

TECHNICAL APPENDIX
Legal Analysis

Shepherding Appropriated Water in Colorado
For Colorado River Compact Security

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1. INTRODUCTION

Water shepherding involves moving specified quantities of already-appropriated water to a specific point downstream of its original place of use or storage without diminishment by other appropriators.¹ Shepherding typically includes both upstream and downstream components. Upstream administration requires maintaining the priority call of the

¹ Water flowing naturally in streams and rivers is considered to be a public resource and is subject to diversion and use by those holding valid water rights. Colo. Const. art. XVI, § 5 (“The water of every natural stream, not heretofore appropriated within the state of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the state, subject to appropriation as hereinafter provided.”); Colo. Const. art. XVI, § 6 (“The right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied.”) Appropriations of water place a claim on this public resource, enabling its diversion at a specified rate and its use for the specified purpose and in the specified manner according to the priority of the water right. Colo. Rev. Stat. §§ 37-92-103(3), (4), (5), (12). Colorado statutes charge the State Engineer’s Office with administering the diversion and use of water according to rights adjudicated in Colorado water courts. Colo. Rev. Stat. §§ 37-92-301(1), 37-92-501(1).

underlying water right on the river, so that upstream junior water users are not able to divert and consume the water before it reaches the original point of diversion or place of storage. Downstream administration involves protecting the water that is bypassed at that point of diversion or released from storage to ensure that it reaches the new downstream place of use undiminished by other diversions. The water to be shepherded may be generated by applying conservation practices to existing uses, most commonly irrigation, to reduce the amount of water consumed under the original right,² or through temporary non-use of existing water rights or release of water stored in reservoirs.

This Technical Appendix discusses the concept of shepherding for the specific and limited purpose of complying with Colorado River Compact obligations, including reducing the risk of a future curtailment of Colorado water uses to meet the Compact's requirements. These purposes are collectively referred to herein as "Compact security."³ The need for addressing Compact security is recognized in Colorado's Water Plan⁴ and in the Interbasin Compact Committee's Conceptual Framework.⁵ The goal is to maintain or increase storage levels in Lake Powell during periods when decreasing reservoir levels threaten the ability to generate hydroelectric power or to meet the obligation of the States of the Upper Division⁶ under the 1922 Colorado River Compact, either immediately or in the near future.⁷ The generation of hydropower and the ability to meet Compact obligations are directly related: as lake levels and the corresponding pressure decline, the physical outlets for releasing water from Glen Canyon Dam below the hydropower turbines are unable to pass sufficient water to meet the Article III(d) flow requirements of the Colorado River Compact at Lee Ferry.⁸ Moreover,

² The most common conservation techniques are rotational fallowing, deficit irrigation, split season irrigation, and crop switching.

³ The precise triggers for an effort to direct additional water to the reservoir in order to reduce the risk of future curtailment of water rights including, for example, particular elevations in Lake Powell and ten-year volume of water passing Lee Ferry, are under discussion within Colorado and the Upper Division states but have not yet been determined. The levels of acceptable and unacceptable risk that curtailment of existing water rights may be required to comply with Compact obligations are also part of this discussion. It is beyond the scope of this paper to suggest what the resolution of these issues should be.

⁴ Colorado's Water Plan, Ch. 9.1 at 9-5, 9-8.

⁵ Colorado's Water Plan, Ch. 8 at 8-14, Principle 4.

⁶ While Colorado, New Mexico, Utah, and Wyoming are commonly referred to as the "Upper Basin States," the 1922 Compact defines the Upper and Lower Basins geographically and defines these states as the "States of the Upper Division." Article II(c), (d), (f), (g). The term "Upper Division" is used herein to refer to the states themselves.

⁷ The 1922 Colorado River Compact contains two specific obligations applying specifically to the Upper Basin: under Article III(c), the Upper Division states are obligated to deliver to Lee Ferry one-half of the deficiency (if any) of water committed to Mexico under treaty; and under Article III(d), the Upper Division is charged with not causing the flows at Lee Ferry to be depleted below 75 million acre-feet during any consecutive ten-year period.

⁸ John C. Schmidt, Fill Mead First – A Technical Assessment, White Paper No. 1, Center for Colorado River Studies (Nov. 10, 2016), available at https://qcnr.usu.edu/wats/colorado_river_studies/files/documents/Fill_Mead_First_Analysis.pdf; Eric Kuhn, Memorandum to CRWCD Board Members, Joint West Slope Roundtables Risk Study Results Summary and Thoughts on the Next Steps 1-2 (Sept. 13, 2016), available at <http://www.coloradoriverdistrict.org/wp-content/uploads/2016/09/20160913-Joint-west-slope-risk-study-update.pdf>.

revenues derived from Glen Canyon Dam hydropower generation support the operation of the Bureau of Reclamation facilities and programs in the Upper Basin that allow both reliable water use and continued Compact compliance.⁹

It should be noted that there are situations in Colorado for which no downstream shepherding is required to make Compact security water available at the state line. One example is a ditch system located relatively near to the neighboring state border that may be able to use its existing rights and facilities to transport conserved or changed water to the state line without use by others.¹⁰ There may also be opportunities to utilize existing storage reservoirs and release water during times of little irrigation activity or when irrigation systems have a full supply of water, trusting that the majority of the release would reach the border. The initial storage units authorized under the Colorado River Storage Project Act,¹¹ including the Aspinall Unit in Colorado, generally are operated to ensure Compact compliance. Movement of water between such facilities for the purpose of Compact security may be possible and eliminate the need for other forms of shepherding.¹² Absent relatively specialized circumstances, however, legally-authorized shepherding through Colorado will be required to allow the secure movement of additional water to Lake Powell.

In Section 2 below, we discuss existing authority in Colorado law that might be applied to shepherd water for Compact security purposes. We further discuss the legal issues that will likely arise if a change of use is necessary. We consider the options available for obtaining approval of this type of change of use. Finally, we offer recommendations to pave the way for shepherding of Compact security water, including possible legislative changes. In Section 3, we address the need to protect shepherded water in downstream states to ensure that water directed to the Colorado state line reaches Lake Powell without diminishment. In Section 4, we consider options for managing that water once it reaches Lake Powell. We provide conclusions and recommendations in Section 5.

2. COLORADO LEGAL FRAMEWORK

a. Existing Legal Authority to Shepherd Compact Security Water

i. The State Engineer's Compact Rule Power.

The Colorado State Engineer is authorized to “make and enforce such regulations with respect to deliveries of water as will enable the state of Colorado to meet its compact

⁹ U.S. Bureau of Reclamation, Glen Canyon Dam and Powerplant, Lake Powell, <https://www.usbr.gov/uc/rm/crsp/gc/gcdbrochure.pdf>.

