro Pumps in 1968. As displayed below in Denver's exhibit DW-68, which is more easily viewed in electronic format, the Burlington headgate is located upstream of the Metro Plant and its outfall to the South Platte River. The Burlington Canal parallels the South Platte River for several miles and passes near the Metro Plant. The Metro Pumps are a pumping facility located at the Metro Plant that is capable of delivering treated effluent

from the Metro Plant into the Burlington Canal at a point up ditch of the Sand Creek siphon. *Metro* at 1194. The capacity of the Metro Pumps is 125 cfs. Pursuant to the 1968 Agreement, the outcome of the *Metro* case determined which party would own and which party would pay the construction and operating costs of the Metro Pumps.

143. Under the 1968 Agreement, whenever South Platte water could lawfully be stored in the Burlington reservoirs under the Burlington storage rights, all South Platte water at the headgate of the Burlington Canal must be diverted into the canal and stored by the Companies and, concurrently, South Platte effluent must be pumped to "satisfy the then existing lawful entitlements of the Burlington storage rights." Under the 1999 Agreement between the Companies and Denver, Denver agreed to remove the mandatory requirement of the Companies to pump under the 1968 Agreement.

144. The Supreme Court decided both the *Metro* and *Fulton* cases on June 19, 1972.

145. The Metro Pumps have not previously been adjudicated as an alternate point of diversion. Nevertheless, since 1968, the Metro Pumps have been operated openly in accordance with the terms of the 1968 Agreement. South Platte effluent from the Metro Plant is only pumped when the water rights of the Companies are in priority. The pumps are not operated when South Adams or

Thornton are diverting under their Burlington shares for municipal purposes. The effluent does not reach a natural water course before it is pumped.

146. Starting November 1 each year, the Burlington storage rights generally begin to store approximately 11,000 af in Barr Lake. The Burlington headgate normally sweeps the entire river during November. There is frequently anywhere from 50 to 150 second-feet of water in the river at that time. The Metro Pumps pump a portion of the effluent directly into the Burlington Canal that used to be returned to the river above the Burlington headgate. Between the water available at the river headgate and the pumped flows, the Companies have close to 200 to 250 cfs that it can divert to fill the 1885 Barr-Oasis water storage right. This right fills in a 30 to 60 day period. The Metro pumps usually operate during November through March to fill the Burlington storage rights.

147. Records kept by Denver established that for the period from 1982 to 2007, Metro Pumps delivered an average of 9,600 af of water to the Burlington Canal. Specific data regarding the amount of South Platte effluent delivered to the Burlington Canal for the years 1968-1981 was not available in Denver's records. No other evidence was presented in this matter to establish that the amount of discharge from the Metro Pumps into the Burlington Canal from period of 1968-1981 was greater or less than the period from 1982 to 2007. Therefore, the average annual amount of in-basin effluent discharged from the Metro Pumps into the Burlington Canal was 9,600 acre feet for the period 1969-2007.

148. In Case No. 87CW107, Thornton changed several of its shares in the Burlington Company that are allocated for delivery in the Little Burlington system. Paragraph 10.e of the decree in that case refers to Metro Pumps as an "undecreed alternate point of diversion."

149. Mr. Helton, Applicants' expert, used data from Denver of the average monthly and annual discharge from Northside from 1947 to 1966 to determine that the average annual discharge of native South Platte water above the Burlington headgate was 69,014 af, with a maximum annual discharge of 78,170 af and a minimum annual discharge of 56,928 af. Mr. Helton also calculated the average monthly discharge.

150. The Companies propose that the contractual limits in the 1968 Agreement, and not Northside's historical discharge, will constitute the upper limit of the Companies' use of the Metro Pumps. The amounts of water available at the Burlington headgate that Mr. Helton calculated exceed the limits in the 1968 Agreement. Specifically, the 1968 Agreement states that the amount pumped shall not exceed 34,400 af in any individual water year (October 1 through September 30) and that the pumping shall not exceed 212,000 af in any 10-year period as a rolling average.

2. Opposers' Positions Regarding Metro Pumps

151. The primary disputed issues regarding the Companies' claim for alternate points of diversion concern Metro Pumps. Opposers took varying positions. For example, Denver and Englewood support recognition of the Metro Pumps as a lawful alternate point of diversion while Engineers and Public Service oppose various aspects of the Companies' claim.

152. Denver supports Applicants' position. Denver argues that discharge from the Metro Pumps into the Burlington Canal is not an unlawful use. Rather, Denver asserts that the Companies are merely using native South Platte water in a manner as if that water had been returned above the Burlington headgate as it was before the relocation of Northside. Denver clarifies that this is separate from its use of the Metro Pumps in operating exchanges with reusable sources such as return flows from transmountain diversions. Denver further contends that Metro Pumps did not need to be decreed as an alternate point of diversion because the Metro effluent never reached a natural stream.

153. Denver asserts it will be injured if the Metro Pumps are not confirmed as a lawful point of diversion. Denver's expert, Mr. Dirks, testified that Denver's yield from its upstream water rights could be adversely affected by an average of 9,600 af per year if the Companies are not allowed to use the water discharged from the Metro Pumps when the Burlington rights were in priority. Mr. Dirks testified that if the Companies do not receive water from the Metro Pumps, it will take longer to fill the Companies' reservoirs, thus delaying the fill of Denver's upstream Marston Reservoir, which is junior to some of the Companies' reservoirs. If the filling of Marston Reservoir extends into the irrigation season, senior water rights could call Denver out before the reservoir fills.

154. Mr. Dirks, Denver's expert, testified that the discharge to the Burlington Canal from the pumps could be moved physically to the South Platte upstream above the existing Burlington headgate. However, no evidence was presented regarding any actual plans regarding such a potential course of action.

155. Englewood also supports Applicants' position. Englewood contends that the change in point of diversion was the result of force majeure when metropolitan-wide treatment of sewage became required. However, there was no evidence presented in this matter regarding the forcible change in effluent requirements resulting in the replacement of Northside with the Metro Plant.

156. Englewood's expert, Mr. Wood, asserted that Englewood would be injured if the Metro Pumps are not confirmed as a lawful point of diversion. He testified that use of the Metro Pumps helps fill the Companies' storage reservoirs and removes their calls from the river more quickly, as was done historically. Satisfying these calls allows Englewood to store water under its 1948 storage right in McLellan Reservoir, which is located upstream of the Burlington headgate, and to divert water under is 1989 McBroom municipal intake right. Mr. Wood stated that the Companies should be required to pump a minimum of 8,000 af of effluent during the period November to March to avoid an extension of the call to fill the Companies' storage priorities.

157. The Engineers have taken no official position regarding whether the past use of the Metro Pumps was legal as an alternate point of diversion. Despite this position at trial, the evidence suggested that the Engineers have permitted the use of Metro Pumps as a *de facto* alternate point of diversion since their construction. The Engineers nevertheless identified that the study period used for Northside discharge does not coincide with the study period for the historical use of the water rights to be changed in this matter. The Engineers also assert that Applicants' Northside discharge numbers do not reflect diversions of water legally and physically available to

Applicants' water rights and that the limitations proposed by Applicants would result in water use far in excess of historical practice.

158. Public Service is the principle opponent of Applicants' position on the Metro Pumps. Regarding the use of the Metro Pumps as an alternate point of diversion in the future, Public Service contends that such diversions cannot exceed the amount of water that is physically and legally available at the Burlington headgate. Public Service argues that the amount that is legally and physically available is limited by the quantification of the Burlington decrees at issue in this matter. Public Service contends that such historical use quantification may not include the historical use of the Metro Pumps as an undecreed alternate point of diversion. Finally, Public Service asserts that native South Platte water treated at Metro must be returned to the South Platte River during times when downstream decreed rights are not physically and legally satisfied.

159. Public Service's expert, Mr. Thompson, testified that Public Service has water rights at the Gardeners Ditch that delivers water to the Cherokee Power Plant, which is located a short distance downstream from the Burlington headgate and upstream of the Metro outfall. For water rights owned by Public Service downstream of Metro outfall, Mr. Thompson testified the Metro Pumps caused less water in the river that would, at times, cause injury to its water rights. However, Public Service's expert did not identify the injured water rights, the times or the amounts of the alleged injury.

3. Analysis

160. The dispute regarding the Metro Pumps is significant both to Applicants' claim to use the Metro Pumps as an alternate point of diversion for the Burlington decrees in the future as well as to Applicants' change of water right claim to the extent that previous diversions from the Metro Pumps are considered in the quantification of historical use of the Burlington decrees. Applicants would like to attribute historical Metro Pump deliveries to diversions under the Burlington decrees to benefit from the more senior priorities and to have larger historical use. Meanwhile, as discussed above, Opposers supporting Applicants' position assert that they will be injured if the Metro Pumps are not recognized as an alternate point of diversion. The court determines, however, that the facts and law on this issue simply do not support Applicants' position. There is no factual or legal basis upon which to recognize the Metro Pumps as a historical use of the Burlington decrees.

161. Changes to a point of diversion, including supplemental and alternate points of diversion, are treated as a change of water right. C.R.S. § 37-92-105(3). A change in water right "shall be approved if such change . . . will not injuriously affect the owner of or persons entitled to use water under a vested water right or decreed conditional water right." C.R.S. § 37-92-305(3).

162. The *Metro* case did not decide the legality of the use of the Metro Pumps as an alternate point of diversion for the Burlington decrees. The Supreme Court acknowledged the 1968 Agreement and the construction of the Metro Pumps in its opinion in *Metro*. 179 Colo. at 43-44. The Court did not, however, make any determinations in the *Metro* case regarding the use of the

Metro Pumps as undecreed alternate points of diversion at that time or for the following 30 years.

163. Nor was this issue of the legality of the use of the Metro Pumps determined in Case No. 87CW107. In Case No. 87CW107, Thornton changed numerous shares in the Burlington Company, all of which pertained to Little Burlington Division. The decree in that case does not make a ditch-wide determination of historical consumptive use, but rather, was limited to the Little Burlington shares that were the subject of Thornton's application. *See Williams v. Midway Ranches Prop. Owners' Ass'n, Inc.*, 938 P.2d 515, 525-26 (Colo. 1997) ("*Midway Ranches*"). The decree also states that Thornton's Little Burlington shares used the Metro Pumps as an undecreed alternate point of diversion, but makes no determination regarding the confirmation of their past use as a lawful alternate point of diversion.

164. The decree in Case No. 87CW107 thus has no impact on this court's determination of the Metro Pumps issue in this matter. Unlike in Case No. 87CW107, there are no Little Burlington shares at issue in this matter and Applicants excluded water delivered to Little Burlington shares from the consumptive use analysis. The determination in Case No. 87CW107 was also limited to Thornton's Little Burlington shares and therefore does not affect the shares to be changed in this matter. Thus, there is no identity of subject matter of the claim for relief required to assert claim preclusion. *See Gallegos v. Colo. Ground Water Comm'n*, 147 P.3d 20, 32 (Colo. 2006). Further, the decree in Case No. 87CW107 makes no findings suggesting that the court affirmed the historical use of the Metro Pumps as an alternate point of diversion for the Burlington decrees. Therefore, issue preclusion cannot be asserted because there is no issue in this matter identical to an issue actually litigated and necessarily adjudicated in Case No. 87CW107. *Id*. *See also* section IV.H.3, beginning at paragraph 237 (regarding doctrines of claim and issue preclusion). Because Opposers in this matter are not challenging Thornton's decree in Case No. 87CW107, which concerned a distinct factual context, that decree has no impact on this matter.

165. It is undisputed that the decreed point of diversion for the Burlington decrees is the Burlington headgate and that Metro Pumps have not been previously decreed as an alternate point of diversion. *See Dallas Creek Water Co. v. Huey*, 933 P.2d 27, 39 (Colo. 1997) ("Water rights are decreed to structures and points of diversion . . . ."). Although, as Applicants suggest, the present situation may have been different if they had obtained a decree regarding a change in point of diversion around the time of the 1968 Agreement, no such decree was obtained and is thus irrelevant. Rather, the only authority under which the Metro Pumps have operated since 1968 is the 1968 Agreement, a private contract between the Companies and Denver and the apparent acquiescence of the Engineers, neither of which alter the court's analysis.

166. Because the Metro Pump are an undecreed point of diversion for the Burlington decrees, deliveries from the Metro Pumps cannot be attributed to the historical consumptive use of the Burlington decrees. The "right to change a point of diversion is limited in quantity by historical use at the original decreed point of diversion." *Orr v. Arapahoe Water & Sanitation Dist.*, 753 P.2d 1217, 1223 (Colo. 1988). *See also Santa Fe Trail Ranches Property Owners Ass'n v. Simpson*, 990 P.2d 46, 57 (Colo. 1999); *Central Colo. Water Conservancy Dist. v. City of Greeley*, 147 P.3d 9, 17-18 (Colo. 2006) (declining to consider 80 years of undecreed use in historical use). *See also Application for Water Rights in Rio Grande County*, 53 P.3d 1165,

1169-1170 (Colo. 2002) (Appropriators "cannot enlarge the historical use of a water right by changing the point of diversion and then diverting from the new location the full amount of water decreed to the original point of diversion, even though the historical use at the original point of diversion might have been less than the decreed rate of diversion.") (citing *Orr*, 753 P.2d 1223). Further, to be judicially recognizable, water must be diverted at a decreed point of diversion. *See Northern Colo. Water Ass'n v. Three Peaks Water, Inc.*, 859 P.2d 836, 843 (Colo. 1993).

167. This court is aware of no authority for the proposition that diversions from an undecreed point of diversion may be considered in the quantification of historical consumptive use. This court is also aware of no authority that provides this court with the power to affirm an alternate point of diversion with retroactive effects.

168. The Companies' historical diversions at the Metro Pumps do not increase the amount of water historically available Burlington headgate. An alternate point of diversion cannot enlarge the availability of water at originally decreed point of diversion. *Orr*, 753 P.2d at 1224. Consequently, the historical deliveries at the Metro Pumps do not increase the historical use of the Burlington decrees.

169. The fact that the Metro Pumps are a point of return of Denver's native South Platte water rights and a requested alternate point of diversion does not alter the court's determination. The issue of the Metro Pumps is somewhat confused because Metro Pumps act both as the point of return of Denver's native South Platte water rights and the Companies' requested alternate point of diversion. Appropriators have no vested right in the location of the point of return of effluent. *Metro*, 179 Colo. 36, 499 P.2d 1190. Denver and the Metro District may thus have some leeway, absent bad faith or arbitrary or unreasonable conduct, to move the point of return. *Id*. In this matter, any such relocation of the point of return of Metro effluent is hypothetical and not before the court. It would also require the court to assume facts not in the record. More importantly, the fact that the Metro Pumps are a point of return does not somehow loosen the legal requirements regarding their status as a point of diversion.

170. Although the Metro Pumps have been in operation since 1968, the 1968 Agreement does not constitute a change of water right or otherwise permit Applicants to include deliveries from the Metro Pumps in the quantification of historical use. Changes of water rights cannot be effected in any manner other than through judicial approval following statutorily-authorized procedures. *Fort Lyon Canal Co. v. Catlin Canal Co.*, 642 P.2d 501, 506 (Colo. 1982). "Far from a mere formality, the adjudication of changes to the point of diversion of an existing water right provides an important protection for potentially affected decreed water rights holders." *Trail's End Ranch, L.L.C. v. Colo. Div. of Water Res.*, 91 P.3d 1058, 1063 (Colo. 2004). In short, the 1968 Agreement does not alter the status of the Metro Pumps as an undecreed point of diversion.

171. Denver contends that no decree to change the point of diversion was needed because water did not reach the South Platte River. However, even assuming this to be true, Denver has no basis upon which to control or deliver the return flows of native South Platte water to another party as opposed to returning them to the stream. To the contrary, as the Supreme Court stated in the *Metro* case, "[s]ince the water originates in the South Platte watershed, by reason of *Pulaski*

Irrigating Ditch Co. v. City of Trinidad, 70 Colo. 565, 203 P. 681 (1922), no one questions that the effluent must be returned to the stream without disposition to others by Denver." 179 Colo. at 40, 499 P.2d at 1192. The right to reuse native effluent requires a separate priority based on a specific plan and intent to reuse the water. *Water Supply & Storage Co. v. Curtis*, 733 P.2d 680, 682-83 (Colo. 1987). Therefore, Denver's argument does not persuade this court.

172. Applicants argue that the principle that junior appropriators are entitled to the maintenance of stream conditions as they existed at the time of their appropriations supports their positions. *See, e.g., Colo. Water Conservation Bd. v. City of Central*, 125 P.3d 424, 435 (Colo. 2005). However, the court does not understand this principle of Colorado water law to imply that undecreed alternate point of diversions may be retroactively justified in order to maintain stream conditions that are the result of changes of water rights that have not been completed pursuant to statutory procedures or have not been judicially recognized. Such a conclusion would create the undesirable incentive to act outside of the statutory change of water right process and subsequently grandfather in such changes. Further, the limits on historical use, including the limit to diversions at decreed points of diversion, "has been considered to be an application of the principle that junior appropriators have vested rights in the continuation of stream conditions as they existed at the time of their respective appropriations." *Orr*, 753 P.2d at 1223-24. Applicants' contention conflicts with this principle of Colorado water law.

173. Applicants also argue that the fact that the Engineers were aware of the use of the Metro Pumps as an alternate point of diversion supports their position. However, the Engineers lack the authority to approve changes of water right, a function which is expressly reserved for the courts. *Fort Lyon Canal Co.*, 642 P.2d at 506. *See Orchard City Irrigation Dist. v. Whitten*, 146 Colo. 127, 137, 361 P.2d 130, 135 (1961) (Conduct of the State Engineer or other water officials in administering water rights cannot alter or modify the decreed rights of a water user.); *Santa Fe Trail Ranches*, 990 P.2d at 58 ("Our state legislature and courts, however, have never accepted the proposition that water officials may determine the water rights of citizens; this is a judicial function under the adjudication statutes."). Prolonged undecreed use likewise does not affect the lawfulness of this practice. *See Central Colo. Water Conservancy Dist.*, 147 P.3d at 17-18.

174. There is no cognizable legal injury to appropriators such as Denver and Englewood from the denial of the Companies' request to confirm historical diversion of the Burlington decrees at the Metro Pumps. As discussed above, although junior appropriators have a vested right in the maintenance of stream conditions, such a right cannot be reasonably understood to confirm otherwise unlawful and undecreed diversions.

175. Denver and Englewood may in fact benefit from the release of effluent to downstream rights. Mr. Dirks, Denver's expert, testified to a potential 9,600-af average annual increase in calls at the Burlington headgate. However, on cross-examination, he admitted to an un-quantified benefit to Denver's rights from the delivery of the effluent into the South Platte River. Mr. Dirks, Denver's expert, testified in Case No. 03CW99 (the "WAS case"), inadequate replacement of depletions to senior reservoirs on the lower South Platte River (such as Riverside, Empire, North Sterling, Jackson, and Prewitt Reservoirs) injure Denver's upstream junior water storage rights through rebound calls and prolonged reservoir fills. Mr. Dirks conceded during cross-examination in this matter that some benefit to Denver's upstream rights would occur

through the discharge of effluent to the South Platte River, as opposed to the Burlington Canal. Such discharges to the South Platte River would logically help alleviate calls from those same lower South Platte reservoirs on other upstream junior storage rights such as Denver's upstream junior rights and Englewood's 1948 McLellan water storage right. Because the scope of the benefit from effluent discharges on calls by senior reservoirs on the lower South Platte River against Denver's or Englewood's junior upstream rights was not quantified, the court is unable to conclude that there would be any specific or general injury from the denial or limitation of the Metro Pumps as an alternate point of diversion.

176. Denver argues that Public Service would not actually be injured by Applicants' proposed use of the Metro Pumps. Mr. Thompson, Public Service's expert, testified that Public Service's senior water right at the Gardener's Ditch only diverts during the irrigation season and was not a matter of concern. Public Service also has a junior water right and an exchange right at the Gardener's Ditch. During part of the winter, the Burlington headgate sweeps the river and water is only available to these rights when the Burlington headgate is out of priority or its water rights have been satisfied. For the exchange to operate, water must be physically available at the headgate. To the extent that the Burlington headgate sweeps the river, Public Service's ability to exchange is impeded.

177. However, even accepting this particular lack of injury to Gardener's Ditch, Denver does not address Public Service's other junior and senior water rights downstream of Burlington on the South Platte River and its tributaries. Further, the lack of specific injury to Gardener's Ditch does not permit the Companies to include undecreed points of diversion in the quantification of historical use. *See Orr*, 753 P.2d 1223.

178. The confirmation of the Metro Pumps as a lawful alternate point of diversion from 1968 to the present would injure vested water rights. "A classic form of injury involves diminution of the available water supply that a water rights holder would otherwise enjoy at the time and place and in the amount of demand for beneficial use under the holder's decreed water right operating in priority." *Farmers' Reservoir and Irrigation Co. v. Consol. Mut. Water Co.*, 33 P.3d 799, 807 (Colo. 2001). "Even when it seems clear that no other rights could be affected solely by a particular change in the location of diversion, it is essential that the change also not enlarge an existing right." *Trail's End Ranch*, 91 P.3d at 1963. In this matter, Denver's allocation of its Metro effluent to the Burlington Canal through the undecreed Metro Pumps enlarges the use of Companies' decreed water rights that are decreed to the Burlington headgate. *Empire Lodge*, 39 P.3d at 1148 ("Water rights are decreed to structures and points of diversion.").

179. The court therefore determines that all future diversions at the Metro Pumps and United Diversion Facility No. 3 as alternate points of diversion for the Burlington decrees cannot exceed the amount of water that is physically and legally available for diversion at the Burlington headgate on the South Platte River. That amount is the quantity that can physically be diverted in priority from the South Platte River into the Burlington Canal at the Burlington headgate as limited by the quantification of the Burlington decrees at issue in this matter. Diversions at the Burlington headgate shall also be so limited. All other native waters treated at the Metro Plant that are derived from South Platte River water rights must be returned to the South Platte River during times when downstream decreed rights are not physically and legally satisfied.

180. The court further determines that deliveries from the Metro Pumps from 1969 through 2004 must be deducted from the Applicants' historical use in approving the change of water right to any alternate point of diversion and new types and places of use. Based on the evidence before the court, Applicants must reduce the amount diverted under the Burlington decrees by 9,600 af a year in the quantification of the historical consumptive use of those water rights.

E. Alternate Place of Storage

181. Applicants seek to change the place of storage of the following two Burlington water storage rights. Both rights were adjudicated in Case No. 11200 in Arapahoe County District Court on July 8, 1893. The first is Oasis Reservoir, with a priority date of November 20, 1885, for 9,090.90 af from the South Platte River. The second is Barr Lake, with a priority date of November 20, 1885, for 1,990.35 af from the South Platte River. The decreed point of diversion for both is the Burlington Canal. These storage rights are sometimes collectively referred to as either "1885 Oasis" or "1885 Burlington" storage rights, and are the senior reservoir call on the South Platte River.

182. Applicants also seek to change the place of storage of the following three FRICO water storage rights. These rights were adjudicated in Case No. 54658 in District Court for the City and County of Denver on August 2, 1918 and November 12, 1924. The first is Barr Lake, with a priority date of January 13, 1909, for 3,930.0 af from the South Platte River. The second is also Barr Lake, with a priority date of January 13, 1909, for 18,000 af from the South Platte River. The third is a refill of Barr Lake, with a priority date of January 13, 1909, for 33,011.26 af from the South Platte River. The decreed point of diversion is the Burlington Canal.

183. Applicants seek to change the place of storage of the following two Henrylyn water storage rights. These rights were adjudicated in Case No. 54658 in District Court for the City and County of Denver on August 2, 1918 and November 12 1924. The first is Prospect Reservoir, with a priority date of November 21, 1910 for 5,970 af at 300 cfs from the South Platte River. The second is Horse Creek Reservoir, with a priority date of March 17, 1911 for 16,965 af at 300 cfs from the South Platte River. The decreed point of diversion is the Burlington Canal.

184. The water storage rights sought to be changed are collectively referred to in this section of the order as the "Burlington Storage Decrees."

185. The alternate place of storage that is claimed for the Burlington Storage Decrees is the United Reservoir. The request for the alternate place of storage will not change the place or nature of use of the Burlington Storage Decrees that are stored at the alternate place of storage.

186. The Companies proposed the following nine terms and conditions to be applied to the storage of the Burlington Storage Decrees at the United Reservoir:

> (1) The amount of water that is available under the Burlington Storage Decrees for diversion at the United Diversion Facility for delivery to storage in the United Reservoir

shall be determined as provided herein for diversion of the Burlington Decrees at the United Diversion Facility as an alternate point of diversion. Water that is left in the South Platte River for diversion at the United Diversion Facility for delivery to storage in the United Reservoir shall be assessed a stream loss by the water commissioner from the Burlington Headgate and/or the Metropolitan Wastewater Treatment Plant discharge to the United Diversion Facility. Stream losses that are assessed against the Burlington Storage Decrees shall be included in the determination of the satisfaction of the Burlington Storage Rights as set forth below.

(2) The water that is stored under the Burlington Storage Decrees in the United Reservoir will only be placed to beneficial use by delivering such water through the Beebe Pipeline to the Barr Lake bifurcation and then to Barr Lake (the FRICO and Burlington storage rights) or the Denver-Hudson Canal (for Henrylyn storage rights) in accord with the provisions of the decree in Case No. 02CW105-A.

(3) The Burlington Storage Rights that are decreed to Barr Lake (the Barr and Oasis Reservoir decree) shall be deemed satisfied when the amount of water delivered to Barr Lake (as provided by the decree in Case No. 02CW105-A), plus the amount diverted into the United Reservoir (including assessed stream losses) equals the measure of the storage decree as decreed in Case No. 02CW105-A.

(4) The maintenance diversions allowed to the Burlington Company storage rights (Case No. 11,200, 1893 Arapahoe County, CO) and the FRICO storage right (Case No. 54658, 1918/1924, Denver County, CO) that are stored in the United Reservoir shall be based upon a pan evaporation in accordance with administrative requirements of the State Engineer. Maintenance flows allowed to the Burlington Company storage rights and the FRICO storage right for the water stored in Barr Lake will be in accordance with the provisions of the decree in Case No. 02CW105-A, based upon the quantity of water in storage in Barr Lake.

(5) Water stored in the United Storage Reservoir on the Burlington or FRICO storage rights in Barr Lake (including the Oasis Reservoir) will be accounted for as if such water was physically in Barr Lake for the determination of the measure of the annual fill of each right and FRICO's right of re-fill.

(6) Historical Burlington Canal seepage losses for the Burlington Storage Decrees that are stored in the United Reservoir will be maintained as provided above for diversion of the Burlington Decrees at the United Diversion Facility as an alternate point of diversion.

(7) Diversion of the Burlington Storage Rights in the United Reservoir shall only occur at times when the Burlington Storage Decrees are in priority.

(8) The river call from the Burlington Storage Decrees will be administered only at the Burlington Headgate.

(9) Water stored in the United Reservoir on the Henrylyn storage rights in Horse Creek Reservoir will be accounted for as if 75 percent of such water was physically in Horse Creek Reservoir for the determination of the measure of the annual fill of the Horse Creek Reservoir storage rights.

187. Applicants' expert, Mr. Helton, testified to four additional terms and conditions regarding the alternate place of storage claim.

(1) Any water diverted into United Reservoir under the Companies' existing water storage rights will be accounted as part of their annual fillings under the presently decreed water storage rights as if the water had been stored in the presently decreed reservoirs.

(2) All water stored in United Reservoir as an alternate place of storage for the Companies presently decreed water storage rights will be delivered to the Burlington Canal at the point of discharge from the Beebe pipeline situated just upstream from Barr Lake and used for decreed purposes.

(3) Storage will be accounted as part of FRICO's recently expanded accounting.

(4) Historical seepage that occurred through the Burlington Canal from this water will be replaced.

188. Based upon such terms and conditions, Mr. Helton testified that no injury to the vested water rights of others would result. C.R.S. § 38-92-305(3). Opposers did not challenge Applicants' proposed alternate places of storage.

189. Therefore, based on the evidence presented, no injury to the vested water rights of others will result from the alternate place of storage pursuant to the claims and terms and conditions stated above. Such claims, including the terms and conditions, shall be included in the final decree in this matter.

F. FRICO Multipurpose Right

1. FRICO's Conditional Multipurpose Water Right Claim

190. FRICO seeks a conditional water right for direct use and storage for various uses (the "multipurpose water right") with a priority date of May 30, 2002. FRICO claims diversion points from the South Platte River at the Burlington headgate for 900 cfs, Metro Pumps for 105 cfs, and United Diversion Facility No. 3 for 500 cfs. The annual volumetric limit claimed is 15,000 af. FRICO has withdrawn any claim for an appropriation from First, Second, or Third Creeks with the multipurpose water right.

191. FRICO seeks the following uses in its most recent proposed decree, filed on April 18, 2008: municipal, irrigation and commercial purposes, including municipal, industrial, commercial, manufacturing, augmentation, replacement, domestic, lake evaporation, storage fire,

sewerage, recreation, piscatorial, irrigation and livestock uses. Such proposed uses are consistent with the First Amended Application in Case No. 02CW105.

192. The proposed uses are both direct use and storage. Relevant to this matter, FRICO seeks the right to store water diverted under the multipurpose water right in Barr Lake and United Reservoir. FRICO has deferred adjudication of its other claimed points of diversion and places of storage for the multipurpose water right to Case No. 02CW404 for points of diversion and places of storage concerning the Milton Division.

193. FRICO proposes that it may use water diverted under the multipurpose water right throughout the FRICO service area for the benefit of all FRICO shareholders to the extent that such water can be physically delivered for such uses. The April 18, 2008 proposed decree states that the multipurpose water right may be delivered to FRICO shareholders for decreed uses and may be used throughout the existing FRICO service area including the service area of existing municipal shareholders as such areas may exist presently or as they may exist in the future, and the area adjudicated for use within the FRICO augmentation plan, Case No. 1984CW90.

194. Mr. Montoya, FRICO's manager, testified regarding FRICO shareholders' need for additional water. He testified that the cities of Westminster, Thornton, and Northglenn need water for return flow requirements on the South Platte River. He also testified that such water could be used for irrigation in the Barr Lake and Milton Divisions. Mr. Montoya further stated that certain FRICO shareholders own wells augmented by Central's augmentation plans decreed in Case Nos. 02CW335 and 03CW99 and need supplemental water. He also testified that municipal shareholders in the Barr Lake Division have requested additional water. Mr. Montoya also stated that there is storage space available the Companies' reservoirs.

195. Mr. Helton, FRICO's consulting engineer, testified regarding the availability of water for the multipurpose right. Based on his analysis, he opined that water would be available for diversion under the multipurpose water right for an average of 36 days a year. Mr. Helton also proposed two terms and conditions on the use of the multipurpose water right. These two terms and conditions were included in the April 18, 2008 stipulation and are listed above in section II.C, in paragraphs 29 and 30.

2. Engineers' Opposition to Multipurpose Right

196. Opposers did not challenge FRICO's position regarding its shareholders' need for additional water or its expert's availability analysis. *See Bd. of County Comm'rs of County of Arapahoe v. Crystal Creek Homeowners' Ass'n*, 14 P.3d 325, 333 (Colo. 2000) (The "applicant must prove, taking into account actual operation of decrees, that the river contains sufficient unappropriated water for the applicant to complete the appropriation diligently and in a timely manner."). Rather, consistent with the C.R.C.P. 41 motion, the Engineers contend that FRICO's multipurpose right must be limited to the evidence presented at trial.

197. The Engineers argue that although FRICO adequately identified the points of diversion and storage of the multipurpose water right, FRICO did not present evidence how it could make use of water diverted under the multipurpose water for all the uses claimed under the can and

will test. *See* C.R.S. § 37-92-305(9)(b). As discussed below, the Engineers concede that FRICO presented evidence regarding several proposed uses.

198. The Engineers also contend that the multipurpose water right adjudicated in this matter cannot include as a source the Beebe Canal or seepage from the Beebe Draw. FRICO has claimed a 2002 conditional water right for 200 cfs from seepage to the Beebe Canal in the Beebe Draw. However, all claims relating to FRICO's Milton Division and the Beebe Canal and alluvium of the Beebe Draw have been reserved for Case No. 02CW404.

3. Analysis

199. Although Engineers phrase their opposition to FRICO's claimed multipurpose water right in terms of the "can and will" test, Engineers' opposition is best described as questioning the evidentiary support for FRICO's claimed uses. *See Pagosa*, 170 P.3d at 313.

200. The Engineers concede that the evidence supports several uses of the multipurpose water right including: irrigation and municipal uses in the Barr Lake and Milton Divisions; use by municipal shareholders for replacement where water is released from United Reservoir if such replacement water is used pursuant to a decreed plan; augmentation purposes for structures in Barr Lake and Milton Divisions as permitted by augmentation plan decrees; and augmentation use to replace out-of-priority depletions in Barr Lake and Milton Divisions pursuant to terms of Central's decrees in Case No. 02CW335 and 03CW99.

201. The remaining dispute regarding the multipurpose water right arises from FRICO's claim to use the multipurpose water right throughout the FRICO service area for the benefit of all FRICO shareholders, including those on the Standley and Marshall Divisions, which are located up gradient of the Barr Lake and Milton Divisions.

202. The court agrees with the Engineers that the evidence presented in this matter only supports uses in the Barr Lake and Milton Divisions and those down gradient of the points of diversions. The court agrees, and the Engineers in essence concede, that the multipurpose water right may be used by FRICO shareholders in the Standley and Marshall Divisions for replacement purposes downstream of the requested points of diversion. However, there is no evidence to support the use of water diverted under the multipurpose water right up gradient of these points of diversion. FRICO likewise concedes in its reply that it will use the multipurpose to the extent that it will be physically able to deliver such water and that there is no exchange involved to transfer water up into the Standley and Marshall Divisions. Therefore, the final decree in this matter shall reflect that that the multipurpose water right may only be used in the Barr Lake and Milton Division, down gradient of the requested points of diversion.

203. The court clarifies that FRICO may use the multipurpose water right for the benefit of all of its shareholders as provided in the proceeding paragraph. FRICO is a mutual ditch company that holds water rights for the benefit of all of its members. *See* C.R.S. §§ 7-42-101 – 7-42-118. Further, Mr. Montoya testified regarding the return flow requirements of municipal shareholders and the Engineers concede that shareholders in the Standley and Marshall Divisions may use the multipurpose water right in this manner. There is thus evidence supporting the use of the

multipurpose water right by shareholders other than those in the Barr Lake and Milton Divisions. These findings shall be included in the final decree in this matter.

G. ECCV Plan for Augmentation

204. ECCV's request for judicial approval of a plan for augmentation is a significant component of the ECCV Water Supply Agreement that is the subject of this matter. In general terms, ECCV Water Supply Project provides that ECCV will pump water out of priority from the ECCV Well Field, located below Barr Lake, and then pump that water up a 31-mile pipeline to the ECCV service area in the southeastern metropolitan area. ECCV will use the historical consumptive use attributed to the Burlington and FRICO shares that are to be changed in this matter to replace the depletions from the ECCV Well Field. These water rights were purchased from 24 farms in the Burlington-Barr Lake system and are referred to as the "ECCV farms." The change of these Burlington and FRICO-Barr Lake Division shares raises numerous disputed issues that are addressed below in the following section of this order. Other components of the augmentation plan filed in Case No. 04CW362 are reserved for determination in future proceedings.

205. The augmentation plan claim was not a directly disputed issue before or at trial. For example, Opposers did not raise any issues concerning the operation of the augmentation plan itself in post-trial briefing. Rather, the disputed issues regarding the augmentation plan concern the amount of consumptive use credits that may be attributed to the Burlington and FRICO-Barr Lake Division shares that are to be changed in this matter. Such issues are addressed below together with other issues regarding the change of water right claim.

1. Legal Standards for Judicial Approval of Plan for Augmentation

206. Plans for augmentation are a creation of statute that permit water rights holders to exercise their rights when they would otherwise not be able to due to the priority system. *See* § 37-92-103(9), C.R.S. (defining augmentation plan). The purpose of an augmentation plan decree is "to fix the conditions under which the State and Division Engineers may allow out-of-priority diversions and depletions of the waters of a natural stream to occur consistent with the administration of decreed priorities." *Empire Lodge*, 39 P.3d at 1153. An augmentation plan "shall be approved if" the plan "will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right." § 37-92-305(3), C.R.S.

207. Applicants bear "the initial burden of producing sufficient evidence to establish a prima facie case that the proposed depletions will be non-injurious." *City of Aurora v. State Engineer*, 105 P.3d 595, 614 (Colo. 2005). "[B]efore an applicant can establish an absence of injury to satisfy its prima facie case, it must first establish the timing and location of depletions, as well as the availability of replacement water to prevent injury from those depletions." *Id*. at 615.

208. Where surface water is over-appropriated, like the South Platte River basin, "Colorado law presumes that groundwater depletions through well-pumping result in injury to senior appropriators absent a showing to the contrary." *Id*. at 607 (citations omitted). Applicants must replace all depletions resulting in material injury. *Id*.

209. The applicant must make a "reasonably accurate determination of these elements." *Id*. "Uncertainties, however, are not fatal to a plan for augmentation." *Pub. Serv. Co. v. Willows Water Dist.*, 856 P.2d 829, 835 (Colo. 1993). "Whether an augmentation plan will result in material injury to senior appropriators is a factual determination based on the evidence presented in a particular case." *City of Aurora*, 105 P.3d at 615 (citations omitted).

210. "If the applicant successfully meets its burden, the objectors bear the burden of providing evidence of injury to existing water rights." *Id*. at 614. Injury "must be demonstrated by evidential facts and not by potentialities." *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 88 (Colo. 1996) (quoting *Brighton Ditch Co. v. City of Englewood*, 124 Colo. 366, 371, 237 P.2d 116, 119–120 (1951)). "An objector to an augmentation plan need not show an injury to a specific water right; injury to senior appropriators in general is enough." *City of Thornton v. City & County of Denver*, 44. P.3d 1019, 1025 (Colo. 2002) (citation omitted).

211. "Where objectors provide contrary evidence of injury, the applicant has the ultimate burden of showing an absence of injurious effect by a preponderance of the evidence." *City of Aurora*, 105 P.3d at 614-15. *See also* C.R.S. § 37-92-305(8) (regarding terms and conditions to avoid injury); *State Engineer v. Castle Meadows, Inc.*, 856 P.2d 496, 507 (Colo. 1993) (In considering the adequacy of a proposed plan for augmentation, the court must evaluate whether holders of other water rights will be protected from injury with respect to the amount of water they are entitled to receive and the location and time at which they are to receive it.).