¹⁰ However, upstream administration will still generally be required in this situation to ensure that the water continues to be available at the original point of diversion without depletion by upstream juniors.

¹¹ Colorado River Storage Project Act (CRSPA), 43 U.S.C. § 620. The initial units are Curecanti (Aspinall), Flaming Gorge, Navajo, and Glen Canyon.

¹² See *Board of County Com'rs of County of Arapahoe v. Crystal Creek Homeowners Assoc.*, 14 P.3d 325, 333-35 (Colo. 2000) (hereinafter, *Arapahoe II*).

commitments.”¹³ This authority is limited to regulations “necessary to ensure Colorado’s compliance with its interstate water compacts, but only in those instances where the compact itself is deficient in establishing terms for compliance within Colorado.”¹⁴ The State Engineer is subject to “considerable onus” to ensure compliance with interstate obligations and if there is an “irreconcilable conflict between intrastate priority administration and compliance with an interstate compact, it is compact compliance that must take precedence.”¹⁵

Meeting Colorado’s interstate compact commitments includes ensuring that required amounts of water are available at the point of measurement designated in the applicable compact. In some of its interstate compacts, Colorado is required to ensure that a specified flow rate or volume of water pass the state line at specified points in time.¹⁶ In times of shortage, the State Engineer will curtail water rights within the state pursuant to the priority system to produce the specified flow rate or volume.¹⁷

The 1922 Colorado River Compact is somewhat different. Among other things, it places responsibility on the Upper Division states, including Colorado, not to “cause” flows passing to the Lower Basin to be depleted below 75 million acre feet in consecutive ten-year periods (referred to herein as the “75/10 obligation”).¹⁸ The 1948 Upper Colorado River Compact gives the Upper Colorado River Commission (UCRC) the responsibility to determine the amounts of existing consumptive use in each Upper Division state that must be reduced to comply with the 75/10 obligation.¹⁹ Such reductions in use, or curtailment, can be described as “Compact compliance.”

Lake Powell and the other initial Upper Basin reservoirs constructed under the authority of CRSPA²⁰ are operated primarily to allow the Upper Division states to satisfy the Colorado River Compact “without eroding other rights decreed to beneficial use in the state.”²¹ In the event storage in these reservoirs is not sufficient to produce the necessary flows to the Lower Basin, existing uses in the Upper Division states will need to be curtailed, likely in

¹³ Colo. Rev. Stat. § 37-80-104 (known as the “compact rule” power).

¹⁴ *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50, 68 (Colo. 2003).

¹⁵ *Id.* at 68-69.

¹⁶ *See, e.g.*, South Platte River Compact, Colo. Rev. Stat. § 37-65-101; Rio Grande River Compact, Colo. Rev. Stat. § 37-66-101.

¹⁷ *See Simpson v. Bijou Irrigation Co.*, 69 P.3d at 68-69.

¹⁸ Colorado River Compact, Art. III(d). The Compact specifies that the “States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years.” There is some uncertainty respecting the meaning of “cause.”

¹⁹ Upper Colorado River Compact, Colo. Rev. Stat. § 37-62-101, Art. IV (“In the event curtailment of use of water by the States of the Upper Division at any time shall become necessary in order that the flow at Lee ferry shall not be depleted below that required by Article III of the Colorado river compact, the extent of curtailment by each State of the consumptive use of water apportioned to it by Article III of this Compact shall be in such quantities and at such times as shall be determined by the Commission”)

²⁰ *See n. 11 supra.*

²¹ *Arapahoe II*, 14 P.3d 325, 334.

priority order.²² To avoid the need for such curtailment in the future, the Upper Division states are exploring proactive measures involving, among other things, temporary, voluntary reduction of consumption that will ensure that flows will be sufficient to meet the 75/10 obligation.

As mentioned, the UCRC is authorized to make findings concerning the necessity for and extent of curtailment among the Upper Division states required to ensure that “the flow at Lee Ferry shall not be depleted below that required by Article III of the Colorado River Compact .”²³ While it is clear the UCRC has this authority in the event curtailment is necessary, the UCRC’s authority may also include the ability to make a forward-looking finding that future curtailment of existing uses of water in the Upper Division states will be required unless steps are taken to increase storage levels in Lake Powell.²⁴ The exercise of proactive authority in this manner would be based on the need for efficient administration of the 75/10 obligation. The 1922 Compact’s provision that the states of the Upper Division “will not cause” flows at Lee Ferry to drop below 75 million acre-feet during consecutive ten-year periods provides support for such a finding.

Allowing for voluntary, compensated conservation of existing consumptive use and storage of that water in Lake Powell to reduce the risk of future curtailment of Colorado water rights is a sensible and prudent measure. This is the concept of “Compact security.”

The State Engineer’s compact rule power clearly authorizes adoption of regulations that would govern curtailment and shepherding in the event the UCRC determines there has been a shortage of water at Lee Ferry obligated under Article III(d) of the 1922 Compact. It may also be possible to use this authority to protect and shepherd Compact security water to the state line to reduce the risk of curtailment based on the nature of the obligation in the 1922 Compact and the potentially severe repercussions for Colorado River Basin water users in Colorado.²⁵ The State Engineer would use the compact rule power to manage water

²² Upper Colorado River Compact, Art. IV. In addition, any state which in the previous ten years has consumptively used more than its percentage apportionment of water must first provide the full amount of its “overdraft” at Lee Ferry before any other state must curtail its users. Art. IV(b).

²³ *Id.*, Art. IV, VIII(c)(8).

²⁴ This topic is discussed more fully in Section 3 below.

²⁵ Colorado is authorized to consumptively use 51.75% of the total Upper Basin consumptive use. Upper Colorado River Compact, Art. III (a)(2). In the event curtailment is required, any state that during the preceding 10 years used more than its allocated share must repay that amount first before users in other states are curtailed (“If any State or States of the Upper Division, in the ten years immediately preceding the water year in which curtailment is necessary, shall have consumptively used more water than it was or they were, as the case may be, entitled to use under the apportionment made by Article III of this Compact, such State or States shall be required to supply at Lee Ferry a quantity of water equal to its, or the aggregate of their, overdraft of the proportionate part of such overdraft, as may be necessary to assure compliance with Article III of the Colorado River Compact, before demand is made on any other State of the Upper Division”). Upper Colorado River Compact, Art. IV (b). In recent years, Colorado has been using approximately 58 percent of the overall amount of water used by the Upper Division states and is, therefore, vulnerable to curtailment of its existing uses first to make up for its additional use of water before the Upper Division states are collectively

designated for Compact security so that it reaches the state line to ensure that Colorado complies with Article III(d) of the Colorado River Compact and is not penalized for using more water than authorized under Article IV(b) of the 1948 Compact.

The legal authority under state law for this proactive use of the compact rule power is less obvious, but the duty not to cause a violation of the 75/10 obligation and the fact that Colorado currently uses more than its percentage allocation under the 1948 Compact, thus potentially subjecting it to additional obligations, provide ample basis for the State Engineer to act. A finding by the UCRC that the ability of the Upper Division states to meet Compact obligations is threatened without temporary, voluntary reduction of consumption in the Upper Division states and delivery of this water to Lake Powell would further support such State Engineer action. It should be emphasized that the logic described above applies to the State Engineer's adoption of rules for administration of voluntarily provided Compact security water, not to forced curtailment in advance of a Compact call. Any uncertainty in the State Engineer's authority to utilize the compact rule power in this manner could be resolved through legislative confirmation.

ii. Delivery of Storage Water.

Colorado law provides for the shepherding of water past the headgates of other would-be appropriators in another context that may be helpful to support shepherding for Compact security. Reservoir "owners" are authorized to "conduct the waters legally stored therein into and along any of the natural streams of the state, . . . and may take the same out again at any point desired if no material injury results to the prior or subsequent rights of others to other waters in said natural streams."²⁶ While the statute refers to reservoir owners, it would seem that owners of water stored in reservoirs, not just the owner of the reservoir itself, are entitled to the same consideration. In practice, reservoir releases are routinely shepherded from the reservoir downstream to the place of use.

The legal ability to shepherd stored water through a Colorado stream has been recognized by the Tenth Circuit Court of Appeals in *Public Service Co. of Colo. v. Fed. Energy Regulatory Comm'n.*²⁷ Public Service Company claimed a vested property right under Colorado's constitution to divert and use water released by the United States from storage in Green Mountain Reservoir. The Court stated that resolution of the claim was based on the control of water stored in a reservoir for the purpose of downstream delivery for beneficial use and its separation from the natural flow of a stream.²⁸ The Court found, interpreting Colorado law, "It is elementary that a stream may be used as a part of the ditch system and that the person adding the water has the right to redivert it from the stream at the place it is needed

required to reduce uses to satisfy the 75/10 obligation. Bureau of Reclamation, Upper Colorado River Basin Consumptive Uses and Losses Report, 2011-2015 (Provisional) March 2016.

²⁶ Colo. Rev. Stat. § 37-87-102(4).

²⁷ 754 F.2d 1555 (10th Cir. 1985).

²⁸ *Id.* at 1564.

for use."²⁹ As the Court explained, "The reservoir owner who uses a natural stream to deliver stored water therefore does not abandon or lose control over the stored water when he places it in the stream for delivery, redirection and beneficial use downstream."³⁰ The implied conclusion that intervening water users are not entitled to divert the water "added" upstream is then made explicit, as follows:

If the reservoir owner does not relinquish control of his "batch" of storage water by sending it down a natural stream channel, it follows that other appropriators on the stream, even though they may be senior to the reservoir owner in priority, do not gain the right to divert that "batch" of storage water as it passes their headgates, or to make use of the storage water in any way. Their rights to divert water for beneficial use apply only to the stream's "natural flow"; they do not apply to storage water being delivered down the stream. That water has a "label" on it and is no longer public property.³¹

Material injury to other rights is avoided by providing notice to the appropriate water officials who can "measure the physical parameters of the release . . . calculate delivery losses, and thereby protect the interests of both the reservoir owner and the other appropriators on the stream."³² This logic led the Tenth Circuit to the conclusion that the United States as the owner of Green Mountain Reservoir retained control of the water released for the benefit of specified downstream uses.³³

The same logic could be applied to shepherding Compact security water to the Colorado state line. Water conserved or changed for Compact security purposes could be administered as a legally protectable interest as against the claims of other appropriators.³⁴ Such water would not otherwise be available as natural flow for diversion but for its conservation or change of use. The restriction of the reservoir statute to stored water and the limited precedent provided by the federal court decision in interpreting Colorado law must be weighed in considering whether the existing Colorado legal framework can support

²⁹ *Id.*, quoting Trelease, Reclamation Water Rights, 32 Rocky Mtn.L.Rev. 464, 471 (1960).

³⁰ *Id.* at 1565.

³¹ *Id.* The Court uses the term "batch" because, under the rules governing operation of Green Mountain Reservoir, water is not released to specific users but is released for the benefit of multiple unspecified users. ("Green Mountain Reservoir would store 100,000 acre-feet of water for purposes of power production at the site. When this stored water was released, it would be available to appropriators for irrigation and domestic purposes downstream without charge." *Id.* at 1560.)

³² *Id.* at 1564; see also Colo. Rev. Stat. §§ 37-87-102(4) and -103. Shepherding of water may require alteration of diversion structures that "sweep the river" to allow its bypass. The issue of financial responsibility for such alterations is unresolved.

³³ 754 F.2d at 1565.

³⁴ The control of this interest is further discussed in Section 2.d below. The authors take no position regarding the ability of other water users to exchange against such Compact security water in the stream. It should be noted, however, that legislation was introduced in 2017 to allow protection of releases from storage against exchanges through a contractual arrangement with the Colorado Water Conservation Board. See Senate Bill 2017-282. The legislation was unsuccessful.

Compact security shepherding. Moreover, as discussed below, the intended out-of-state place of storage in Lake Powell raises additional issues that must be addressed.

b. Beneficial Use

To allow use of water for Compact security purposes, the underlying water right may need to be legally authorized in some manner if its existing decree does not enable this type of use.³⁵ If a change of use is necessary, the applicant must demonstrate that the new use meets the same requirements that apply to obtain a decree for a new appropriation of water, including the specific manner in which the water will be used.³⁶ The intended purpose of the new use would be for Compact security, including reducing the risk that curtailment of Colorado water rights will be required. The use of appropriated water for Compact security purposes raises the question as to whether this use would be recognized as beneficial under Colorado law.

Colorado law limits the appropriation of water to its application to a beneficial use, and defines beneficial use as “the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made.”³⁷

The Colorado Supreme Court has recently held that for a use to be beneficial it must have objective benefits and that the amount of water necessary for the accomplishment of the purpose must be measurable.³⁸ Both the statutory definition of beneficial use and the opinion in *St. Jude’s Co. v. Roaring Fork Club, LLC*³⁹ place emphasis on the amount of water

³⁵ *Strickler v. City of Colorado Springs*, 16 Colo. 61, 26 P. 313 (1891). Some existing Colorado water rights have been recognized to be authorized for use to satisfy Colorado River Compact obligations, through banking of water for later Compact deliveries. See, e.g., *Arapahoe II*, 14 P.3d 325, 335.