2. Operation of ECCV Augmentation Plan

212. To the extent that certain aspects of ECCV's augmentation plan are litigated in this matter, the following describes the plan.

213. The ECCV Well Field contains the structures to be augmented. The upper ECCV Well Field consists of six wells (also known as P-6, E-7A, P-8, P-11, P-12 and P-13, collectively the "ECCV Wells"). The location of the upper ECCV Well Field and the well permits for the individual wells will be shown on a map attached to the decree. The ECCV wells have been equipped with totalizing flow meters that are read on a daily basis. The ECCV Wells are shallow tributary wells in the Beebe Draw below Barr Lake. They have as the source of their water the alluvium of Beebe Draw, which is tributary to the South Platte River. The water pumped from the ECCV Wells may be used for irrigation and all municipal uses, including but not limited to domestic, mechanical, manufacturing, commercial, industrial, recreation, fire protection, sewage treatment, street cleaning, irrigation of parks, lawns and grounds, exchange, augmentation and replacement, substitute supply, adjustment and regulation of water supply, including further exchange with other water systems and with other water users, and for all other beneficial uses within the ECCV service areas as they now exist and as they may exist in the future.

214. The replacement water for the depletions from the ECCV Wells will be provided by the changed Burlington and FRICO shares as described in section IV.H.1, beginning at paragraph 229 of this order.

215. Pumping from the ECCV Wells pursuant to this plan for augmentation will be limited to the amount of fully consumable replacement water which is allocated and available for delivery on the changed Burlington and FRICO shares in the current water year of operation.

216. All water pumped from the ECCV Wells will be considered to be fully consumable. However, this is only true if the depletions from the wells are replaced with fully consumable water. A portion of the water pumped from the ECCV Wells may be returned to FRICO and re-accreted to the Beebe aquifer in accordance and compliance with discharge permits issued by the Colorado Department of Health and Environment and any other governmental agency with jurisdiction. FRICO shall account for and accrete all such water to the alluvium in the same manner as replacement of all depletions from the ECCV Wells. To such extent, the amount of depletions from the water pumped from the ECCV Wells shall be net of the returned and accreted water and the net of ECCV Well depletions will be replaced with fully consumable replacement water. Withdrawals by the ECCV Wells will be measured by use of totalizing the meters installed on each well. Totalizing flow meters on the ECCV Wells shall be read and recorded daily.

217. Depletions from the ECCV Wells accrue to the Beebe Canal. Well depletions will be determined by the use of Unit Response Functions generated by the Modflow model developed for this application. The parties have stipulated to the use of the Modflow model for the purpose of determining the time and location of the well depletions. Those unit response functions ("URFs") shall be used to determine the lagging response of depletions for the ECCV Wells that are augmented by the plan for augmentation decreed herein.

218. The court notes that Lochbuie objects to the wording of the description of the timing of depletions pursuant to an agreement between the parties. Because Applicants have not had the opportunity to respond, the court defers any determination on this issue. Moreover, such a dispute will be more appropriately addressed when Applicants propose specific decree language following this order.

219. The withdrawal and use of water from the ECCV Wells will result in delayed depletions to the Beebe Canal that must be replaced when the depletions are out of priority. One hundred percent of the water pumped from the ECCV Wells will be considered to be depletions to the Beebe Canal. The lagged depletions will be determined by use of the URFs set forth above. Out-of-priority depletions will be repaid by direct release of fully consumable water to the Beebe Canal from the United and ECCV shares in storage in Barr Lake or delivered from the consumptive use portion of current direct flow rights allocated to the United and ECCV shares. Well depletions from the ECCV Wells will be repaid in time, location and amount when those depletions affect the Beebe Canal and there is a valid call for water downstream on the South Platte River from a water right that is senior to December 31, 2004.

220. ECCV shall calculate depletions from the ECCV Wells on a monthly basis and shall divide the monthly depletion by the number of days in the month to arrive at a daily depletion. ECCV shall replace all out of priority well depletions to the Beebe Canal on a daily basis and at a uniform rate or as otherwise approved by the Division Engineer.

221. Additional Water Rights Separately Decreed for Augmentation Use. Additional water may be added to this plan for augmentation on the following basis:

(A) Where a water right is decreed for augmentation use in a decree other than this decree, Co-Applicants shall give written Notice of Use of Water Right for Augmentation, to the court, the Division Engineer and all the objectors herein which shall describe: 1) the water right by name and decree, 2) the annual and monthly amount of water available to Applicant from the water right, 3) how the augmentation credits will augment depletions from wells included in this plan for augmentation in time, location and amount, 4) evidence that the claimed amount of water is and will not be used by any other person, and 5) the manner in which Applicant will account for use of the augmentation credits and make any required return flow replacements. If any person wishes to object to the addition of the noticed water rights to this plan, a written objection shall be filed with the court within 30 days after the date the Notice was given by Applicant. If no objection is so filed, then Applicant may use the noticed water rights in this plan in the manner stated in the Notice, without further action by the court. If an objection is so filed, then the Applicant may not use the noticed water rights until the court shall determine if the water rights may be used in this plan, and if so, may impose such terms and conditions as necessary to prevent injury to vested water rights and decreed conditional rights.

(B) Additional Water Rights. Co-Applicants may add additional replacement water for augmentation use in this plan. To add additional replacement water to this plan for augmentation, Co-Applicants shall provide written notice to the objectors herein of its request for approval of the State Engineer pursuant to C.R.S § 37-92-308 or § 37-92-309. Co-Applicants shall not use the noticed water right in this plan for augmentation until the State Engineer's approval of Co-Applicants' request for substitute water supply plan (SWSP) or interruptible water supply agreement (IWSA) approval has become final, including any appeal. If any person wishes to appeal the decision of the State Engineer, a written objection shall be filed with the court within 30 days after the date the written decision of the State Engineer is mailed to the parties. If no appeal is so filed, then Co-Applicants may use the noticed water rights in this plan in the manner stated in the State Engineer's approval, without further action by the court. If an appeal from an SWSP approval is so filed, then the court shall grant an expedited hearing and promptly decide the disputed issues. If an appeal from an IWSA approval is so filed, then the court shall grant an expedited hearing and promptly decide the disputed issues in accordance with C.R.S. § 37-92-309. Neither the approval nor the denial by the State Engineer shall create any presumptions, shift the burden of proof, or serve as a defense in this case. In no event shall the Co-Applicants be allowed to use the same portion of a water right or shares for undecreed augmentation use under this plan pursuant to either SWSP or ISWA approvals for more than the period allowed by C.R.S. §§ 37-92-308 or 37-92-309, respectively.

222. If Co-Applicants seek to add additional wells to this plan for augmentation, either as new wells, supplemental wells or an alternate points of diversion for an existing well, Co-Applicants shall file an Application with the court to add the wells to the plan for augmentation. A well may

be added to the plan under such appropriation date and priority as the court may determine, so long as the well is operated and used, and out of priority depletions are replaced, on terms and conditions at least as restrictive as decreed herein for the plan for augmentation. Addition of new wells to this plan for augmentation shall be by filing for an amendment to this plan for augmentation in the same manner as an application for a change of water right pursuant to the procedures required by law at the time of the application. The addition of a new well to the plan for augmentation shall not, however, be deemed to constitute a change of water right for any of the decreed replacement sources nor shall such application be deemed to re-open any consideration of previously decreed wells or replacement water sources. The application for the addition of a new well to the plan for augmentation shall be limited to the depletions and replacement of depletions attributable to the additional well.

223. ECCV shall report the daily pumping of the ECCV Wells by the 10th day of each following month, and shall account for depletions and replacements on accounting forms approved by the Division Engineer.

224. To prevent injury to the vested rights of others, the Co-Applicants have proposed the following terms and conditions applicable to the plan for augmentation:

(A) The totalizing meters on the wells in the ECCV Well Field will be read and recorded daily.

(B) For the purposes of Case No. 02CW403, the pumping at the ECCV well field will be considered to be fully consumed.

(C) The depletions to the Beebe Canal from pumping at the ECCV Well Field will be determined by multiplying the monthly pumping at each ECCV well by the applicable unit response function.

(D) At ECCV's direction, FRICO will release consumable water from the United-ECCV storage account in Barr Lake. Unless otherwise approved by the water commissioner, these releases will be made at a uniform rate in the month following the ECCV pumping.

(E) ECCV will report the daily pumping for each well in the ECCV well field to the water commissioner by the 10th day of the following month and shall record the record the release as part of the 02CW403 accounting.

(F) For Case No. 02CW403, the ECCV well pumping will be limited by the replacement water available under the changed United/ECCV Shares.

(G) The Co-Applicants have agreed to the inclusion of a "projection tool" for the administration of the plan for augmentation. The parties stipulated to certain terms and conditions regarding the projection tool in the April 18, 2008 stipulation and those terms and conditions are listed above in section II.C, beginning at paragraph 32.

(H) Co-Applicants also entered into a stipulation with Lochbuie regarding the augmentation plan that was approved by the court and Applicants propose to operate the plan pursuant to this stipulation as well.

3. Analysis

225. Mr. Helton, Applicants' expert, described this plan and stated that the vested rights of other appropriators will be adequately protected by the terms and conditions of the proposed augmentation plan. Applicants thus met their burden. *City of Aurora*, 105 P.3d at 614. No Opposers presented contrary evidence. The court therefore approves the plan for augmentation. Nevertheless, Opposers shall have the opportunity to review and, if necessary, object to specific wording in Applicants' proposed decree.

H. Change of Water Right Claims

226. Applicants' claims to change Burlington and FRICO-Barr Lake Division shares are the fundamental and most disputed claims in this matter. The Burlington and FRICO-Barr Lake Division shares to be changed in this matter are also referred to as the "changed shares." As discussed above, in section IV.B., beginning at paragraph 59 of this order, the changed shares are the cornerstone of the ECCV Water Supply Project that ECCV has undertaken with FRICO and United.

227. Applicants and Opposers presented various analyses to determine the amount of historical consumptive use to be credited to the changed shares. A summary of the conclusions of the parties' various positions was attached as exhibit A to Opposers' proposed order, dated June 20, 2008. To a certain extent, the disputed issues addressed below overlap and each issue affects the overall determination of consumptive use. Because the court does not agree in full with the position of any one party, Applicants will be required to recalculate the historical consumptive use of the changed shares pursuant to the court's determination of disputed issues. *See* C.R.S. § 37-92-305(3).

228. The essential functions of a change of water right proceeding are:

> (1) identify the original appropriation's historical beneficial use; (2) fix the historical beneficial consumptive use attributable to the appropriation by employing a suitable parcel-by-parcel or ditch-wide methodology; (3) determine the amount of beneficial consumptive use attributable to the applicant's ownership interest; and (4) affix protective conditions for preventing injury to other water rights in operation of the judgment and decree.

Farmers Reservoir & Irrigation Co., 33 P.3d at 807.

1. Water Rights to Be Changed

229. Applicants seek to change the following 64.083 (out of 2,111 total) Burlington-Barr Lake Division shares (the "Burlington shares"). The following water rights, which were adjudicated in Case No. 11200 in Arapahoe County District Court on July 8, 1893, are associated with these Burlington shares. *Pro rata* amounts refer to Applicants' ownership.

Structure	Source	Appropriation Date	Amount
Oasis Reservoir	South Platte River	November 20, 1885	9,090.90 af *Pro rata* 281.82 af
Barr Lake	South Platte River	November 20, 1885	1,990.35 af *Pro rata* 61.7 af
Burlington Ditch	South Platte River	November 20, 1885	350.00 cfs *Pro rata* 10.85 cfs
Burlington Ditch	First Creek	September 1, 1886	50.00 cfs *Pro rata* 1.55 cfs
Burlington Ditch	Second Creek	November 15, 1886	250.00 cfs *Pro rata* 7.75 cfs
Burlington Ditch	Third Creek	September 15, 1887	250.00 cfs *Pro rata* 7.75 cfs

230. Applicants also seek to change the following 140.702 (out of 2,759 total) FRICO-Barr Lake Division shares (the "FRICO shares"). The following water rights, which were adjudicated in Case No. 54658 in District Court for the City and County of Denver on August 2, 1918 and November 12, 1924.

Structure	Source	Appropriation Date	Amount
Barr Lake	South Platte River	January 13, 1909	3,930.00 af *Pro rata* 200.43 af
Barr Lake	South Platte River	January 13, 1909	18,000.00 af *Pro rata* 918 af
Barr Lake	South Platte River	January 13, 1909	33,011.26 af refill *Pro rata* 1,683.57 af
Burlington-O'Brian Canal	South Platte River	January 13, 1909	900 af storage *Pro rata* 45.9
Burlington-O'Brian Canal	South Platte River	March 9, 1908	600 cfs *Pro rata* 30.6

231. The Burlington and FRICO shares that Applicants seek to change include both direct flow rights, represented by amounts in cfs, and storage rights, represented by amounts in acre-feet. These claims raise numerous disputed issues including what legal standards to apply to apply to the claims. The disputed issues are discussed below.

2. Place and Type of Use for Changed Shares

232. Applicants claim a variety of uses for the changed Burlington and FRICO shares including: irrigation, municipal, augmentation, domestic, industrial, commercial, stock watering, recreation, fish and wildlife preservation and propagation, fire protection, aquifer recharge purposes, sewage treatment, mechanical, manufacturing, street sprinkling, substitution and exchange, and replacement including both immediate application for such purposes and storage for subsequent application for such purposes; and use, reuse, and successive use to extinction. Applicants also propose a change in location of use to include the ECCV Well Field and areas served by United and ECCV.

233. The Engineers contend that the evidence presented by Applicants for the type and place of use of the changed United ECCV shares is limited to the replacement of out-of-priority depletions from the ECCV Well Field. The Engineers assert that other requested uses are not supported by the evidence. The court agrees.

234. As presented in Applicants' case, water used by ECCV in its service area is ground water from the ECCV Well Field. A pipeline carries water from the well field to ECCV. There is no evidence that anything other than groundwater extracted from the well field travels to ECCV. During cross examination of Mr. Hall, division engineer, questions were asked regarding several hypothetical uses. However, Applicants presented no evidence regarding other uses. Therefore, the evidence presented regarding the uses by ECCV of water in its service area applies only to the water diverted by the well field.

235. Testimony by Mr. Montoya established that the changed Burlington and FRICO shares owned by ECCV and United are used within the FRICO service area, specifically the Barr and Milton Divisions, solely for replacement of the out of priority diversions of the ECCV Well Field. Mr. Montoya also mentioned a series of possible methods of augmentation using this water. There was no testimony or other evidence for Applicants describing any uses other than augmentation by replacement in the Barr and Milton divisions for this water.

236. The court therefore orders that Burlington and FRICO shares owned by ECCV and United to be changed in this matter are changed solely to include augmentation of the ECCV Well Field according to the terms of the augmentation plan decreed in this matter.

3. Preclusive Effects of Previous Litigation

237. Applicants filed a motion during trial on April 30, 2008 regarding the application of the doctrines of issue preclusion to the change of water right claims in this matter. The court determined that the motion was not timely filed but reserved ruling on the legal issues raised. In post trial briefing, Applicants again raised their issue preclusion arguments, to which Opposers responded. The court considers the motion to be merged with the issues raised in the proposed orders and will rule on the issue without distinguishing between the motion or the proposed order.

238. Applicants' contend that the court is barred from re-considering Opposers' claim that the 1885 Burlington direct flow decree of 350 cfs should be limited to 200 cfs and that the measure of the Burlington 1885 storage right is less than the decreed amount of 11,081 af. Applicants assert that two separate cases, Case Nos. 54658 and 87CW107, create the preclusive effect. Opposers disagree.

a. Applicants' Case No. 54568 Preclusion Arguments

239. Applicants' contend that issues concerning Burlington Canal diversion rates were litigated in Case No. 54658, which was the original adjudication of the FRICO direct flow and storage rights.

240. Applicants assert that Henrylyn directly challenged the 1885 Burlington direct flow right in Case No. 54658 asserting that its maximum flow was 200 cfs. Applicants argue this issue is identical to the issue Opposers assert in this case predominantly through the testimony of Englewood's witness, Ms. Griffin.

241. Applicants further argue that the determination of FRICO's and Henrylyn's relative priorities in Case No. 54658 required that court to determine the extent of the 1885 Burlington direct flow right. On March 17, 1909, FRICO purchased the Burlington Company's 1903 enlargement claims and asserted in Case No. 54658 that FRICO had the right to tack its priority date to the "enlargement" work performed by Burlington between 1903 and 1908. Had FRICO's claim been successful, FRICO would have received a 1902 priority date, senior to Henrylyn's 1907 priority.

242. Applicants thus contend that the issue of whether the 1885 Burlington direct flow right had "matured" to a maximum rate of 200 cfs before FRICO's involvement and enlargement was determinative of the rates and amounts of capacity in the enlarged Burlington Canal and in the enlarged Barr Lake. Applicants reasoned that if the Burlington 1885 direct flow right had "matured" at 200 cfs, then the work undertaken between 1893 and 1915 would have constituted an enlargement of the Burlington Canal over the Burlington Company right. The work acquired by FRICO that Burlington Company performed between 1903 and 1915 should have resulted in a 1903 priority date for FRICO.

243. Both the referee and the court ruled against FRICO's position regarding its direct flow water right claims in Case No. 54658. The referee found that the capacity of the enlarged Burlington Canal was 1250 cfs, of which 350 cfs was decreed to the 1885 Burlington direct flow right. Further, FRICO was awarded 600 cfs in the enlarged Burlington Canal with a priority dated of 1908. In sum, Applicants argue that to allocate the enlarged capacity of the Burlington Canal, determined to be 1250 cfs in 1918, the court necessarily had to determine what the capacity of the Burlington 1885 direct flow right was so that the "enlargement" could be determined and apportioned to FRICO and Henrylyn.

244. Applicants likewise assert that the measure of the 1885 Burlington Oasis-Barr Lake storage right was determined by the court in Case No. 54658 by virtue of the court's determination regarding FRICO's Barr Lake First Enlargement. FRICO's Barr Lake First

Enlargement was determined to be the amount held between the storage depths of 19.1 feet and 30 feet. Applicants thus reason that the court determined Burlington storage depth, 19.1 feet, equates to 11,081 af.

b. Applicants' Case No. 87CW107 Preclusion Arguments

245. Applicants contend that the Burlington Canal diversion rate issues have already been litigated in Case No. 87CW107, in which Thornton applied for a change of water right.

246. Applicants argue the measure of Thornton's interest in the water diverted into the Burlington Canal by the Burlington Company was central to the quantification of Thornton's shareholder entitlement changed to municipal use in Case No. 87CW107. Applicants contend that the measure of Thornton's *pro rata* interest in the 1885 Burlington direct flow right was based not only upon the determination of 350 cfs being the decreed rate for the Burlington right, but also on the historical diversions made on that right up to a rate of 350 cfs.

247. Applicants assert it is immaterial whether Thornton's shares were used under the "Little Burlington" system within the larger Burlington system or whether they were used below Barr Lake. They argue because there is only one 1885 Burlington direct flow decree, that decree was the central issue that was necessarily determined in Thornton's change of its Burlington shares.

248. Applicants note that both Aurora and Englewood were parties to Case No. 87CW107. Consequently, Applicants contend that these Opposers had a full and fair opportunity to litigate issues regarding the 1885 Burlington direct flow right.

249. Applicants lastly add that capping Burlington diversions into the Burlington Canal at 200 cfs would irrevocably impact Thornton's *pro rata* share of the 1885 Burlington right pursuant to the decree in Case No. 87CW107. Applicants reason that Thornton adjudicated a *pro rata* right of 350 cfs diverted into the Burlington Canal; however, limiting the 1885 Burlington direct flow right to 200 cfs would substantially reduce Thornton's entitlement decreed in Case No. 87CW107. Applicants argue that not only does the doctrine of issue preclusion bar Opposers' challenge to the 1885 Burlington direct flow right, but also that claim preclusion directly precludes Opposers' challenge with respect to Thornton's *pro rata* entitlement to a 350 cfs decree.

c. Opposers' Position

250. First, Opposers argue that Case No. 54658 does not have a preclusive effect under the doctrine of issue preclusion in this matter. Opposers assert that Case No. 54648 was a petition by FRICO for the adjudication of direct flow and storage water rights and not the change of the Burlington Company 1885 rights. Opposers argue that while the court entered a partially absolute, partially conditional decree in Case No. 54648 awarding FRICO some of the rights they sought, the court did not make any ruling that affected the Burlington Company water rights. Opposers likewise contend that when the court made absolute the conditional portion of the FRICO decree in 1924, the court did not enter any order that affected the Burlington Company water rights.

251. Opposers also argue that Case No. 87CW107 does not have any preclusive effect under the doctrine of issue or claim preclusion in this matter. Opposers assert that Case No. 87CW107 involved an application for change of water right of Burlington Company shares owned by the City of Thornton with a point of diversion above Barr Lake in the Little Burlington system. Opposers contend that the decree was limited by its terms to the parcels and shares claimed in the application, and was not intended to have any preclusive effect on any other shares, including Thornton's Burlington Barr and FRICO-Barr shares.

d. Issue Preclusion

252. Issue preclusion, or *collateral estoppel*, bars relitigation of an issue where:

> (1) the issue sought to be precluded is identical to an issue actually and necessarily determined in a prior proceeding; (2) the party against whom estoppel is asserted was a party to or is in privity with a party to the prior proceeding; (3) there was a final judgment on the merits in the prior proceeding; and (4) the party against whom the doctrine is asserted had a full and fair opportunity to litigate the issue in the prior proceeding.

In re Tonko, 154 P.3d 397, 405 (Colo. 2007) (citation omitted). *See also Midway Ranches*, 938 P.2d at 524 (regarding preclusion in water matters).

253. "The first element of issue preclusion is that "the issue sought to be precluded is identical to an issue actually and necessarily determined in a prior proceeding." *In re Tonko*, 154 P.3d at 405. "'For an issue to be actually litigated, the parties must have raised the issue in the prior action.' The issue must have been properly raised by appropriate pleading through a claim or cause of action, and been 'submitted for determination and then actually determined by the adjudicatory body.'" *Natural Energy Resources Co. v. Upper Gunnison River Water Conservancy Dist.*, 142 P.3d 1265, 1280 (Colo. 2006). "No issue is legally raised between parties unless one of them, by appropriate pleading, asserts a claim or cause of action against the other." *Michaelson v. Michaelson*, 884 P.2d 695, 701 (Colo. 1994). "Fundamental to the 'actually litigated' element of collateral estoppel is the recognition that the doctrine is inapplicable to matters that could have been, but were not, litigated in a prior proceeding." *Bebo Const. Co. v. Mattox & O'Brien, P.C.*, 990 P.2d 78, 85 (Colo. 1999). "An issue is 'necessarily adjudicated' when a determination on that issue was necessary to the judgment." *In re Water Rights of Elk Dance Colorado, LLC*, 139 P.3d 660, 667 (Colo. 2006) (citations omitted).

254. The fourth element of issue preclusion states, "the party against whom the doctrine is asserted had a full and fair opportunity to litigate the issue in the prior proceeding." *In re Tonko*, 154 P.3d at 406.

> [Colorado courts have] held that factors determinative of whether a party has been given full and fair opportunity to litigate include whether the remedies and procedures in the first proceeding are substantially different from the proceeding in which collateral estoppel is asserted, whether the party in privity in the first proceeding has sufficient

incentive to vigorously assert or defend the position of the party against which collateral estoppel is asserted, and the extent to which the issues are identical.

Elk Dance, 139 P.3d at 667 (citation omitted).

e. Claim Preclusion

255. Claim preclusion prevents relitigation of claims that were or could have been litigated in a prior proceeding. The doctrine of claim preclusion applies where four elements exist: (1) finality of the first judgment; (2) identity of subject matter; (3) identity of claims for relief; and (4) identity or privity between parties to the actions.

Gallegos, 147 P.3d at 32.

256. The second element of claim preclusion requires an "identity of subject matter" between the previous and present case. *Id*. The "best and most accurate test as to whether a former judgment is a bar in subsequent proceedings . . . is whether the same evidence would sustain both, and if it would the two actions are the same, and this is true, although the two actions are different in form." *Farmers High Line Canal & Reservoir Co. v. City of Golden*, 975 P.2d 189, 203 (Colo. 1999) (citation and quotations omitted).

257. Third, there must be an "identity of claims for relief" between the previous and present case. *Gallegos*, 147 P.3d at 32. "Under the same claim for relief or same cause of action test, a court must look to the injury for which relief is demanded, not the legal theory on which the person asserting the claim relies." *State Engineer v. Smith Cattle, Inc.*, 780 P.2d 546, 549 (Colo. 1989).

f. Analysis

258. The court determines that the doctrines of issue and claim preclusion do not prevent this court from considering Opposers' claim that the 1885 Burlington direct flow right should be limited to 200 cfs and that the 1885 Oasis-Barr lake storage right is less than 11,081 af. As discussed below, Case Nos. 54648 and 87CW107 fail to meet the first and fourth elements of issue preclusion. Therefore, Applicants' motion is denied and the court will consider Opposers' historical use arguments in the following section of this order.

i. <u>Case No. 54658</u>

259. As discussed in detail above, Applicants contend that Opposers' claims regarding the 1885 Burlington direct flow and storage rights were litigated in Case No. 54658. Although the court agrees that Case No. 54658 implicitly made findings in Applicants' favor, the court cannot determine that the first and fourth elements of issue preclusion are satisfied as those implicit findings from Case No. 54658 are applied to this matter.

260. Case No. 54658 was a general adjudication of rights and decrees on the South Platte River in Water District 2. The rights of FRICO and Henrylyn for direct flow in the Burlington-

O'Brian Canal (also known as the Enlarged Burlington Canal) and FRICO's 1909 storage right in the enlarged Barr Lake were among the rights adjudicated. The decree in Case No. 54658 decree was entered in two parts, the first being the decree entered by the Court on August 2, 1918 and the final decree entered on July 24, 1924.

261. The first element of issue preclusion is not satisfied because the issues are not identical, and the issues raised in this matter were not actually litigated in Case No. 54658. *See In re Tonko*, 154 P.3d at 405.

262. The issues litigated in Case No. 54658 are not identical to those that Opposers raise in this matter. *See id*. Case No. 54658 was a general adjudication that concerned the allocation of priorities while this matter is a change of water right case concerned with the determination of consumptive use of the changed shares. Although Applicants cite various sections of the decree in Case No. 54658 that appear to assume Applicants' position in this matter, there are no determinations in Case No. 54658 regarding the issue of the historical use of the 1885 Burlington direct flow and storage water rights. Applicants' argument simply relies on too many inferences from the findings in Case No. 54658.

263. The issues raised in this matter regarding the historical use of the 1885 Burlington direct flow and storage water rights were not actually litigated in Case No. 54658. *See Natural Energy Resources Co.*, 142 P.3d at 1280. Although Henrylyn may have argued that the 1885 Burlington direct flow right should be limited to 200 cfs, Applicants have not demonstrated to this court, and this court is not aware of any pleading in which Henrylyn raised this issue. Moreover, although the determinations in Case No. 54658 again appear to assume that the court implicitly made findings in Applicants' favor, there is no clear indication that this issue was submitted for determination and actually determined by the court. Further, it is unclear whether a determination regarding the historical use of the 1885 Burlington rights would be properly litigated in a general adjudication of priorities. Regardless, even if it could have been determined, it was not. *See Bebo Const. Co.*, 990 P.2d at 85.

264. The fourth element of issue preclusion is also not satisfied because there was not a full and fair opportunity to litigate the issues raised in this matter. *See In re Tonko*, 154 P.3d at 406. First, the remedies and procedures of the general adjudication in Case No. 54658 were clearly distinct from a change of water right case in which the historical use of a water right is the primary issue. *See Elk Dance*, 139 P.3d at 667. Although certain parties in Case No. 54648 such as FRICO and Henrylyn may have had incentive to assert vigorously or defend their position on the 1885 Burlington rights, such incentive was tangential at best considering the fact that the primary purpose of in Case No. 54648 was to determine relative priorities and not to litigate historical use. Finally, as discussed above, the issues in Case No. 54648 and the issues in this matter are distinct.

ii. Case No. 87CW107

265. As discussed above, Applicants contend that Opposers' claims regarding the 1885 Burlington direct flow and storage rights were litigated in Case No. 87CW107. Similar to the court's determination regarding the preclusive effects of Case No. 54658, although the court

agrees that Case No. 87CW107 implicitly made findings in Applicants' favor, the court cannot determine that the first and fourth elements of issue preclusion are satisfied as those implicit findings from Case No. 87CW107 are applied to this matter. The court further cannot determine that the second and third elements of claim preclusion are satisfied.

266. In Case No. 87CW107, Thornton changed several of its shares in the Burlington Company that are allocated for delivery in the Little Burlington system. The decree in that case does not make a ditch-wide determination of historical consumptive use, but rather, was limited to the Little Burlington shares that were the subject of Thornton's application. The parties in that case stipulated to historical use of Burlington and Wellington water accessed through the first few miles of the main Burlington Canal and used above Barr Lake. The decree in Case No. 87CW107 made clear that it did not affect shares in the O'Brian Division of the Burlington Company or shares in the FRICO-Barr Lake Division.

267. The first element of issue preclusion is not satisfied because the issues are not identical, and the issues raised in this matter were not actually litigated in Case No. 87CW107. *See In re Tonko*, 154 P.3d at 405.

268. The issues regarding historical use in Case No. 87CW107 are not identical to those that Opposers raise in this matter. *See id*. The issues of historical use addressed in the decree are expressly limited to those in the Little Burlington system and expressly do not affect shares in the Burlington and FRICO divisions in which the changed shares in this matter are allocated. Although the court recognized Applicants argument regarding an potential inconsistency and potential impact on Thornton's *pro rata* deliveries due to the fact that there is only one 1885 Burlington direct flow right, the express terms of the decree in Case No. 87CW107 simply do not permit this court to determine that the issues addressed in that case are identical to the issues in this matter.

269. The issues raised in this matter regarding the historical use of the 1885 Burlington direct flow and storage water rights were not actually litigated in Case No. 87CW107. *See Natural Energy Resources Co.*, 142 P.3d at 1280. As noted above, the issue of the historical use of the Thornton's shares in the Little Burlington system was stipulated. There is no indication that this issue was submitted to the court for determination.

270. The fourth element of issue preclusion is also not satisfied because there was not a full and fair opportunity to litigate the issues raised in this matter. *See In re Tonko*, 154 P.3d at 406. As discussed above, the issues regarding the Little Burlington system in Case No. 87CW107 and the issues in this matter are distinct. *See Elk Dance*, 139 P.3d at 667.

271. The second element of claim preclusion is not satisfied because there is no identity of subject matter between Case No. 87CW107 and this matter. *Gallegos*, 147 P.3 at 32. Case No. 87CW107 concerned and was expressly limited to shares in the Little Burlington system while this matter concerns FRICO shares in other Burlington and FRICO divisions. As Applicants presented their evidence, it was apparent that each FRICO division is operated in a somewhat independent manner. Further, Little Burlington shares hold a unique position in the Burlington, FRICO system due to the fact that other shareholders received allocations only after Little

Burlington shares are satisfied. In addition to these factual differences, the shares at issue in Case No. 87CW107 were used in different locations. Different evidence would be required to litigate Case No. 87CW107 and this matter. *See Farmers High Line Canal & Reservoir Co.*, 975 P.2d at 203.

272. The third element of claim preclusion is not satisfied because there is no identity of claims for relief between Case No. 87CW107 and this matter. *Gallegos*, 147 P.3 at 32. As discussed above, in the Burlington and FRICO systems, the Little Burlington system presents a unique set of factual considerations. Therefore, this court cannot determine that there is an identity of claims for relief. *See State Engineer*, 780 P.2d at 549.

4. Historical Use of 1885 Burlington Water Rights

273. The lawful historical use of the 1885 Burlington water rights was a disputed issue at trial that significantly affects the historical consumptive use for which Applicants may take credit. The historical use analysis affects the parties' analyses of other water rights to be changed in this matter, including the 1908 and 1909 FRICO rights; however, this order treats the disputed issues individually. The primary issue addressed by the court in this section of the order is the lawfulness of the use of 1885 Burlington water below Barr Lake.

a. Applicants' Position and Evidence Regarding Historical Use of 1885 Burlington Rights

274. Applicants assert that the use of the Burlington 1885 water rights below Barr Lake has been and is lawful. Applicants presented their *prima facie* case under such a position. In response to Opposers' contention that the use of the Burlington 1885 water rights below Barr Lake was and is unlawful, Applicants present several arguments.

275. Applicants contend that FRICO's development of the Burlington system following 1909 was merely the completion of the Burlington 1885 appropriation as contemplated and decreed in Case No. 11200. They rely on the existence of outlet ditches from Oasis Reservoir, a predecessor to the current Barr Lake, as well as language in the abstract of testimony from Case No. 11200 referring to a vast expanse of eastern Colorado susceptible to irrigation by the 1885 Burlington rights.

276. Applicants further argue that the decree in Case No. 11200 was, in essence, a conditional decree, which allowed Burlington a reasonable amount of time to complete its appropriation for the purpose of irrigating up to 40,000 acres. They argue this acreage included lands below Barr Lake.

277. Applicants contend that choosing the year 1909 as a cut-off date for the development of the Burlington system is arbitrary. Applicants instead assert that build-out occurred as late as 1920. Applicants refer to an analysis performed by Mr. Helton that shows a steady increase of acres irrigated by the Burlington Canal from 1887 to 1916. Applicants also point to an analysis by Mr. Helton that compared the slow increase of the number of irrigated acres under other large irrigation systems in Water Division No. 1 such as the Fulton, Lower Latham, Riverside, and

Bijou irrigations systems, as well as the Fort Lyon system in Water Division No. 2. Applicants contend that consistent with other areas in Division No. 1, the development of the Burlington system was typical for the historical period and therefore reasonable.

278. Applicants further assert that is no expansion of use because there were more irrigated acres under the Burlington system in 1893 than have ever in fact been irrigated with 1885 Burlington rights.

279. Applicants' expert, Mr. Helton, prepared an analysis of whether there was any expansion of the Burlington rights. Mr. Helton testified that he took into account the amount of 1885 Burlington water that was actually delivered below Barr Lake in addition to the water actually delivered to Henrylyn. He also accounted for the amount of land to which the water had been applied. Mr. Helton first concluded that the average partial water supply acreage was 11,748 acres. Mr. Helton then stated that a full water supply had been applied to 3,649 acres on average. He deduced that historically, much less land had been irrigated than the amount of land that was recognized for the water right because of the water short nature of the Burlington-Barr Lake system. Mr. Gillham, another of Applicants' experts, testified that there were 10,670 irrigable acres under the Hudson laterals.

b. Opposers' Position Regarding Historical Use of 1885 Burlington Rights

280. Opposers assert that the use of the Burlington 1885 water rights below Barr Lake was and is unlawful. Based on their historical analysis, Opposers contend that 1885 Burlington direct flow water should be limited to 200 cfs for use above Barr Lake and that 1885 Burlington storage water should be limited to annual reservoir releases of 5,511 af.

281. In support of this position, Opposers make at least two arguments. Opposers contend that the 1885 right was decreed as an absolute water right, and therefore, neither Burlington nor FRICO had the right to enlarge the use of that right beyond the amount actually applied to a beneficial use by Burlington before FRICO's involvement with the Burlington Company around 1909. Opposers further argue that, to the extent that Burlington had any right to build out its system to the decreed capacity of its 1885 water rights, a 20 to 25 year delay of such build-out after the initial appropriation is an unreasonable amount of time. Because the water diverted at the Burlington headgate was not historically colored by priority, Opposers contend the expansion of the Burlington 1885 rights also impacts the historical use analysis of the changed FRICO rights as well.

c. Historical Use and Development of Burlington and FRICO Systems

282. Applicants generally presented their case in-chief on the premise that all water delivered to FRICO and Burlington shareholders was within the terms and provisions of their decrees.

283. Opposers presented a detailed history of the development of the Burlington-Barr Lake system and attempted to color historical diversions at the Burlington headgate under specific

appropriations. This evidence was presented primarily through the expert testimony of Englewood's expert, Ms. Griffin. Aurora's expert, Mr. Ault largely adopted Ms. Griffin's historical analysis and position. Central's expert, Mr. Armbruster, analyzed and reviewed the historical information. He generally agreed with Ms. Griffin and proposed limitations on water delivered below Barr Lake similar to those proposed by Ms. Griffin. Applicants also addressed the relevant history through cross-examination and rebuttal. A review of the relevant evidence is presented below.

i. Early Burlington System Development

284. The Burlington Land and Reservoir Company was incorporated in 1885 and began work on the Burlington Canal (also referred to in the evidence as the "Burlington Ditch"). Numerous historical documents that were admitted into evidence, including minutes of Burlington meetings, form the basis of these findings. Burlington filed three filing maps in 1885 and 1886 with the Arapahoe County Clerk and Recorder's Office regarding the initial plans for development. Applicants argue that the Burlington Company's filing prior to the 1893 adjudication of the Burlington water rights is irrelevant. In 1888, the Burlington Canal was extended from near the location of its current headgate on the South Platte River to a location approximately at the current site of Barr Lake.

285. The current location of Barr Lake was initially two reservoirs: Barr Lake and Oasis Reservoir. In February 1888, Mr. Alexander offered Burlington 160 acres in section 27 to build an irrigation reservoir, which Burlington purchased. Burlington ran water in 1888 into a reservoir depression that would later be known as Barr Lake. In February 1889, the Oasis Company offered Burlington 400 acres in section 22 and 23 to build an irrigation reservoir. Burlington subsequently began work on both reservoirs.

286. In June 1889, Burlington petitioned the court for an appropriation for the Burlington Canal up to and including two reservoirs: Barr Lake and Oasis Reservoir. In 1890, Burlington filed a fourth statement of claim for the Burlington Canal. Burlington did not mention outlet ditches in any of these statements of claim.

287. The Hudson Ditch and Reservoir Company (the "Hudson Company") was incorporated in January 1889. Its stated purpose was to construct, maintain, and operate two ditches or laterals from Burlington's then-proposed Oasis Reservoir. The Hudson Company began construction of two outlet ditches from Oasis Reservoir in February 1889. Hudson filed a map and a statement of claim in 1889 detailing two outlet ditches and additional laterals. Ms. Griffin testified that Hudson's statement of claim comprised forty miles in the aggregate when plotted in Geographic Information System ("GIS"). This appears to coincide with the forty miles of outlet lateral referred to in the subsequently filed Case No. 11200.