³⁶ *High Plains A & M, LLC v. Southeastern Colorado Water Conservancy Dist.*, 120 P.3d 710, 720 & 721 (Colo. 2005) (“The essential function of the change proceeding is to confirm that a valid appropriation continues in effect under decree provisions that differ from those contained in the prior decree.” “The change application process is intended to facilitate transfers that are calculated to result in a continued application of the appropriated water to specified beneficial uses at different identified locations from the current decree under conditions to prevent injury to other water rights.”)

³⁷ Colo. Rev. Stat. § 37-92-103(3)(a), (4). While the Colorado Supreme Court has had numerous occasions to consider whether a particular type of use can be considered “beneficial” within the meaning of the Colorado Constitution, the General Assembly has only legislatively addressed three types of uses: (1) the impoundment of water for firefighting or storage for any purpose for which an appropriation is lawfully made, including recreational, fishery, or wildlife purposes; (2) the appropriation by the state of Colorado, for the benefit and enjoyment of present and future generations and in the manner prescribed by law, of such minimum flows between specific points reasonable degree; and (3) the diversion of water by a county, municipality, city and county, water district, water and sanitation district, water conservation district, or water conservancy district for recreational in-channel diversion purposes. Colo. Rev. Stat. § 37–92–103(4)(a)–(c).

³⁸ *St. Jude’s Co. v. Roaring Fork Club, LLC*, 351 P.3d 442 (Colo. 2015).

³⁹ *Id.*

appropriated and the manner in which the use benefits the appropriator.⁴⁰ Less attention is given to the purposes that can be regarded as beneficial. Indeed, as the *St. Jude's* court noted, the purposes for which water is being appropriated continue to change over time.⁴¹

The use of water for compact compliance has been recognized as a beneficial use and expressly authorized in certain cases.⁴² The use of water in Colorado for proactive Compact security is subject to greater uncertainty. In the *Arapahoe II* decision, the Colorado Supreme Court recognized that the storage and release of water in the Aspinall Unit (Blue Mesa, Morrow Point, and Crystal Reservoirs) pursuant to the Colorado River Storage Project Act serve to help meet Colorado's Compact obligations, including through the banking of water for later Compact deliveries.⁴³ While the *Arapahoe II* decision is based on the purposes for which the initial Upper Basin reservoirs are operated under CRSPA, it nevertheless supports the position that uses of water appropriated in Colorado for Compact security may already be considered beneficial.

Use of water for Compact security does not require a diversion. In general, Colorado water law has included a requirement that there be a diversion of water to accomplish the proposed beneficial use as a necessary element of a valid appropriation.⁴⁴ Yet the statutory

⁴⁰ Beneficial use is often defined as “the basis, the measure, and limit” of a water right. *See, e.g.*, Wyo. Stat. Ann. § 41-3-101. *See also Archuleta v. Gomez*, 200 P.3d 333, 343 (Colo. 2009). Courts have long used this basis to consider whether the amount of water proposed to be appropriated is reasonably necessary to accomplish the proposed purpose of the appropriation. *See* Lawrence J. MacDonnell, Prior Appropriation: A Reassessment, 18 U. DENV. WATER L. REV. 228, 265 (2015). The Colorado Supreme Court also objected to the passive nature of the benefits of the use proposed by the Roaring Fork Club, namely diversion of water into a ditch for a private fly-fishing amenity. *St. Jude's*, 351 P.3d at 450-51.

⁴¹ “Beyond these rudimentary constraints, the 1969 Act’s definition of beneficial use is expansive, leaving room for new, innovative uses.” 351 P.3d at 449 (citing coalbed methane extraction as an example).

⁴² *See* Findings of Fact, Conclusions of Law, Ruling of the Referee, Judgment and Decree of the Water Court dated August 16, 2017, Case No. 2014CW3135, Water Division 1, Colorado, Application for Water Rights of the Republican River Water Conservation District and Yuma County Water Authority Public Improvement District (change of use to add “assist the State of Colorado to carry out its duty to comply with the limitations imposed on the State under the Republican River Compact”). The Colorado Ground Water Commission has also approved a change of use for a well to “Republican River Compact Compliance” purposes. Colorado Ground Water Commission, Findings and Order dated June 20, 2013, Permit No. 76149, Application of Republican River Water Conservation District – Water Activity Enterprise.

⁴³ *Arapahoe II*, 14 P.3d at 334-35 (“We agree that the CRSPA reservoirs are part of a plan to allow Colorado to develop and preserve Compact apportionment. However, we find that the stored water provides Colorado with an ability to satisfy the Compact delivery mandates without eroding other rights decreed to beneficial use in the state. . . . By banking CRSPA water for Compact deliveries and using the reservoirs for their other decreed purposes, Colorado continues development of its water entitlements.”) The Aspinall Unit water rights adjudicated in Colorado water court only authorize domestic and municipal uses, irrigation and stock watering, industrial, power, flood control, piscatorial, wildlife protection and preservation, and recreational purposes, and do not explicitly address Compact compliance or security. *Id.* at 336. Nevertheless, the Court concluded: “[T]he storage and release of water from the Aspinall Unit for Compact delivery purposes aids Colorado in meeting its Compact obligations, thereby benefiting the state’s water users.” *Id.* at 341-42.

⁴⁴ *See, e.g., Colorado River Water Conservation District v. Rocky Mountain Power*, 158 Colo. 331, 335, 406 P.2d 798, 800 (1965) (diversion necessary to constitute an appropriation).

definition of appropriation does not include a diversion requirement,⁴⁵ and beneficial use has been statutorily defined to include state appropriation of flows or levels of water “to preserve the natural environment to a reasonable degree.”⁴⁶ While it may be argued that diversions are only necessary when required to accomplish the intended beneficial use,⁴⁷ this is another area of uncertainty.