288. Between 1891 and 1893, work on dams at Barr Lake and Oasis Reservoir and an outlet from Barr Lake were completed. In April 1891, Burlington contracted to build a dam at the originally contemplated plane. By December 1891, the tracks of the Burlington Railroad were removed from the dam site. By December 1892, dams at Barr Lake and Oasis Reservoir were increased in height and each held fifteen feet of water at their deepest location. By December

1893, the Barr Lake and Oasis Reservoir dams and an outlet were completed and water was delivered to the reservoirs.

289. In 1893, one month before their adjudication, Burlington filed a fifth statement of claim, which included reference to the Burlington Ditch, Barr Lake and Oasis Reservoir, as well as additional appropriations from First, Second, Third, and Sand Creeks, all of which flow into the Burlington Canal. This statement also did not mention any outlet ditches from Barr Lake and/or Oasis Reservoirs.

ii. Case No. 11200

290. In Case No. 11200, Burlington claimed direct flow and storage rights with a priority date of 1885 for the Burlington Canal, Barr Lake, and Oasis Reservoir, from the South Platte River, and from First, Second, Third, and Sand Creeks based on its several statements of claims listed above.

291. A report and abstract of testimony was prepared in Case No. 11200. Referee Gregory stated that the Burlington Canal "was constructed on or about November 8, 1888, "[t]his making the length of time in construction four days less than three years." The abstract of testimony further included detailed findings regarding Burlington's structures, including the Burlington Canal, Barr Lake, and Oasis Reservoir, which were to be used for domestic and irrigation purposes. Referee Gregory noted "[t]hat ditches have been constructed from [Oasis Reservoir] easterly for the purpose of taking and utilizing the waters therefrom to the amount of some forty miles of ditches." The abstract of testimony further stated

> That the amount of land capable of irrigation by said [Burlington] ditch is about 12,000 acres of land, and the amount of lands susceptible to being irrigated by the waters of said ditch and said reservoir lying North and North-west and North-east from said reservoirs is 28,000 acres, in addition thereto in fact the amount is unlimited as it may continue to the eastern line of Colorado.

No party other than Burlington offered any evidence before the referee or otherwise in Case No. 11200.

292. Referee Gregory's abstract of testimony does not directly indicate that Burlington intended to irrigate 40,000 acres or all the way to the eastern line of Colorado with the water decreed in Case No. 11200. The abstract of testimony does not indicate that there was testimony relating to any future development of the Burlington system.

293. Referee Gregory was also the secretary of Hudson Company at the time of the adjudication in Case No. 11200 and a Burlington shareholder both before and after the adjudication. The Hudson Company owned two principle outlet ditches form Oasis Reservoir.

294. The decree in Case No. 11200 is dated July 8, 1893. In relevant part, it states that the decree was entered with "the Court being satisfied from the several notices, certificates of publication affidavits and certificates . . . ." Burlington was decreed a direct flow right during

the irrigation season in the Burlington Canal for: 350 cfs from the South Platte River, 50 cfs from First Creek, 250 cfs from Second Creek, and 250 cfs from Third Creek. Burlington was also decreed a storage right in Barr Lake and Oasis Reservoir to be filled at 350 cfs from the South Platte River. The decree also confirmed certain rights in Sand Creek. Issues relating to Sand Creek are discussed in greater detail below in section IV.H.18, beginning at paragraph 653 of this order.

295. Case No. 11200 appears to be a "general adjudication" in certain respects. However, no testimony or evidence was offered by any other parties. In 1920, Henrylyn filed a complaint in Denver District Court, dated August 17, 1920, against Burlington and FRICO claiming that no notice for the adjudication had been provided and that in fact it was an *ex parte* proceeding. However, that suit was dismissed pursuant to the terms of the 1921 Agreement.

iii. Mills § 314

296. Numerous entries within the Burlington meeting minutes contained references to an unnamed law purporting to require work to be completed on ditches or reservoirs within three years. Ms. Griffin testified that the law might be Colorado Revised Statute § 314 (Mills 1883) (referred to in this order as "Mills § 314").

297. Mills § 314 stated:

> Any company formed under the provisions of this act for the purpose of constructing any ditch, flume, bridge, ferry or telegraph line shall within ninety days from the date of their certificate, commence work on such ditch, flume, bridge, ferry or telegraph line, as shall be named in the certificate and hall prosecute the work with due diligence until the same is completed, and the time of the completion of any such ditch, bridge, ferry or telegraph line shall not be extended beyond a period of two years from the time the work was commenced as aforesaid; and any company failing to commence work within ninety days from the date of the certificate or failing to complete the same within two years from the time of commencement as aforesaid, shall forfeit all right to the water so claimed, and the same shall be subject to be claimed by any other company; the time for the completion of any flume constructed under the provisions of this act shall not be extended beyond a period of four years; *Provided*, this section shall not apply to any ditch or flume for mining or other purposes, constructed through and upon any grounds owned by the corporation; *and Provided further*, that any company formed under the provisions of this act to construct a ditch for domestic, agricultural, irrigating, milling and manufacturing purposes, or any or either thereof, shall have three years from the time of commencing work thereon within which to complete the same but no longer.

Id. (emphasis added by Opposers). *Compare* C.R.S § 7-42-102. (derivation of Mills § 314). *See Water-Supply & Storage Co. v. Tenney*, 51 P. 505, 508 (1897) ("Neither has it been necessary that we definitely determine whether the legislature has the power, which it assumed to exercise (Gen. St. 1883, § 314; Mills' Ann. St. § 573), to prescribe a period of time within which work on an irrigating ditch must be completed in order to entitle it to a priority dating from the inception of the work.").

298. Arthur E. Meek's affidavit from the 1891 Arapahoe County case of *Lloyd v. Burlington Ditch, Reservoir and Land Co.* states, ". . . many hundred of acres of land lying beneath [Barr] reservoir are dependent upon the said reservoir to irrigate the same." The Water Commissioner's Report from 1893 indicates approximately 1,350 acres were being irrigated. Four years later in 1897, the Water Commissioner's Report shows that 2,785 acres were being irrigated. Clarence Ireland's testimony from Case No. 54658 estimates that before 1900, water from Barr Lake irrigated between five and six hundred acres.

iv. Use of Water Below Barr and Oasis in the Hudson Laterals and Burlington Extension Ditches

299. The delivery canals extending from Barr Lake were constructed by separate lateral ditch companies. These companies were: the Brighton Lateral Ditch Company, incorporated in 1889; the Hudson Ditch and Reservoir Company, incorporated in 1889; and the Burlington Extension Ditch Company, incorporated in 1894. The court received the articles of incorporation of these companies as evidence.

300. The East and West Hudson Laterals were two outlet laterals from Oasis Reservoir that were in existence in 1893 and, as noted above, referenced in the abstract of testimony in Case No. 11200. Consecutive pages of the Hudson meeting minutes indicate only one meeting between 1893 and 1899. In 1899, meeting minutes indicated that the Hudson Company had decided that anyone wanting to run water through their ditches had to maintain the ditch themselves. Hudson Company meeting minutes indicate only one more meeting between 1899 and 1903. Numerous additional meeting were held between 1904 and 1909.

301. Ms. Griffin testified regarding certain historical documents suggesting that the Hudson laterals were in disrepair from some point in time after their construction and before the involvement of FRICO. In a letter dated April 23, 1908, FRICO's engineer, George Bull, stated that the Highline Ditch (also known as the East Hudson Lateral) was only used one season since its construction in 1908. This was confirmed in Case No. 54658, when Clarence Ireland testified that the East Hudson Lateral was only used during one season and it remained in disuse until the completion of the present FRICO system.

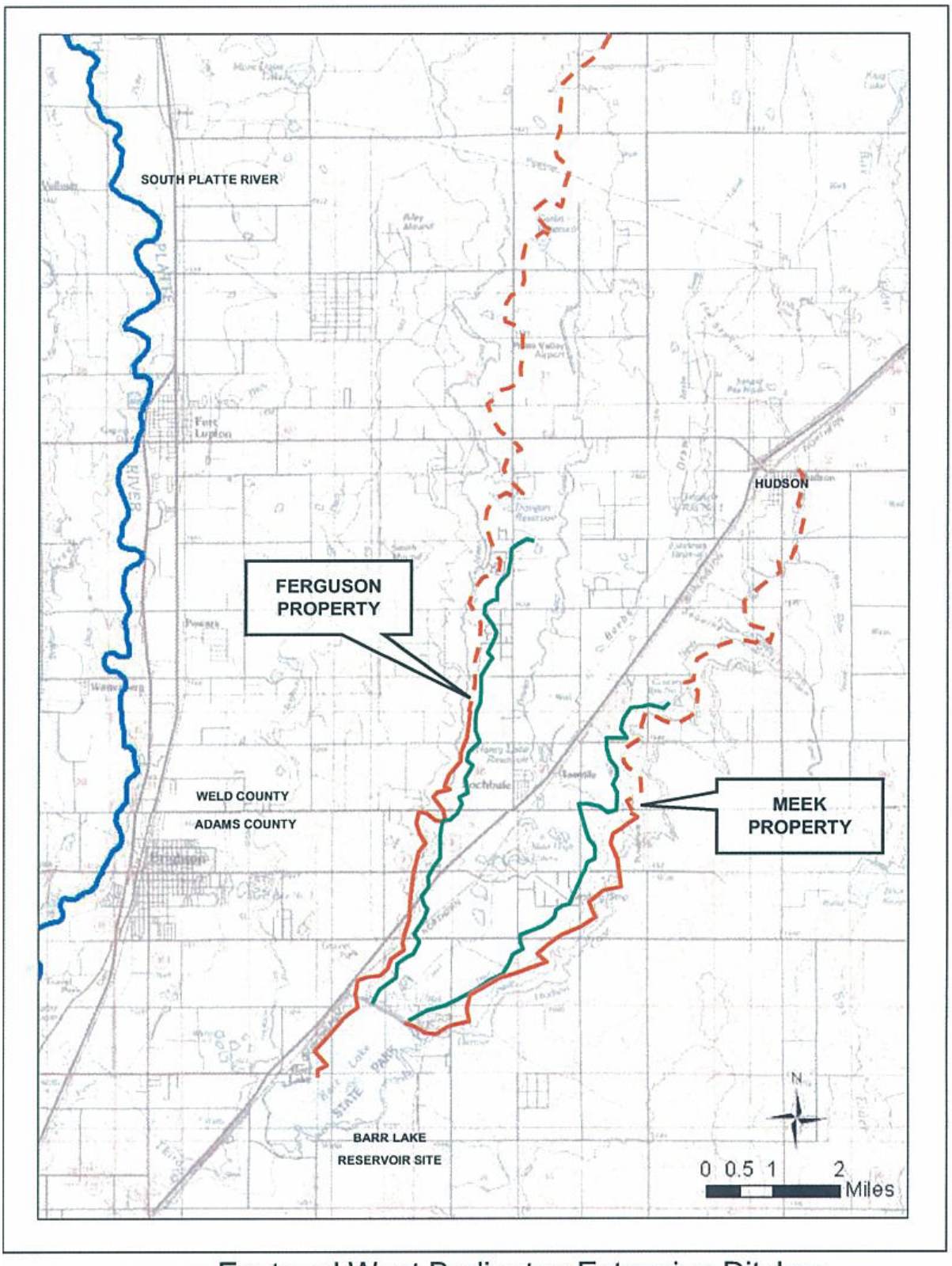
302. Central's expert, Mr. Armbruster, stated it was possible that some 1885 Burlington water had been delivered down the East and West Hudson laterals prior to 1909. However, due to the length and location of the laterals at that time, Mr. Armbruster believed the additional lands that could have been irrigated were negligible. In his separate calculation of the historical consumptive use, Mr. Armbruster thus attributed all releases during his selected study period of 1927-1983 to the East and West Burlington Extensions as deliveries of 1885 water and all releases to the Beebe, Speer, and Neres Canal as deliveries of FRICO 1908-1909 water. Mr. Armbruster noted that the amount of water delivered to the East and West Burlington laterals during his study period was very close to the total amount of water released from Barr Lake prior to 1909.

303. The Burlington Extension Ditch Company was formed in 1894 intending to appropriate its own water right from the South Platte. It filed a statement of claim with the Office of the State Engineer that same year detailing outlet ditches from Oasis Reservoir that carry water north and east. The Burlington Extension ditches in essence follow the same path as the previously existing Hudson laterals except that the Burlington Extension ditches are slightly down gradient of the Hudson laterals, which sit higher up on the hillside. Between 1895 and 1897, two outlets from Oasis were constructed to supply water to the Burlington Extension ditches. Ms. Griffin testified that the existence and location of the Burlington Extension ditches suggested that the Hudson laterals were in disrepair because if the Hudson laterals were in use constructing a lateral off of the Hudson laterals would have been easier, rather than constructing the Burlington Extension ditches.

304. According to Hudson Company meeting minutes, J.A. Ferguson, a Hudson Company stockholder, made a filing in February 1903 on the West Hudson Lateral, the purpose of which was to destroy all rights of the Hudson Company in the ditch and to appropriate the ditch and lateral to Ferguson's own use and benefit. Ms. Griffin stated that Mills § 314 might have been the basis for Mr. Ferguson's claim.

305. In December of 1903, Mr. Ferguson requested rebate money from Burlington because he had received no water from the West Hudson Lateral. Ultimately, the Hudson Company settled with Mr. Ferguson, allowing him to use the West Hudson Lateral provided he maintained it himself and granted indemnity for his use to the Hudson Company.

306. In 1904, Leonard B. Meek made a filing on the East Hudson Lateral, similar to Mr. Ferguson's filing on the West Hudson Lateral. The Hudson Company also settled with Leonard Meek. The Hudson Company agreed to clean out the ditch so that Leonard Meek could get water to his property on the Weld-Adams County line and also agreed to give Leonard Meek stock in the Hudson Company. A map from slide 28 of Englewood exhibit 608 is displayed below. Ms. Griffin prepared this map that shows the location of both the Meek and Ferguson properties as well as her plots of the Hudson and Burlington Extension laterals.


SOUTH PLATTE RIVER
HUDSON
FERGUSON PROPERTY
MEEK PROPERTY
WELD COUNTY
ADAMS COUNTY
BARR LAKE
RESERVOIR SITE
N
0 0.5 1 2
Miles
East and West Burlington Extension Ditches
Denver Hudson Ditches

307. A 1917 letter from FRICO's chief engineer states that prior to FRICO's involvement and construction of the Neres Canal, the East Hudson Lateral only extended to the Adams-Weld county line. A 1917 letter from the Hudson Company states that FRICO took the position that the total permits issued for carriage of water in the East Hudson Lateral greatly exceed the original capacity of the lateral. Likewise, the 1902 Burlington meeting minutes state that the reservoir furnished water on fifty-one days in the Burlington extensions, but do not mention water run through the Hudson laterals.

308. Additional evidence suggests disuse of the Hudson laterals. The 1921 Agreement states in pertinent part that Burlington may run water through its ditch to Barr Lake, "and into and through the East or West Burlington Extension Ditches only." Likewise, the 1921 report of Charles Tew concluded that two branches extended from Barr and Oasis Lakes, namely the East and West Burlington Extension Ditches. No mention is made of the Hudson Company laterals, which FRICO later developed into the Speer and Neres Canals. In a 1937 Summary of Hearing and Decision, then-State Engineer Hinderlider also refers to the East and West Burlington Extensions as extending from Barr Lake before FRICO's involvement. The Summary of Hearing and Decision does not refer to the Hudson laterals as extending from Barr Lake but does refer to the "old East and West Hudson Canals" as having been enlarged by FRICO into the Neres and Speers Canals.

v. Additional Burlington Development

309. In 1903, Burlington filed to increase the size of its reservoirs, claiming they had begun construction in 1902. In December 1902, Burlington shareholders discussed raising the dam at Barr Lake to make better use of the reservoir site. Burlington filed a statement of claim in March 1903. By 1904, Mr. Osner completed the five-foot tall dam enlargement, which was within the reservoir's originally-decreed limits. By December 1905, the Burlington Railroad Company had constructed a dike between its track and the west side of Oasis Reservoir, allowing for an additional two to three feet of storage. Burlington meeting minutes note that the work was completed within three years as required by law.

310. In a letter dated February 10, 1906, Burlington's engineer at the time, Peter O'Brian, wrote to Mr. F. P. Bertschy. This letter was written after the original construction and the subsequent enlargement of Barr Lake completed in 1904. The letter states that the reservoir had a capacity in 1906 of nearly 10,000 af, as compared to the decreed capacity of 11,081 af. Mr. O'Brian further stated in the letter that shareholders below Barr Lake have "as good, if not better water rights, than any in the state of Colorado."

311. Burlington never received a supplemental appropriation on the 1902 filing. As discussed below, in Case No. 54658, FRICO tried to relate its appropriation date for the enlargement of Barr Lake back to Burlington's 1903 filing to obtain a 1902 appropriation date but was denied.

vi. Use of 1885 Burlington Direct Flow Water (1891-1908)

312. Opposers analyzed Burlington's use of Burlington 1885 direct flow water before FRICO purchased Burlington's excess water and began expansion of the Burlington system in 1909. A table from Slide 32 from Englewood Exhibit 608 is displayed below and summarizes the information.

	Deliveries			Div at River Headgate	
	Total	Above Barr	Delivery	est max	avg div
	(Burlington Meeting Minutes)			(Minutes)	(WC rec)
	inches	*inches*	*cfs*	*cfs*	*cfs*
1891	3256		85	121	50
1892	3845		100	143	100
1893	4376		114	163	80
1894	4199		109	156	80
1895	4650		121	173	80
1896	5302	3802	99	141	80
1897	5381	3583	93.3	133.3	97.0
1898	5333	3411	88.8	126.9	93.3
1899	6209	4388	114.3	163.2	97.0
1900	5993	4225	110.0	157.2	97.0
1901	6221	4263	111.0	158.6	350
1902	5200	3120	81.3	116.1	---
1903	6696	4553	118.6	169.4	72.0
1904	5837	4202	109.4	156.3	195.0
1905	6315	4699	122.4	174.8	119.0
1906	7858	4067	105.9	151.3	136.0
1907	7933	4652	121.1	173.1	182.0
1908	9365	4796	124.9	178.4	184.0
Average	5776	4135	107	153	109
Max	**9365**	**4796**	**125**	**178**	**195**
Min	3256	3120	81	116	50

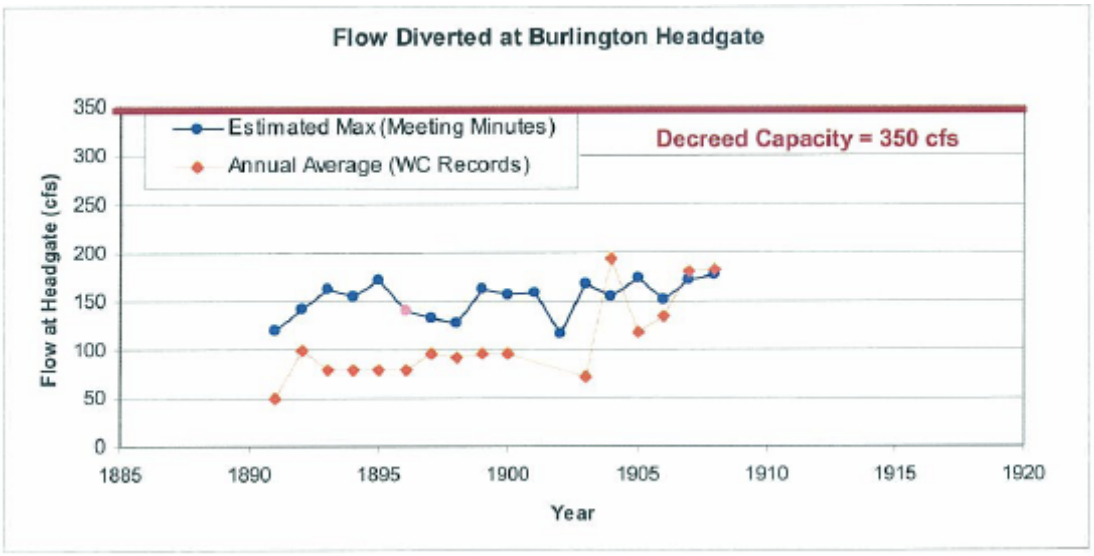
313. This table summarizes the available records found in the Burlington meeting minutes from 1891-1908 which detail the total water ordered by Burlington shareholders. The first column lists the amount of water diverted at the Burlington headgate. From 1891 to 1895, the meeting minutes only list the total amount of water ordered by shareholders. After 1895, the meeting minutes state where the water was generally used. The second column thus lists the amount of water delivered for use above Barr Lake after 1895. For the years 1891 to 1895, the third column converts the value of the first column in inches to cfs (38.4 inches per cfs). For the years after 1895, the third column converts the value of the second column in inches to cfs.

314. This table suggests that the estimated annual maximum flow required to satisfy all of the orders above Barr Lake during that time period was less than 200 cfs. This is true even in the

first five years when total deliveries are used, as opposed to segregating the deliveries above Barr Lake.

315. This table relies on several assumptions. It assumes that all of the users took water at the same time, even though the meeting minutes indicate this was not the case. It also assumes an overall ditch loss of 25 percent, which is equivalent to an assumption that all of the users were at the end of the Burlington Canal. Significantly, it also uses the year 1908 as a limitation for the Burlington historical consumptive use cut off because FRICO purchased Burlington's excess water in 1909 and enlarged the Burlington Canal and Barr Lake and Oasis reservoirs.

316. The graph displayed below, Slide 32 from Englewood Exhibit 608, summarizes the average annual diversions at the Burlington headgate as recorded by the water commissioner in his annual summaries and plotted that data on the same graph. The maximum average annual flow recorded by the water commissioner (with one exception that Ms. Griffin opined was likely erroneous) during this time period was 195 cfs, which is consistent with the analysis based upon Burlington's own records.



317. The testimony from H.C. Lallier in Case No. 54658 likewise stated the carrying capacity of the Burlington Canal never exceeded 60 or 70 cfs in the places he measured in the lower reaches of the ditch and the Barr Lake intake. In that same case, Referee William R. Kelly found, "it is questionable whether the ditch would on March 17, 1909, even carry the already decreed capacity."

318. Ms. Griffin did not estimate the acreage under Burlington-Barr Lake system and its direct flow and storage rights, but rather, analyzed the water diverted. This analysis thus differs from Applicants' position, which relies on calculations of the amount of acres irrigated and irrigable under the Burlington system.

vii. Use of 1885 Burlington Storage Water (1891-1908)

319. Opposers analyzed Burlington's use of Burlington 1885 Storage water before FRICO's involvement began in 1909. A table from Slide 34 from Englewood Exhibit 608 is displayed below and summarizes the information.

	Data taken from Burlington Meeting Minutes			Calculated from Minutes	Water Commissioner Records
	inches	*cfs*	*days*	*af*	*af*
1897	1798	46.8			
1898	1922	50.1			
1899	1821	47.4			
1900	1768	46.0			
1901	1958	51.0			
1902	2080	54.2	51.0	5479	
1903	2133	55.5	51.0	5619	
1904	1635	42.6			
1905	1616	42.1			
1906	3791	98.7			6760
1907	3281	85.4			5107
1908	4569	119.0			4591
Average	2364	62	51	**5511**	
Max	**4569**	**119**	**51**	**6760**	
Min	1616	42	51	4591	

320. This table first summarizes the Burlington meeting minutes from 1897 to 1908 using the same initial methodology Ms. Griffin used in the quantification of Burlington's use of 1885 direct flow water to determine the amount of water required to satisfy the orders. Here, the table begins with 1897 because that was the first year the Burlington's records segregated water use below Barr Lake.

321. Next, in the two years where the Burlington records specified the number of days water was run from the reservoir (1902 and 1903), it is assumed that the entire required amount was released from Barr Lake for all of the days water was run, to come up with a conservative estimate of the maximum annual volumetric release. Those amounts were 5,479 acre-feet and 5,619 acre-feet respectively.

322. This table also summarizes the available water commissioner records, which listed the total annual release during the pre-FRICO expansion period. Those records were available for 1906, 1907, and 1908, and those respective amounts were 6,760 af, 5,107 af, and 4591 af. Based upon the five data points from the Burlington and Water Commissioner records, the pre-FRICO expansion Burlington average annual storage water release to be 5,511 af, with a maximum annual storage water release of 6,760 acre-feet. Based upon this analysis, it appears that there

was ample water from the 1885 Burlington storage rights to satisfy the orders below Barr Lake before the FRICO expansion.

323. Opposers' initial historical analysis of Burlington's use of Burlington 1885 storage prior to the FRICO 1909 expansion was not limited to water delivered under the East and West Burlington Extension Ditches. Rather, Ms. Griffin relied on Burlington Company meeting minutes and water commissioner records of all releases out of Barr Lake. Such documents did not differentiate among any specific outlet ditches or canals.

324. Based upon Ms. Griffin's opinion that the Burlington Company's use of Burlington 1885 storage water prior to the FRICO expansion below Barr Lake was primarily comprised of the water released to the East and West Burlington Extension Ditches, Englewood's expert compared the initial historical analysis to the data detailed in Table 2 of Mr. Helton's expert disclosure. Specifically, Englewood's expert summed the total releases listed for the East and West Burlington Extension Ditches from 1927-2004 to calculate an average annual release of 5,456 af; and a maximum annual release of 8,517 af. Ms. Griffin used the averages based upon the data found in Table 2 of Mr. Helton's disclosure (as opposed to the averages based upon Burlington and water commissioner records) with the higher maximum annual release for her proposed volumetric limitations.

325. Mr. Helton, in rebuttal, testified regarding Ms. Griffin's analysis of the use of 1885 Burlington water. He specifically testified regarding Ms. Griffin's table from Slide 34 from Englewood Eexhibit 608, which is displayed above in paragraph 319. Mr. Helton stated according to his calculations, which were based on the same numbers as used in Ms. Griffin's table, there were 4,793 af of water released from the reservoir that did not come from storage. Therefore, he determined that the 4,793 af must be attributed to the 1885 Burlington direct flow water right. He similarly calculated 4,384 af in 1907. His opinion is expressed in a chart from Applicants' exhibit 1531, which is displayed below.

BURLINGTON SYSTEM OPERATION IN 1907

Row	Item		1906	1907		Source
1	Total inches delivered		7858	7933		M&W Powerpount, sheet 32
2	Inches above Barr		4067	4652		M&W Powerpount, sheet 33
3	Inches below Barr		3791	3281		Row 1 - Row 2
4	Second feet released from Barr for inches in Row 3		98.7	85.4		Row 3 / 38.4 inches per cfs
5	No. of days water through reservoir		59	56		From WC records
6	Acre-feet through reservoir		11,553	9,491		Row 4 * Row 5 * 1.9835
7	Acre-feet from Barr/Oasis storage		6,760	5,107		From sheet 34 and WC records
8	Acre-feet From Burl direct		4,793	4,384		From WC records
9	Direct flow water entering B/O Reservoir, cfs.		41	39		Row 4 * (Row 8 / Row 6)
10	Direct at headworks for delivery below B/O Resev, cfs.		59	55		Row 9 / 0.72 conveyance efficiency
11	Diversion at headworks for above B/O Reservoir, cfs		147	168		Row 2 / (38.4 inches per cfs * 0.72 conveyance efficiency
12	Total 1885 div. rate, cfs		206	223		Row 10 + Row 11

viii. Alleged Speculation by the Burlington Company

326. Certain evidence suggests that the Burlington was engaged in speculation. In Case No. 54658, a director of the Burlington Company, Leonard Meek testified that:

> We got up to the original idea of most of us, along about '96. Peter [O'Brian, chief engineer of the Burlington Company and the Burlington Land and Improvement Company] says, we have got to raise it five feet more, we have got to do it. So we would go below and buy land and keep dickering with it.

With respect to the 1902/1903 filing, Mr. Meek testified:

> We simply wanted to keep the game alive, and raised that canal as fast as we could. We were all speculating in land below there**,** and we kept every year having some work done, and our legal advisor would tell us how much.

327. J. Sherman Brown, a director and the treasurer of the Burlington Company, when asked in the proceedings in Case No. 54658 why the dam enlargement was not completed sooner, testified, "Well, lack of funds of the company, and I suppose, no urgent demand for the water at that time."

328. During cross examination of Ms. Griffin, Applicants introduced a map from the Barr Lake Land and Improvement Company (the "Improvement Company") that had been filed with the State Engineer, listing Peter O'Brian as consulting engineer and questioned Ms. Griffin relating to the potential irrigable acres on a certain portion of the map. Applicants drew a

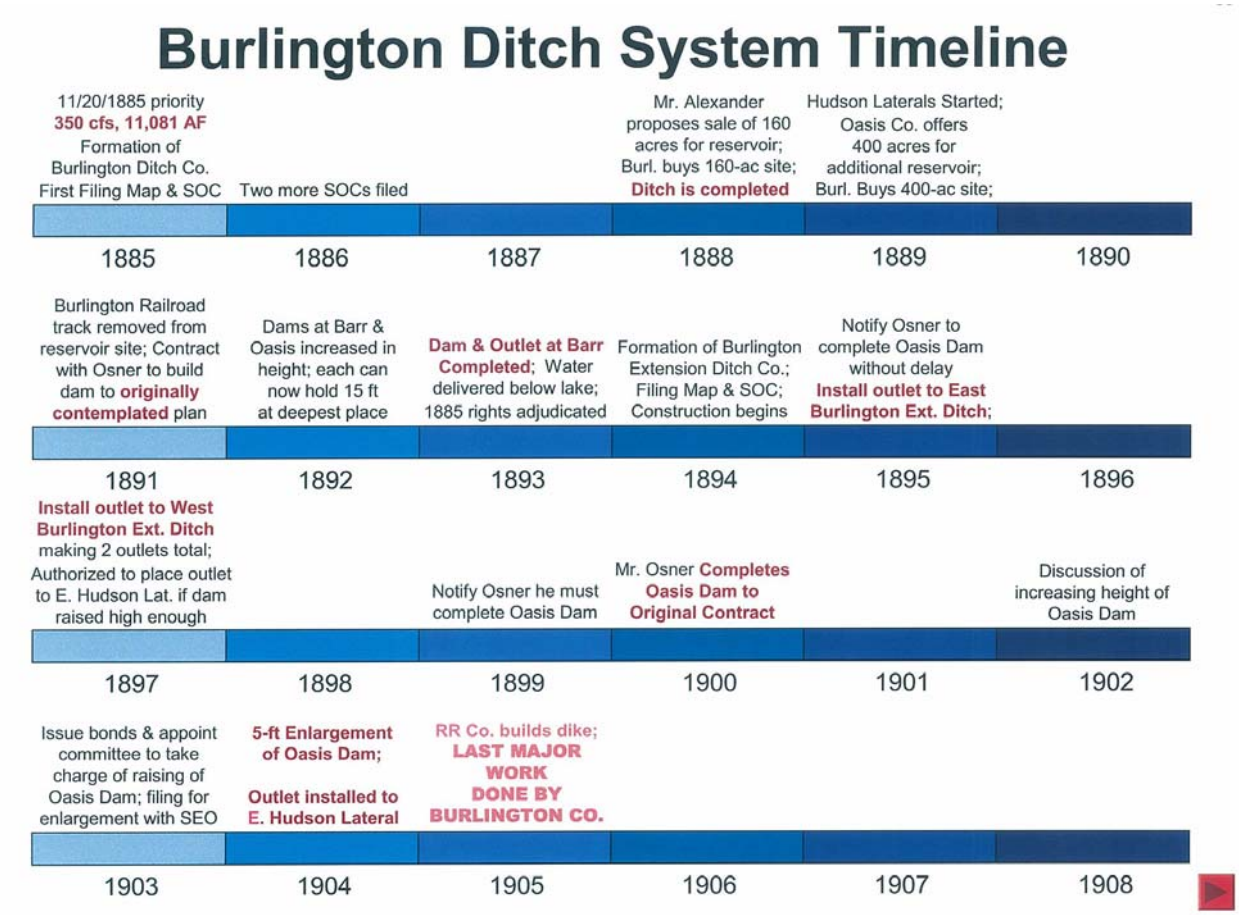
connection to the lands depicted in the map and the 12,000 and 28,000 acres mentioned in Referee Gregory's abstract of testimony in Case No. 11200.

329. Applicants also introduced during cross-examination a prospectus for the Improvement Company, authored by the American Exploitation Company, which listed Peter O'Brian as a director of the company. In that prospectus, the company asserted 6,358 irrigable acres. Applicants drew a connection between the lands described in the prospectus, and the lands depicted in the map to counter Opposers' position regarding the amount of water used below Barr Lake.

330. Ms. Griffin testified on redirect that she reviewed the identification of lands listed in the Improvement Company prospectus, and the lands depicted on the Improvement Company map, and concluded that lands identified in the prospectus were indeed depicted on the map. She further testified that George Bull, an engineer of the Denver Reservoir and Irrigation Company (a FRICO predecessor), had written a letter evaluating the lands referenced in the prospectus. In that letter, Mr. Bull wrote that out of the 6,358 acres claimed to be irrigable, 755 acres were actually irrigated, 1,449 acres were located on lands with a small possibility of irrigation in the future, and 4,154 acres were above the ditch and not irrigable.

ix. FRICO's Involvement in Burlington System

331. FRICO became involved in with the Burlington Company and Burlington system in 1909. A timeline summary of Opposers' evidence regarding actions taken by the Burlington Company before FRICO's involvement from Slide 21 of Englewood's Exhibit 608 is displayed below. It was prepared as part of Ms. Griffin's PowerPoint presentation and summarizes significant portions of her testimony.



332. Mr. Montoya identified two corporate documents that discuss FRICO's historical development. These documents are: "History of the Denver Reservoir and Irrigation Company," authored by then-FRICO Board Member Fred Lucas in 1910; and "Brief History of Denver Reservoir and Irrigation Company and its Subsidiary Companies," authored by A.J. Shaw in 1925, FRICO's receiver from 1910 to 1922. Both documents detail how the FRICO system consolidated existing irrigation systems (such as the Kineer Reservoir, Church Ditch Company, Community Ditch and Reservoir Company, the Platte Valley Company, and Burlington), capitalized the largest privately-funded reservoir company in the world, and struggled to finance the construction of the system and to recover from bankruptcy in 1910 to complete the current FRICO system that presently exists.

333. FRICO was to be an integrated water supply system, consisting of reservoirs and canals on both the eastern and western slopes of the Continental Divide. Standley Lake, the keystone of the FRICO system as originally conceived, was the largest privately-financed dam in the world at the time. The "Standley Irrigation System" described in the 1908 Statement of Claim was to irrigate 300,000 acres, which spanned across all four of the now existing FRICO reservoir divisions.

334. FRICO began its formal association with the Burlington Company by entering into a contract, dated March 17, 1909. The agreements were modified and amended in 1914, in 1915, and 1920.

335. The agreement between FRICO and Burlington granted FRICO the right to enlarge a portion of the Burlington Canal and to enlarge the Oasis Dam by 20 feet. The Burlington Company sold FRICO all of its rights from the South Platte River, and First, Second, Third, and Sand Creeks that were "in excess of those rights entitling the Burlington Company to fill Barr / Oasis [to its current capacity] . . . and in excess of the water now obtained and used for direct irrigation." Ms. Griffin opined that this agreement allowed FRICO to use the "excess" Burlington appropriation that was not being obtained and used for direct irrigation by the Burlington Company at that time.

336. Another provision of the 1909 Agreement allowed Burlington to abandon its ditch below section 30 and flow all of its water through a new ditch to be constructed and paid for by FRICO.

x. Case No. 54658

337. In Case No. 54658, FRICO filed a statement of claim in 1909 for numerous water rights that are the subject of the pending change of water right claims. Among numerous other water rights claims, FRICO was enlarging the first 5.43 miles of the original Burlington Canal to accommodate water for the Burlington-O'Brian and Denver-Hudson Canals, all of which divert at the Burlington headgate. FRICO was also adjudicating direct flow rights in the enlarged Burlington Canal (also known as the "Burlington-O'Brian Canal") and its enlargement of Barr Lake.

338. FRICO's statements of claim carried forward the concept that the eastern ditch and reservoir systems that were part of the integrated Standley Irrigation System as originally envisioned. These eastern ditch and reservoir systems are the current Barr and Milton Divisions.

339. Referee William R. Kelley issued his Referee's Report, Findings and Recommended Decree on October 16, 1915, which includes detailed findings regarding FRICO's rights and structures.

340. Referee Kelley denied FRICO's claim for a priority date of December 11, 1902 for the Burlington-O'Brian Canal. FRICO asserted that its claim should relate back to Burlington's 1903 filing to increase the capacity of its reservoirs. FRICO had purchased the rights to the Burlington Company's filings. However, Referee Kelley determined that Burlington had failed to diligently pursue its claimed enlarged appropriations. He stated that "[w]hat is proper diligence depends on the circumstances surrounding the lands and diversion works employed." He determined that Burlington's explanations of maintaining existing rights, lack of capital, and no immediate need for water were insufficient to excuse the lack of diligent prosecution of the enlarged appropriation. He also compared Burlington's nine-year lack of diligence on its enlarged appropriations to other irrigation projects, which were completed in three to four and a half years. Referee Kelley went on to state that the Burlington's agents were merely speculators seeking a more senior right. Consequently, FRICO was awarded a 1909 priority date.

341. Referee Kelley likewise denied FRICO's claim for a 1902 priority date for the enlargement of Barr Lake. The Burlington Company completed an enlargement survey on

December 11, 1902, and filed a statement of claim to enlarge Oasis Reservoir on March 10, 1903. The referee found that the Burlington Company had not been diligent in the enlargement from the time between the claim in 1903 and when construction actually began on January 13, 1909. The referee noted that the Burlington Company completed some work on the reservoir's inlet canal (the Burlington Canal) in 1902 and 1909, but that this work did not increase the capacity of the canal above its 350 cfs decreed capacity. The referee commented, "[i]t is questionable whether the ditch would on March 17, 1909, even carry the already decreed capacity." As a result, FRICO's claims for water rights in the enlarged Barr Lake were awarded a priority date of January 13, 1909.

342. The first decree in Case No. 54658 was entered on August 2, 1918. The final decree was entered on November 12, 1924.