Viewed broadly, it would seem that the use of water for Compact security purposes should fall within Colorado’s definition of beneficial use and should not be restricted by the diversion requirement. The potential overall benefits to the State and its water users are considerable. No diversion is required to achieve the intended purpose of the Compact security use. The amounts of water reasonably necessary to accomplish this purpose can be objectively determined through modeling processes now available to the State.⁴⁸ Nevertheless, such determinations may raise difficult issues associated with predicting future water availability and uses in the Upper and Lower Basins and the acceptable level of risk of future curtailment. All of these concerns and uncertainties suggest that legislative confirmation that the use of water for Compact security constitutes a beneficial use would be prudent.

c. Out-of-State Use

Colorado law has special provisions governing the appropriation of water in Colorado for use out-of-state.⁴⁹ Reflecting concerns that sufficient water is available to meet in-state uses, these export statute provisions subject appropriations for out-of-state use to special review either by the state engineer, ground water commission, or the water court, depending on whether the appropriation is of ground water or of surface water.⁵⁰ The review must produce the following findings:

- (a) The proposed use of water outside this state is expressly authorized by interstate compact or credited as a delivery to another state pursuant to section 37-81-103 or that the proposed use of water does not impair the ability of this state to comply

⁴⁵ “‘Appropriation’ means the application of a specified portion of the waters of the state to a beneficial use....” Colo. Rev. Stat. § 37-92-103 (3)(a).

⁴⁶ Colo. Rev. Stat. § 37-92-103(4).

⁴⁷ See, e.g., *Town of Genoa v. Westfall*, 141 Colo. 533, 349 P.2d 370 (1960) (“It is not necessary in every case for an appropriator of water to construct ditches or artificial ways through which the water might be taken from the stream in order that a valid appropriation be made. The only indispensable requirements are that the appropriator intends to use the waters for a beneficial purpose and actually apply them to that use.”) 141 Colo. at 547, 349 P.2d at 378.

⁴⁸ See, e.g., Colorado River Water Conservation District, Colorado River Risk Study: Phase I Summary Report (DRAFT), Oct. 18, 2016; U.S. Bureau of Reclamation, Colorado River Basin Study, Technical Report G and Appendix G2. The State Engineer might make such determinations in using the compact rule authority to administer water rights as necessary to reduce the risk of curtailment of uses under the 1922 Compact. See Section 2.a(i) *supra*.

⁴⁹ Colo. Rev. Stat. §§ 37-81-101 to -104.

⁵⁰ Colo. Rev. Stat. § 37-81-101(2).

with its obligations under any judicial decree or interstate compact which apportions water between this state and any other state or states;

(b) The proposed use of water is not inconsistent with the reasonable conservation of the water resources of this state; and

(c) The proposed use of water will not deprive the citizens of this state of the beneficial use of waters apportioned to Colorado by interstate compact or judicial decree.⁵¹

Using Colorado water prospectively for Compact security in the absence of contemporaneous curtailment to achieve Compact compliance may not be “expressly authorized” by the Colorado River Compact or the Upper Colorado River Basin Compact.⁵² Credit of Compact security water as a delivery to another state may be problematic, as discussed further below. Thus, pursuant to paragraph (a) above, it appears there would need to be a finding that this use of Colorado’s water would not interfere with obligations under any compact or decree. The proposed Compact security use would also need to be determined to be consistent with “reasonable conservation” of state water (paragraph (b)). And there would need to be a finding that the use would not “deprive” Colorado citizens of apportioned beneficial use (paragraph (c)). None of these required findings appears to present a clear obstacle to use of conserved or changed water for Compact security, although the administrative burden associated with making these findings on each water right may be substantial.

The out-of-state export statute also prohibits the diversion of water in Colorado and transportation into or through another state for use in that state unless the water “is credited as a delivery to such other state or states by Colorado.”⁵³ While release of Compact security water banked in Lake Powell would ultimately be credited as a delivery to the Lower Basin, this crediting would likely not occur at the time the water passes from the State of Colorado. While the proposed place of storage would be Lake Powell, located in Utah, it is unlikely that Utah would be willing to treat Compact security water provided by Colorado as part of its apportionment under the Upper Colorado River Basin Compact.⁵⁴

⁵¹ Colo. Rev. Stat. § 37-81-101(3).

⁵² If, however, the UCRC were to make findings that Compact security water is necessary for compliance with Article III(d) of the 1922 Compact, such uses probably would be regarded as “expressly authorized.” See Section 2.a(i) *supra*.

⁵³ Colo. Rev. Stat. § 37-81-103(1). While credit as a delivery to another state is an optional finding in Section 37-81-101(3)(a), it is required by Section 37-81-103(1).

⁵⁴ The Upper Colorado River Basin Compact apportions uses of the water allocated to the Upper Division states in the 1922 Colorado River Compact. The intended purpose of making Compact security water available in Lake Powell would be to benefit all of the Upper Division states. It is unlikely that Utah would be willing to diminish its own uses for the purpose of benefiting the other states.

Finally, the out-of-state export statute imposes a charge of \$50 per acre-foot assessed “on water diverted, carried, stored, or transported in this state for beneficial use outside this state measured at the point of release from storage or at the point of diversion.”⁵⁵ This charge would make a significant difference in the overall cost of compensation for voluntarily conserved consumptive use water.

These provisions are designed to discourage appropriations of water in Colorado for use out-of-state. They reflect the strong preference that all states have to maximize the benefits of their available water resources for their own users. Here, however, the purpose of shepherding appropriated water out-of-state is to benefit Colorado and its water users and provide better reliability to Colorado’s Compact allocation. These benefits warrant exempting Compact security exports from these provisions.

Arguably the “use” of the Compact security water is in Colorado and not out-of-state because the benefits are enjoyed by appropriators in Colorado who might otherwise have their water rights curtailed.⁵⁶ A finding by the UCRC that additional water is required in Lake Powell to ensure compliance with Compact obligations, as discussed in Section 2.a(i) above, could bolster the argument that the out-of-state export statute does not control. But the unconventional nature of this prospective, risk-reduction type of use and the broad language in the out-of-state export statute suggest the value of having legislative sanction. Any exemption from the out-of-state export statute should be narrowly drawn so as to avoid unintended consequences and should not overturn or undermine contrary provisions in existing decrees or other legislation.⁵⁷

d. Who May Control and Manage the Water Right?

Colorado water law expresses a strong preference that the appropriator of water also be the beneficial user of that water.⁵⁸ Non-governmental entities must demonstrate “either a legally vested interest or a reasonable expectation of procuring such interest in the lands or

⁵⁵ Colo. Rev. Stat. § 37-81-104(1)(a).

⁵⁶ The Ground Water Commission order, referenced in n. 42, *supra*, in dealing with the water rights intended to provide water for Republican River Compact compliance, establishes the place of use as “the North Fork of the Republican River at the Colorado-Nebraska state line.” No findings pursuant to the out-of-state export statute were made.