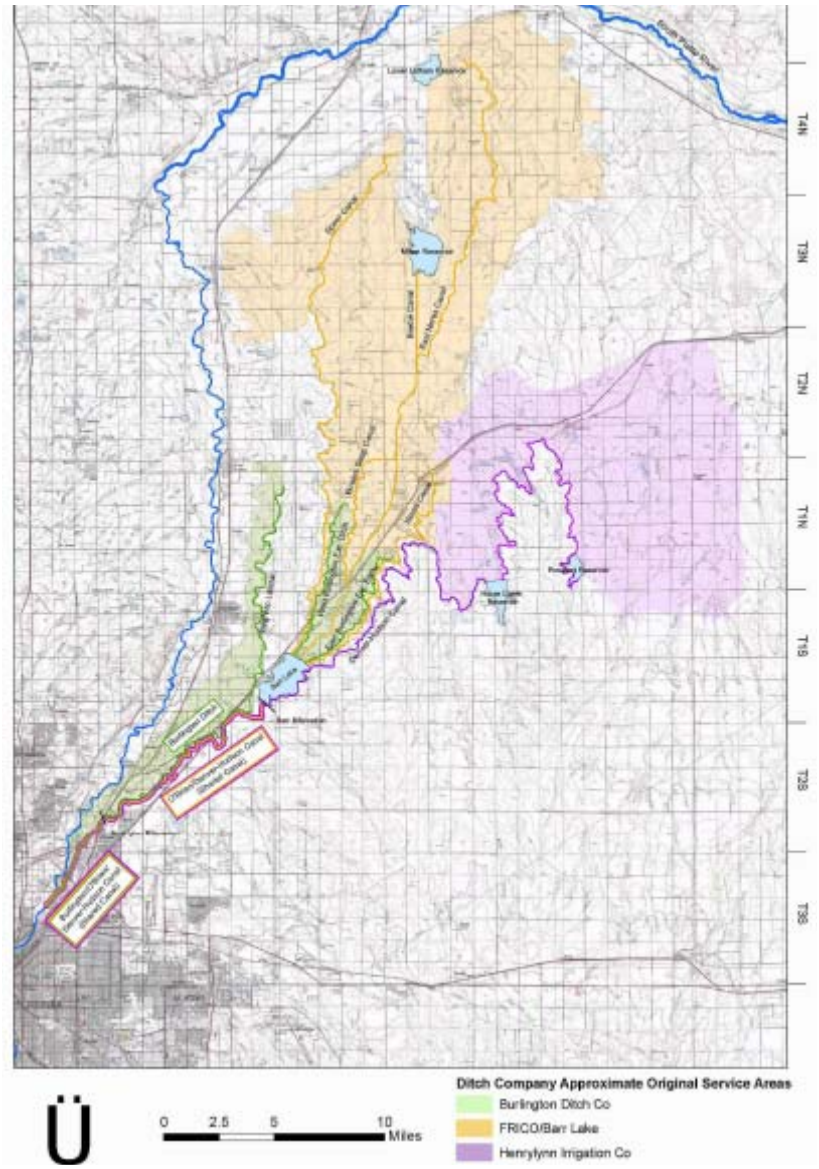
xi. Expansion and Development of Burlington-Barr Lake System after FRICO Involvement

343. FRICO developed and expanded the Burlington system in the period after 1909. In the 1909 Agreement, Burlington sold FRICO its excess direct flow and storage water in exchange for the right to expand its systems. Around 1911, FRICO enlarged the Burlington headgate and the first 5.43 miles of the Burlington Canal, a section presently referred to as part of the Little Burlington system. Around 1912, FRICO built the new O'Brian-Denver-Hudson Canal at a higher elevation. FRICO enlarged Barr Lake from 11,000 af to about 33,000 af of storage. FRICO also developed and expanded the FRICO-Barr Lake system to the north. Further, FRICO established Milton Lake down gradient in the Beebe Draw.

344. During the same period, Henrylyn completed construction on the Denver-Hudson Canal, built three new reservoirs, and constructed its irrigation system to the east of the Burlington and FRICO systems. Henrylyn first ran water in 1912.

345. Burlington, FRICO, and Henrylyn provide water for irrigating 30,000 to 40,000 acres of land, and their systems were developed for the most part during the 37 year period from 1885 to 1922. The Companies share diversion and conveyance facilities and are closely associated and they cooperate through various operational practices and agreements.

346. Englewood's Exhibit 51, displayed below, shows the lands irrigated under these various systems. The area shaded in green was originally irrigated by the Burlington rights under the Burlington Extension ditches for approximately 24 years prior to the FRICO expansion. The Companies now use the 1885 Burlington water rights in the areas shaded in orange, purple, and green.



347. Disputes arose between FRICO and Burlington, which resulted in several agreements between the companies in 1914 and 1915. The 1915 Agreement provided in part:

> The Burlington Company shall at any time on the request of the Farmer's Company, or any agent thereof, make demand upon the Water Commissioner or Division Engineer or State Engineer for the diversion into the enlarged Burlington Ditch of the water to which the Burlington Company is or shall be entitled by virtue of its priority . . . .

Another provision of the 1915 Agreement rescinded the Burlington's right under the 1909 Agreement to abandon the original Burlington ditch and use the O'Brian Canal. It also released FRICO from any obligation to pay the cost of moving or extending laterals or headgates in the event of an abandonment of the old Burlington Canal. Opposers contend these agreements

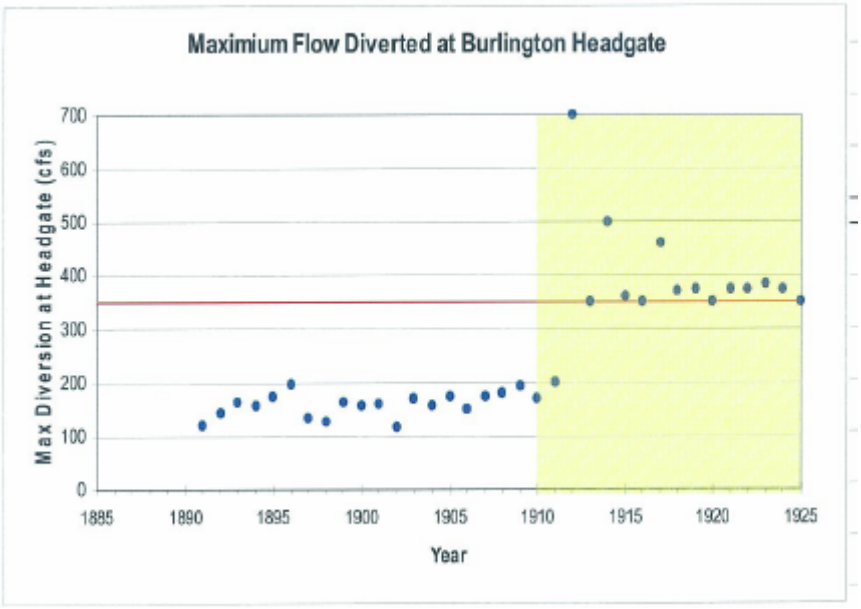
establish that Burlington and FRICO were two separate entities operating two separate irrigation systems.

348. In the 1918 adjudication in Case No. 54658, FRICO obtained a 1908 direct flow right and a 1909 storage right, and Henrylyn obtained a 1907 direct flow right as well as 1910 and 1911 storage rights. The decree in Case No. 54658 allowed the operation of three separate canals (Burlington, O'Brian, and Denver-Hudson) with a common headgate.

349. In 1920, Henrylyn filed a complaint in Denver District Court alleging, "for more than 20 continuous and consecutive years after construction of its works," Burlington never diverted more than 175 cfs. Henrylyn's complaint also alleged Burlington only irrigated 6,800 acres, 5,000 of which were under the Burlington and Brighton Lateral and 1,800 of which were under Barr Lake "by means of two small ditches."

350. Shortly thereafter, the 1921 Agreement between Burlington, FRICO, and Henrylyn settled the pending lawsuit. The 1921 Agreement also allowed Henrylyn and FRICO to split the 1885 water evenly.

351. Diversions at the Burlington headgate significantly increased following FRICO's involvement. A graph of FRICO's diversion records from Slide 44 of Englewood's Exhibit 608 illustrates the increase and is displayed below. These records were also compared to water commissioner field notebooks to derive the data.



352. This data and graph show that from 1891-1909, before FRICO's involvement, Burlington never averaged direct flow diversions of more than 200 cfs. Every year after the FRICO involvement, average direct flow diversions on the Burlington 1885 rights were at or above the decreed appropriation of 350 cfs.

353. In 1937, the Riverside Reservoir and Land Company ("Riverside") and the Bijou Irrigation District ("Bijou") filed a complaint with the State Engineer, alleging 1885 Burlington water was being used to irrigate lands within the Henrylyn irrigation system, whose rights were junior to those of Riverside and Bijou. The State Engineer Summary and Decision stated though there was no ambiguity of decrees, nor any material disagreement as to the statement of facts, he did not have the authority to question a Burlington call for Burlington water unless there was a wasteful use of water shown.

354. In 1987, FRICO's President, Albert Sack, sent a memo to the FRICO Directors, which stated that under the 1921 Agreement with Henrylyn, "we have no legal right to split water with Henrylyn on an 1885 Oasis [storage water] decree."

355. In November 1993, Denver protested a FRICO 1909 call, alleging that an earlier diversion on the Burlington 1885 storage right sent 5,000 af into the Henrylyn system

356. In 2006, Mr. Montoya, FRICO's general manager, signed an affidavit stating:

> The delivery canals in the Burlington Company system were constructed by the Brighton Lateral Ditch Company, the Hudson Lateral Ditch Company, and the Burlington Extension Ditch Company as lateral ditches completing the original ditch and reservoir system as originally envisioned by the Burlington Company.

xii. Result of Opposers' Coloring Analysis

357. Englewood's expert testified it is difficult to determine the lawful historical consumptive use of the FRICO 1908 and 1909 rights because a number of water rights were delivered through the combined Burlington headgate, and historically, those rights were not tracked or "colored" by priority in FRICO's accounting. Ms. Griffin generally used Mr. Helton's daily call analysis to attempt to color the releases by particular priorities.

358. As a result of this coloring analysis, Ms. Griffin stated four different categories of water were not encompassed within the changed shares: (1) unlawful use of 1885 direct-flow water below Barr Lake; (2) out-of-priority diversions; (3) diversions under the decree from Case No. 84CW90 ("84CW90 water"); and (4) delivery of seepage gains.

359. Regarding the alleged unlawful use of 1885 direct-flow water below Barr Lake, Ms. Griffin testified that she found that 24.3 percent of the direct flow releases were attributable to the Burlington 1885 direct flow right during Mr. Helton's study period.

360. Ms. Griffin stated that out-of-priority diversions accounted for 8.6 percent of all direct flow releases from Barr Reservoir during Mr. Helton's study period of 1969-2004. The issue of out-of-priority diversion is addressed below in section IV.H.5, beginning at paragraph 388 of this order.

361. Regarding seepage gains, Ms. Griffin testified that she allowed for 0 percent ditch loss (100 percent efficiency), but excluded gaining deliveries from her historical consumptive use

analysis for the changed shares because the FRICO 1908 and 1909 rights did not contain any language granting appropriations for ditch seepage. The issue of seepage to the Beebe Canal and toe drain seepage from Barr Lake dam is addressed in greater detail below in section IV.H.9, beginning at paragraph 432 of this order.

362. Ms. Griffin excluded diversions under the decree in Case No. 84CW90 because this priority was not included in this changed shares in this case. The issue of diversions under Case No. 84CW90 is addressed in greater detail below in section IV.H.17, beginning at paragraph 598 of this order.

d. Analysis of Historical Use of 1885 Burlington Water

363. As discussed in more detail below, the court determines that the evidence in this matter supports Opposers' position regarding the historical use of the 1885 Burlington direct flow and storage water rights. Applicants must therefore reduce the historical consumptive use of the changed shares as discussed below.

i. 1885 Burlington Water Rights Decreed as Absolute

364. The interpretation of decrees is a question of law for the court. *Hinderlider v. Canon Heights Irrigation & Reservoir Co.*, 185 P.2d 325 (Colo. 1947). A decree should be complete and certain in itself. *Id*. at 327-28. When construing a decree, the whole decree must be considered. *Drach v. Isola*, 109 P. 748, 751 (Colo. 1910). *See City of Golden v. Simpson* 83 P.3d 87, 93 (Colo. 2004) (courts consider plain and ordinary meaning of terms of decrees to ascertain intent of parties).

365. "[If] a decree is susceptible of more than one interpretation, one of which is consistent with applicable legal principles and the others of which are inconsistent with those principles, we obviously must choose that interpretation which accords with controlling legal norms." *Orr*, 753 P.2d at 1222.

366. Colorado courts "have consistently held that statements of claim and transcripts of testimony in adjudication proceedings are admissible evidence in other actions involving the construction or interpretation of water decrees." *Farmers Reservoir and Irrigation Co. v. City of Golden*, 44 P.3d 241, 248 n.6 (Colo. 2002) (citations omitted). Statements of claim and transcripts of testimony in adjudication proceedings are admissible as evidence, along with the decree for the water right, to aid the court in determining the location and acreage of the land for which a water right was originally appropriated and whether there has been an enlarged use of the original appropriation. *New Mercer Ditch Co. v. Armstrong*, 40 P. 989 (Colo. 1895).

367. The decree in Case No. 11200 decreed the 1885 Burlington direct flow and storage rights as absolute. "A decree for an absolute water right confirms that an appropriative right has vested and identifies the right's priority and amount." *Empire Lodge*, 39 P.3d at 1148. As discussed above in detail, the referee's findings in Case No. 11200 state that the Burlington Ditch had been completed as far as Barr Lake. The referee's findings further state that forty miles of outlet ditches had been constructed to utilize the waters from Barr Lake and Oasis Reservoir. The

evidence in this matter further established that water had been diverted and applied to beneficial use through these structures at the time the decree in Case No. 11200 was entered on July 8, 1893. Therefore the appropriation was completed and the decree was for an absolute water right.

368. There is no language in the decree in Case No. 11200 that would permit the Burlington Company to apply water to a beneficial use in the future under the 1885 priority. There is likewise no language in the decree in Case No. 11200 indicating that the court decreed a conditional water right to the Burlington Company.

369. Unlike an absolute water right, a conditional water right depends upon the completion of the requirements necessary to appropriate the water and put the water to beneficial use. *See* § 37-92-103(6) (A conditional water right is the "right to perfect a water right with a certain priority upon the completion with reasonable diligence of the appropriation upon which such water right is to be based."). *See also Conley v. Dyer*, 95 P. 304 (Colo. 1908) (recognizing conditional decree where right contingent upon the exercise of diligence in constructing, extending, or enlarging the ditch and applying the water through the same within a reasonable amount of time from the date of commencement of the ditch or canal.)

370. Although conditional water rights were not recognized by statute until 1919, Colorado courts had recognized conditional rights in water rights decrees prior to 1919. *See e.g., Waterman v. Hughes*, 80 P. 891 (Colo. 1905); *Conley*, 95 P. at 304.

371. For example, the court in Case No. 54658 in effect decreed a conditional right to Barr Lake for its 1909 storage priority with the following language:

> And further, this decree is without prejudice to right of claimant to have later awarded said reservoir, by the same priority number and date, the right to divert into it through its inlet at a greater rate, not exceeding 900 cubic feet per second, and to store a greater depth up to 34 feet total depth, and one complete refilling annually, provided it be shown in a proper proceeding such additional diversion has been made, and the water so diverted and stored has been applied to beneficial use within a reasonable time from said enlargement priority date.

In contrast, there is no similar or analogous language in the decree in Case No. 11200 that would provide the Burlington to make a similar showing that it had perfected its appropriation.

372. The court is not persuaded that the Burlington Company or FRICO had the right to build out the Burlington system under the 1885 priorities due to the lack of evidence of any intent to irrigate the amount of lands claimed to be irrigable under Barr Lake. The evidence establishes that the Burlington Company intended to irrigate lands under the Burlington Canal that are located above Barr Lake. For example, the referee's findings state that 12,000 acres of land is irrigable under the Burlington Canal and the evidence establishes that Burlington diverted up to 200 cfs to irrigate those lands. However, Applicants point to no portions of the record in Case No. 11200 or any other evidence that would indicate that the Burlington Company intended to irrigate lands below Barr Lake with 1885 Burlington direct flow water.

373. The court is not persuaded that the referee's findings or the decree in Case No. 11200 granted the Burlington Company the right to apply direct flow water below Barr Lake. The findings state that 28,000 acres below Barr Lake is "susceptible to being irrigated" by the Burlington Canal and Barr Lake. The referee further found that these "susceptible" lands extended to the eastern line of Colorado. This language, and in particular the use of the word "susceptible," is not an expression of intent actually to irrigate these acres, but rather, is a factual statement describing the acreage lying below the Burlington structures that could potentially be irrigated.

374. Even if the decree in Case No. 11200 were a conditional water right decree, or if the Burlington Company and FRICO had the opportunity to build out the Burlington system within a reasonable time to irrigate over 28,000 acres below Barr Lake, the court would continue to disagree with Applicants position. As discussed above, diversions under the 1885 Burlington direct flow right expanded from under 200 cfs to above 350 cfs following the involvement of FRICO beginning in 1909. No evidence was presented in this matter to justify Burlington's failure to divert and use the full 350 cfs of the 1885 Burlington direct flow right for over 20 years following its initial appropriation. In the unique circumstances of this matter, 20 years is an unreasonable amount of time in which to perfect the appropriation. *See Drach*, 109 P. at 751 (law does not permit defendants, after a lapse of 15 years from the date of the decree, and 23 years after the construction of their ditch, to perfect a contingent or inchoate right to make further appropriations).

ii. Expansion of the 1885 Burlington Water Rights

375. Applicants are not entitled to credit for the consumptive use of the 1885 Burlington water rights on the increased acreage due to an expansion of use. The use of the water attributed to the 1885 Burlington water rights on increased acreage beyond the scope of the decree in Case No. 11200 creates a rebuttable presumption of increased use in time or volume. *Midway Ranches*, 938 P.2d at 523. Applicants failed to adequately rebut that presumption.

376. Implied limitations are read into every decree adjudicating a water right. *Rominiecki v. McIntyre Livestock Corp*., 633 P.2d 1064, 1067 (Colo. 1981). For example, diversions under a decreed water right are limited to amounts sufficient to achieve the purpose for which the appropriation was made even if it is less than the decreed diversion rate. Therefore, a water user cannot divert more water than can be beneficially used and cannot extend the time of diversion to irrigate lands other than those for which the appropriation was made. *Id*.

377. A "water right decreed for irrigation purposes cannot lawfully be enlarged beyond the amount of water necessary to irrigate the lands for which the appropriation was made." *Central Colo. Water Conservancy Dist. v. City of Greeley*, 147 P.3d 9, 14 (Colo. 2006) ("When usage is decreed for irrigation purposes, the change decree is limited to both the express volume of water utilized *and* the specific acreage irrigated."). *See also Enlarged Southside Irrigation Ditch Co. v. City of Golden*, 116 Colo. 580, 587-88, 183 P.2d 552, 555 (1947)

378. The weight of the historical and other evidence discussed above leads the court to determine that the 1885 Burlington direct flow and storage water rights were unlawfully

expanded after they were decreed. The decree in Case No. 11200 only provides for the use of 1885 Burlington direct flow water right above Barr Lake and the evidence regarding historical use of the 1885 Burlington direct flow water right only establishes that 200 cfs was ever actually diverted prior to FRICO's expansion of the Burlington system. However, the Companies went beyond the limits of the decree and historical use following FRICO's involvement. Similarly, the evidence regarding historical use of the 1885 Burlington storage right establishes that diversions under that right were limited and that reservoir releases only averaged 5,511 af primarily through the lands under the Burlington extension laterals before FRICO's involvement. Again, the Companies went beyond the limits of the decree and historical use following FRICO's involvement. The evidence and legal principles applied to this matter simply provide no basis for FRICO to expand Burlington's 1885 water rights beyond the limits of the decree in Case No. 11200 and the actual historical use of those rights.

379. Applicants attempt to distinguish this matter from previous cases involving expansion of use on the basis that the Burlington system is water short. *See* section IV.H.10.a.i, beginning at paragraph 457 (regarding irrigation system as "water short"). However, the court is not persuaded.

380. Applicants' evidence establishes that the Burlington system is currently water short and, at best, establishes that the system has been water short since FRICO's involvement. Early in Burlington's history, the water users under Barr Lake appeared to have one of the best water rights on the South Platte River and did not suffer from a shortage of supply due to the 1885 Oasis storage right being the most senior non-irrigation season priority on the river. Moreover, Burlington never diverted the full decreed amounts prior to FRICO's involvement and sold its "excess" water to FRICO in a 1909 agreement. There is no evidence, however, that the Burlington system as intended in Case No. 11200 was short of water.

381. The current water short nature of the Burlington system is likely due in part to the total acreage irrigated under the combined Burlington-Barr and FRICO-Barr systems, which were developed in large part between 1885 and 1922. Approximately 1,350 acres were being irrigated below Barr Lake as of 1893. The acreage irrigated below Barr Lake ranged from several hundred acres to just under 3,000 acres from the initial appropriation of the 1885 Burlington rights to 1900. Following FRICO's involvement in the Burlington system, the Burlington-O'Brien Canal was enlarged, the dam at Barr Lake was raised, and the Speer, Neres, and Beebe Canal outlets were constructed. The Speer, Neres, and Beebe Canals totaled around 140 miles in length. These new outlet canals in particular increased the ability to deliver water through and from Barr Lake and permitted the 1885 Burlington water rights to be used on additional acreage. In short, additional acres could be irrigated because the ability to deliver water through and from Barr Lake greatly expanded after FRICO's involvement.

382. In sum, the evidence is not sufficient for the court to make a determination that the Burlington System was water short prior to FRICO's involvement with the system. Rather, the evidence illustrates that Burlington Company had excess water which was available for use by other users, including FRICO. Applicants are therefore not entitled to credit for the consumptive use of the 1885 Burlington water rights on the increased acreage.

iii. Quantification of Historical Use

383. Applicants shall limit the quantification of historical consumptive use for the 1885 Burlington water rights to the amount consistent with the use of that right prior to FRICO's involvement beginning around 1909, which expanded the 1885 Burlington rights.

384. The historical consumptive use of the water rights to be changed in this matter must be established and quantified before the court can approve the change in use requested by Applicants. *Trail's End Ranch*, 91 P.3d at 1063. "Even when it seems clear that no other rights could be affected solely by a particular change in the location of diversion, it is essential that the change also not enlarge an existing right." *Trail's End*, 91 P.3d at 1063. The burden of establishing lawful historical use on the change of water right applicant. *Wiebert v. Rothe Bros.* 618 P. 2d 1367, 1372 (Colo. 1980).

385. The true measure of the water right, which is permissible to change, is determined by establishing the historical diversions and use. *High Plains A&M, LLC v. Southeastern Colo. Water Conservancy Dist.*, 120 P.3d 710, 719 (Colo. 2005). For a water right to be quantified and changed, the historical diversion and beneficial use of water must be completed pursuant to and consistent with the original decree for the water right to be changed. *See Steffens v. Rinebarger*, 756 P.2d 1002 (Colo. 1988); *Enlarged Southside Irr. Ditch Co. v. John's Flood Ditch Co.*, 116 Colo. 580, 183 P.2d 556 (1947). On applying for a change of water right, the water user "runs a real risk of requantification of the water right…" *Pueblo West Metro. Dist. v. Southeastern Colo. Water Conservancy Dist.*, 717 P.2d 955, 959 (Colo. 1986).

386. Based on the evidence presented in this matter, the 1885 Burlington direct flow water is therefore limited to 200 cfs for use above Barr Lake. As discussed in detail above, the historical evidence as well as the testimony of Ms. Griffin establishes that the Burlington Company did not divert 350 cfs before FRICO's involvement in the Burlington system. Rather, the Burlington Company diverted, at most 200 cfs. The evidence in this matter further establishes that water diverted under the 1885 Burlington direct flow water right was used above Barr Lake for several decades. It was only after FRICO's involvement in the Burlington system that the "excess" water that Burlington sold to FRICO was diverted through Barr Lake. The court is not persuaded by Mr. Helton's rebuttal analysis regarding the delivery of direct flow water below Barr Lake when considering the evidence in this matter as a whole. In addition to the limitations from the decree in Case No. 11200 that are discussed above, the evidence in this matter supports such a limitation.

387. Based on the evidence presented in this matter, the 1885 Burlington storage water right is therefore limited to annual reservoir releases of 5,456 af to the lands under the Hudson and Burlington Extension laterals that existed in 1909. As discussed in detail above, the historical evidence as well as the testimony of Ms. Griffin and Mr. Armbruster establishes that the use of water stored in Barr Lake before the involvement of FRICO was limited. The Hudson laterals were in disrepair and rarely delivered relatively small amounts of water below Barr Lake to shareholders. Oasis Reservoir and Barr Lake storage water that was delivered to shareholders was instead generally delivered through the East and West Burlington Extension Ditches as they

existed at that time. The evidence establishes that the average annual amount of storage water released before the involvement of FRICO was 5,511 af with a maximum annual storage water release of 6,760 af. There is no evidence that greater amounts of water stored in Oasis Reservoir and Barr Lake were applied to a beneficial use. In addition to the limitations from the decree in Case No. 11200 that are discussed above, the evidence in this matter supports such a limitation.

5. Analysis of Alleged Out-of-Priority Diversions

388. Applicants presented their *prima facie* case based on their position that historical diversions under the water rights to be changed in this matter have been made in priority. However, Opposers contend that some diversions into the Burlington Canal were made out of priority and that such diversions may not be considered part of the historical consumptive use. As discussed below, the court determines that Opposers' evidence of out-of-priority diversions is insufficient.

a. Evidence Regarding Out-of-Priority Releases

389. FRICO has not historically recorded diversions based on specific priorities. Mr. Montoya testified that it was not necessary for the operation of the FRICO system to keep track of which priority was being diverted to which part of the system when there was more than one decree in priority upon which diversions were made. As a result, the FRICO records did not historically reflect such distinctions. In 2006, Applicants developed detailed accounting of the numerous water rights diverted at the Burlington headgate, to which Ms. Thompson testified at length.

390. Ms. Griffin, performed an analysis in which she allocated historical diversions to specific decrees as part of her historical analysis of the water rights to be changed in this matter. The analysis was performed to determine how much water was historically diverted under the changed water rights. She initially attempted to use historical diversion and call records to determine which rights were diverted on certain days. However, she adopted the information and framework from Mr. Helton's analysis after its disclosure.

391. Ms. Griffin stated her conclusion that 8.6 percent of all direct-flow releases from Barr Lake were out of priority. In arriving at her opinion regarding out-of-priority diversion, Ms. Griffin relied on the change in storage and release records from Barr Lake to determine whether releases from Barr Lake were direct-flow water being passed through the reservoir or whether they were releases from storage. Direct flow discharges from Barr Lake were considered to be the amount by which the discharges exceeded a decrease in storage content. Ms. Griffin also relied on State historical call records. Water diverted at the Burlington headgate reaches Barr Lake in approximately 24 hours. Thus, neither Ms. Griffin nor Mr. Helton counted releases as direct flow discharges if either the 1885 Burlington or 1908 FRICO direct flow rights were out of priority the previous day.

392. Mr. Montoya testified regarding the administration of calls at the Burlington headgate and in Water District 2, where the Burlington headgate is located. In particular, he testified that the administration of calls and changes in call occurs much more quickly now than it did 20 years ago due to improved communications. Previously, a change in call required the water

commissioner to telephone water users who then had to communicate with staff in person or by telephone or radio to send a ditch rider to manually adjust the headgate. The result was often a delay in the change of the call and the actual change in river conditions from changed diversions. Now, however, a call or change in call is communicated through electronic communication within minutes. Diversions at the Burlington headgate can then be adjusted using the Supervisory Control and Data Acquisition system.

393. Mr. Montoya testified further regarding the relationship between the delay in call implementation and state call records. For example, if the call on the river on a particular day was junior to 1885, the 1885 Burlington direct flow right would be diverting at 350 cfs. If the call changed to be senior to 1885, the Burlington 1885 right could no longer divert. To implement this change in the call, the water commissioner would telephone FRICO in the morning and FRICO would inform its ditch rider to shut the headgate. However, there would be a delay between the official change in the call and the change in river conditions.

394. Moreover, State call records trace the official call from midnight to midnight. Thus, in the previous example, the day's official call reflected in the State records would be senior to 1885. The record of FRICO's diversion during the day would be the average of that day's diversion. Because FRICO would have diverted part of the day at 350 cfs due to the delay in the communication and implementation of the call, FRICO's average diversions during the day would be more than the day's official call would appear to permit and thus appear to be out of priority. Mr. Stahl, previous Water Commissioner for Water District 2 confirmed Mr. Montoya's testimony.

395. Mr. Stahl also testified regarding the administration of bypass calls and state records. State water officials often use bypass calls when a downstream senior water right calls for water to maximize diversions. To meet the demand of the downstream calling right, all junior upstream diversions are curtailed except for the bypass calling right, which is permitted to divert part of its water right. Thus, the downstream calling right is satisfied and the bypass calling right is partially satisfied.

396. Mr. Stahl testified that the water rights diverted at the Burlington headgate were frequently the bypass calling right, especially in July and August due to their relatively junior priorities. However, he explained that when he started working for the water commission, although the practice of allowing junior water rights to divert part of their right existed, the concept of "bypass calls" did not exist. State records consequently reflected only the senior calling right and not the bypass calling right. Therefore, diversions made under a bypass call could appear to be out of priority upon review of State call records.

397. Mr. Stahl stated diversion records are more reliable than state call records based on his review and knowledge of administration. He further testified that state call records do not allocate diversions to a particular priority; rather, state call records simply state the priority date of the call and which structure may divert.

398. Mr. Stahl also testified that he was not aware of out-of-priority diversions by the Companies at the Burlington headgate. He testified that until recently, reservoirs did not make

calls against the Burlington system. When calls were made, however, FRICO responded to and complied with the calls.

b. Analysis

399. The evidence in this matter is insufficient to conclude that Applicants have included out-of-priority diversions in their quantification of historical consumptive use of the changed shares. An applicant may not rely on out-of-priority diversions to quantify historical use. *In re Steffans*, 756 P.2d 1002, 1005 (Colo. 1988). Although Ms. Griffin's coloring analysis suggests a determination that significant amounts of diversions at the Burlington headgate were out of priority, her analysis did not take into account the State's unrecorded administration of bypass calls and the time delay in the historical administration of calls. Further, Mr. Stahl, who administered the Companies' rights at the Burlington headgate, testified that he was aware of no out-of-priority diversions at the Burlington headgate. Therefore, the evidence in this matter is insufficient to conclude that the Companies rely on out-of-priority diversions.

6. Study Period

a. Applicants' Proposed 1969-2004 Study Period

400. Applicants selected a study period from 1969-2004 to calculate historical use of the changed shares.

401. Mr. Helton, Applicants' expert, testified regarding the various factors he used to recommend this study period. Mr. Helton testified that this 36-year study period was reasonably long and included wet years in the 1980s and early 1990s as well as dry years such as 1974, 1977, and 2002 to 2004. Mr. Helton also testified that this study period reflects the inclusion of transmountain return flows, namely those from the Colorado-Big Thompson Project ("C-BT"). The Northern Colorado Water Conservancy District operates the C-BT and began importing water from the Colorado River basin into the South Platte River basin in 1957. He testified that Northern diverts an average of over 200,000 af of C-BT water into the South Platte basin each year. He also stated under Northern's rules, allocations of C-BT water increase during dry years in the South Platte basin and decrease during wetter years. No other transmountain diversions were addressed.

402. Applicants also rely on the testimony of Mr. Montoya, FRICO's general manager, and Mr. Stahl, former water commissioner for Water District 2, which includes the Burlington-Barr Lake system. Mr. Montoya testified that the physical measuring devices in place in the Burlington-Barr Lake system after 1979 are more accurate than previous measuring devices. Mr. Montoya and Mr. Stahl also testified regarding changes in the administration of water rights on the South Platte River that have occurred during the past 20 years. These administrative changes have, in general terms, required more precise diversions and resulted in more timely administration of calls.

b. Opposers' Various Proposed Study Periods

403. Opposers contend that Applicants' proposed study period is not representative of historical use and relies upon transmountain supplies for which the Applicants have no legal claim. Rather, Opposers maintain that Applicants selected a study period that maximizes the yield of the changed shares.

404. Opposers further assert that an analysis performed by Mr. Helton for the Amended and Restated Water Supply Agreement between the Applicants contradicts Applicants' proposed 1969-2004 study period. Mr. Kaunisto, ECCV's manager, conceded on cross-examination that Mr. Helton performed an analysis of the FRICO and Burlington shares for the Amended and Restated Water Supply Agreement between the Applicants. He also confirmed that the Amended and Restated Water Supply Agreement calls for a study period of 1941-2002, and the spreadsheet model attached to the Amended and Restated Water Supply Agreement, performed by Mr. Helton, included a study period of 1941-2002. Applicants provided no evidence or testimony to explain this contradiction.

405. As an alternative to Applicants' proposed study period, experts for Englewood, Aurora, and Central each recommended different study periods as discussed below.

i. Englewood's Proposed Study Periods

406. Englewood's expert, Ms. Griffin, selected different study periods for the various water rights delivered to the changed shares based on her historical use analysis that is detailed above in section IV.H.5, beginning at paragraph 273 of this order. Ms. Griffin initially selected a study period of 1927-2004, which utilizes the entire data period of FRICO's records that was available. She opined that the longest study period would yield the most accurate results. However, after completing her historical use analysis, she modified her proposed study periods as indicated below.

407. Englewood proposed a study period from 1885-1909 for the 1885 Burlington direct flow water rights. Ms. Griffin's opinion is based on her historical analysis that the 1885 Burlington direct flow right matured before the involvement of FRICO in the expansion of the Burlington system following 1909.

408. Englewood proposes a study period from 1927-2004 for the 1885 Oasis-Barr Lake water storage right. Ms. Griffin opined that, based on her historical analysis, the average annual release from Barr Lake from 1897 until FRICO's involvement in 1909 was 5,511 af with a maximum annual release of 6,670 af. Based upon her opinion that the use of Oasis-Barr Lake water prior to FRICO's involvement was primarily water released to the East and West Burlington Extension Ditches, Mr. Griffin used Mr. Helton's data to calculate the total releases listed for the East and West Burlington Extension Ditches from 1927-2004. The result was an average annual diversion of 5,456 acre-feet with a maximum annual diversion of 8,517 acre-feet. Because the numbers were close to her calculation for 1897-1909, Ms. Griffin elected to propose the study period of 1927-2004, with the higher maximum annual release for her proposed volumetric limitations.

409. Englewood proposed a study period from 1927-1983 for the 1908 and 1909 FRICO rights. Ms. Griffin contends that this alleviates confusion regarding the accounting of 84CW90 water. Ms. Griffin also testified that she chose this period because of the changed practices of diversions as outlined in the 1987 Albert Sack memo and related motion and the possibility that 1885 storage water may have been delivered to Henrylyn.

ii. Aurora's Proposed 1950-2004 Study Period

410. Aurora proposes a study period of 1950-2004 for the changed shares. Aurora contends that this period appropriately accounts for periods of drought and is sufficiently long to establish representative historical conditions.

411. Aurora notes that its proposed study period takes account of periods before 1964, when return flows from transmountain water from Denver's Robert's Tunnel was available to Applicants. *See City & County of Denver v. Consol. Ditches Co. of Dist. No. 2*, 807 P.2d 23, 36 (Colo. 1991) (regarding Denver's ability to reuse transmountain water diverted through the Robert's Tunnel after 1964). Mr. Ault, Aurora's expert, staed that municipal importers of transmountain water such as Aurora, Denver, and Thornton are taking credit for and reusing those fully-consumable return flows. Aurora thus argues that growing demand and increasingly stringent administration will reduce the ability of Applicants to rely on such transmountain return flows as municipalities that own the transmountain water reuse the return flows.

412. Mr. Ault also testified that the analysis performed by Mr. Helton for the Amended and Restated Water Supply Agreement was not a firm yield analysis, but simply an average consumptive use analysis, the same type of analysis performed to determine historical consumptive use in this matter.

iii. Central's Proposed 1927-1983 Study Period

413. Mr. Armbruster, Central's expert, selected a 1927-1983 study period for the changed shares. He testified that a longer study period is generally better and will capture additional periods of both drought and abundant supply. He stated that a longer study period will also more accurately demonstrate the prevailing long-term hydrologic conditions. He chose to begin his study period in 1927 due to the availability of detailed Barr Lake release data back to that year. He ended his study period in 1983 because, in his opinion, it was the simplest and most effective way to exclude any water diverted under FRICO's right decreed in Case No. 84CW90 from his historical use analysis. He testified that in his opinion, Mr. Helton's analysis did not fully and appropriately exclude all water diverted under the right decreed in Case No. 84CW90 because he limited the amount excluded to the non-irrigation season. Nevertheless, Mr. Armbruster indicated he would not object to a study period that included years following 1983 provided that water diverted under the decree in Case No. 84CW90 is excluded.

414. On cross-examination, Applicants questioned Mr. Armbruster about a historical use analysis that he co-drafted with Leonard Rice Engineers regarding the several shares of the Fort Lyon Canal Company in the Arkansas River basin. In that report, a 1979-2002 study period was

selected. That analysis did not include transmountain water from the Frying Pan-Arkansas Project.

c. Analysis

415. The court determines that Applicants' proposed study period is not representative of historical consumptive use and will not be used in this matter. Rather, Englewood's proposed study periods are more adequate and shall be used in this matter to determine the historical consumptive use of the water rights to be changed.

416. An initial consideration in analyzing the historical use of water rights for a change of water right claim is to determine the proper study period, or period of time that most accurately represents the historical use of the rights at issue. *See Midway Ranches*, 938 P.2d at 522 ("[The] right to make a change to a tributary water right, such as a change in point of diversion or place or type of use, is limited in time and quantity to historical use."). The study period should be sufficiently long to account for wet and dry periods, it should include periods of changing conditions in the river, and it should consider the accuracy and availability of available records.

417. Applicants' proposed study period of 1969-2004 is not representative of historical use and shall not be used in this matter. The inclusion of C-BT transmountain return flows is a significant rationale for Applicants' proposed study period; however, Applicants have not demonstrated they are legally entitled to rely upon these transmountain inflows to the South Platte River basin. Further, Applicants do not account for other transmountain water and the fact that numerous municipalities are now taking credit for and reusing transmountain return flows that previously returned to the stream. Consequently, the existence of transmountain inflows is not a reliable basis upon which to select a study period in this matter. Moreover, Applicants do not explain why their proposed study period in this matter differs from that called for in the Restated Water Supply Agreement. Finally, Opposers convincingly argued that other study periods more accurate and reflective of changing river conditions, drought periods, and diversion records.