⁵⁷ Including tribal settlements and consent decrees. *See e.g.*, Colorado Ute Indian Water Rights Settlement Act of 1988, Pub. L. 100-585, 102 Stat. 2973, Section 5 (“(b) RESTRICTION ON DISPOSAL OF WATERS INTO LOWER COLORADO RIVER BASIN.-None of the waters from the Animas-La Plata or Dolores Projects may be sold, exchanged, leased, used, or otherwise disposed of into or in the Lower Colorado River Basin unless water within the Colorado River Basin held by non-Federal, non-Indian holders of that water pursuant to any water rights could be so sold, exchanged, leased, used, or otherwise disposed of under State law, Federal law, interstate compacts, or international treaty pursuant to a final, nonappealable order of a Federal court or pursuant to an agreement of the seven States signatory to the Colorado River Compact.”)

⁵⁸ Colo. Rev. Stat. § 37-92-103(3). The concern is that individuals or entities will appropriate water for speculative purposes. *See Colorado River Water Conservation District v. Vidler Tunnel Water Co.*, 197 Colo. 413, 594 P.2d 566 (1979).

facilities to be served by such appropriation.”⁵⁹ Alternatively they must provide “a specific plan and intent to divert, store, or otherwise capture, possess, and control a specific quantity of water for specific beneficial uses.”⁶⁰ Governmental entities are not subject to the requirement of showing ownership of an interest in the lands or facilities to be served,⁶¹ although some limitations are still applicable.⁶² Even with changes of water rights, the proponent of the changed right is obligated to show the water court that it holds an interest in the lands or facilities to be served by the changed right and that it has a specific plan for use of the water.⁶³

The unusual nature of the proposed use for Compact security suggests the value of some kind of public role that could include developing criteria governing such uses, acquiring a temporary interest in water rights used for Compact security, supervising the process of making such water available, and/or ensuring its availability at the state line. The benefits of providing Compact security would be public and extend statewide. At the same time, water users may prefer to retain full control of their water rights while making them temporarily available for Compact security uses. For purposes of discussion, two options are described below.

Option 1, emphasizing the public nature of providing water for Compact security.

Transactions involving Compact security water would be limited to acquisition by an authorized public entity. It is anticipated that these transactions would require only temporary use of existing water rights, so the ownership of the water rights would remain with the original appropriator. The public entity would enter into arrangements with willing water right holders for temporary use of the water. Likely, these arrangements would involve the public entity taking a legal interest such as a lease or a contractual interest in this temporary use of Compact security water during times when water is used for this purpose.⁶⁴ In most cases, the transaction would include compensation to the water right holder, going through the legal processes such as a change of water right necessary to allow use for Compact security, and managing this Compact security water to ensure that it

⁵⁹ Colo. Rev. Stat. § 37-92-103(3)(a)(I).

⁶⁰ Colo. Rev. Stat. § 37-92-103(3)(a)(II).

⁶¹ Colo. Rev. Stat. § 37-92-103(3)(a)(I).

⁶² See *Pagosa Area Water and Sanitation District v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007).

⁶³ *High Plains A & M, LLC v. Southeastern Colorado Water Conservancy Dist.*, 120 P.3d 710, 720 (Colo. 2005) (“Accordingly, the change applicant must show a legally vested interest in the land to be served by the change of use and a specific plan and intent to use the water for specific purposes.”)

⁶⁴ It may be argued that Article IX(a) of the 1948 Compact requires that any party be able to acquire such interests: “No State shall deny the right of the United States of America and, subject to the conditions hereinafter contained, no State shall deny the right of another signatory State, any person, or entity of any signatory State to acquire rights to the use of water, or to construct or participate in the construction and use of diversion works and storage reservoirs with appurtenant works, canals and conduits in one State for the purpose of diverting, conveying, storing, regulating and releasing water to satisfy the provisions of the Colorado River Compact relating to the obligation of the States of the Upper Division to make deliveries of water at Lee Ferry.” However, Compact security water uses may be considered to be peculiarly a matter for each State to determine and thus not restricted by this provision.

reaches Lake Powell. Changes in water diversion, use, and transportation facilities may also be necessary.

The State of Colorado, probably through the Colorado Water Conservation Board (CWCB), seems especially appropriate to serve as the authorized entity to hold a legal interest in the water right and manage a conserved or changed water right for Compact security purposes.⁶⁵ – Alternatively or additionally, the Colorado River Water Conservation District (CRWCD) and the Southwestern Water Conservation District (SWCD), whose missions include safeguarding Colorado’s compact entitlements for the benefit of the entire state, could be authorized to serve these purposes.⁶⁶

Option 2, emphasizing flexibility in the control of transactions concerning Compact security water, under appropriate guidelines. Water users may themselves prefer to temporarily make Compact security available, based on receipt of sufficient compensation. Alternatively, other interested parties may enter into temporary arrangements such as a lease with water right holders under which Compact security water would be made available. Necessary approvals such as changes of water rights could be obtained by either party to the transaction. The CWCB could establish criteria that any Compact security water transaction would be required to satisfy. The State Engineer would administer these Compact security uses in the same manner as any other water right.

There are hybrids of these approaches and other options that could also be explored.

e. When May Colorado Water Be Used For Compact Security Purposes?

While the discussion above indicates that the use of Colorado water for Compact security purposes would be considered a beneficial use, the unique nature of this use suggests the need for some kind of authorizing and supervising framework. It would be advisable to have a determination that Compact security water is needed and warranted. Because this is an issue involving the entire Upper Basin, it would be preferable for the Upper Colorado River Commission, at the request of the four Upper Division states, to make an initial determination that Compact security water is needed to reduce the risk of curtailment to mutually acceptable levels. This determination will involve judgments of risk of curtailment of existing water uses and an assessment of the public value of dedicating vested water rights to Compact security. The UCRC determination would provide a foundation for actions

⁶⁵ The CWCB’s duties include promoting “the conservation of the waters of the state of Colorado in order to secure the greatest utilization of such waters” and fostering “the conservation of water of the water of the state of Colorado by the promotion and implementation of sound measures to enhance water use efficiency in order to . . . assure the availability of adequate supplies for future uses.” Colo. Rev. Stat. §§ 37-60-106(1), -106(1)(r). See also Colorado’s Water Plan, Chapter 9.1, on the CWCB’s intent to support strategies to maximize use of water while actively avoiding a Colorado River Compact deficit, including further investigation of demand management.

⁶⁶ Colo. Rev. Stat. §§ 37-46-101, 37-47-101. Additional resources and funding will likely be required by any entity managing the Compact security water.

in each of the individual Upper Division states concerning how much water is required and how it would be provided and managed. The Upper Division states would participate fully in the UCRC process and provide for implementation of its determination through an interstate agreement.

In Colorado, implementation of the UCRC and interstate determinations concerning Compact security water would best reside within the authorities and expertise of the CWCB,⁶⁷ in consultation with the State Engineer and after public notice and opportunity for comment. The CWCB would establish programmatic guidelines under which Compact security water would be made available from Colorado. The State Engineer would adopt rules under the compact rule power dealing with the administration of Compact security water. In addition, it is likely that an overall volumetric limit on Upper Basin Compact security water that can be stored in Lake Powell would be established by agreement among the seven Basin states and the U.S.

As mentioned above, the CWCB could establish criteria for acquiring and using Compact security water that any individual transaction would have to meet and those criteria could be compulsory during any legal approval process such as a change of use. If the CWCB and State Engineer do not find that Compact security water is warranted or if an applicable volumetric limit is reached, the transaction would not qualify for Compact security use.

f. Change of Use Options

In order to ensure that the water rights of other appropriators are not materially injured, use of an existing water right for Compact security purposes will likely require a change of use. In some instances, the existing decree may already allow Compact security use and no further formal approvals are necessary.⁶⁸ Other situations that may not require a formal change that would allow for Compact security use and authorize shepherding of such water are noted in the introduction to this Appendix. Nevertheless, most water rights will require some type of change-of-water-right approval to determine the amount of consumptive use available to be dedicated to Compact security purposes and provide for any other terms and conditions necessary to avoid injury.

Colorado law now makes available several processes under which changes of use of existing water rights may be accomplished. Water court is the most widely used and would certainly be available to review the changes of use discussed here. Judicial review in the water court considers the extent of the appropriation's lawful historical use including diversions, return

⁶⁷ An analogy is provided by the role of the CWCB in making determinations that unappropriated water should be appropriated as an instream flow water right, based on its evaluation that such use is in the state's (and public's) interest. See <http://cwcb.state.co.us/environment/instream-flow-program/Pages/main.aspx>. Another example the role of the CWCB in evaluating proposed appropriations of water for recreational in-channel diversions. See <http://cwcb.state.co.us/environment/recreational-in-channel-diversions/Pages/main.aspx>.

⁶⁸ See e.g., *Arapahoe II*, 14 P.3d at 334-35 and discussion in Section 2.b *supra*.

flows, and consumptive uses,⁶⁹ whether the changed use would continue to be a valid appropriation,⁷⁰ the quantity of water available to the changed use without material injury to other water rights,⁷¹ and any terms and conditions necessary to ensure no injury.⁷² Because the water would be transported out-of-state, the court would probably need to make the findings required by the export statute discussed above for such transfers, unless an exemption is enacted or a determination made that Compact security use is not out-of-state.⁷³

Concerns have been expressed about the time and expense involved in going through the water court change of use review, particularly when only small amounts of water are involved and the change of use is temporary.⁷⁴ Determination of material injury generally turns on complex and detailed analyses of historical consumptive use in an effort to assure that stream flows remain unaltered by the change of use.⁷⁵ While the proponent carries the burden of proving absence of injury, the process often involves competing experts and methodologies. Trials may include multiple days of complex testimony regarding technical issues. Moreover, water rights submitted for review in a change proceeding are subject to reduction if their actual uses are not authorized under their original decree.⁷⁶ Because of these concerns, many water right holders are reluctant to go through a judicial change of use process. There is growing interest in finding alternative ways to manage the non-legal aspects of change-of-right proceedings in water courts or to use administrative processes while continuing to protect other water rights from injury.⁷⁷

Because Compact security uses would likely be temporary—perhaps even emergency, it would be preferable in our view to use one of the administrative review processes now available under Colorado law. To change the use of stored water on a temporary basis, the

⁶⁹ *Concerning the Application for Water Rights of County of Boulder in Boulder County v. Boulder and Weld County Ditch Company*, 367 P.3d 1179 (Colo. 2016); *Burlington Ditch Reservoir and Land Co. v. Metro Wastewater Reclamation District*, 256 P.3d 645 (Colo. 2011); *Santa Fe Trail Ranches Property Owners Ass’n v. Simpson*, 990 P.2d 46 (1999).

⁷⁰ *High Plains A & M, LLC v. Southeastern Colorado Water Conservancy Dist.*, 120 P.3d 710, 720 (Colo. 2005).

⁷¹ *Concerning the Application for Water Rights of County of Boulder in Boulder County v. Boulder and Weld County Ditch Company*, 367 P.3d 1179, 1193 (Colo. 2016) (“Because the County failed to carry its burden of proving [historical consumptive use], it also failed to carry its burden of showing an absence of injury to other water users”).

⁷² *Santa Fe Trail Ranches Property Owners Ass’n v. Simpson*, 990 P.2d 46, 53 (1999)

⁷³ Colo. Rev. Stat. § 37-81-101(3). See discussion in Section 2.c *supra*.

⁷⁴ See, e.g., Britt Banks & Peter Nichols, A Roundtable Discussion on the No-Injury Rule of Colorado Water Law, 44 Colo. Law. 77 (2015); Leon F. Szeptycki et al., Environmental Water Rights Transfers: A Review of State Laws, August 31, 2015.

⁷⁵ See, e.g., *Concerning the Application for Water Rights of County of Boulder in Boulder County v. Boulder and Weld County Ditch Company*, 367 P.3d 1179, 1193 (Colo. 2016).

⁷⁶ See, e.g., *Santa Fe Ranches Property Owners Assn v. Simpson*, 990 P.2d 46 (Colo. 1999); *Cent. Colo. Water Conservancy Dist. v. Greeley*, 147 P.3d 9, 14 (Colo. 2006).

⁷⁷ Banks and Nichols, *supra* note 74.

existing water bank process may provide the best mechanism.⁷⁸ The purpose of the program is to “simplify and improve the approval of water leases, loans, and exchanges, including interruptible supply agreements, of stored water within each river basin, reduce the costs associated with such transactions, and increase the availability of water-related information.”⁷⁹ Under rules promulgated by the State Engineer,⁸⁰ water banks accept deposits of stored water and credit the withdrawal of banked water under lease or other arrangement.⁸¹ The State Engineer reviews the transaction to ensure no material injury to other water rights.⁸² Only transactions involving stored water, however, can be managed through a water bank. Operation of a fully functional Compact security water bank program will require modification to the water bank statute to allow for banking of direct flow water rights.⁸³

It may also be possible to use the interruptible water supply agreement process to allow an existing right to be used temporarily for Compact security purposes.⁸⁴ Such agreements enable the holder of a water right to enter into an option agreement with another party allowing temporary use of water available under the loaned right.⁸⁵ The State Engineer reviews the transaction to ensure no material injury to other water users.⁸⁶ However, uses of the loaned right can only occur in three out of every ten years and the duration of the agreement cannot exceed 30 years.⁸⁷ Such limitations may not fit the needs associated with making water available for Compact security. Still another option is to use the substitute water supply plan provisions.⁸⁸ Whatever legal mechanism is utilized for a change of use, the CWCB should establish and approve a “water conservation program” that provides protection for the Compact security water from abandonment of the water right or diminution of its historical consumptive use, as provided in the Colorado statutes.⁸⁹

⁷⁸ Colo. Rev. Stat. §§ 37-80.5-101 to -107. For a discussion of the Colorado water bank and recommendations for broadening use of such banks, see Anne J. Castle and Lawrence J. MacDonnell, An Enhanced Water Bank for Colorado, Getches-Wilkinson Center for Natural Resources, Energy and the Environment, February 2016.