418. The court is not persuaded by Mr. Armbruster's use of a 1979-2002 study period regarding the several shares of the Fort Lyon Canal Company in the Arkansas River basin. The Arkansas River is distinct from the South Platte River and what may be appropriate in one basin is not necessarily appropriate in another. *See Simpson v. Bijou Irrigation Co*. 69 P.3d 50, 67 (Colo. 2003) (Due in part to differences in basin characteristics, Rules and Regulations adopted by State Engineer pertaining to one water basin are inapplicable to others). The Fort Lyon Canal and the Arkansas River are not directly relevant to this matter.

419. The court determines that Englewood's proposed study periods are representative of actual lawful historical use and are appropriate to be used in this matter. For the 1885 Burlington direct flow right, the study period shall be 1885-1909. Although a relatively short study period, this determination is consistent with the court's determination regarding the lawful historical use of the 1885 Burlington direct flow water right. *See* section IV.H.4.d.iii, beginning at paragraph 383. For the 1885 Burlington storage right (also known as the 1885 Oasis-Barr Lake storage right), the study period shall be 1927-2004. The court agrees with Ms. Griffin's analysis

regarding the storage right, which is described above. For the 1908 and 1909 FRICO water rights, the study period shall be 1927-83. The court agrees that such a study period is sufficiently long and alleviates potential confusion and accounting issues regarding the inclusion of water diverted under the decree in Case No. 1984CW90.

7. Claimed Additional Ten Percent Farm Headgate Deliveries

a. Applicants' Claimed Additional Ten Percent Deliveries

420. To calculate deliveries to the changed shares, Applicants relied upon FRICO delivery records. Nevertheless, Applicants propose to add ten percent to the amounts reflected in FRICO records for purposes of analyzing historical deliveries to shareholders. The additional ten percent is based on the testimony of Mr. Montoya that it is FRICO's historical practice to open farm headgates ten percent more than the shareholders' request to account for evaporation throughout the day and to avoid shareholder complaints. Mr. Montoya testified that the delivery of ten percent extra was a practice that he inherited when he became FRICO's general manager six or seven years ago.

b. Opposition to Additional Ten Percent

421. Opposers contest the addition of ten percent to the amounts reflected in FRICO records for purposes of analyzing historical deliveries to the changed shares. Opposers note that Applicants first claimed the additional ten percent three weeks prior to trial in a recalculation found in their last supplemental expert report filed in March 2008. Previous pleadings in this matter and Applicants' expert reports in August and November 2007 did not mention the additional ten percent. Opposers also challenge the accuracy of whether an additional ten percent of water was actually delivered, even if farm headgates were opened more than requested.

c. Analysis

422. Mr. Montoya testified his FRICO records of farm headgate delivery are accurate and based on a daily measurement of water delivered to the shareholder ordering water. Mr. Montoya also testified that the accuracy of those records is critical to the internal administration of the water rights in the FRICO system so that farmers know how much of their allocation is left for future delivery.

423. Nevertheless, Mr. Montoya testified that he has instructed his ditch riders to set the farm headgate ten percent over farmers' requested deliveries in order to assure that farmers receive the water ordered. Mr. Montoya explained that the farm headgate is set at ten percent over the request because the ditch rider sets and locks farm headgates around 7:00 a.m. Mr. Montoya testified that from noon to 5:00 pm on a hot day, the amount of water in the delivery ditch decreases due to evaporation, and without the additional ten percent, farmers would not get the water requested. The additional ten percent is not recorded in FRICO records.

424. Mr. Montoya conceded during cross examination that although a farmer will receive ten percent more than his order part of the day, the farmer will receive less than ten percent during other parts of the day due to evaporation. The average of the additional deliveries to farm headgates would thus be less than an additional ten percent. As a result, the actual amount received by the farmer cannot be precisely determined because the amount delivered is only measured one time during the day.

425. Mr. Helton added the additional ten percent deliveries to every year of the study period reported on his "Allocation and Delivery" Table that details the water delivered to shareholders. The first year reported on the table was 1927. Mr. Montoya testified that he has only been general manager of FRICO for the last six or seven years, but the practice of adding ten percent to farm headgate deliveries was a custom that existed when he became general manager. Mr. Montoya conceded that he does not know how long the custom has been followed. Finally, Mr. Montoya also conceded on cross-examination that the deliveries of an additional ten percent are not recorded in any company records.

426. Mr. Ault, Aurora's expert, testified that even if the farm headgates were set for ten percent over a farmer's request, it would not be accurate to add ten percent to all farm headgate deliveries. Mr. Ault stated that if a farm headgate were opened ten percent extra in the morning and the amount delivered dropped throughout the day due to evaporation, the average overage would be less than ten percent.

427. The court determines that Applicants failed to establish that any amount of water in excess of the amount recorded in the official FRICO records was delivered to shareholders. The manner in which the additional ten percent was claimed in this matter undermines its validity. There is likewise a lack of evidence to establish the delivery of an additional ten percent throughout the entire history of deliveries to FRICO shareholders. Further, even if the farm headgates were opened more than required, Applicants have not adequately quantified how much additional water was actually delivered to shareholders because the amount would be less than ten percent.

428. The court therefore denies Applicants' request for an additional ten percent delivery to the changed shares. Historical deliveries to shareholders, for the purpose of determining the amount of beneficial historical use available for change, shall be limited to the amount reflected in the FRICO records.

8. Conveyance Losses

a. Applicants' Calculation

429. Prior to trial and in expert reports, Applicants calculated and claimed a 38 percent conveyance loss in deliveries of water to shareholders in the FRICO system. Mr. Montoya, FRICO's general manager, testified that system losses to seepage are approximately 40 percent. Applicants maintain that, based on the assumed additional ten percent deliveries to shareholders, conveyance loss is 38.9 percent as calculated by their expert Mr. Helton.

b. Opposers' Calculation

430. Opposers object to Applicants' claimed calculation loss as including the additional ten percent deliveries to farm headgates discussed above. Mr. Helton conceded that conveyance losses would be 44.4 percent if the additional ten percent deliveries were excluded. Mr. Ault, Aurora's expert, testified that he calculated the conveyance loss using the FRICO records of delivery, and also estimated the conveyance loss at 44.4 percent. Mr. Ault further concluded that this number accurately reflected conveyance loss in the FRICO system.

c. Analysis

431. Having denied Applicants' claim to include an additional ten percent in the calculation of analyzing historical deliveries to shareholders, the court determines that the additional ten percent deliveries shall not be considered for purposes of calculating conveyance losses in the FRICO system. Applicants' and Aurora's experts are in agreement that excluding the additional ten percent deliveries results in a calculated conveyance loss of 44.4 percent. That calculation is adopted for purposes of charging conveyance losses to the changed shares except to the extent the same is modified due to the exclusion of seepage as discussed below in the following section of this order.

9. Seepage in Quantification of Historical Use

432. Applicants and certain Opposers dispute whether seepage accruing to the Beebe Canal should be included within the historical consumptive use analysis for the Burlington 1885 and the 1908 and 1909 FRICO water rights that are part of deliveries to the changed shares. There is also a dispute concerning the use of toe drain seepage from the dam at Barr Lake.

a. Applicants' Position on Seepage

433. As part of their quantification of historical use, Applicants included water that accrues to the Beebe Canal from seepage and return flows down gradient from Barr Lake. Applicants presented evidence and argued that inclusion of this seepage gain is appropriate because the Barr Lake System suffers a net loss when looking at deliveries throughout the system as a whole. Applicants likewise argue that although parts of the Beebe Canal gain seepage, it is a net losing ditch. Applicants further contend they are entitled to such seepage because the Beebe Canal is a private ditch and not a natural stream. In addition, Applicants argue FRICO manifested intent to maintain dominion and control and use the return flows from its system to extinction; and therefore, such seepage waters are a part of the decreed water rights being changed in this matter.

b. Opposers' Position on Seepage

434. Opposers argue that seepage gains to the Beebe Canal must be excluded from the quantification of historical use of the 1885 Burlington water rights and 1908 and 1909 FRICO water rights being changed in this matter. They claim such seepage water is not included as a source of water for the Burlington 1885 rights as decreed in Case No. 11200 or the 1908 and

1909 FRICO water rights for the Burlington-O'Brian Canal and Barr Lake as decreed in Case No. 54658.

c. Seepage Analysis

435. The court determines that the seepage accruing to Beebe Canal must be excluded from the calculation of consumptive of associated with the 1885 Burlington and 1908 and 1909 FRICO water rights.

436. Seepage and return flows may not be reused, but rather, are subject to appropriation and administration under the priority system as any other waters of a natural stream. *See Ready Mixed Concrete Co. v. Farmers Reservoir & Irrigation Co*., 115 P.3d 638, 642 (Colo. 2005). *See also Water Supply & Storage Co.*, 733 P.2d at 682-83. This is true whether the seepage flows directly to the stream or is intercepted by a private ditch on its way to the stream. *Ready Mixed Concrete*, 115 P.3d at 642. Those waters are available for and subject to appropriation and administration under the priority system just as other waters of the natural stream. *Comstock v. Ramsey*, 55 Colo. 244, 255-59, 133 P. 1107, 1111 (Colo. 1913).

437. "Water rights are decreed to structures and points of diversion." *Empire Lodge*, 39 P.3d at 1148. A water right's "location of diversion at the source of supply" is one if its essential elements. *Id*. *See also West End Irrigation Co. v. Garvey*, 184 P.2d 476, 479 (Colo. 1947) ("The situs of a water right acquired by appropriation is not the place of use, but the place of diversion.").

438. The evidence at trial showed that the Beebe Canal is a gaining ditch to which seepage accrues from the point below Barr Lake to the East Neres "cutoff." That is, more water is delivered from the Beebe Canal than is released from Barr Lake. The source of the water accruing to the Beebe Canal is seepage and return flows resulting primarily from the storage of water in Barr Lake and other smaller reservoirs within Beebe Draw as well as from the carriage and use of water for the irrigation of lands within Beebe Draw. The court will hereinafter refer to this as the "seepage gain." Expert testimony based on FRICO's records illustrated that the amount of the seepage gain averages 1,200 to 1,300 af per year from 1927-2005.

439. Ms. Griffin, Englewood's expert, calculated that on average, deliveries from Beebe Canal are 156 percent of the releases to Beebe Canal. As the basis for these numbers, Ms. Griffin used data from Applicants' expert Mr. Helton, such as: annual tabulations of direct flow and storage releases from Barr Lake, total deliveries from the Beebe Canal, and a column in one of Mr. Helton's tables labeled "Percent Gain or Loss," which Ms. Griffin testified depicts the canal's efficiency. Ms. Griffin testified that she allowed for 0 percent ditch loss (100 percent efficiency), but excluded gaining deliveries from her historical consumptive use analysis for the changed shares because the FRICO 1908 and 1909 rights did not contain any language granting appropriations for ditch seepage. Ms. Griffin refined that total and calculated that 15 percent of Beebe deliveries come from toe drain seepage; 28 percent of deliveries come from seepage collected along the Beebe Canal, and only 57 percent of deliveries come from actual releases from Barr Lake.

440. Mr. Armbruster, Central's expert, also calculated the amount of seepage gain based on information maintained by FRICO regarding releases from Barr to the Beebe Canal and subsequent deliveries from the Beebe Canal to FRICO's lateral ditches. To remove the seepage gain, he modified the calculated conveyance efficiency associated with the Beebe Canal. Mr. Armbruster modified the calculated conveyance efficiency by applying the average conveyance efficiency calculated by Mr. Helton for the laterals taking delivery from the Beebe Canal, primarily the Bowles Seepage Ditch and the East Neres Canal, to the amount of water released from Barr Lake. This methodology resulted in a conveyance efficiency of 53 percent being applied to water released from Barr Lake to the Beebe Canal. This adjustment effectively resulted in zero conveyance loss for water transported from Barr Lake to the turnouts to the Bowles Seepage Ditch and the East Neres Canal via the Beebe Canal. Similar to Ms. Griffin, Mr. Armbruster's adjustment gave FRICO the benefit of 100 percent conveyance efficiency for water delivered from Barr Lake to its laterals from the Beebe Canal. Although his methodology allows FRICO to obtain the benefit of using seepage to offset any conveyance losses in the Beebe Canal, it effectively excludes any additional water accruing to the Beebe Canal from seepage that contributed to on-farm consumptive use associated with the historical use of the 1885 Burlington and 1908 and 1909 FRICO water rights.

441. The decrees in Case Nos. 11200 and 54658 describe the points of diversion for the 1885 Burlington and the 1908 and 1909 FRICO water rights as being the Burlington headgate on the South Platte River for both the 1885 Burlington and the 1908 and 1909 FRICO water rights, and the points where the Burlington Ditch intersects Sand Creek, First Creek, Second Creek, and Third Creek for the Burlington 1885 water rights. Further, those decrees clearly set forth the source of supply for those rights as being the South Platte River for the 1885 Burlington and the 1908 and 1909 FRICO water rights as well as First Creek, Second Creek, Third Creek, and Sand Creek for the Burlington 1885 water rights. There is no mention of seepage or other water sources.

442. The decrees in Case No. 11200 for the Burlington Canal and Case No. 54658 for Barr Lake and the Burlington-O'Brian Canal are unambiguous as to their points of diversion and sources of supply. Neither decree includes points of diversion along the Beebe Canal or seepage into the Beebe Canal as a source of supply for those rights. By comparison, the decrees in Case No. 54658 adjudicated other structures that specifically recite seepage as a source of supply, such as the Erickson Seepage Ditch, McCanne Ditch, Carlin Lake, and Dougan Reservoir. There is thus no basis to conclude that Applicants' water rights include the right to seepage gains.

443. Applicants' reliance on the statements of claim filed by FRICO in Case No. 54658 is not persuasive. Those statements do not change or alter the plain language of the decree entered by the court in Case No. 54658 for FRICO's 1908 and 1909 water rights. Where the terms of a decree are clear, a court will not look outside the four corners of the decree. *City of Golden v. Simpson*, 83 P.3d 87, 93 (Colo. 2004). Extrinsic evidence, such as a statement of claim, is only considered when a decree is ambiguous. *Cherokee Metro. Dist. v. Simpson*, 148 P.3d 142, 146 (Colo. 2006).

444. Applicants' argument that they are entitled to take credit for the seepage gain because they own the Beebe Canal and because the Barr Lake system suffers a net conveyance loss is not

supported by the principles of Colorado law discussed above. Applicants have not provided legal authority for their position and the court thus declines to adopt it.

445. Applicants may not use seepage as part of the yield of their South Platte water rights or independent of the priority system. Only water that is diverted and used consistent with the terms of its decree may be included as part of the historical use for a water right. *See, e.g., N. Colo. Water Assoc. v Three Peaks Water, Inc.*, 859 P.2d 836, 843 (Colo. 1993); *Central Colo. Water Conservancy Dist.*, 147 P.3d at 16. Neither the Burlington 1885 nor the 1908 and 1909 FRICO water rights being changed in this matter include points of diversion along the Beebe Canal. Nor do they include seepage flows accruing to the Beebe Canal as a source of supply. Applicants are thus not entitled to claim water attributed to the seepage gain accruing to the Beebe Canal as part of the 1885 Burlington and the 1908 and 1909 FRICO water rights.

446. Therefore, Applicants must remove water attributed to the seepage gain in the amount of approximately 1,200 to 1,300 af per year from their calculation of the historical consumptive use of the 1885 Burlington and the 1908 and 1909 FRICO water rights. The court agrees that Mr. Armbruster's analysis discussed above is a proper method of excluding the seepage from Beebe Draw from the historical consumptive use analysis for the 1885 Burlington and the 1908 and 1909 FRICO water rights. This shall be accomplished by applying 53 percent conveyance efficiency to the 1885 Burlington and 1908 and 1909 FRICO water released from Barr Lake to the Beebe Canal less any water attributed to toe drain seepage as discussed below.

d. Applicants' Position on Barr Lake Dam Toe Drain

447. Mr. Montoya, FRICO's general manager, testified regarding a "toe drain" system built into the Barr Lake dam. Water naturally seeps into and through the earthen dam and thus creates a potential for instability. Mr. Montoya testified that when he began working for FRICO, there was seepage on the land surface just downstream of the dam that concerned the State Engineer. The toe drain system was built into the dam to drain the seepage, thus lowering the saturated level and mitigating the potential for instability. The water is measured in several v-notch wires and delivered into the Beebe Canal.

448. Applicants presented evidence that toe drain seepage averages about two cfs and is put into the distribution canals along with releases from Barr Lake. Applicants maintain that use of toe drain seepage is justified on the grounds that it offsets ditch losses in certain distribution ditches.

e. Opposers' Position on Barr Lake Dam Toe Drain

449. Opposers contend that this toe drain seepage must be excluded from the quantification of the water rights to be changed in this matter for the same reasons that seepage into the Beebe Canal must be excluded.

f. Toe Drain Analysis

450. The court determines that seepage collected by the toe drain system in the Barr Lake dam must be excluded from the calculation of consumptive use associated with the 1885 Burlington and the 1908 and 1909 FRICO water rights. Similar to the previous discussion, return flows as well as seepage from reservoirs are subject to administration under the priority system and only water which is diverted and used consistent with the terms of its decree may be included as part of the historical use for that right. *Comstock*, 133 P. at 1111; *Cent. Colo. Water Conservancy Dist.*, 147 P.3d at 16. Reservoir owners are not entitled to recapture reservoir seepage without a decree authorizing recapture. *Lamont v. Riverside Irrigation Dist.,* 498 P.2d 1150 (Colo. 1972); *Fort Morgan Reservoir & Irrigation Co. v. McCune*, 206 P.2d 393 (1922). In this matter, there is no basis for including toe drain seepage.

451. The decree for the Burlington 1885 storage right in what is now Barr Lake incorporated the findings of the referee. After determining the volume appropriated for storage in each of Barr Lake and Oasis Reservoir, the referee's findings state with respect to each of the reservoirs, ". . . and as much more as may be necessary to supply evaporation and seepage and to keep said amount to [the volume decreed for each]." The purpose of this provision for diversions to replace seepage is to maintain the reservoir level at the decreed amount, rather than to increase the amount available for release to an amount in excess of the decreed appropriation. The decree, in effect, treats seepage as being lost, "thus reducing the amount available for release unless the seepage is replaced. Likewise, the decree in Case No. 02CW105(A) allows diversions for seepage losses, again assuming that the seepage is lost. Further, Applicants make diversions to replace seepage, pursuant to the decree. None of the Barr Lake decrees authorize recapture of seepage from the reservoir.

452. Applicants nevertheless recapture toe drain seepage and deliver it to shareholders for irrigation. As a practical matter, the toe drain seepage is not "lost" because it is included in deliveries to shareholders even though it is replaced by further diversions. Such further diversion to replace the seepage recaptured by the toe drain therefore amounts to a double counting of the seepage, which was not contemplated by Applicants' decrees. Moreover, the right to use an appropriation for multiple uses to extinction requires a plan, incorporated in the decree, to use the water to extinction. *See Water Supply & Storage Co.*, 733 P.2d 680. In this matter, Applicants have provided no basis for the reuse or recapture of this toe drain seepage.

453. Ms. Griffin analyzed the historical consumptive use of the FRICO 1908 direct flow and 1909 storage right. She stated that 15 percent of the deliveries to the shareholders were attributable to the toe drain seepage. Her calculations were based on data excerpted from Table 2 of Mr. Helton's report, and estimated toe drain water recorded at Station 41. Ms. Griffin calculated that during Applicants' study period of 1969-2004, there was an annual average of 2,247 af in toe drain seepage. During the Englewood study period of 1927-1983, there was an average of 1,304 af. And during the study period of 1927-2004, there was annual average toe drain seepage of 1,767 af.

454. The court determines that Applicants may not include toe drain seepage as part of the quantification of the 1885 Burlington and the 1908 and 1909 FRICO water rights during the

study period determined for the water rights to be changed in this matter. Use of the seepage amounts to a double counting in historical use because it is reflected in further diversions and consequent reservoir releases. The court agrees that Ms. Griffin's methodology for removing such toe drain seepage is proper and such toe drain seepage must be excluded from the historical quantification in this matter.

10. Irrigation Efficiency

455. The efficiency of the irrigation methods that were used on the ECCV farms is a significant factor in the calculation and quantification of the historical consumptive use of the changed shares. In fact, because the Barr Lake system is water short, irrigation efficiency is the controlling factor in the analysis. Applicants claim an irrigation efficiency of 61 percent in this matter, based on the analysis of their expert Mr. Helton. Opposers contend that the irrigation efficiency of the changed shares on the ECCV is significantly lower. Mr. Ault, Aurora's expert, applied the same methodology as Mr. Helton and estimates an irrigation efficiency of 50 percent. As discussed below, the court agrees with Applicants' position on this issue.

a. Applicants' Position

456. Applicants assert that because the Barr Lake system is water short, the controlling analysis in determining the amount of water historically consumed on the ECCV farms is irrigation efficiency. Mr. Helton selected the Farm Irrigation Rating Index method to analyze irrigation efficiency and cross-checked the analysis with other technical publications to calculate a 61 percent irrigation efficiency.

i. Barr Lake System as Water Short

457. One of Applicants' fundamental positions in this matter is that the Barr Lake system is water short; that is, the water rights available to irrigate the irrigable lands under the Burlington-Barr Lake system are inadequate to meet crop requirements fully.

458. Mr. Montoya, FRICO's general manager, testified regarding his personal knowledge and experience of farming practices under the Barr Lake system, which he considered to be very water short. Crops under the Barr Lake system are alfalfa and potatoes, some sugar beets, corn, and small grains. Corn and alfalfa are the typical crops. Mr. Dechant, FRICO board member and shareholder, and Mr. Bailey, FRICO board member and center-pivot sprinkler designer and installer, also testified on these issues and were in general agreement with Mr. Montoya.

459. Mr. Montoya testified that alfalfa acts as a "shock absorber." Mr. Dechant testified about the same practice. He explained that in both wet and dry years, farmers in the Burlington-Barr Lake system do not have enough water to meet the full requirements of all of the crops on their irrigated lands. Farmers therefore must decide how to allocate the scarce water on their fields and across different types of crops. Mr. Montoya testified that farmers in the Burlington-Barr Lake system do not distribute evenly their allocated direct flow and storage water. Rather, they ensure that high-value crops, such as corn, receive the entire amount of water necessary to

develop and "finish" the crop. Any water in excess of this amount at other times throughout the year is applied to alfalfa, a lower-value crop.

460. For example, Mr. Montoya testified that for corn, the critical time is from tasselling to silk and farmers therefore allocate their water to ensure that a corn crop receives adequate water during this period. During this time, water is not applied to alfalfa fields, which may result in fewer cuttings of alfalfa. Water is applied to alfalfa fields at other times in the year, however, when there is relatively more water available.

461. Mr. Montoya also testified regarding the impact of the operation of the Barr Lake system on crop development. During the irrigation season, FRICO typically delivers water to shareholders through one of the Barr Lake outlet ditches for a run of five days before rotating to a different outlet ditch. However, Mr. Montoya testified it takes longer than five days to irrigate an entire farm and that even during the five-day run, the amount of water is insufficient to satisfy the full crop demand.

462. Mr. Montoya, Mr. Dechant, and Mr. Bailey testified regarding specific irrigation practices in the Barr Lake system. The testimony concerned various aspects of gravity-based irrigation and not center-pivot sprinklers. Mr. Montoya testified that the farms that he personally participated in land leveling through the National Resource Conservation Service ("NRCS," formerly known as the "Soil Conservation Service") as did most other farms in the Barr system. Mr. Dechant and Mr. Bailey also testified regarding various land leveling practices, sometimes involving the NRCS. The head ditch and side ditch of most farms are cement. Farmers apply water from those ditches to the fields in sections. Because there is not enough water to irrigate an entire field at once, farmers use various methods to apply the water.

463. Farmers in the Barr Lake system typically deliver numerous short runs of water from the head ditch onto small sections of a larger field. They then control and spread the water across the fields by various methods. Mr. Montoya, Mr. Dechant, and Mr. Bailey testified regarding these practices. Cross ditches run through fields and facilitate short runs on certain sections of a field. Borders are small, long mounds of dirt spaced about every 40 feet in the middle of a field that help spread water and control the spread of water. Corrugations are small grooves, three to four inches deep, located across a field that help direct the flow of water and are particularly useful when a field slopes to one side. Corrugations are used with alfalfa or grains. Furrows are small ditches in a field that run between rows of plants, which grow on the mounds between the furrows. Furrows are used for row crops such as corn. Farmers pack the furrows by driving trucks through them, using the weight of the trucks on the tires to pack the soil and prevent seepage in the furrow. When available, tail water from one section of a field is re-directed and applied to another section of the field.

464. Mr. Bailey testified regarding the use of flex pipe in the Barr Lake system. Flex pipe is an extruded plastic pipe used to deliver water across fields and to furrows without the seepage losses prevalent in earthen ditches. Mr. Dechant similarly testified that in recent times, more farmers are using these pipes in the Burlington-Barr Lake system to eliminate the loss of water in earthen ditches.

465. Mr. Montoya testified these application methods result in more water being delivered to the crops with less runoff and deep percolation. He and Mr. Dechant stated that they believe such techniques are necessary to stretch the limited amount of water available to farms in the system and to compete with other irrigation systems that have adequate water supplies.

ii. Applicants' Irrigation Efficiency Analysis

466. According to Mr. Helton, various factors affect irrigation efficiency. Losses in irrigation water result during application due to evaporation, deep percolation, and surface runoff (also known as tail water). The magnitude of these losses varies depending on additional factors such as the adequacy of the water supply, supply management, skill of irrigators, and soil type.

467. Mr. Helton testified that the Barr Lake system is water short. Using his proposed study period of 1969-2004 and efficiency estimates, he estimated that the total annual crop irrigation requirement for the ECCV farms was 2,141 af but that there was only 691 af of supply. Consequently, less than 30 percent of the full water supply was provided.

468. Mr. Helton calculated the crop mix in the Barr Lake system. The mix is 21.6 percent corn; 1.8 percent vegetables, 3 percent orchard, 10.6 percent small grains, and 48.4 percent alfalfa. He testified that the percentage of alfalfa was relatively high and variable, in part due to its role as a "shock absorber," to which Mr. Montoya testified.

469. Mr. Helton presented a detailed summary of soils data using the NRCS database. Various soil textures and intake rates affect efficiency. He identified a soils map that he prepared for each farm. He used the data to determine irrigation efficiencies, secondary evaporation, and evapotranspiration. Applicants' claim regarding secondary evaporation and evapotranspiration is addressed below in section IV.H.11, beginning at paragraph 533.

470. Mr. Helton used the irrigation efficiency definition of Soil Conservation Service Technical Report 21. Irrigation efficiency is the percentage of applied irrigation water that is stored in the soil and available for consumptive use by the crop. Mr. Helton calculated both farm irrigation efficiency (irrigation efficiency measured at the headgate) and field irrigation efficiency (irrigation efficiency measured at the field).

471. Mr. Helton testified, however, that NCRS definitions are not necessarily directly applicable to the Barr Lake system. He stated that the definitions in the NRCS handbooks envision a high level of uniformity, that is, that water is distributed uniformly throughout the root zone resulting in significant deep percolation and run-off. This uniformity aims at a high yield per acre. However, Mr. Helton noted that in the Barr Lake system, farmers seek a high yield per acre-foot and attempt to minimize deep percolation and run-off.

472. Mr. Helton noted and relied on the irrigation methods testified to by Mr. Montoya, Mr. Dechant, and Mr. Bailey. He restated these irrigation practices and observed that these practices have evolved over time to maximize the crops that can be grown on the irrigable lands in the Barr Lake system with the limited water available.

iii. FIRI Method

473. Although Mr. Helton relied on other irrigation efficiency formulas and reference information, Mr. Helton selected the Farm Irrigation Rating Index ("FIRI") method of analyzing irrigation efficiency of the changes shares on ECCV farms for Applicants. He chose the FIRI method to estimate irrigation efficiency in part because he said it considered most of the factors he regarded as affecting irrigation efficiency. He believed the FIRI method is a systematic method of considering those factors and reducing the efficiency down to a particular number.

474. FIRI is a publication of the NRCS and relies upon NRCS definitions and terminology. The FIRI method begins with an analysis of potential efficiency for different types of irrigation systems and then considers numerous management and system factors that have positive and negative impacts on efficiency to arrive at actual irrigation efficiency for the farm being analyzed. The FIRI manual states that "FIRI does not replace on-site irrigation evaluations, it should compliment field evaluations."

475. Potential efficiency is the optimal application efficiency for the method of irrigation being used. Potential efficiency is a percentage or decimal and represents the portion of water consumed in the application of irrigation water. It can be determined from NRCS state irrigation guides, the National Engineering Handbook, and computer programs. Table 1 of the FIRI publication, which is displayed below, shows recommended potential efficiencies for various systems.

TABLE 1 Recommended Potential Efficiencies by Irrigation Systems			
SYSTEM	POTENTIAL EFFICIENCY	SYSTEM	POTENTIAL EFFICIENCY
Borders	%	Sprinkler	%
Level or Basin	90	Big gun or boom	60
Graded	80	Hand line or wheel line	70
Guide	70	Solid set (above canopy)	75
Contour - level		Solid set (below canopy)	80
Field crop	70	Center - pivot	80
Rice	80	Center - pivot (LEPA)	85
Border Ditch	60	Lateral move	85
Furrow		Trickle	
Level or Basin	90	Point source	90
Graded	75	Spray emitters	85
Contour	75	Continuous tape	90
Corrugations	75		
Surge	85		
Subirrigated	75		
Flood Irrigation			
Controlled	60		
Uncontrolled	50		
Contour Ditch	60		

476. Management is the human element of the FIRI equation. The six management factors are: water measurement (Md); soil moisture monitoring and scheduling (S); irrigation skill and action level (I); maintenance plan for the system (M); water delivery constraint (D); and soil condition (Sc).

477. The system element concerns losses in the design of an irrigation system. The nine system element factors are: water distribution control factor (Wc); conveyance efficiency factor (Ce); land leveling factor (L); climatic factor (C); sprinkler design factor (Sd); wind factor (W); tail water reuse factor (R); emitter clogging factor (E); and trickle design factor (T).

478. The numerical value of each management and system factor is selected by the person performing the FIRI analysis based on a definition of each factor and a chart. For example, the chart for the maintenance factor (M) is displayed below and ranges between 0.9 and 1.0 depending on how the person performing the maintenance of irrigation facilities rates that maintenance.

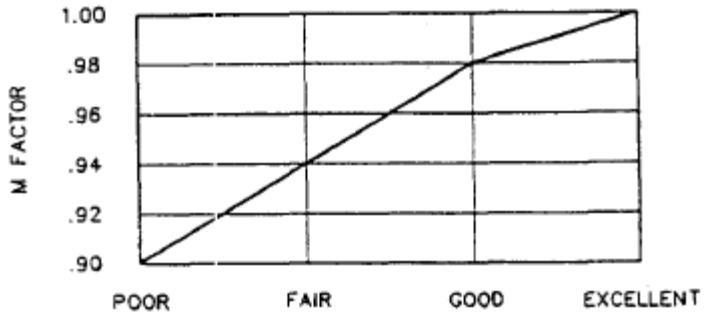


Fig. 4 – Maintenance Factor

479. FIRI can be described as an equation in which actual irrigation efficiency = (potential efficiency) × (management elements) × (system elements). Potential efficiency is a percentage or decimal and equals actual irrigation efficiency when management and system elements all equal "1.0" and are in ideal conditions. With the exception of the tail water reuse factor (R), all management and system factors that are not ideal for the purpose of irrigation efficiency will result in values less than "1.0" and therefore decrease the calculated actual irrigation efficiency. The tail water reuse factor (R) may increase efficiency if tail water is reused. Because the management and system factors merely influence and generally lower the value of potential efficiency in the calculation of actual irrigation efficiency, potential efficiency is the most significant factor in the FIRI method.

iv. Applicants' Application of FIRI Method

480. Mr. Helton applied the FIRI method to calculate the actual irrigation efficiency of the change shares on the ECCV farms. The water short nature of the Barr Lake system was a significant influence on Mr. Helton's FIRI analysis. He selected 75 percent as the potential efficiency of all ECCV farms and generally chose high values for the management and system factors. Mr. Helton believed that the actual irrigation efficiency that should be applied in this matter is 61 percent.

481. Although Applicants chose the FIRI method to estimate irrigation efficiency, Mr. Helton acknowledged that irrigation efficiency does not have to be estimated because it can be determined scientifically. Mr. Helton testified on cross-examination that a deficit-irrigated field does not always show an increase in irrigation efficiency. Nevertheless, he testified that while he did not measure efficiency, he believed efficiency is greater in the Barr Lake system. Mr. Helton described the scientific method to measure efficiency. First, the moisture in the soil before irrigation is measured. Then, the moisture in the soil after irrigation is measured. Finally, after application of a coefficient to uniformity, one can calculate the amount of water stored in the soil during irrigation in relation to the total amount of water that is applied.

482. When Mr. Helton chose 75 percent as the potential efficiency, he explained that the ECCV farms use graded and contour furrows, both of which are assigned a suggested potential efficiency of 75 percent in Table 1 of the FIRI manual. He continued that some alfalfa fields on

the ECCV farms are irrigated with corrugations, which also has a 75 percent potential efficiency. He further testified that the recommended potential irrigation values for flood irrigation, which are 50 and 60 percent, are not applicable to the ECCV farms due to the refinements in irrigation practices of farmers under the Barr Lake system. Finally, the water short nature of the system influenced his selection of 75 percent, in part, because there is no incentive to over irrigate and thereby lose water to deep percolation and runoff.

483. Mr. Helton also asserted that using a 75 percent potential efficiency on every ECCV farm was appropriate in part because of the prevalence of the corrugation method of irrigation on ECCV farms. However, on cross examination, Mr. Helton admitted that he only identified corrugations on four of the 22 ECCV farms, and that this represented only 27 percent of the irrigated acreage in the ECCV farms.

484. Mr. Helton generally applied high values to the management and system factors as he went through each factor. In general terms, he explained that the assigned values were high because the system is water short and because water stored in Barr Lake is available on demand.

v. Consideration of Other Publications

485. Although it did not directly affect his FIRI analysis, Mr. Helton relied on the Colorado Irrigation Guide, a 1978 publication concerning irrigation efficiency. It recommends an irrigation efficiency of 60 to 70 percent for estimates of design efficiency of furrow irrigation. Mr. Helton testified that these were conservative estimates and that skilled irrigators employing good management practices could achieve higher efficiencies.

486. Mr. Helton also cross-checked his FIRI analysis with other sources to verify the reasonableness of his opinion. For example, he looked at Technical Report 32 of the New Mexico State Engineer. He also looked at the decree and underlying engineering report from Case No. 87CW107, in which the return flow requirement was 31 percent. In a report by Robert Logenbaugh related to the sale of certain shares, the efficiency of FRICO-Barr Lake shares delivered through the East Neres canal was estimated at 61 percent. Finally, another analysis by the engineering firm Sponk and Associated stated that the irrigation efficiency of 20 Barr Lake shares was 65 percent.

b. Opposers' Position

487. Opposers contend that the irrigation efficiency of the changed shares on the ECCV farms is significantly lower that Applicants claim. For example, Mr. Armbruster, Central's expert, estimated a maximum irrigation efficiency of 60 percent. Unlike Mr. Helton and Mr. Ault, Mr. Armbruster did not conduct a detailed analysis using the FIRI method. Rather, Mr. Armbruster based his opinion on his review of the information provided by Mr. Helton related to the subject farms. Because flood irrigation was the primary method of irrigation and because the soil types were generally sandy, Mr. Armbruster testified that 60 percent was the maximum achievable efficiency. Opposers primarily base their position on the FIRI analysis conducted by Mr. Ault, Aurora's expert.

488. Mr. Ault completed his own analysis of the irrigation efficiency of the changed shares on the ECCV farms using the FIRI method and calculated an acreage weighted average irrigation efficiency on the ECCV farms of 45 percent; however, he stated that the court should use 50 percent to evaluate the historical consumptive use of the ECCV shares. Because Mr. Helton and Mr. Ault used the same analytical framework and yet arrived at significantly different actual irrigation efficiencies, certain significant differences in their calculations can be identified.

i. Opposers' Differences on Potential Irrigation Efficiency

489. Both Mr. Helton and Mr. Ault agree that setting the proper potential efficiency is essential to a proper FIRI analysis. Nevertheless, Mr. Helton and Mr. Ault arrived at significantly different potential efficiencies. Whereas Mr. Helton assigned a potential efficiency of 75 to every ECCV farm, Mr. Ault assigned a potential efficiency value of 60, 70, or 75 percent using Table 1 of the FIRI manual, displayed above. Mr. Ault then prorated the acres on each farm by the number of acres using each system.

490. Mr. Ault agreed with Mr. Helton that furrow irrigation of crops like corn should receive a potential efficiency of 75 percent and assigned a potential efficiency of 75 percent to the prorated acreage on farms that reported growing corn or other row crops.

491. Mr. Ault disagreed with assigning a potential efficiency of 75 percent to all acreage of all ECCV farms. Mr. Ault noted that his analysis was based on an individual analysis of each farm, while Mr. Helton's considered the Barr Lake system as a whole.

492. Mr. Ault referenced the NRCS National Engineering Handbook definitions for the various irrigation methods in Table 1 of the FIRI manual when he selected potential irrigation values to the ECCV farms. Mr. Ault also used NRCS definitions to analyze the Mr. Montoya's testimony that described the most common types of irrigation application methods in the FRICO system.

493. The four predominant methods of irrigation according to Mr. Montoya are contours, borders, furrows and corrugations. Mr. Ault also described the various irrigation methods described by Mr. Montoya and Mr. Helton with reference to the NRCS publications and definitions.

494. For the contour ditch method of irrigation, Mr. Ault referenced pictures from his field inspections on the ECCV farms, the definition of contour ditches in the NRCS, his field notes, and FIRI calculations for farms with contour ditches. He stated that based on this information, 60 percent was an appropriate potential efficiency for the contour ditch method of irrigation.

495. Mr. Ault performed the same analysis for each of the other irrigation methods, establishing the NRCS definition of the irrigation method, referencing field notes, observations and pictures, and explaining his analysis to the court in opining on the appropriate potential irrigation values for border irrigation, furrows and corrugations. Mr. Ault stated that contour ditches, as described by Mr. Montoya, are a type of flood irrigation with a potential efficiency of

60 percent. Mr. Ault also testified that the guide border ditch, as described by Mr. Montoya, has a potential efficiency of 70 percent.

496. Mr. Ault testified that he visited all but one of the ECCV farms and did not find any evidence that corrugations were used. He further testified that if a farmer does not perform a high degree of maintenance to keep the corrugations clear to allow water to flow down the corrugations, water will over-top the corrugations and then the method is just a form of controlled flood irrigation, resulting in a lower potential efficiency. He then testified that when the crops irrigated are small grains and alfalfa, those crops grow into the corrugations and prevent the flow of water down the field. On cross-examination, Mr. Helton agreed that 208.2 of the 769 irrigated acres on the four ECCV farms that use corrugations grew alfalfa.

497. Mr. Ault stated that the irrigation method Mr. Montoya referred to as "corrugation" did not fit the NRCS definition of corrugations. When explaining the use of corrugations, Mr. Montoya stated corrugations begin 40 feet from the gated pipe at the head ditch. However, Mr. Ault stated that the NRCS definition for corrugations requires that water be delivered directly into the corrugation for the control of water to be effective. Mr. Ault likewise explained that if the water is not delivered directly into the corrugation, there is no way to control the water and the irrigation method is effectively a type of controlled flood irrigation.

498. Mr. Ault testifed that the type of irrigation method claimed by the Applicants as corrugations was in fact a type of flood irrigation. Mr. Helton and Mr. Gillham interviewed farmers about their irrigation practices and recorded their answers on a template form. This form listed various types of irrigation practices including corrugations. Mr. Gillham produced memos regarding each farm from these interview notes and not one of the interview memos indicated that a farmer used corrugations. Mr. Ault thus assigned the controlled flood irrigation potential efficiency of 60 percent to the four farms where Mr. Helton reported that corrugations were used.

499. Mr. Ault also performed a separate analysis to determine the effect on the overall weighted average efficiency assuming a 75 percent corrugation potential efficiency, instead of the 60 percent controlled flood potential efficiency on the four ECCV farms that use corrugations. The effect of this alternate analysis was that the overall average efficiency on all ECCV farms changed from 45 to 47 percent.

ii. Opposers' Differences on Effects of Water Short System

500. Opposers do not dispute Applicants' assertion that irrigation efficiency controls the analysis of historical consumptive use in a water short system. However, Opposers disagree with Applicants' argument that the ECCV farms should have a higher irrigation efficiency value because they are water short.

501. Opposers argue that Mr. Helton's consideration of the water short nature of the Barr Lake system is flawed in the application of the FIRI method because, although the FIRI method considers 15 factors after potential irrigation efficiency is established, none of the factors adjusts irrigation efficiency if a system is water short.

502. Opposers further argue that Technical Report 21 does not provide a factual basis for Mr. Helton's opinion that ECCV farms should have higher irrigation efficiency because they are water short. This report indicates that the principal components affecting irrigation efficiency are evaporation, deep percolation, and surface runoff, but not whether a system is water short.

iii. Opposers' Differences on Soils and Irrigation Efficiency

503. On the whole, Mr. Ault agrees with Mr. Helton's opinion and testimony and Technical Report 21 that soils affect irrigation efficiency. Mr. Ault explained that when irrigating soils with high intake rates and high permeabilities, water infiltrates faster into the soil. Water consequently soaks down through the root zone creating deep percolation below the root zone in more porous soils with higher hydraulic conductivities. This tends to decrease irrigation efficiency.

504. The main disagreement between Mr. Helton and Mr. Ault regarding soils is whether the soils on the ECCV farms are primarily medium texture loams or course texture sands. Mr. Helton testified that the soils are predominately of a medium texture, which would result in higher irrigation efficiency and reduce deep percolation.

505. Mr. Ault analyzed the prevalent soils in the Barr Lake system, using NRCS web soil surveys, which were obtained by Applicants for the ECCV farms. This analysis included an in-depth review of the saturated hydraulic conductivity of the various soils, use of the NRCS soil triangle for categorizing soil types, and extensive calculations presented in a demonstrative exhibit displaying the relative saturated conductivity of various soil types. Saturated hydraulic conductivity is the rate at which water moves downward through the soil. From this information, Mr. Ault observed that soils on the ECCV farms are very porous and sandy in nature with a high rate of intake.

506. Mr. Ault performed an analysis of all of the soil types on the ECCV farms focusing on the saturated hydraulic conductivity. Using the data on saturated conductivity for all of the soils on the ECCV farms, Mr. Ault testified that the average saturated conductivity of the soils on the ECCV farms is highly similar to sand. Mr. Ault performed this calculation, weighting the soil types by acre, and then creating a logarithmic representation of the data to show that the soils on the ECCV farms fall into the same range of conductivities as sandy soils. Mr. Ault demonstrated that these soil types have relatively high rates of infiltration of irrigation water, resulting in excessive deep percolation. Deep percolation causes water to seep below the root zone and crops have only a limited opportunity to consume the water. Both of these factors prevent increased irrigation efficiency.

507. Mr. Ault also used the NRCS soil calculator to conclude that the soils on the ECCV farms are classified as sandy by the NRCS. Mr. Ault explained the use of the NRCS soil calculator in analyzing the various components of each soil type in categorizing the soil by its sand, clay, or silt content. Using examples from the ECCV farms, Mr. Ault explained that although some of the soils on the ECCV farms contain the word "loam" as part of the name of the soil texture, all fall into the predominately sandy category, corroborating his analysis that they are open, porous soils with a high infiltration rate.

508. Opposers note that there was other testimony regarding sandy soils in the Barr Lake system. Mr. Gillham, one of Applicants' experts, testified that there was enough sand to limit tail water on the Nelson farm. He gave similar testimony about the Pittman farm. Mr. Helton testified that the excavation of the Beebe Canal had to be dug through an area known as the Cofer slough, which he described as a sand-hill area where the sand hills encroached upon the ground naturally. This was turned into a fairly significant sump. Clarence Ireland's testimony in Case No. 54658 was read into the record and stated that the Hudson Lateral was built through a sand hill area just north of Hudson. More of Clarence Ireland's description later addressed the sand hills lying east of the Fulton Ditch in the vicinity below Barr Lake.

iv. Opposers' Differences on Land Leveling Factor (L)

509. Mr. Ault presented his analysis of each of the management and system factors to the court and created a comparison chart showing the differences between his analysis and the values assigned by Mr. Helton. The most significant differences between Mr. Helton and Mr. Ault were the land leveling factor (L), water delivery factor (D), and the tail water reuse factor (R).

510. Regarding the land leveling factor (L) (also, the "L factor"), Mr. Ault testified that figure 9 of the FIRI manual describes the proper application of the L factor and is displayed below. Mr. Ault explained that applying this factor is not a matter of determining whether the land has been leveled, but instead this factor determines the degree to which a farm has been leveled. Figure 9 references five relief classes that are defined in the National Engineering Handbook, with the most level being laser leveled and worst relief class was unlevel.

Figure 9 illustrates the range for the land leveling factor.

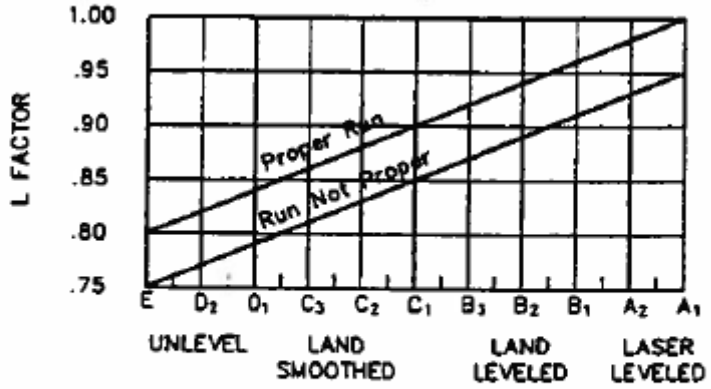


Fig. 9 – Land Leveling Factor

511. Mr. Ault further testified that it was necessary to quantify the run as proper or not proper. The difference in the L factor with and without a proper run is approximately 0.5 for each relief type. Mr. Ault testified that the FIRI manual requires an engineer designed irrigation water management plan ("IWM") in order to assign a proper run. The IWM identifies proper design in flows and time of set. The FIRI manual also states that a proper run exists where the set advance

time is one-third to one-forth of the set time. The set time is the total time an application of irrigation water is applied to part of a field and the advance time is how long it takes for the water to flow from the top of the field to the bottom of the field.

512. Opposers contend that Mr. Helton did not correctly apply the L factor because he improperly assumed a proper run when the farms did not have an IWM nor did the common irrigation practices result in tail water. Mr. Helton assumed a proper run existed for every farm even though he conceded that none of the farms had an IWM. Both Mr. Montoya and Mr. Helton testified that the common irrigation practice in the Barr Lake system is for irrigators to change their sets before the water advanced to the end of the field to prevent tail water. Mr. Ault interpreted this testimony regarding changing sets as evidence that a run is not proper because the run did not produce tail water.

v. Opposers' Differences on Water Delivery Factor (D)

513. Regarding the water delivery factor (D) (also, the "D factor"), Mr. Ault explained that this management factor concerned the method in which water can be taken onto the farm, and whether it is taken on the farm in a rotation, arranged, or on-demand schedule. Figure 5 of the FIRI manual is displayed below and shows that the ratings vary from 0.8 for a direct diversion on rotation to a 1.0 for unlimited delivery of water on demand. Mr. Helton awarded a perfect 1.0 rating to every farm, while Mr. Ault awarded a 0.96 rating to every farm.

Figure 5 illustrates the range for the water delivery factor.

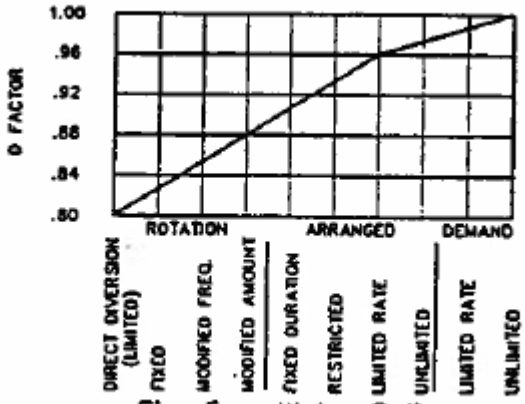


Fig. 5 – Water Delivery Factor

514. Mr. Ault testified that he based his rating on the American Society of Civil Engineers ("ASCE ") water delivery terminology that is referenced in the FIRI manual. Mr. Ault testified that the ASCE delivery terminology states that a flexible demand schedule is user controlled and requires no communication between user and supplier. The arranged schedule requires communications to agree on the arranged conditions. The rotation schedules are supplier determined. Mr. Ault applied a 0.96 value to the D factor because Barr Lake system irrigator were required to place an order with a ditch rider for their water 24 hours in advance and FRICO would only deliver water if their were enough orders on the ordering farm's delivery ditch to allow delivery without undue loss.

515. Opposers argue that Mr. Helton did not apply the D factor correctly. According to the ASCE definitions a 1.0 could not be granted unless the farmer could take as much water as was needed at anytime without communicating with a ditch rider. However, Opposers assert that these conditions do not apply to the Barr Lake system. Rather, Opposers contend that Mr. Ault correctly determined that the conditions of a limited rate demand system existed.

vi. Opposers' Differences on Tail Water Reuse Factor (R)

516. Regarding the tail water reuse factor (the "R factor"), Mr. Ault testified that reuse structures would be required to reuse effectively tail water on a farm and noted that in his visits to the ECCV farms, he observed these structures on only two farms.

517. Opposers contend that Mr. Helton did not properly apply the R factor because only two of 22 farms had reuse structures and Mr. Helton gave credits to farms that previously reported no tail water reuse. Based on his review of the notes from the ECCV farm interviews performed by Mr. Gillham and Mr. Helton, Mr. Ault discovered that Mr. Helton had given tail water reuse credit to the Burman and Lange farms despite the fact that the farm interview notes stated that no tail water was reused.

vii. Opposers' Use of Weighted Average

518. Mr. Helton chose a single potential efficiency factor of 75 percent for every ECCV farm. Mr. Ault testified that he weighted the irrigation efficiency based on the application method, crop type, interview notes, and acreages planted in different crops on the various ECCV farms. Mr. Ault then calculated the overall acreage weighted average of the various irrigation methods under FIRI in coming to an average irrigation efficiency for the ECCV farms.

viii. Opposers' Consideration of Other Publications

519. Similar to Mr. Helton, Mr. Ault referenced information regarding potential efficiencies from other publications such as the Colorado Irrigation Guide (also, the "guide") and New Mexico Technical Report 32 (also, the "New Mexico report") to check his FIRI opinions.

520. Regarding the Colorado Irrigation Guide, Mr. Helton testified that he relied on Table 6.B.4 in guide for information on design efficiencies for furrow irrigation systems. Mr. Helton testified that Table 6.B.4 indicated that the efficiencies that are recommended for furrow irrigation range from 60 to 70 percent. On cross-examination Mr. Helton further testified that the efficiencies in Table 6.B.4 varied by slope, with the efficiency going down as the slope went up. He conceded that the furrow efficiency for slopes of 4 percent or more were only 50 percent and that irrigation efficiency for irrigation through furrow and corrugations would drop to approximately 52.5 percent for slopes in the 3 to 5 percent range, but the range for all slopes greater than 1 percent ranged from 50 to 60 percent. He then conceded that over 75 percent of the land on the 22 ECCV farms had slopes over 1 percent.

521. Mr. Ault also considered the Table 6.B.4 of the Colorado Irrigation Guide. He noted that to determine potential efficiency under the FIRI method, it is acceptable to look at more local guides such as the Colorado Irrigation Guide. He testified that the guide shows potential efficiencies for furrows and corrugations of 50 to 60 percent, which is lower than the 75 percent recommended in the FIRI manual. Thus, Opposers assert that the Colorado Irrigation Guide supports Mr. Ault's opinion.

522. Mr. Helton testified that he considered the New Mexico Technical Report 32 useful as a check of his FIRI calculations. Mr. Helton directed the court's attention to Table C-1, which reported estimated field efficiencies derived from an irrigation efficiency field experiment. Table C-1 reflected irrigation efficiencies by soil texture type that ranged from 65 to 80 percent. Mr. Helton testified that this report was consistent with his final FIRI findings of 55 to 65 percent. Mr. Helton also testified that his irrigation efficiency findings were lower than the estimates in the New Mexico report because the ECCV farms had greater slopes than the studied in the New Mexico tests.

523. The text of New Mexico report cautions that:

> The field-irrigation efficiencies shown in Appendix Table C-1 and Tables C-2 through C-7 have not been corrected for transpiration and evaporation losses than occur during the two day period between application and soil moisture sampling and adjustment should be made before these values are used to determine field or farm irrigation requirement.

Opposers therefore contend that Mr. Helton's reliance on Table C-1 in the New Mexico report is not reliable.

524. The New Mexico report also refers readers to Table 8 for field efficiencies for different soil groups. Table 8 reports field efficiencies that range from forty-five percent for open porous soil types to sixty-five percent for medium loams to sixty percent for heavy clays. Opposers thus assert that the New Mexico report corroborates Mr. Ault's opinion because and not Mr. Helton's.

c. *Rebuttal Arguments and Evidence*

525. In rebuttal, Applicants contend that Opposers incorrectly begin with potential efficiencies that are too low in large part because Mr. Ault did not consider the water short nature of the Barr Lake system.

526. Applicants cite a Soil Conservation Service publication, Chapter 2, Irrigation Water Requirements, Part 623 of the National Engineering Handbook in reference to the concept of the "adequacy and uniformity" of the application of irrigation water. This document explains that high irrigation efficiency does not necessarily result in effective irrigation. High irrigation efficiency means that a relatively high percentage of water is consumed but it does not concern whether the crops are developed to their potential. Rather, effective irrigation develops crops to their potential as a result of the adequacy and uniformity in the application of irrigation water. The adequacy and uniformity of irrigation water may result in greater deep percolation and runoff. Therefore, effective irrigation may result in lower irrigation efficiency.

527. Applicants thus argue that, in a water-short system where there is not enough irrigation water to meet crop demands, farmers cannot apply irrigation water in an adequate and uniform manner. Less deep percolation and runoff results in a higher potential irrigation efficiency.

528. Applicants argue that farmers in the Barr Lake system practice deficit irrigation due to the water short nature of the system. As a result, there is no adequacy and uniformity in the application of irrigation water in the Barr Lake system and a higher potential efficiency is appropriate.

529. The court sustained Opposers' objection to Applicants' attempt to provide new testimony regarding the National Engineering Handbook's treatment of the concepts "adequacy and uniformity" in their rebuttal case. Therefore, the court will not consider Applicant's rebuttal argument.

530. Applicants provided no evidence or testimony demonstrating that the ECCV farms have a higher irrigation efficiency due to the relative uniformity of application while experiencing inadequate supply. As discussed above, Mr. Helton conceded that there is a scientific method for determining the uniformity and adequacy of the application of irrigation water, and that he had not conducted this analysis. Mr. Ault explained that this analysis would be properly conducted using tensiometers and neutron probes. Mr. Helton admitted that he had neither performed any such analysis nor calculated the coefficient of uniformity. Furthermore, on cross-examination, Mr. Helton also conceded that deficit irrigation does not necessarily result in increased efficiency. In fact, Mr. Helton admitted that it was merely his opinion, not based on any measurement or calculation that the irrigation efficiency would increase on the ECCV farms because farmers are applying water to minimize deep percolation and reduce tail water. Accordingly, there is no evidence or testimony to support Applicants' attempt to provide a new irrigation efficiency analysis on the basis of the concepts of "adequacy and uniformity" in the National Engineering Handbook.

c. Analysis

531. Only two experts, Mr. Helton for Applicants and Mr. Ault for Aurora, provide a detailed analysis and opinion regarding the irrigation efficiency of the changed shares on the 22 ECCV farms. Although Mr. Armbruster also testified on the issue, he relied on the information provided by Mr. Helton and did not complete a detailed analysis.

532. Of the two opinions regarding irrigation efficiency, the court gives greater weight to Mr. Ault's opinion. As detailed above, his analysis of the irrigation efficiency of the changed shares on the ECCV farms is more thorough and has greater depth than Mr. Helton's analysis. For example, Mr. Ault more faithfully applied the definitions of various technical terms in his FIRI analysis and comparison with other publications than did Mr. Helton. Further, Mr. Ault considered the various factors affecting irrigation efficiency on each ECCV farm to a greater extent than did Mr. Helton. The court therefore must conclude that the irrigation efficiency of the use of the changed shares on the ECCV farms is 50 percent.

11. Secondary Evaporation and Transpiration

a. Applicants' Reduction of Return Flow Requirements Based on SEV

533. Applicants claim a reduction of their return flow obligation through the application of the concepts of "secondary evaporation" and "secondary evapotranspiration" ("SEV"). In other words, Applicants seek to reduce their return flow obligation by subtracting the amount of evaporation that occurs while water is being conveyed in the ditch and the evapotranspiration of the tail water remaining after the first application of irrigation water.

534. SEV has four main components: (1) minor lateral losses, (2) consumption from discharge to downstream ditches and reservoirs, (3) evapotranspiration from wet soils, and (4) evapotranspiration from water discharged to neighboring fields.

535. Applicants' fundamental position regarding its SEV claim is that no injury to vested water rights occurs by not including SEV in the return flow obligation. *See* C.R.S. § 37-92-305(3). Applicants contend that not all irrigation losses and return flows actually return to the stream system; instead they are consumed through evaporation or evapotranspiration. According to Applicants, no injury results because the consumption represented by SEV would not have occurred but for Applicants diversion and no appropriator could use the water consumed by SEV.

536. Mr. Helton, Applicants' expert, testified regarding the SEV claim. He testified that, according to his analysis in this matter, 95 percent of canal losses are due to seepage and the remaining 5 percent is evaporation that does not need to be replaced. Applicants claim SEV of tail water occurred on all 22 ECCV farms where the water rights at issue were historically used. They claim an 8.99 percent loss on the 38 percent return flow obligation occurred due to SEV. Put another way, Applicants claim 3 percent of the farm headgate delivery is lost due to SEV.

537. Mr. Helton testified that the SEV concept was recognized in a City of Westminster Standley Lake transfer case 18 years ago, though Applicants have provided no more detailed information. Mr. Helton testified that the SEV concept was recognized in the computer model approved in the *Kansas v. Colorado* litigation in the United States Supreme Court concerning the Arkansas River Compact.

538. Taking into account the SEV reduction, Mr. Helton calculated the amount of deep percolation from the return flows from the water rights at issue. In sum, the practical effect of Applicants' SEV claim is that SEV reduces the Applicants' return flow obligation and this reduction increases Applicants' claimed consumptive use of the water rights at issue from 61 to 65 percent.

539. Mr. Helton then determined the location of the point of return, where return flows must be returned to the stream. Return flows from ten of the ECCV farms accrue to the Beebe Draw, returns flows from two ECCV farms accrue to the South Platte River, and return flows from the remaining ECCV farms accrue to the Beebe Draw below Milton Reservoir or Box Elder Creek.

Mr. Helton stated that most return flows could be made to the South Platte River at the mouth of the Beebe Draw because the controlling calls generally come from Water District 1. However, return flows may need to be made upstream above the Jay Thomas, Western, or Lower Latham Ditches if they are calling and sweeping the river.

540. Mr. Helton further testified regarding the timing of the return flows. Applicants will use a Modflow model to provide unit response function values to determine the timing of the return flows for most of the farms. The application of this model was stipulated by the parties and will not be restated in detail here. The model provides that all return flows are assumed to return to the stream within 240 months. For the two farms located outside of the model's domain, Mr. Helton developed a return flow response function using the Glover equation. Finally, Mr. Montoya, FRICO's manager, testified regarding FRICO's ability to deliver return flows to the stream.

b. Opposition to Requested SEV Reduction

541. Opposers do not agree that Applicants' return flow obligations should be reduced by SEV. Opposers contend that there is no legal basis for Applicants' SEV claim under Colorado water law and that the use of SEV in the interstate Arkansas River litigation is not controlling. Opposers further argue that, even if such a claim were legally cognizable, Applicants presented insufficient factual support for the claim. There is no apparent dispute regarding the location and timing of Applicants' return flow obligations.

c. Analysis

542. The court agrees with Opposers' position regarding Applicants' SEV claim as discussed in detail below. Colorado water law does not support Applicants claim for secondary evaporation and evapotranspiration credit and there is insufficient evidentiary support for Applicants' SEV claim. Applicants may therefore not take credit for SEV in this matter.

i. <u>No Legal Basis for Applicants' SEV Claim</u>

543. Applicants have not demonstrated an adequate legal basis for their claim to take credit for SEV in this matter. Under established principles of Colorado water law, there is no right to tail water or return flows after an appropriator has applied native, tributary water to a beneficial use, absent a separate appropriation and decree. Applicants have demonstrated no such right and therefore cannot claim credit for SEV. Further, the use of an analogous SEV claim in the *Kansas v. Colorado* litigation in the United States Supreme Court concerning the Arkansas River Compact does not persuade the court.

544. "An appropriator of native, tributary water, which historically flows back to the stream from whence it comes, is permitted only one use of the water because the return flows are subject to water rights on the stream in the order of their priority." *Pub. Serv. Co.,* 856 P.2d at 833 n.8.

545. "[T]o reuse or make successive use of return flows, all of the elements of an independent appropriation must be established and decreed as a separate water right." *Santa Fe Trail*

Ranches Prop., 990 P.2d at 56 (citations omitted). The right to use water is limited to the appropriator's actual needs. *Pulaski Irrigating Ditch Co.,* 203 P. at 682. All surplus water must be returned to the stream because there is no automatic right to recapture and reuse this water after the initial application to beneficial use. *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 65 (Colo. 1996).

546. Waters remaining after applying them to a decreed use belong once again to the river system at the moment they are released by the user and start to flow back to the river. *Ready Mixed*, 115 P.3d at 643; *Comstock v. Ramsay*, 133 P. 1107, 1111 (1913) ("When it is shown or admitted that these waters ultimately return to the river and thereby augment and replenish its flow, they are part and parcel thereof, whether the limit within which this occurs be short or long."). *See also Ft. Morgan Co. Reservoir & Irrigation Co.*, 206 P. at 395.

547. The amount of return flows owed to the stream is therefore measured when and where return flows have historically became part of the stream following their application to beneficial use. *Id*.; *Comstock*, 133 P. at 1111.

548. In this matter, Applicants do not have a decree that provides for the reuse of the water rights to be changed in this matter. Therefore, the court considers all tail water and return flows resulting from the irrigation of the ECCV farms to be part of the stream and Applicants must replace all return flows without reduction for SEV.

549. The use of an analogous SEV claim in the *Kansas v. Colorado* litigation in the United States Supreme Court concerning the Arkansas River Compact does not persuade the court. SEV has been used in the computer model, which has been adopted as a compact compliance tool in the Arkansas River basin. However, that SEV credit concerned the enforcement of the Arkansas River compact and was not based on Colorado water law.

ii. Insufficient Evidentiary Support for SEV Claim

550. Applicants have failed to meet their burden of proving SEV occurred in the amounts claimed. As discussed below, Applicants' SEV claim is inconsistent with other evidence in this matter and is simply insufficient to provide the basis for the claim.

551. Applicants claimed SEV credit from all 22 ECCV farms despite evidence from the irrigation efficiency analyses that tail water was only available from six farms. Mr. Ault, Aurora's expert, testified that Applicants already receive credit for any secondary use of water in the FIRI analysis in the tail water reuse (R) factor. Mr. Ault also explained that Applicants claim credit for tail water reuse on 11 farms, meaning that there was no tail water left over for SEV on eleven of the 22 farms. Mr. Ault also reviewed the field notes to conclude that an additional five farms reported that no tail water resulted from the initial application of irrigation water. Sixteen of the 22 ECCV farms therefore either had tail water assigned for reuse in the calculation of irrigation efficiency or no tail water was reported. Of the remaining six farms, Mr. Ault testified there was nothing in the farm interview notes to substantiate a claim for SEV.

552. Applicants' SEV claim is inconsistent with evidence in this matter that there is little tail water available and that most return flows occur through deep percolation. For example, irrigators in the Barr Lake system, such as Mr. Montoya and Mr. Bailey, testified that what little tail water existed on Barr system farms was reused. Therefore, return flows occur through deep percolation.

553. Applicants failed to present sufficient evidence to support a claim for evaporation from wet soil areas and borrow ditches. For example, Mr. Gillham, one of Applicants' experts, conceded that he had not made any field measurements of wet soil areas. Applicants presented no evidence to substantiate the claim for evaporation from wet soil areas and insufficient analysis to support a claim for evaporation from minor laterals.

554. In sum, Applicants did not present sufficient and sufficiently-detailed evidence to substantiate their specific SEV claims. Mr. Ault testified that Applicants were not entitled to SEV credit on each of the 22 farms as a matter of fact because there was no evidence that SEV actually occurred. Mr. Armbruster, Central's expert, testified likewise that he did not include SEV as part of his estimated farm efficiency because the information he reviewed was not sufficient for him to conclude that SEV occurred historically. He further stated that Applicants' information was insufficient for him to conclude that if SEV had occurred historically, it will cease to occur in the future.

12. Proposed Limitation on Changed Storage Rights

a. Applicants' Claim to Change Water Storage Rights

555. Applicants do not limit the quantification of the water storage rights to be changed in this matter by actual historical use, but rather, claim a *pro rata* portion of the entire decreed amount of those shares. *See* section IV.H.1, at paragraphs 229 and 230 (regarding storage rights to be changed). Mr. Helton, Applicants' expert, testified that in assigning the amount of water to be delivered to the changed shares, he allocated storage to the changed shares on the basis of one annual fill of the decreed storage rights and assigned deliveries to the shares sought to be changed on the basis of *pro rata* ownership. Applicants assert that such an apportionment is proper under *City of Westminster v. Church*, 445 P.2d 52 (Colo. 1968) ("*Westminster*") and *Southeastern Colo. Water Conservancy Dist. v. Fort Lyon Canal Co.*, 720 P.2d 133 (Colo. 1986) ("*Southeastern*").

b. Opposers' Proposal to Limit Change of Water Storage Rights to Historical Use

556. Opposers contend that the court must impose volumetric limitations on the water storage rights to be changed based on historical use to prevent an expansion of use and injury to vested water rights. As discussed below, Opposers assert that Applicants' claim will injure junior appropriators by enlarging the historical use of the water storage rights to be changed in this matter, and by altering the historical fill pattern, resulting in longer and more senior calls and rebound calls.

557. Opposers assert that *Westminster* is not controlling. Opposers argue that the Water Right and Determination and Administration Act of 1969, C.R.S §§ 37-92-101, *et seq.* (the "1969 Act"), overruled *Westminster*, which was decided in 1968. Specifically, Opposers contend that C.R.S § 37-92-103(5) broadly defines a change of water right to include virtually any change of storage rights and C.R.S. § 37-92-305(3) mandates that changes will be approved only if injury is prevented. Opposers also disagree with Applicants regarding the significance of *Southeastern*.

c. Evidence Regarding Injury

558. The evidence established that most years, Barr Lake does not and has not historically diverted the full amount of its water storage rights. Mr. Helton, Applicants' expert, conceded on cross-examination that, on average, Barr Lake carries over water in excess of 11,000 af every year. Mr. Ault, Aurora's expert, used Mr. Helton's calculations to calculate that releases from storage in Barr Lake are less than the fully decreed amount of the water rights, and therefore, storage water has historically been carried over in Barr Lake.

559. Opposers presented evidence that injury will occur if volumetric limitations are not imposed on the water storage rights to be changed in this matter. Mr. Armbruster, Central's expert, testified that limiting Applicants storage rights only by the one-fill rule without additional volumetric limits to reflect historical use would allow Applicants to consume more water in the future than they had historically to the detriment of other rights on the river. Mr. Ault testified that allowing the changed shares to obtain delivery of a full *pro rata* portion of the decreed storage right would result in a change of the historical fill and release pattern from Barr Lake. Mr. Ault also testified that this change would result in an increased draft the river, an enlargement of use of the storage rights, and increased diversions to storage beyond above historical averages, resulting in increased severity of calls during the storage season and rebound calls. Mr. Ault further opined that the increased severity of calls and rebound calls would injure Aurora's water rights.

560. Applicants presented no evidence to counter Aurora's testimony that the proposed change of the historical storage diversions and deliveries causes injury to juniors. Applicants proposed no terms and conditions to prevent injury resulting from the change to the storage rights.

561. Mr. Ault also asserted that Mr. Helton's calculation of diversions to storage did not include an analysis of out of priority diversions. Opposers contend that Mr. Helton's failure to account for the out of priority diversions likely overstates the amount legally diverted to storage in priority and could exacerbate the effect of the expansion of changing future operations if not properly analyzed and limited in the future. Alleged out-of-priority diversions are addressed above in section IV.H.5, beginning at paragraph 388.

d. Analysis

562. The court determines the court must impose volumetric limitations based on actual historical use of the water storage rights to be changed in this matter. The guiding principle in change of water rights cases is that the change may not result in injury to vested water rights. *See* C.R.S. § 37-92-305(3). The no injury rule states that only the true right, as determined by

historical diversions and use, may be changed and transferred. *See High Plains*, 120 P.3d at 719. The *Westminster* case, which predates the 1969 Act is not controlling and the *Southeastern* case supports this court's determination.

563. Changes of water rights, including storage rights, may be approved only if no injury results. Section C.R.S. 37-92-305(3) states that changes of water right shall be approved if the change "will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right." *See, e.g., City of Thornton*, 926 P.2d at 80 ("One of the basic tenets of Colorado water law is that junior appropriators are entitled to maintenance of the conditions on the stream existing at the time of their respective appropriations. Equally well established is the principle that a change of water right cannot be approved if the change will injuriously affect the vested rights of other water users.") (citations omitted). Section C.R.S. 37-92-103(5) broadly defines a "change of water right" to include essentially any change in a water storage right.

564. Changes "in the use of a water right cannot effect an enlargement in the use of that right." *City of Golden*, 44 P.3d at 246. One "of the principal dangers attending a change of water right from agricultural to municipal use is that the municipality will attempt to enlarge its use of the water right beyond the historical agricultural usage." *Id*. "Safeguarding junior appropriators' right to immutable stream conditions in the face of a change from agricultural to municipal use requires that there be parity in the consumptive use of the right before and after the change-and that this parity endures." *Id*. *See also Farmers Reservoir & Irrigation Co.*, 33 P.3d at 807.

565. Therefore, under relevant Colorado statutes and case law, an applicant seeking to change the use of a water storage right must quantify the historical consumptive use of water storage rights to be changed so as to prevent injury to other water rights.

566. Applicants in this matter contend that, pursuant to the Colorado Supreme Court's decision in the *Westminster* case, the measure of a storage right in a change of water right application is not limited by a historical use analysis, but rather, is transferred on the basis of the one-fill rule. *See generally Windsor Reservoir & Canal Co. v. Lake Supply Ditch Co.*, 44 Colo. 214, 224, 98 P. 729, 733-34 (1908) (regarding one-fill rule). Applicants further assert that the Supreme Court affirmed this holding in the *Southeastern* case. However, the court does not agree.

567. In *City of Westminster v. Church*, water rights users sued the City of Westminster for expanding the use of various agricultural rights it had purchased. 445 P.2d at 52. The trial court applied the rule that when a water right is changed, it must be re-quantified based on actual historical use. The Supreme Court overruled the trial court, holding, "[T]he trial court erred in ruling that the storage rights were limited to historical use. A reservoir right permits one filling of the reservoir per year. Change of use does not create a greater burden as to storage water." *Westminster*, 445 P.2d at 58.

568. In *Southeastern Colo. Water Conservancy Dist. v. Fort Lyon Canal Co.*, the Colorado Supreme Court addressed the relevant holding in the *Westminster* case. 720 P.2d 133. The trial court determined as a matter of law that water storage rights can be changed without considering

diminished return flows and resulting injury to other users. *Id*. at 146. The Supreme Court reversed and remanded the case for consideration of injury caused by diminished return flows.

> *Westminster* does not stand for the proposition that return flows should not be considered in evaluating injuries caused by changes in direct flow or storage rights. To the extent that some of our language in *Westminster* may be interpreted to disregard return-flow injuries due to a change in storage rights, our holding here clarifies *Westminster* on the issue of injuries caused by diminished return flows. The 1969 Water Rights Act and our recent cases make very clear that diminished return flows, whether due to change in direct-flow or storage rights, must be considered when calculating the amount of injury to other appropriators. The court's decrees must prevent or compensate such injuries by ordering appropriate modifications and conditions.

Id. at 146-47.

569. The holding of the *Westminster* case is not controlling in this matter. 720 P.2d at 146-47. The *Westminster* case was issued before the General Assembly passed the 1969 Act. The provisions of the 1969 Act concerning changes of water right, including changes of water storage rights, which are discussed above, are therefore controlling. *See* C.R.S. §§ 37-92-103(5), -305(3). As the Supreme Court indicated in *Southeastern*, the express holding of the *Westminster* case simply does not survive the enactment of the 1969 Act. 720 P.2d at 146-47.

570. The *Southeastern* case does not limit the quantification of the actual historical consumptive use of water storage rights. In the *Southeastern* case, the Supreme Court only addressed the requirement that courts consider return flows when addressing injury to other appropriators and that historical return flows not be diminished in a change of water storage rights case. *Id*. However, there is no indication in the *Southeastern* case or otherwise that the water court's injury analysis must be limited to the diminution of return flows only. Rather, based on the 1969 Act and case law, the water court's injury analysis is broader.

571. In summary, pursuant to the requirements of the 1969 Act and case law, Applicants must quantify the actual historical consumptive use of water storage rights to be changed in this matter. As summarized above, the undisputed evidence established that allocating the full *pro rata* portion of the Companies' decreed storage rights to the changed shares would result in expansion of use of the storage rights to be changed. Such an expansion would result in increased severity and duration of calls and would also likely result in rebound calls on the South Platte River. Therefore, Applicants are only entitled to delivery of their *pro rata* share of the amount historically released from Barr Lake. This amount shall be adjusted as necessary to be consistent with the determinations in this order.

13. Claim for System-Wide Analysis

a. Applicants' Claim for System-Wide Change

572. Applicants request the use of a limited ditch or system-wide basis for changing the quantification of the FRICO and Burlington water rights. *See Midway Ranches*, 938 P.2d at 525-26. *See* section IV.H.1, at paragraphs 229 and 230 (listing water rights to be changed).

573. Mr. Helton, Applicants' expert, testified regarding the bases of the Barr system-wide claim, which included his work for FRICO since the early 2000s, numerous field trips, work with Mr. Gillham, another of Applicants' experts, soil and cropping pattern analyses of the system, and analyses of some of the historically-irrigated farms. Mr. Helton considered 79 of the 224 farms (35.27 percent) in the Barr system including 22 of the ECCV farms, the shares of which are being changed in this matter. Mr. Helton's analysis of the 79 farms involved 866.84 outstanding FRICO-Barr shares, or 31.4 percent of total outstanding FRICO-Barr shares. It also involved 286.2 non-FRICO Burlington-Barr shares, or 33.6 percent of all shares outstanding. It considered 8,192.5 irrigated acres in the Barr system, or 35.62 percent of the total acreage irrigated under the Barr system.

574. Mr. Helton stated that his analysis constituted a representative sample of the farms in the FRICO-Barr and Burlington-Barr system for the purpose of a system-wide analysis. He further noted that in Case No. 98CW410 a ditch-wide analysis of the Home Supply system was conducted using representative percentages slightly smaller than those offered in this matter.

575. At the close of evidence, the parties entered into a stipulation that limited the scope of the system-wide claim. Pursuant to the stipulation, the ditch-wide claim would apply only to those shares that have been used on farms that have gravity-based application and no other water supply. Those farms with gravity-based applications currently are listed in Applicants' exhibit 1550.

576. Following the stipulation, Applicants argue that there are 6,826 irrigated acres subject to the ditch-wide claim. Applicants thus assert that Mr. Helton performed a detailed analysis of the ECCV farms that consider 1,590.9 acres. Applicants further assert that the interviews conducted by Mr. Helton and Mr. Gillham aggregated additional information on 4,692.2 irrigated acres.

577. Applicants therefore claim that the system-wide application of their claim is premised upon detailed evaluation of 23.3 percent of all farms in the Barr system and interview analysis of 72 percent of the aggregate acres. Applicants contend that these percentages, particularly when taken in the context of the similarity of all the irrigated farms in the Barr system as evaluated in detail by Mr. Helton, support their system-wide claim.

b. Opposition to System-Wide Claim

578. Opposers maintain that Applicants have not conducted a sufficiently broad inquiry into the FRICO-Barr and Burlington-Barr systems to justify a system-wide change. Opposers argue that Applicants conducted a thorough analysis on only 22 ECCV farms, of a total 224 farms in

the Barr Lake system. Opposers further argue that the remaining interviews claimed by Mr. Helton were merely surveys of the irrigation method, number of shares, and crop type. Accordingly, Opposers assert that Applicants conducted an analysis of approximately ten percent of all farms in the Barr Lake system, not considering which are gravity-based. Mr. Ault, Aurora's expert, testified this did not constitute sufficient analysis to justify a ditch-wide change.

c. Analysis

579. Applicants' analysis is sufficiently broad to constitute a system-wide determination of the shares used on farms with only gravity-based irrigation systems. Mr. Helton, Applicants' expert, performed a detailed analysis of the ECCV farms that comprise 1,590.9 acres of the 6,826 irrigated acres (23.3 percent) subject to the system-wide claim. Further, the interviews conducted by Mr. Helton and Mr. Gillham aggregated additional information on 4,692.2 irrigated acres (72 percent). The court takes judicial notice of Case No. 98CW410, in which a ditch-wide claim was approved using smaller percentages. *See Mun. Subdist. v. OXY USA, Inc.*, 990 P.2d 701, 711 (Colo. 1999) ("A court may take judicial notice of its own records . . . .").

580. Furthermore, as discussed throughout this order, the parties in this matter have thoroughly analyzed the historical use and change of use of the water rights to be changed in this matter. *See Central Colo. Water Conservancy Dist.*, 147 P.3d at 19 ("Ditch-wide analyses are preferable for many reasons, among them that they prevent expensive relitigation of consumptive use.").

581. The court therefore determines that Applicants have met their burden for a system-wide analysis of the water rights to be changed in this matter for only those shares that have been used on farms that have gravity-based application and no other water supply.

14. Dry Up Covenant

a. Applicants' Position on Dry Up Covenants

582. Applicants presented evidence concerning dry up agreements entered into between the owners of the ECCV farms and United, which purchased the changed shares. Mr. Helton, Applicants' expert, testified that such agreements exist on all but two shares, which were floating in the Barr system and could not be tied to a particular farm.

583. Mr. Helton further testified that formal dry up covenants are not necessary because the Barr system is water short. He opined that, in a water short system, there is an "automatic reduction in consumptive use" when a water right is used for a different purpose because that water is no longer available.

b. Opposers' Request for Dry Up Provision

584. Opposers request the inclusion of dry up provisions in the final decree in this matter. For example, Mr. Armbruster expressed a need for the historically irrigated lands to be dried up in this case.

585. Mr. Ault, Aurora's expert, agreed with Mr. Helton that some ECCV farms are already dried up but stated that additional terms and conditions are needed. Mr. Ault testified that he observed high groundwater during his visits to ECCV farms in February 2008. Based on these observations, Mr. Ault affirmed that there is some possibility of sub-irrigation on the ECCV farms. He thus recommended the standard dry-up condition that the State Engineer's Office adds to SWSPs be added to the terms and conditions in the final decree.

586. Mr. Hall, division engineer, likewise testified that there should be a condition in the decree that includes dry-up and measurement of sub-irrigation, or water level depths to determine whether there is sub-irrigation occurring. He further testified regarding the dry up agreements between United and the farm owners. Mr. Hall stated that the Engineers normally do not enforce agreements to which they are not a party unless the terms and conditions are included in a decree.

c. Analysis

587. Applicants have the burden of establishing a lack of injury to vested water rights. *Weibert*, 618 P.2d at 1372. Applicants assert that dry up terms and conditions are not necessary because of the water short nature of the Burlington-Barr Lake system. Applicants further question the evidentiary sufficiency of Mr. Ault's testimony regarding the possibility of sub-irrigation. Nevertheless, Applicants concede in rebuttal that the inclusion of terms and conditions concerning dry up is not a substantial burden. The court determines that the weight of the evidence supports the inclusion of terms and conditions regarding the dry up of the ECCV farms.

588. Three expert witnesses testified in support of the proposition that the inclusion of dry up terms and conditions are necessary to prevent injury, despite the fact that the system may be water short. *See* C.R.S. § 37-92-305(3). Further, Mr. Ault testified regarding his observations of a high water table that, in his expert opinion, creates a condition for sub-irrigation that could in essence result in a double use of the changed shares. Moreover, Mr. Hall's testimony supports the need for the inclusion of such terms and conditions for general enforcement. Applicant thus failed to meet its burden that no injury would occur in the absence of such terms and conditions. *Weibert*, 618 P.2d at 1372. Therefore, the following terms and conditions proposed by Mr. Ault shall be included in the final decree in this matter:

> (1) All parcels of dried up land used to generate augmentation credits will be inspected during the irrigation season following the entry of the decree to verify dry up. The final verification of dry up will be in the form of an affidavit signed by an individual having personal knowledge of the dry up for the entire irrigation season for each parcel of land used for augmentation replacement. All affidavits must be provided to the Division Engineer by November 15 in the same year following the irrigation season for which dry up is evaluated in order that the final determination of augmentation credits for the irrigation season can be made along with mapping showing any revisions to the dry up acreage. Credit from any dry up fields containing alfalfa or native grasses will be assessed in the following manner:

(a) For fields deep tilled or chemically treated to kill alfalfa or native grass successfully, one hundred percent credit will be given for consumptive use as otherwise computed under the conditions of this approval.

(b) For fields not deep tilled or chemically treated to kill alfalfa successfully, records of monthly monitoring of depth to groundwater at existing irrigation wells or existing or new monitoring wells or piezometers within one-quarter mile of each alfalfa or native grass field must be maintained. Credits will be reduced according to the following table when depth to groundwater is less than the depth assumed to provide significant contribution to alfalfa growth. Measurements taken at the start of each month will determine the necessary reduction in credit to be applied during the following month. The applicant may use another methodology upon review and approval by the State Engineer and Division Engineer.

Depth to Groundwater (feet)	**Percent Reduction in Consumptive Use Credit**	
	Native Grass	**Alfalfa**
1	85	100
2	50	90
3	30	75
4	20	50
5	15	35
6	10	20
7	5	15
8	0	10

15. Accounting

589. Applicants state that the accounting for this matter will address historical return flows and well replacements to prevent injury. Mr. Lester, FRICO staff engineer, testified regarding accounting spreadsheets concerning historical return flows for the water rights to be changed in this matter. These spreadsheets are a component of the overall accounting system developed by Ms. Thompson, a FRICO consultant. Applicants note that the final accounting form will require modifications and amendments as necessary and appropriate.

590. Opposers expressed concern regarding an evolving accounting practice and Applicants have no objection to submitting the final accounting after entry of a final decree.

591. The court therefore does not decree an accounting form in this matter. The water rights at issue in this matter shall not be used under this decree for the new uses until final accounting for the decree in this case and the decree in Case No. 02CW105(A) has been approved in writing by the Division Engineer. Use of the changed shares under the terms of the existing SWSP may continue for the duration of the existing SWSP until accounting is approved under the decree.

592. Applicants shall submit proposed final accounting to the Division Engineer and all Opposers within 60 days after entry of a final decree. The lack of final accounting shall not prevent appeal of the final decree. Any Opposer may submit comments or alternate provisions to the Division Engineer within 30 days after the date of submittal of Applicants' proposed accounting. The Division Engineer shall be free to informally communicate with Applicants and any Opposer concerning proposed accounting.

593. Any Applicant or Opposer who objects to the accounting, or lack of accounting, for this matter and Case No. 02CW105A, as approved by the Division Engineer, may seek relief under the retained jurisdiction provision of the decree in this case. Any relief granted will require resubmission of accounting the Division Engineer for approval and to all parties for comments as provided for above.

16. Revegetation Requirements

594. Applicants have admitted the necessity of revegetation requirements and proposed terms for revegetation in Applicants' Exhibit 1521 to comply with C.R.S. §§ 37-92-305(4.5)(a) and 37-92-103(10.5). Opposers agree that revegetation of the ECCV farms is a statutory requirement and propose nearly identical terms and conditions regarding revegetation.

595. Opposers, in essence, rephrase Applicants' proposal and add a term and condition that Mr. Hall, the division engineer, suggested. Mr. Hall testified that Applicants' proposed terms are generally acceptable if revegetation is accomplished by means of revegetation with native grasses, dry land farming, or a non-irrigated use of the land. He further stated that, as an additional term and condition, Applicants should not be able to use the changed shares until Applicants completed revegetation and no longer use the changed water for irrigation. In rebuttal, Applicants assert that Opposers' concept for revegetation is more extensive than required by law.

596. The court determines that Applicants shall include Opposers' proposed revegetation terms and conditions in the final decree in this matter. Although Applicants aver that Opposers' proposed terms and conditions go beyond the requirements of C.R.S. §§ 37-92-305(4.5)(a) and 37-92-103(10.5), Applicants make no specific argument against any specific proposed requirement. Further, Applicants' and Opposers' proposed terms and conditions are highly similar in substance. The primary and sole substantive difference apparent to this court is Opposers' inclusion of an articulated version of Mr. Hall's proposed term and condition. Such a term and condition is reasonable to prevent double use or double accounting in order to prevent injury to other vested water rights. C.R.S. § 37-92-305(3). Therefore, the following terms and conditions shall be included in the final decree in this matter:

597. Co-Applicants United and ECCV ("Shareholder Co-Applicants") shall provide for revegetation of parcels for which the changed water rights are attributed as follows:

(1) The parcels from which the shares that are being changed in this proceeding ("Revegetation Parcels") have been identified in Exhibit __ .

(2) The primary revegetation of the Revegetation Parcels shall be by initiating and maintaining dry-land agricultural practices on such parcels, through which nonirrigated dry-land crops that are acceptable to the State Engineer shall be grown and noxious weeds controlled ("Dry Land Farming").

(3) Revegetation Parcels that are developed for non-agricultural purposes through which noxious weeds are controlled and the land used for residential, commercial, or industrial purposes ("Non-Agricultural Uses") shall be considered acceptably revegetated under C.R.S. § 37-92-305(4.5)(a).

(4) Revegetation Parcels that are not revegetated by acceptable dry-land agriculturaluse or for non-agricultural purposes shall be revegetated with non-irrigated grasses or dry-land ground cover, with weeds adequately controlled, ("Revegetated Cover") acceptable to the State Engineer.

(5) By December 1 of each year following entry of the decree herein, Shareholder Co-Applicants shall file a report to the Court and all parties in this case documenting the actions taken and status of the Revegetation Parcels as set forth above ("Annual Report"). Such report shall be by an expert qualified in revegetation and dry-land agricultural practices. In no case shall the Revegetation Parcels qualify for classification as Dry Land Farming, Non-Agricultural Uses, or Revegetated Cover if they consume water attributable to the Companies' water rights.

> (A) The water rights for the changed shares attributable to lands on which Dry Land Farming, Non-Agricultural Uses, and Revegetated Cover are established may be used for the changed purposes decreed herein.
>
> (B) If any Revegetation Parcels are not established and accepted as having Dry Land Farming, Non-Agricultural Uses, or Revegetated Cover by the Revegetation Report, then United or ECCV shall not use the United/ECCV shares attributable to those parcels for the new uses decreed in this order. Notwithstanding, Shareholder Co-Applicants may continue to use these water rights to establish Revegetated Cover.

(6) Shareholder Co-Applicants shall have ten (10) years from the date of this decree ("Compliance Period") to establish and maintain i) Dry Land Farming, ii) Non-Agricultural Uses, or iii) Revegetated Cover on the Revegetation Parcels. The Compliance Period may be extended by the Water Court upon petition by FRICO under retained jurisdiction upon a showing their efforts to establish revegetation of the Revegetation Parcels as set forth in this order have been hindered due to circumstances beyond its control. The Compliance period may also be extended by the Water Court, upon petition by the Shareholder Co-Applicants under retained jurisdiction for one year for each year the amount of precipitation measured at the Greeley precipitation station falls below 80 percent of the March through August ten year past average.

(A) If Dry Land Farming, Non-Agricultural Uses, or Revegetated Cover are not established on any Revegetation Parcel by the end of the Compliance Period (as may be extended by the Water Court), then the Shareholder Co-Applicants cannot use the United/ECCV Shares attributable to former irrigation upon such Revegetation Parcel for any of the uses decreed herein.

(7) In each Annual Report the Shareholder Co-Applicants shall identify those parcels for which revegetation as set forth in this order has been established. Any party shall have 120 days from the date of filing the Annual Report in which to contest the assertions of the Annual Report. If contested, the determination of the acceptable revegetation shall be considered within the continuing jurisdiction of the court. If no objection is made, the status of the Revegetation Parcels as identified in the Annual Report shall be deemed accepted and binding on the parties. Revegetation Parcels accepted as Dry Land Farming, Non-Agricultural Uses, or Revegetated Cover shall be deemed to have satisfied the revegetation requirements of C.R.S. § 37-92-305(4.5)(a) and no longer subject to the court's retained jurisdiction for revegetation purposes.

17. Water Diverted Under the Decree in Case No. 1984CW90

a. Applicants' Position Regarding 84CW90 Water

598. Applicants and certain Opposers dispute the inclusion of diversions made under the decree in Case No. 84CW90 ("84CW90 water") in the quantification of historical use of the changed shares. Applicants assert that the water rights decreed in Case No. 84CW90 were not sought to be changed in this matter because they are already decreed for municipal and augmentation uses.

599. Applicants explain that 84CW90 water was nevertheless included in the historical use analysis of Mr. Helton to avoid a potential accounting "loophole." Applicants assert that due to the relative junior status of the FRICO 1908 direct flow right, diversions under this right have frequently occurred during free river conditions, which are in essence the same conditions during which 84CW90 water may be diverted. Under such free river conditions, Applicants suggest that FRICO could theoretically deliver 84CW90 water to the changed shares and thereby avoid the historical use limitations to be placed on FRICO's 1908 and 1909 direct flow water rights. Applicants further assert that if 84CW90 water is excluded from the historical use quantification, when 84CW90 water is in priority, diversions under Case No. 84CW90 cannot be counted against the satisfaction of the water rights to be changed in this matter.

600. Applicants request that if, as Mr. Helton has proposed, 84CW90 water is included in the analysis of historical deliveries to the shares to be changed in this matter, the historical use volumetric limitations may apply to 84CW90 water as well as the water rights to be changed in this matter. Applicants thus conditionally agree with Aurora's proposed term and condition, which is described below.

b. Opposers' Positions on 84CW90 Water

601. Mr. Armbruster, Central's expert, testified that 84CW90 water should be excluded from the historical use analysis of the changed shares.

602. Ms. Griffin, Englewood's expert, argues that 84CW90 water should not be included in the water delivered to the changed shares because 84CW90 water was not included in the water rights to be changed in this matter.

603. Ms. Griffin testified regarding a report by HRS Consulting, on behalf of FRICO, in which 84CW90 water was colored and analyzed for use as replacement water for augmentation. Ms. Griffin testified that in some months, 84CW90 water was thousands of af (in one month it was as high as 5,000 af), but that in others it was zero. In Case No. 97CW152, FRICO filed a diligence application stating that 10,000 af of 84CW090 water was diverted in 1995 and 1996.

604. Ms. Griffin further testified that Mr. Helton explained to her that he initially tried to exclude 84CW90 water by discounting the direct flow releases any time there was a free river the previous day in his August 24, 2007 report. In his November 2007 report, Mr. Helton added the previously excluded water back into to his calculation, claiming that this double counting was appropriate under paragraph 20(j) of the 84CW90 decree. Ms. Griffin testified that she did not think the term and condition referenced by Mr. Helton allowed for double counting, rather she stated her opinion that the language actually described a "paper fill" provision. Ms. Griffin interpretation was supported by the testimony of Mr. Hall, division engineer.

605. Mr. Hall testified that he disagreed with Mr. Helton's interpretation, that he would not administer rights to allow 84CW90 to be accounted in that manner, and that he did not think it is appropriate to use 84CW90 water in the historical use analysis.

606. Mr. Helton's decision to add the previously excluded water back into his analysis resulted in his calculation of the annual average per share discharge from Barr Lake to increase from 1.405 af to 3.051 af.

607. Ms. Griffin conceded that exclusion of diversions made during free river conditions for the period of 1969 through 1983, prior to the 84CW90 adjudication, would be inappropriate.

608. Aurora takes no position as to whether the 84CW90 water rights should have been excluded from Mr. Helton's historical consumptive use analysis. Nevertheless, they contend if the court determines that 84CW90 water is not required to be changed, then the proposed annual and long term average volumetric limits to be applied to the changed shares should apply with equal force and effect to water delivered to ECCV under the 84CW90 priority.

c. Analysis

609. The use of 84CW90 water in the historical use analysis of the water rights to be changed in this matter is no longer relevant to the 1885 Burlington direct flow right and the 1908 and 1909 FRICO water rights because the period from 1984 to the present has been excluded from

the study periods of those water rights. *See* section IV.H.6.c, beginning at paragraph 415 of this order. To the extent that 84CW90 water has been diverted and applied to the 1885 Burlington storage right, such diversions may not be considered in the historical use analysis of that right because 84CW90 water is diverted under a different priority and decree.

18. Burlington Headgate Improvements as a New Point of Diversion

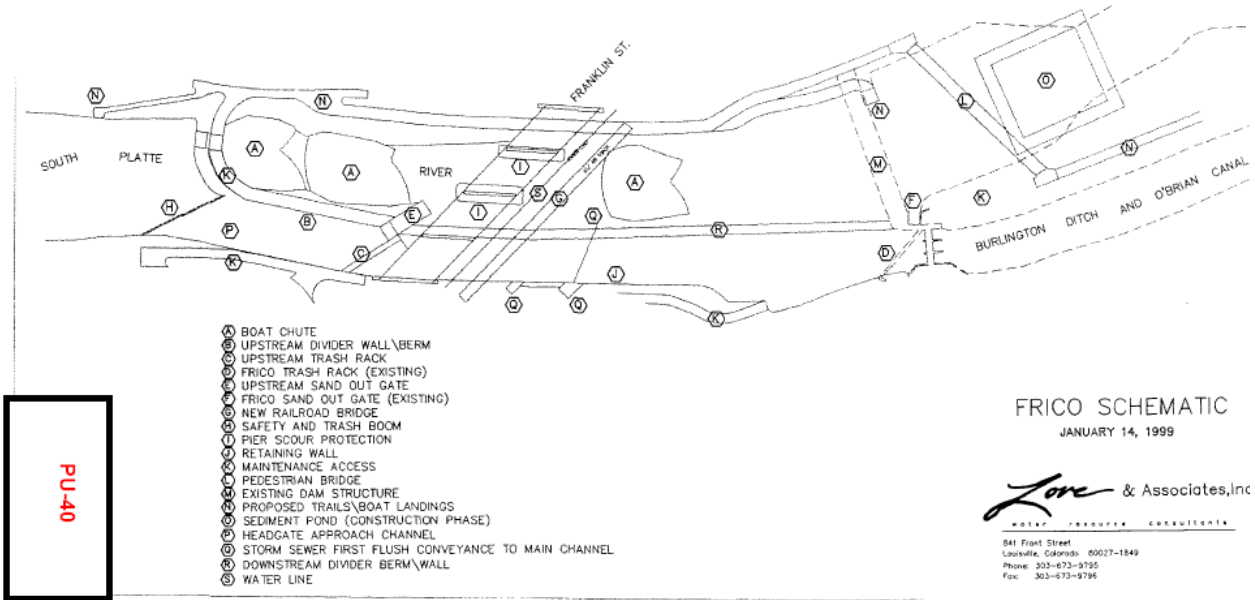
a. Opposers' Counterclaim that the Companies Changed Point of Diversion of the Burlington Canal

610. Opposers, Public Service, Englewood, and Aurora, assert that the Companies changed the point of diversion of the Burlington Canal by the operation of the new dam structure located approximately 900 feet upstream of the historical point of diversion for the Burlington Canal. By order dated April 1, 2008, the court previously determined that Opposers bear the initial burden to prove by a preponderance of the evidence that the new diversion structure constituted a change in point of diversion. *See* section II.B, paragraph 15 of this order. Applicants dispute the claim.

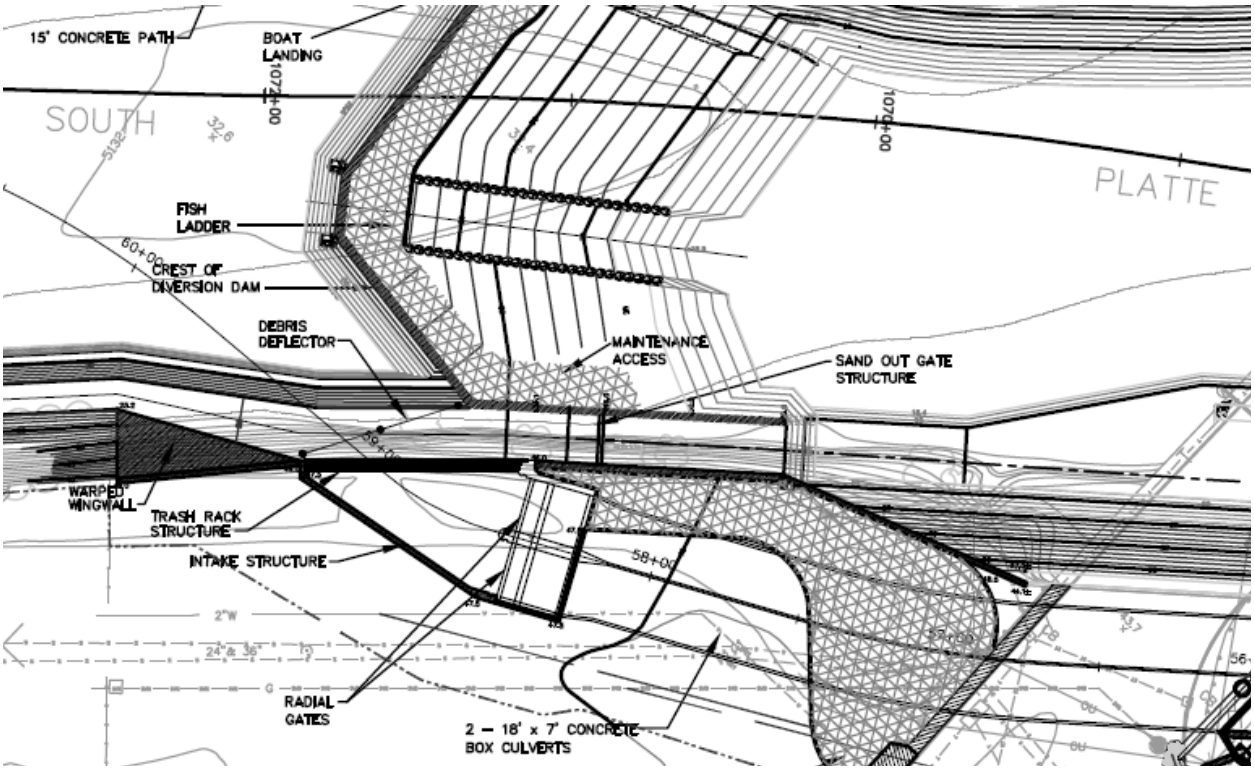
b. Evidence Regarding Alleged Change of Point of Diversion

611. The Globeville Area Flood Control Project (the "Globeville project") involved various construction projects in the Globeville neighborhood of north Denver, including the construction of a structure that Opposers allege constitutes a new point of diversion of the Burlington Canal. The preliminary design and master plan review of the Globeville project began in 1995 and is nearing completion. The project involved lowering significant portions of the South Platte River channel in the vicinity of the Burlington headgate by eight feet in order to get flood waters to be conveyed underneath the Franklin Street Bridge, a reconstructed railroad bridge. The result would be the removal of approximately 320 acres of land from the hundred-year flood plain. Because the lowering of the river channel by eight feet could affect the Companies' ability to divert water into the Burlington Canal, the Globeville project had to maintain part of the river channel at its historical grade and elevation to allow the Companies to continue diversions. The project consequently involved the removal of the existing Burlington diversion dam and its replacement with a new structure.

612. Opposers allege this new structure constitutes a new point of diversion of the Burlington Canal while Applicants assert it is merely a flood control structure. A preliminary schematic of the new structure from Public Service's exhibit Pu-40 is displayed below. As displayed in exhibit Pu-40, water travels down the South Platte River from left to right. The disputed new structure is located along the south bank of the river. The part of the river channel that was lowered as part of the Globeville project is located just north of the new structure. The upstream end of the new structure is located upstream (to the left) of the Franklin Street bridge and continues downstream some 900 feet to the location of the previously-existing Burlington headgates.

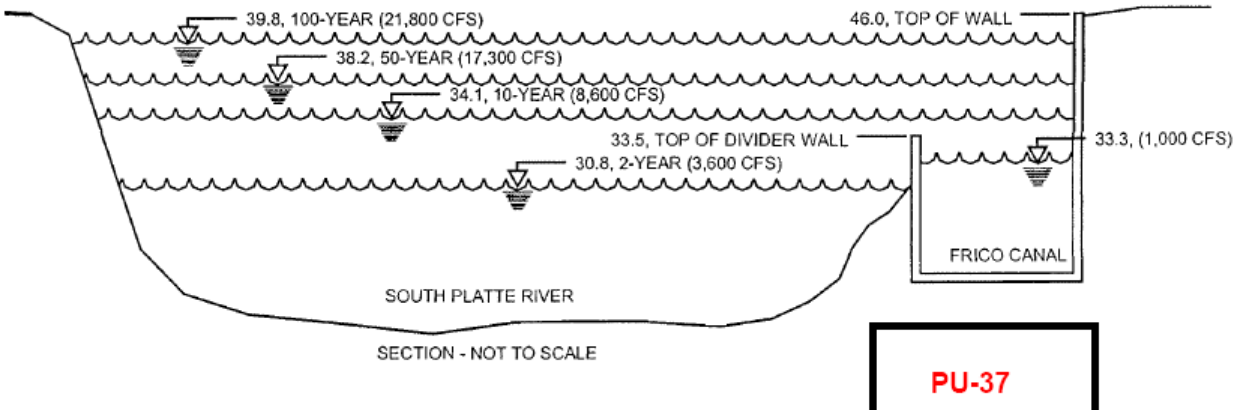


613. Water enters the new structure at a point 900 feet upstream of the previously-existing Burlington headgates. Displayed below is part of Public Service's exhibit Pu-24, a detailed strip drawing of the new structure as built that is too detailed to be reproduced in its entirety in this order. As displayed in exhibit Pu-24, water travels down the South Platte River from left to right. A newly-constructed diversion dam extends across the entire river channel and builds head and channels water into the upstream end of the new structure. At this upstream end of the new structure, water passes through a trash rack and through newly-constructed automated headgates that are controlled by FRICO's Supervisory Control and Data Acquisition System ("SCADA").



614. Once water has entered the new structure, it passes through a four-sided box culvert and a three-sided open concrete channel that are together referred to as the approach channel. There is a sand-out structure located near the upstream end of the new structure by the upstream SCADA-operated headgates. The approach channel parallels the main stem of the river and is separated from the rest of the river channel by a concrete wall. The approach channel is equipped with a transducer that can measure water surface levels, allowing for a rating curve to be developed to convert the transducer measurements into diversion rates. The maximum capacity of the approach channel is 1,000 cfs when the system is clean.

615. A figure showing a cross section of the South Platte River channel and the approach channel at a point halfway between the previously-existing diversion dam and the Franklin Street Bridge from Public Service's exhibit Pu-37 is displayed below. The figure is from a design memorandum prepared under Mr. Love, the civil engineer who designed the new structure, and shows the different levels of flood waters at which water would spill from the main river channel into the approach channel. The figure also shows the level of water in the approach channel when 1,000 cfs is diverted.



616. The approach channel carries water to the previously-existing Burlington headgates, which are manually-operated. There is another sand-out structure located at the downstream manually-operated headgates. Once water passes through the manually-operated headgates, it enters the Burlington Canal.

617. The previously-existing Burlington diversion dam was operated to control diversions into the Burlington Canal since approximately 1935 ("1935 diversion dam") and was located alongside the downstream manually-operated headgates until it was removed. Mr. Montoya testified that the previously-existing Burlington diversion dam was removed and replaced as provided in a December 12, 2006 agreement between the Companies and Denver. The previously-existing Burlington diversion dam was located in the section of the South Platte River channel that was to be lowered by the Globeville project. The 1935 diversion dam and a second sand-out structure that was associated with the 1935 diversion dam were permanently removed in 2008, leaving intact only the downstream manually-operated headgates and one operable sand-out gate.

618. Mr. Love stated that he performed hydrological calculations on the 1935 diversion dam and determined that approximately 700 cfs could be diverted before water overtopped that diversion dam.

619. Mr. Love testified regarding changes to the new structure made at the request of Mr. Montoya, FRICO's general manager. Mr. Love stated that the approach channel was originally designed without upstream headgates simply to maintain the original grade of the South Platte River to the previously-existing Burlington headgates. The rest of the South Platte River would be lowered to accommodate and control flood waters. However, at the request of Mr. Montoya, design modifications to the new structure were made to incorporate upstream headgates and the concrete approach channel including the box culvert to enable the system to deliver up to 1,000 cfs into the Burlington Canal.

620. Mr. Montoya testified that the new structure was located within the river channel. He further testified that over time, the City of Denver had "pinched down the river" such that floods over 10,000 cfs spilled into the Globeville neighborhood. However, Mr. Love testified that the

approach channel extends outside the banks of the South Platte River as they existed at the time of construction.

621. Mr. Montoya testified that the downstream previously-existing Burlington headgates are manually operated by a gear system that is accurate within 30 cfs. The upstream headgates are operated by SCADA, which allows greater precision in controlling the flows into the Burlington Canal than the manual gates allowed.

622. Mr. Montoya described his daily operations of controlling diversions into the Burlington Canal with the SCADA-operated headgates at the new upstream structure. The manual gates are used only to prevent overflow into the ditch, such as during storm surges. Mr. Montoya explained the advantages of the SCADA-operated headgates because they provide greater accuracy in controlling diversions into the Burlington Canal with less manpower. Mr. Montoya stated that removing the downstream manually-operated headgates would not be wise because FRICO would lose the ability to control inflows into the canal during high flows. For example, when there is 5,000 cfs in the river, water would overflow into the approach canal and 1,000 cfs would enter the Burlington Canal without any ability of FRICO to limit that amount.

623. Public Service contends that Mr. Montoya's above-described testimony establishes that the operation of the manual gates is similar to the operation of the waste gates located within the Burlington Canal near the Sand Creek turnout. Both sets of gates are used to control delivery of water through the canal and prevent overtopping of the canal structure due to excessive flow in the canal.

624. Mr. Love testified he was not aware of any analysis done regarding potential effects on downstream water rights.

625. Mr. Ault, Aurora's expert, testified that that the South Platte River in Water District 2 is over-appropriated during most of the year. To compare the efficiency of the new structure with the 1935 diversion dam, Mr. Ault examined flows at the 64th Avenue gauge, which is located below the 1935 diversion dam and upstream of the confluence of Sand Creek and the South Platte River. Mr. Ault graphically compared the flow of the South Platte River at the 64th Avenue gauge verses the Burlington Canal diversion rates from January 28, 1982 through September 30, 2006. Mr. Ault's analysis indicated that 90 percent of the time, the flow of the South Platte River at the 64th Avenue gauge is greater than the flow at the 1935 diversion dam. Mr. Ault further testified that as the flow into the Burlington Canal increased, so did the flows at the 64th Avenue gauge.

626. Mr. Ault's analysis is summarized in the following table.

Diversions Recorded at Burlington Canal Flume (cfs)	90 % Exceedance Value Recorded at 64th Avenue Gage
<100	5.8
101-150	5.9
151-200	6.2
201-250	6.9
251-300	7.7
301-350	8.9
351-400	10.3
401-450	12.0
451-500	14.0
501-550	16.3
551-600	18.8
>600	18.8

627. Mr. Ault proposed that a term and condition be included in the decree for the change in point of diversion requiring Applicants to bypass that amount of water necessary to meet the flows, described in the above table, at the 64th Avenue Gauge.

628. Applicants requested the court take judicial notice of four letters purportedly attached to FRICO's March 10, 2008 Response to Public Service's February 25, 2008 Motion for Determination of Question of Law regarding the alleged change in point of diversion. The letters attached to the response included: a letter from Mr. Love to Hal Simpson, then state engineer, dated September 12, 1995; a letter from John P. Akolt, FRICO's counsel, to Mr. Simpson dated July 18, 2005; and a response letter from Mr. Simpson to Mr. Akolt dated July 21, 2005. The fourth letter identified by Applicants as a response from Mr. Simpson to Mr. Love was not attached to FRICO's response.

629. Colorado Rule of Evidence 201(b) defines the facts that are appropriate for judicial notice. "A judicially noticed fact must be one not subject to reasonable dispute in that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned." *Mun. Subdist.*, 990 P.2d at 711. Courts may not take judicial notice of facts on the very issue the parties are litigating. *Id.*

630. Although it may be appropriate to take judicial notice that the three, above-described letters were attached to the FRICO's response, the court will not take judicial notice of the content of those letters. Further, Mr. Love was asked about his letter to Hal Simpson and the response he received during cross-examination. That would have been the appropriate time to introduce the letters into evidence. Alternatively, Mr. Simpson could have been called to testify regarding the content of the letters. The letters were not admitted into evidence in this case, and it would not be appropriate to take judicial notice of the content of the letters.

c. Analysis

631. The facts and relevant law in this matter support Public Service's position on the issue of the new structure located at and above the Burlington headgate. The court therefore determines that the new structure constitutes a new point of diversion and that its construction and operations amount to a change in the point of diversion. Further, this new structure injures other vested water rights.

i. New Structure as Point of Diversion

632. Colorado statute defines "diversion" and "divert" as "removing water from its natural course or location, or controlling water in its natural course or location, by means of a control structure, ditch, canal, flume, reservoir, bypass, pipeline, conduit, well, pump, or other structure or device." C.R.S. § 37-92-103(7).

633. "Thus, to effect a diversion under the statute, water either must be removed or it must be controlled." *City of Thornton v. City of Fort Collins*, 830 P.2d 915, 930 (Colo. 1992). The removal of "water and carrying it away from its natural course or location, is no longer required." *Id*. Rather, "[c]ontrolling water within its natural course or location by some structure or device for a beneficial use thus may result in a valid appropriation." *Id*.

634. The General Assembly amended the definition of "diversion" in 2001 to add the following: "except that, on and after January 1, 2001, only a county, municipality, city and county, water district, water and sanitation district, water conservation district, or water conservancy district may file an application to control water in its natural course or location by means of a control structure for recreational in-channel diversions." C.R.S. § 37-92-103(7). This modification in the definition of "diversion" does not alter the court's analysis because the new structure in this matter was not constructed for recreational in-channel diversion purposes. The court does not read the amendment to C.R.S. § 37-92-103(7) to preclude other diversionary structures that control water within the course of the stream for purposes other than recreation.

635. The new structure located at and above the previously-existing Burlington headgate constitutes a point of diversion under C.R.S. § 37-92-103(7). The new structure controls water and alters the course of the flow of water in the South Platte River to control that water for the ultimate purpose of effectuating beneficial use of the water.

636. As detailed above, the new structure controls water in the South Platte River at the upstream newly-constructed diversion dam and directs water through the upstream SCADA-controlled headgates and into the approach channel. The previously-existing diversion that was located downstream, alongside the previously-existing Burlington headgates has been removed. FRICO now primarily uses the upstream SCADA-controlled headgates to direct water into the new structure and the Burlington Canal, in part due to the greater precision and level of control of the new headgates. Meanwhile, the downstream, previously-existing Burlington headgates are used to prevent overflow and storm surges into the Burlington Canal. The previously-existing Burlington headgates are therefore mainly used in a manner analogous to the Sand Creek turnout, which merely controls excess water in the canal. The actual point of diversion of water

from the South Platte River and into the Burlington Canal is thus the newly constructed upstream SCADA-controlled headgates.

637. Once in the new structure's approach channel, the water separates from the natural channel of the South Platte River by means of a three-sided concrete channel. The approach channel and the natural channel of the South Platte River are only hydrologically connected during ten-year floods and floods of larger magnitudes. At all other times, the approach channel is separated from the South Platte River. After water has flowed through the 900-foot approach channel, it reaches the previously-existing Burlington headgates and sand out structure. In sum, water for the Burlington canal is diverted at a point 900 feet upstream of the previously-existing Burlington headgates.

ii. New Structure as Change in Point of Diversion

638. "Water rights are decreed to structures and points of diversion." *Empire Lodge*, 39 P.3d at 1148. Changes to a point of diversion are treated as a change of water right. C.R.S. § 37-92-105(3). A change in water right "shall be approved if such change . . . will not injuriously affect the owner of or persons entitled to use water under a vested water right or decreed conditional water right." C.R.S. § 37-92-305(3).

639. The new structure constitutes a change in the point of diversion of the Burlington Canal. As discussed above in the previous subsection of this order, due to the existence of the new structure, any South Platte River water diverted into the Burlington Canal is now diverted at a point 900 feet upstream of the previously existing Burlington headgates. The water is then controlled in an artificial structure that is hydrologically disconnected from the river at all times except for significant flood events before it passes through the previously-existing Burlington headgates now used to prevent storm surges and into the Burlington Canal. Under the plain language of C.R.S. § 37-92-105(3), the use of the new structure amounts to a change in the point of diversion.

640. Applicants argue that *Downing v. Copeland*, 249 P.2d 539 (Colo. 1952) supports their position that the new structure does not constitute a change in the point of diversion. In that case, a diversion dam that diverted water through an intake box and into a water user's ditch on Grave Yard Creek was washed out. Rather than repair the diversion dam, the water user dug a 424-foot channel in the bed of the creek upstream of the intake box to direct water to the intake box. At times, the water user had to use a "small dam of some type . . . in order to get an adequate flow of water" through the intake box and into the ditch. *Id*. at 540. The Supreme Court overruled the trial court's determination that the channel constituted a change in the point of diversion. The Supreme Court explained:

> The point of diversion was and continued to be the point at which the water was diverted from the bed of the stream at the headgate of plaintiffs' ditch. The construction of a channel within the stream bed to conduct the water to that headgate did not require any proceeding under the statute to authorize the change of point of diversion, and did not constitute a change of point of diversion. Plaintiffs' right to divert and use the water from the stream at the headgate of their ditch included the right to make and change the

necessary dams, channels or other diversion works within the stream bed which might be necessary to enable them to continue the diversion of water at their headgate, provided no additional burden were made upon defendants' lands thereby.

Id. at 540.

641. The *Downing* case does not alter the court's analysis due to the change in change of water rights statutes. The Supreme Court's analysis relied in significant part on the requirements of the change of water right statutes then in existence. Under the Adjudication Act of 1943, a proponent for a change in point of diversion was required to submit a petition identifying the water right to be changed, the original and new points of diversion, a list of all ditches and other structure taking water from the same source between the decreed and the new points of diversion, and a statement that the change will not injuriously affected the vested rights of others, or to suggest terms and conditions to prevent such injurious effect. *See Act Relating to the Waters of the State of Colorado,* ch. 190, §§ 22-24, 1943 Colo. Sess. Laws 628-31. *See also* C.R.S. § 147-9-22, (1953) and C.R.S. § 148-9-22 (1963). By contrast, the requirements of the 1969 Act are distinct. *Santa Fe Trail Ranches*, 990 P.2d at 52 ("The 1969 Water Right Determination and Administration Act established an application, resume notice, and determination procedure for water rights, including changes of water rights. *See* C.R.S. §§ 37-92-302, –305."). As discussed above, under the 1969 Act, the new structure constitutes a change in the point of diversion.

642. Moreover, *Downing* does not alter the court's analysis because it is factually distinguishable from this matter. First, the water user in *Downing* altered the natural stream channel by digging a new, deeper channel in the stream bed. In contrast, the new structure in this matter is of a significantly larger scale than the minor modifications to the streambed in *Downing*. The Companies' new structure commands the entire flow of the South Platte River except during large flood events, is twice the length of the channel in *Downing*, and carries water above the new elevations of the South Platte streambed. Second, despite the existence of the newly-dug channel, the water user in *Downing* used the same intake box for the ditch. In contrast, the new structure in this matter contains a new set of upstream headgates that are the means of controlling diversions into the Burlington Canal. Third, although the approach channel of the new structure is arguably located within historical channel of the South Platte River as it has existed in the Globeville area, the new structure is hydrologically disconnected from the natural stream channel. Therefore, *Downing* presents a set of facts distinguishable from this matter.

643. Applicants argue that Mr. Simpson, then the State Engineer, stated the new structure is not a new or changed point of diversion. However, as discussed above, the court did not take judicial notice of certain letters concerning this issue. To the extent testimony was introduced into evidence regarding Mr. Simpson's opinion on the issue, the court addresses and disagrees with his opinion.

644. This court need not defer to administrative interpretation when, as in this matter, the statutory language is so clear as to compel the contrary result. *Three Bells Ranch Assocs. v. Cache La Poudre Water Users Ass'n*, 758 P.2d 164, 172 (Colo. 1988). Although the court

affords deference to the State Engineer's opinions in matters of administration and policy, decisions regarding questions of water law are exclusively within the jurisdiction and authority of this court. *See, e.g.,* C.R.S. § 37-92-203(1); *Broyles v. Fort Lyon Canal Co.,* 638 P.2d 244, 250 (Colo. 1981).

645. The basis of Mr. Simpson's opinion that the new diversion structure does not constitute a change in point of diversion is stated in his letter dated July 21, 2005. In relevant part, it states:

> I am responding to your request to comment on the above topic and if it would be viewed by this office as a change of place of diversion for the Burlington canal decreed water rights. Based on our discussion today, where you indicate that the original diversion headgates and wasteway would remain in place and would continued [*sic*] to be used, I do not view this as a change in place of diversion. Water is to be directed to the original diversion structure by an 800-foot long approach channel with a new diversion structure which is to be constructed by Denver to allow the stream channel to be lowered to pass the 100-year flood and protect the community of Globeville.

646. Mr. Simpson did not properly apply the statutory definition of "diversion" to the circumstances as presented to him. In this letter, Mr. Simpson recognized that water would be directed and controlled by the new structure at the upstream headgates, into the approach channel, and into the Burlington Canal. As discussed in detail above, the fact that water continues to flow through the previously-existing Burlington headgates is not a determinative factor in evaluating whether or not a change in point of diversion has occurred. Nor is the fact that the Globeville Area Flood Control Project resulted in the lowering of the South Platte River channel to a depth that would have rendered the Manual Gates unusable a determinative factor in evaluating whether a "diversion" has occurred. Rather, the specific provisions of the 1969 Act, which are discussed above, are controlling.

iii. Injury from Change in Point of Diversion

647. The typical shifting of burdens that occurs in a change of water right application is not directly applicable to this matter because Opposers' assertion that the new structure constitutes a change in the point of diversion was determined to be analogous to a counterclaim in the order dated April 1, 2008. *See Wagner v. Allen*, 688 P.2d 1102, 1108 (Colo. 1984). Nevertheless, the evidence in this matter establishes that injury will result from the new structure change in point of diversion. Therefore, terms and conditions are required to prevent injury to vested water rights.

648. The undisputed evidence in this matter establishes that the 1935 diversion dam was less efficient in diverting water from the South Platte River than the new structure. As discussed above, the 1935 diversion dam could only divert 700 cfs before the dam was overtopped, whereas the new structure can divert and convey a maximum of 1,000 cfs. The new structure can thus divert 300 cfs more than the historical capacity of the previously-existing diversion dam.

649. The undisputed evidence in this matter also establishes that the new structure will injure vested water rights. Mr. Ault believed that the new structure will result in larger diversions and will result injury on the over-appropriated South Platte River. He thus proposed a term and condition that is stated above. Applicants did not challenge Mr. Ault's analysis and nor did they offer alternative terms and conditions to prevent injury.

650. A change in the point of diversion "is limited in quantity by historical use at the original decreed point of diversion." *Orr*, 753 P.2d at 1223. In other words,

> a senior appropriator is not entitled to enlarge the historical use of a water right by changing the point of diversion and then diverting from the new location the full amount of water decreed to the original point of diversion, even though the historical use at the original point of diversion might have been less than the decreed rate of diversion.

Id. at 1224.

651. Applicants therefore cannot increase the diversion rate at the new structure above the historical flow rate diverted by the previously-existing Burlington headgates. Mr. Ault's proposed term and condition on this issue shall be included in the final decree in this matter.

652. The court further determines that diversions into the Burlington Canal are most accurately measured at the upstream SCADA-controlled headgates and that any excess flows can be returned to the river at the sand out gate at the previously-existing Burlington headgates, rather than being carried through the upper part of the Burlington Canal returned via Sand Creek as has been the historical practice. This historical practice of diverting excess water into the Burlington Canal to be measured at the Sand Creek flume with excess being returned through the Sand Creek turnout deprives the South Platte River of those flows for approximately two miles measured from the new point of diversion to the return at Sand Creek. This constitutes an inefficient diversion as defined in *City of Colorado Springs v. Bender*, 366 P.2d 552, 556 (Colo. 1961). Applicants are not entitled to command the whole or a substantial flow of the stream to effectuate their diversion and then waste the excess back nearly two miles downstream depriving intervening water rights of the benefit of those flows.

19. Abandonment of Diversions From Sand Creek

653. Englewood asserts that Applicants have abandoned any right to divert water from Sand Creek into the Burlington Canal. The Burlington Company was decreed the right to divert 250 cfs from Sand Creek in Case No. 11200 in Arapahoe County District Court on July 8, 1893. The decree in Case No. 11200 acknowledged that Sand Creek is normally dry during the greater part of the year, "having a surface of sand with no water on the surface of any consequence."

654. "Continued and unexplained nonuse of a water right for an unreasonable period of time raises a rebuttable presumption of intent to abandon. This presumption shifts the burden of going forward to the water right owner to introduce sufficient evidence to rebut the presumption established by nonuse." *People ex rel. Danielson v. City of Thornton*, 775 P.2d 11, 18 (Colo. 1989) (citations omitted). *See also CF&I Steel Corp. v. Purgatoire River Water Conservancy*

Dist., 515 P.2d 456 (1973) (Fifty-four years of non-use was unreasonable and created a rebuttable presumption of intent to abandon).

655. Applicants have not diverted water from Sand Creek in at least 90 years. Applicants stipulated that the Sand Creek point of diversion has not been used for at least 90 years. Mr. Wood, Englewood's expert, testified that the Sand Creek point of diversion has not been used for over 100 years and that it was abandoned when a siphon was built across Sand Creek to avoid floods on Sand Creek that washed out the canal. A presumption of abandonment thus arises from such nonuse of the Burlington Company's Sand Creek point of diversion and water right.

656. Applicants do not challenge the abandonment of the Sand Creek point of diversion and water right. FRICO acknowledges in rebuttal that the Sand Creek point of diversion is an artifact from the original earthen dam that was constructed across Sand Creek to carry the Burlington Canal flows across the stream. FRICO further concedes that, for more than a century, the Burlington Canal has been carried beneath Sand Creek in a siphon. Applicants presented no evidence regarding the use of the Sand Creek point of diversion and thus failed to overcome the presumption of abandonment.

657. The court therefore finds that the right to divert from Sand Creek into the Burlington Canal decreed to the Burlington Company in Case No. 11200 is abandoned.

20. Injury to Opposers

658. As discussed in the previous sections of this order addressing specific disputed issues, the court does not agree entirely with Applicants' positions regarding the quantification of historical consumptive use of the changed shares and other disputed issues. Applicants have therefore failed to establish that the change of shares will not injuriously affect other vested or decreed conditional water rights. C.R.S. § 37-920-305(3). Likewise, Applicants' proposed change of water rights currently lacks adequate terms and conditions to prevent injury to other water rights. *Id*. Specific examples of injury are provided below.

a. Public Service

659. Public Service owns water rights in the South Platte River basin. Public Service owns rights decreed for diversion to supply its Cherokee Power Plant through the Gardeners Ditch downstream from the Burlington Canal headgate. Its rights supply its other power plants including the Fort St. Vrain Power Plant through use of water rights at the Jay Thomas Pump Station, Goosequill Pump Station, and PSCo Industrial Wells. Public Service also owns water rights to supply its Valmont Station Power Plant through the use of various direct flow and storage rights on Boulder Creek, and water rights to supply its Pawnee Power Plant through water rights for the Pawnee Wells. Public Service additionally operates a decreed exchange within the reach of the South Platte River from its confluence with the St. Vrain River upstream to the Gardeners Ditch. These water rights are summarized in Public Service's Exhibit PU-28.

660. Enlargement of Applicants' senior rights by recognition of historical use based on undecreed diversions would injure Public Service's rights by limiting the duration of their status

in priority and precipitating earlier calls by other rights downstream from the Burlington Canal that divert senior to Public Service's rights and exchanges.

b. Central

661. Central Colorado Water Conservancy District and its two subdistricts, the Groundwater Management Subdistrict and the Well Augmentation Subdistrict own numerous water rights on the South Platte River and its tributaries. These rights are listed in Central's Exhibit CC-225, and include rights both up and downstream of the Burlington headgate and are both junior and senior to the rights being changed by Applicants in this matter.

662. At trial, Central was primarily concerned with its water rights located on the main stem of the South Platte River downstream of the Burlington headgate. Those rights include, but are not limited to, the Platteville Irrigating and Milling Company Ditch Recharge Project (Case No. 01CW48), Farmers Independent Ditch Recharge Project (Case No. 85CW370), Lupton Bottoms Ditch Recharge Project (Case No. 94CW199), Western Mutual Recharge Project (Case No. 87CW304), Koenig Reservoir (Case No. 92CW21), Nissen Reservoir (Case No. 02CW270) and the Kiowa Recharge Project (Case No. 81CW382).

663. Central would be injured directly by Applicants' proposed quantification as well as the terms and conditions as described above. Applicants' proposal would cause less water to be physically available for diversion and would result in more senior administrative call conditions. This would Central's ability physically and legally to divert water under its junior rights and would increase Central's replacement obligation under the augmentation plans decreed in Case Nos. 02CW335 and 03CW99. Such a result would both reduce the yield of Central's rights and negatively impact the groundwater rights being augmented by Central. The proposal would make less water available to Central to replace future well depletions under its augmentation plans. The effect would be a corresponding reduction in the amount of future pumping that could be allocated based on the operation of each augmentation plan's projection tool as described in the decrees entered in Case Nos. 02CW335 and 03CW99.

c. Boulder

664. The City of Boulder owns numerous water rights, with appropriation dates ranging from 1860 to 2000. These include both direct flow water rights and storage water rights that divert and store water from Boulder Creek and its tributaries. Some of these rights are listed in Boulder's Exhibit Bo-3. Boulder Creek is a tributary of St. Vrain Creek, which is tributary to the South Platte River. St. Vrain Creek flows into the South Platte River downstream of both the Burlington headgate and Applicants' proposed alternate points of diversion.

665. Because of the varying priorities of Boulder's water rights, any change in call patterns by water rights located on the South Platte River downstream of its confluence with St. Vrain Creek can result in a call against Boulder's water rights that did not historically occur. To prevent injury to Boulder's water rights from the changes of water rights proposed by Applicants, future use of any changed water rights must be limited to lawful historical use. Additionally, historical return flows must be replaced in time, location, and amount.

d. Centennial

666. Centennial Water and Sanitation District owns and leases direct flow and storage water rights that divert from the South Platte River and its tributaries, including Tarryall Creek, Michigan Creek, Plum Creek, and Deer Creek, all of which are located upstream of the Burlington headgate on the South Platte River. The water rights owned or leased by Centennial have appropriation dates ranging from 1870 to 1995. Centennial's Exhibit CE-9 lists these water rights. Some of Centennial's water rights can be called directly by the water rights the Applicants' proposed change.

667. If Applicants are allowed to divert more water in the future than was lawfully diverted historically, the frequency and duration of calls from Applicants' water rights against Centennial's water rights will increase and reduce the amount of time Centennial's water rights are in priority and can divert water. Centennial's water rights can also be called by water rights downstream of the historical point of diversion and place of use of the water rights Applicants propose to change. If diversions under the Applicants' water rights are increased after the change or if historical return flows are not replaced in time, location, and amount after the change, the water available for diversion by these downstream water rights will be less than was historically available to meet their demands. This will result in more frequent or longer duration calls against Centennial's water rights than occurred historically, reducing the amount of time that Centennial's water rights are in priority and can divert water.

e. Englewood

668. Englewood's 1948 McLellan Reservoir right decreed in Case No. CA3635, Douglas County District Court, and the McBroom municipal right decreed in Case No. 89CW063 are the rights likely to be injured from an expansion of Applicants' rights.

669. During the non-irrigation season, the majority of the calls against the injured Englewood rights historically have come from the 1885 Burlington storage right, FRICO's 1909 Barr Lake enlargement right, Henrylyn's 1910 Prospect Reservoir right, and Henrylyn's 1911 Horse Creek Reservoir right. Calls against Englewood's rights from these four storage rights do not cease until they have filled. Any unlawful expansion of the 1885 Burlington storage right or the 1909 Barr Lake enlargement right will engender further calls on the injured Englewood rights. Further, unlawful expansion of the 1885 Burlington storage right or the 1909 Barr Lake rights or the extension of the fill period of the 1885 Burlington storage right reduces flows to reservoirs below the Burlington headgate and may result in rebound calls against the injured Englewood rights.

670. During the irrigation season, the 1885 Burlington direct flow right places calls against Englewood's rights. An expansion of the 1885 Burlington direct flow right will produce additional calls against Englewood's rights. Further, the expansion of that right may result in reduced flows to rights below the Burlington headgate, causing rebound calls against the injured Englewood rights.

f. South Adams

671. South Adams County Water and Sanitation District owns numerous water rights with appropriation dates ranging from 1864 to 2007. These include direct flow water rights and rights of exchange that divert from the South Platte River. They also include groundwater rights that divert from the alluvium of the South Platte River downstream from the Burlington headgate and both upstream and downstream of Applicants' proposed alternate point of diversion. These rights are listed in South Adams's Exhibit So-35. Because of the varying priorities of South Adams's water rights, any change in call patterns by water rights located on the South Platte River downstream of the Burlington headgate can result in a call against South Adams's water rights that did not historically occur.

672. To prevent injury to South Adams's water rights from the changes of water rights proposed by Applicants, future use of the water rights proposed to be changed must be limited to the lawful historical use and historical return flows must be replaced in time, location, and amount. If future diversions increase or the historical return flows are not replaced in time, location, and amount, there will be less water available in the South Platte River to satisfy the demands of downstream direct flow and storage water rights with priorities senior to one or more of South Adams's water rights and those downstream water rights will then place calls against South Adams's water rights that did not historically occur. Additionally, during times when South Adams' water rights are the calling water rights, a reduction in the physical supply available to those rights will reduce the yield of those water rights.

g. Aurora

673. The City of Aurora's water rights have appropriation dates ranging from 1860 to 2006. These include both direct flow water rights and storage water rights which divert or store water from the South Platte River and its tributaries, and are listed in Aurora's Exhibit AU-106. Because of the location on the South Platte and the varying priorities of Aurora's water rights, any change in call patterns by water rights located on the South Platte River can result in a call against Aurora's water rights that did not historically occur.

674. In order to prevent injury to Aurora's water rights from the changes of water rights proposed by Applicants, future use of the water rights proposed to be changed must be limited to the lawful historical use and historical return flows must be replaced in time, location and amount. If future diversions increase or the historical return flows are not replaced in time, location, and amount, less water will be available in the South Platte River to satisfy the demands of downstream direct flow and storage water rights with priorities senior to one or more of Aurora's water rights and those downstream water rights will then place calls against Aurora's water rights that did not historically occur.

V. Analysis of Dispute Regarding 1999 Agreement

675. The dispute concerning the 1999 Agreement in this matter was initially raised by Englewood in its statement of opposition in Case No. 02CW105. Englewood asserted that the

1999 Agreement was relevant to the change of the 1885 Oasis storage right or, as an independent claim, amounts to an undecreed change of the 1885 Oasis storage right that injures Englewood. The Order Regarding the 1999 Agreement was entered on April 1, 2008 ("1999 Agreement Order"). That order, which is incorporated into this order by reference, addressed four related C.R.C.P. 56(h) motions and made by Denver and Englewood and made numerous determinations that resolved the majority of disputed legal issues.

676. The existence of disputed issues of material fact in the 1999 Agreement Order, however, left two issues of material fact which were litigated at trial. As discussed below, based on the evidence presented at trial, the court resolves the remaining issues against Englewood.

A. Order Regarding the 1999 Agreement

677. "[T]he law of the case doctrine is a discretionary rule that generally requires prior relevant rulings made in the same case to be followed." *In re Marriage of McSoud*, 131 P.3d 1208, 1213 (Colo. App. 2006). The court "may modify a prior ruling as necessary if new facts, changes in the applicable law, or other persuasive circumstances warrant such modification." *Erlich Feedlot v. Oldenberg*, 140 P.3d 265, 272 (Colo. App. 2006) (citations omitted). No such persuasive circumstances are present in this matter to warrant modification and the court affirms its determinations in the 1999 Agreement Order.

678. The court made the following determinations in the 1999 Agreement Order: (1) the 1999 Agreement is valid to the extent that the Companies have contracted away their right to place an administrative call for water on the river under the 1885 Oasis storage water right; (2) the 1999 Agreement does not amount to a change of water right; (3) the 1999 Agreement is not a selective or general subordination agreement; (4) Englewood does not have a right to the maintenance of the stream conditions created by the placement of a call under the 1885 Oasis storage right; (5) there is no legally cognizable claim of injury from a no-call agreement that does not violate public policy; (6) Englewood's claims regarding the 1999 Agreement are not entitled to a presumption of injury and Englewood shall have the burden of proof of injury regarding the 1999 Agreement in this matter; and (7) Englewood cannot demand more water than it is entitled to at its Union Avenue Intake.

679. Two issues were litigated at trial. The court also held in the 1999 Agreement Order that two issues of material fact could not be determined until after trial. The first issue concerns whether the 1999 Agreement's actual operations violate the one-fill rule regarding language in the 1999 Agreement that states that the Companies may satisfy the 1885 Oasis storage right with a call under the 1909 Barr Lake or 1909 Milton reservoir rights. *See, e.g., Windsor Reservoir & Canal Co. v. Lake Supply Ditch Co.*, 44 Colo. 214, 224, 98 P. 729, 733-34 (1908) (regarding one-fill rule). The second question concerns whether in practice, the 1999 Agreement violates public policy. *See, e.g., Willows Water Dist. v. Mission Viejo Co.*, 854 P.2d 1246, 1255 (Colo. 1993) (contract provisions held void and unenforceable as violating public policy).

680. Englewood has the burden to demonstrate injury "by evidential facts and not by potentialities." *City of Thornton v. Bijou*, 926 P.2d 1, 88 (Colo. 1996). The mere fact that a water user might disregard the terms and conditions of a decree is not a sufficient basis to

establish injury. *See Brighton Ditch Co. v. City of Englewood*, 237 P.2d 116, 120 (Colo.1951) (possibility of accounting standards or decrees being disobeyed insufficient grounds for finding injury).

B. Whether the 1999 Agreement Violates the One-Fill Rule

681. The first issue reserved for trial regarding the 1999 Agreement is whether the 1999 Agreement's actual operations violates the one-fill rule. Language in the 1999 Agreement states that the Companies may satisfy the 1885 Oasis storage right with a call under the 1909 Barr Lake or 1909 Milton reservoir rights. Englewood asserts that the 1999 Agreement violates the one-fill rule by permitting the Companies to place a call under the 1909 Barr Lake storage right or the 1909 Milton storage right until such time as the 1885 Oasis storage right and the 1909 Barr Lake storage right have achieved a Paper Fill.

682. The court addressed this issue in the 1999 Agreement Order. The court agreed with Englewood that it may be unlawful to use calls under the 1909 Barr Lake and 1909 Milton reservoir rights to fill the 1885 Oasis storage right. The court further stated, however, that a reasonable interpretation of the 1999 Agreement would not give the Companies such a right. Rather, the court construes this language as merely clarifying that the Companies have not waived their right to divert under their 1909 Barr Lake storage right or the 1909 Milton storage right. The court left for trial the issue of whether actual operations violated the one-fill rule.

683. Following the presentation of evidence, the court cannot determine that the actual operations of the 1999 Agreement have violated the one-fill rule. Further, the Companies and Denver have agreed not to use the 1909 Barr Lake storage right or the Milton storage right to fill the 1885 Oasis storage right in the future.

1. No Evidence that a Call Under the Companies' 1909 Rights Have Filled the 1885 Oasis Storage Right

684. Englewood's expert, Mr. Wood, testified that from November 2001 to January 2002, the 1909 Barr refill right was calling at the same time the 1885 Oasis storage right was filling. Mr. Wood thus asserted that a 1909 call was being used to fill the 1885 Oasis storage right. However, based on the testimony of Mr. Wood and admissions by Englewood's counsel, it is clear the 1909 call was mistakenly recorded and that the State Engineer's call records are inaccurate.

685. Englewood, through its counsel, conceded at trial that it would be a mistake for the State Engineer to designate the 1909 Barr Lake call in November as a refill call. Englewood's counsel stated FRICO's manager, Mr. Montoya, testified earlier in the trial that the water year for the Companies' reservoirs was November 1 to October 31. Thus, where the State Engineer's records indicate a call by the 1909 refill right in November 2002, they are inaccurate because reservoir refills are not commenced so close to the beginning of the fill period.

686. Mr. Wood also conceded that the State Engineer's call records erred in reflecting a call by the 1909 refill right during the period from November 2001 to January 2002. Mr. Wood testified that reservoir rights typically reset on November 1 of each year. Mr. Wood testified he would be

suspicious of a call by a refill right in November, and that such a call would have been an immediate flag to an experienced water rights engineer that something was wrong with the State's records.

687. Other than this call allegedly placed under the 1909 refill right during the November 2001 to January 2002 time period, which was conceded to be in error, Englewood did not identify any periods of time when the 1909 Barr storage right or 1909 refill right were called at the same time the 1885 Oasis storage right was filling. Englewood thus failed to present any evidence that the 1909 Barr Lake or 1909 Milton storage right calls were placed to fill the 1885 Oasis storage right. Consequently, Englewood failed to meet its burden on this issue.

2. Denver and the Companies Agree Not to Call Under the Companies 1909 Rights to Fill the 1885 Oasis Storage Right in the Future

688. Counsel for Denver and the Companies stated their clients would stipulate that a 1909 call under the Barr Lake and Milton storage rights cannot be used to fill the 1885 right. Counsel for Denver Water and the Companies further stated that the State Engineer is not bound by the 1999 Agreement, and thus, the State Engineer may ignore the Companies' request to place a call under their 1909 rights if the Companies' water rights are not in priority.

689. Englewood nonetheless expressed concern regarding the Companies' placement of a call under their 1909 Barr Lake and Milton storage rights when there is more than 350 cfs in the river, which is the maximum decreed flow rate of the 1885 Oasis storage right. For the reasons discussed below, Englewood's concerns are not persuasive.

690. With regard to the 1909 Barr Lake right, FRICO and Burlington stated through counsel they would agree that the 1909 rights cannot be used to fill the 1885 right. However, Burlington and FRICO argued they should be free to divert and call under their 1909 water rights while the 1885 is still filling when such a call would generate more than 350 cfs, the decreed maximum flow rate of the 1885 Oasis storage right, in the South Platte at the Burlington headgate. Though uncommon, the Companies argue they should be able to divert under the 1909 Barr Lake right if 350 cfs is available. Both Denver and the Companies further contend that the ultimate decision of whether it is appropriate to place a call rests with the State Engineer. They argue the State Engineer will not place a 1909 call if there is insufficient water for diversion on the 1909 right.

691. Englewood argued it would be problematic if there is 260 cfs in the river available for diversion under the 1885 Oasis storage right at the Burlington headgate, and 90 cfs available for the Companies to divert through the Metro Pumps while the Companies were using the 1909 right to drag water down to satisfy the 1885 right.

692. The Companies argue that if more than 350 cfs are available at the Burlington headgate in the South Platte River, or if more than 350 cfs are available at the Metro Pumps and Burlington headgate in combination, and the 1909 Barr Lake right is in priority, the Companies should be allowed to place a call under the 1909 right for the purpose of satisfying the 1909 right.

693. The risk that the Companies could violate the one-fill rule by using water diverted under its 1909 call to satisfy the 1885 Oasis storage right is not on its own a sufficient ground to find that Englewood has sustained any injury. "If the fact that decrees might be disobeyed were ground for reversal, few of them could stand." *Brighton Ditch Co.*, 237 P.2d at 116 (possibility that accounting standards or decrees might be disobeyed is not sufficient grounds for finding injury).

694. The court finds that Englewood failed to present any evidence as to why it would be problematic for the Companies to divert under the 1909 Barr Lake right when there is more than 350 cfs available for diversion by the Companies either at the Burlington headgate or in combination with the Metro Pumps. Thus, the court finds that the Companies may place a call to fill the 1909 Barr Lake right when the 1885 right is still filling if the call may generate more than 350 cfs at the Burlington headgate in combination with the amount of in-basin water available at the Metro Pumps.

695. Regarding the 1909 Milton storage right, the right can be diverted at the Burlington headgate or approximately 30 miles downstream at the Platte Valley Canal. As such, when diverting water under the 1909 Milton storage right at the Platte Valley Canal, the 1909 Milton storage right can be satisfied from additional sources of water different from the 1885 Oasis storage right, which diverts upstream at the Burlington headgate.

696. Englewood stated that it has no objection to the 1909 Milton storage right placing a call at the Platte Valley Canal when the 1885 Oasis storage right is filling. Englewood, however, contends that the Companies should not be able to place a call under the 1909 Milton storage right for diversion at the Burlington headgate while the 1885 right is still filling. In response, FRICO and Burlington argued that when 1885 Oasis storage right is filling, the Companies should be allowed to divert under the 1909 Milton storage right at the Burlington headgate if there is more than 350 cfs available, satisfying the 1885 Oasis storage right.

697. Englewood did not present any evidence suggesting harm that may result if a call is placed under the 1909 Milton storage right at the Burlington headgate. Thus, for the same reasons discussed above, the court finds: when the 1885 right is filling, the Companies may place a call under the 1909 Milton storage right at the Burlington headgate to the extent that such a call is capable of generating more than 350 cfs at the Burlington headgate, the 1909 Milton storage right is in priority, the call is for the purpose of satisfying the 1909 Milton storage right, and any water diverted is delivered and stored in Milton Reservoir.

C. Whether the 1999 Agreement Violates Any Public Policy

698. The second issue regarding the 1999 Agreement reserved for trial is whether, in practice, the 1999 Agreement violates public policy. Englewood contends that the 1999 Agreement injures Englewood and violates public policy.

699. In the 1999 Agreement Order, the court determined that no-call agreements such as the 1999 Agreement are legally permissible unless they violate public policy. *USI Properties East,*

Inc. v. Simpson, 938 P.2d 168, 176 (Colo. 1997). Although the court determined that the 1999 Agreement was valid on its face, there were disputed issues of material fact regarding whether, in practice, 1999 Agreement violates public policy.

700. At trial, Englewood attempted to re-litigate issues already decided in the 1999 Agreement Order. For example, Englewood sought to put on evidence that the no-call agreement results in a delayed filling rate for the 1885 Oasis storage right, and that such a delayed fill injures Englewood's upstream 1948 McLellan storage right. The court previously determined, however, that junior appropriators do not have a vested right to the maintenance of the stream conditions created by the placement of a call under the 1885 Oasis storage right. It would not be logical to conclude that public policy is violated where water rights holders are acting pursuant to established legal rights. *See, e.g., Pub. Serv. Co. v. Meadow Island Ditch Co. No. 2*, 132 P.3d 333, 432 (Colo. 2006) (upholding no-call agreement).

701. Therefore, the issue at trial was not whether the 1999 Agreement is lawful, but rather, whether Denver and the Companies are operating in accordance with the terms of their agreement, and if not, whether, as a result of their failure to do so, Englewood's water rights are being injured.

1. Payback of In-Between Water

702. Englewood asserts that Denver and the Companies are not complying with two provisions of the 1999 Agreement concerning the accounting of "in-between" and "payback" water.

703. In-between water is defined in the Agreement at paragraph 1.9 as:

> South Platte River In-basin Water diverted by the Board upstream of the Burlington-O'Brian Canal headgate for direct use or storage, through the in-priority exercise of water rights junior to the 1885 Oasis storage right and senior to the 1909 Barr Lake storage right or the 1909 Refill Right, while the 1885 Oasis storage right is achieving a Paper Fill and the 1909 Barr Lake storage right is calling.

Denver's in-between water rights consist of 75.79 cfs of direct flow rights that Denver owns and uses primarily at Strontia Springs Reservoir. The in-between water also includes the 1889 and 1893 priorities stored at Denver's Cheesman Reservoir and Denver's water rights stored under its 1892 Marston Reservoir.

704. The 1999 Agreement sets forth detailed accounting requirements for in-between water, meaning water diverted by Denver as specifically defined in paragraph 1.9 of the 1999 Agreement. This water is referred to in paragraph 4.2 of the 1999 Agreement as "payback water," meaning a certain percentage of the water diverted under Denver's in-between rights, which must be paid back under certain conditions.

> [Denver] . . . shall deliver to FRICO an amount of Reusable Water ("Payback Water") equivalent to any positive balance in the Payback Account, calculated as described in this paragraph 4.2 at the time the 1885 Oasis storage right achieves a Paper Fill, as determined under paragraph 4.3.

Paragraphs 4.2.1 through 4.2.3 of the 1999 Agreement set forth the methodology for calculating reductions, additions, and accounting for the payback account. The payback account starts with diversions made under Denver's direct flow and in-between storage rights. The amount of the payback account, the amount of in-between water diverted each year, is then reduced by several factors.

705. Englewood's expert, Mr. Wood, testified that there has not been a paper fill accounting of the 1885 Oasis storage right and that there has been no accounting of payback requirements. In addition, Mr. Wood testified that no payback water has been released to the Companies.

706. The Companies and Denver contend, however, that to constitute in-between water as defined under the 1999 Agreement, the water have priority dates between 1885 and 1909, and also must be diverted while the 1885 Oasis storage right is achieving a Paper Fill and the 1909 Barr Lake storage right is calling.

707. When presented with this reading of the definition of in-between water, Englewood admitted that Englewood could not show that there was a 1909 call on the river when Denver was making its diversions. In addition, Englewood could not demonstrate that any of the diversions made by Denver under the 1999 Agreement were out-of-priority. When asked on *voir dire* whether the diversions were made in priority, Mr. Wood admitted that all of the diversions made by Denver were in priority.

708. Because Englewood could not show that the either the 1909 Barr Lake storage right or the 1909 Milton Lake storage right calls were placed when the 1885 Oasis storage right was filling, Englewood could not show that Denver diverted any in-between water as defined by the plain language of the 1999 Agreement. Because Englewood could not show that Denver diverted any in-between water, Englewood also failed to show that any payback water was owed to the Companies.

709. Pursuant to the 1999 Agreement, in-between water can only exist under two circumstances. In-between water can occur when the Companies call under the 1909 Barr Lake storage right or 1909 Milton Lake storage right at the Burlington Ditch headgate when the 1885 Oasis storage right is filling and: (1) there is more than 350 cfs available for the Companies to divert under the 1885 Oasis right; or (2) the 1909 Milton Lake storage right is diverting at the Platte Valley Canal and is in priority. Absent these circumstances, diversions made by Denver without a call on the 1885 Oasis storage right do not constitute in-between water and no payback water is owed by Denver.

710. Regardless of whether in-between water was paid back to the Companies, Englewood has no right to enforce the terms and conditions concerning in-between water and payback water. First, Englewood is not a party to the 1999 Agreement. Nor is Englewood a third-party

beneficiary of the 1999 Agreement because, based on the plain language, neither Denver nor the Companies intended to benefit Englewood. *See E.B. Roberts Const. Co. v. Concrete Contractors, Inc*., 704 P.2d 859, 865 (Colo. 1985) (finding that to be a third party beneficiary the parties to the agreement must have intended "to benefit the non-party, provided that the benefit claimed is a direct and not merely an incidental benefit of the contract."). Englewood thus has no standing to enforce the terms and condition contained in the 1999 Agreement. Second, the court has previously ruled that Englewood does not have a vested right to historical stream conditions created by the placement of a call. Englewood appears to contend that enforcement of the terms and conditions regarding payback of Denver's in-between diversions is necessary to avoid the prolongation of a delayed fill from the operation of the no-call agreement. However, based on the 1999 Agreement Order and the evidence presented at trial, Englewood cannot demonstrate a violation of public policy based on Denver and the Companies' failure to follow the 1999 Agreement's terms and conditions requiring payback of in-between diversions.

2. Prolonging the Fill

711. Englewood presented an offer of proof in the form of testimony by Mr. Wood that the 1999 Agreement will result in prolonging the fill of the 1885 Oasis storage right and other downstream reservoirs. Mr. Wood testified that, as a result of the no-call agreement, Denver will be able to divert on its in-between direct flow and storage rights in the absence of the 1885 Oasis storage right. Mr. Wood stated this would result in reduced flows to downstream reservoirs on the South Platte River, which will require them to prolong the placement of administrative calls. Consequently, Mr. Wood asserted that the fill of the 1909 Barr storage right and 1910 and 1911 Henrylyn storage rights will be prolonged, thus reducing the time when Englewood diverts its 1948 McLellan right that has frequently occurred in December, January, and February. However, the court finds Englewood's offer of proof unconvincing for several reasons.

712. First, on cross examination, Mr. Wood admitted that he has not been able to identify any specific single year from 1999 to the present in which the McLellan storage right was specifically kept from being able to divert as a result of prolonging the fill of the 1885 Oasis storage right due to the 1999 Agreement.

713. Second, Mr. Wood admitted on cross examination that Denver's in-between storage rights that divert pursuant to the 1999 Agreement are all senior to the 1948 McLellan storage right. Being senior to Englewood's 1948 McLellan storage right, Denver's in-between rights have the better right. Further, Denver's in-between storage rights are satisfied faster because they are able to divert water when the 1885 right is not calling. Mr. Wood admitted that, due to the 1999 Agreement, the 1948 McLellan storage right may come into priority sooner.

714. Third, Englewood's 1948 McLellan storage right has benefited from the no-call agreement. Mr. Wood admitted that partly because of the absence of the 1885 Oasis storage right call, water was made available in priority to the McLellan storage right at times when it would not normally have been in priority. Mr. Wood's testimony was based on Exhibit EN 520-0001, prepared by Denver's expert Mr. Dirks, which concerned diversions in acre-feet under the 1948 McLellan storage right compared to the fill of the 1885 Oasis storage right. Mr. Wood testified that during the period of time from November 14, 1999 to December 20, 1999, the 1885 Oasis storage right was

filling. Mr. Wood further testified that during the entire period of time when the 1885 right was filling, the McLellan storage right was also diverting. Thus, Mr. Wood admitted that the 1948 McLellan storage right would not have been able to divert any water during the November 14, 1999 to December 20, 1999 period of time if the 1885 call had been placed.

715. Mr. Wood also admitted on cross examination that the 1948 McLellan storage right was able to divert from November 4, 2001 through November 29, 2001, and that this period coincided with a period during which the 1885 Oasis storage right was filling. Again, Mr. Wood admitted that had the 1885 Oasis storage right placed its call during this period, the 1948 McLellan storage right would not have been in priority to divert.

716. Based on the testimony of Englewood's expert, Englewood thus benefits from the absence of a call by the 1885 Oasis storage right under the 1999 Agreement. Further, Englewood cannot demonstrate injury to its water rights. The court also finds that, notwithstanding the fact that Englewood benefits under the no-call agreement, a prolonged fill period resulting from a no-call agreement is not a violation of public policy. As determined in the 1999 Agreement Order, a water user does not have a vested right to historical river conditions created by the placement of a call. Consequently, Englewood cannot claim injury from a prolonged filling period that results from in upstream in-priority diversions that are made as a result of the absence of a downstream senior call.

VI. Order Regarding Water Rights Claims

717. Applicants shall have 30 days from the date of this order to file with the court and serve on all parties a revised proposed decree consistent with this order. Opposers shall have 15 days in which to file and serve objections to the revised proposed decree. Applicants shall have 10 days to reply.

VII. Order Regarding 1999 Agreement

718. Regarding the dispute concerning the 1999 Agreement, in addition to the Order Regarding the 1999 Agreement, dated April 1, 2008, the court orders that judgment is entered against Englewood on its claims regarding the 1999 Agreement.

Dated September 5, 2008.

By the court:

Roger A. Klein
Water Judge
Water Division No. 1

This document was filed pursuant to C.R.C.P. 121, § 1-26. A printable version of the electronically signed order is available in the Court's electronic file.