⁷⁹ Colo. Rev. Stat. § 37-80.5-102.

⁸⁰ To date, rules have only been promulgated for the Arkansas River Basin. See Dept. of Natural Resources, Div. of Water Resources, Rules Governing the Arkansas River Water Bank Pilot Program, <http://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=1287&fileName=2%20CCR%20402-12>

⁸¹ Colo. Rev. Stat. § 37-80.5-104.5(1)(d).

⁸² Colo. Rev. Stat. § 37-80.5-104.5(1)(b).

⁸³ See Castle and MacDonnell, *supra* note 78. Colorado’s Water Plan states that a collaborative program of managing consumptive uses with the goal of avoiding a Colorado River Compact deficit “would ideally involve water banking concepts,” while recognizing that such an approach has not yet been fully developed. Colorado’s Water Plan, Ch. 9.1 at 9-6.

⁸⁴ Colo. Rev. Stat. § 37-92-309.

⁸⁵ Colo. Rev. Stat. § 37-92-309(2)(a).

⁸⁶ Colo. Rev. Stat. § 37-92-309(3)(a) & (b).

⁸⁷ Colo. Rev. Stat. § 37-92-309(3)(c).

⁸⁸ Colo. Rev. Stat. § 37-92-308(5).

⁸⁹ Colo. Rev. Stat. §§ 37-92-103(2)(b), -305(3)(c)(II).

g. Recommendations

Uncertainties in Colorado law respecting the ability to use appropriated water for Compact security purposes, including shepherding that water to the state line free from diminishment by other appropriators as well as transporting that water to Lake Powell, suggest the potential value of legislative attention. The unique nature of such transactions and the growing need to proactively address the threat of curtailment of water uses under the Colorado River Compact warrant special treatment. We suggest establishing a category of water use identified as Compact security (specifically including reducing the risk of Compact curtailment), statutorily recognizing such use as beneficial. This expansion of the definition of beneficial use without need for diversion could be an addition to Colo. Rev. Stat. § 37-92-103(4).

As suggested in Section 2.e above, the Upper Colorado River Commission and the four Upper Division states could arrive at an agreement concerning the need for Compact security water to reduce the risk of future curtailment to mutually acceptable levels. The states could reach agreement on amounts of water to be provided by each. The CWCB, in consultation with the State Engineer, could then determine how the Compact security water would be produced and managed in Colorado to ensure that Colorado's Compact obligations can be met. The State Engineer would use the compact rule power to provide for the administration of Compact security water.

Transporting water to Lake Powell for Compact security should be exempted from the out-of-state export restrictions, most importantly the need to credit the delivery against the entitlement of the downstream state and the \$50 per acre foot fee.⁹⁰ The legislative language providing for this exemption should preserve any pre-existing export restrictions in decrees or legislation.

These temporary changes would use an administrative review process, such as the water bank or an interruptible supply agreement. We encourage consideration of broadening the jurisdiction of water banks to allow for management of water approved for Compact security and to include direct flow rights.⁹¹ Water rights temporarily changed to Compact security uses should be protected from abandonment and from loss of consumptive use credits.

3. INTERSTATE ISSUES

Assuming Colorado can establish procedures enabling the use and shepherding of conserved or changed water to the state line for Compact security purposes, there remains the problem of ensuring this water reaches Lake Powell. Water conserved or changed in Colorado and intended for storage in Lake Powell must pass through Utah without being

⁹⁰ Colo. Rev. Stat. §§ 37-81-103, -104.

⁹¹ See Colorado's Water Plan, Ch. 9.1 at 9-6; Castle and MacDonnell, *supra* note 78.

diverted and consumed by water users there. Depending on the location of the existing water use, the Compact security water may also need to pass first through New Mexico or Wyoming. Colorado would not want to provide additional water at the state line, likely at considerable cost, only to see it diverted by out-of-state appropriators.

It is clear that each state along the path to Lake Powell must be able, under some authority or directive, to internally shepherd water designated for Lake Powell past the headgates of potential water users as an underpinning for an Upper Basin-wide system water program. It is our understanding that water officials in the other Upper Division states currently do not believe that they have this authority within state law, or at the least, their authority is unclear.⁹² It is in every Upper Division state's interest to facilitate the shepherding of system water to Lake Powell, as increasing elevations in the Lake benefit each state in the Upper Division.

The Upper Colorado River Commission (UCRC) may be able to support and facilitate the ability of the water officials in the Upper Division states to shepherd Compact security water to Lake Powell. The relevant powers and authorities of the UCRC are set forth in the 1948 Upper Colorado River Compact,⁹³ and are discussed in detail below. The 1948 Compact is best known for allocating to the Upper Division States of Colorado, New Mexico, Utah, and Wyoming their percentage entitlements to the Upper Basin apportionment of Colorado River water. It also addresses, however, the anticipated acquisition of water rights and construction of storage reservoirs "for the purpose of diverting, conveying, storing, regulating and releasing water to satisfy the provisions of the Colorado River Compact relating to the obligation of the States of the Upper Division to make deliveries of water at Lee Ferry."⁹⁴

The Upper Colorado River Compact established the UCRC as an "interstate administrative agency" with one commissioner for each of the four Upper Division states and one federal representative.⁹⁵ The UCRC is charged with gathering certain information, including the quantity of water used annually in the Upper Basin and in each state.⁹⁶ In event of a curtailment, the UCRC is to determine the amount of water each state is responsible for providing at Lee Ferry.⁹⁷

The Upper Colorado River Compact was negotiated in expectation of large-scale federal water development in the Upper Basin.⁹⁸ The Bureau of Reclamation proposed construction

⁹² See, however, Utah Code §§ 73-2-29, 73-3-20(1).

⁹³ Upper Colorado River Compact, Colo. Rev. Stat. § 37-62-101.

⁹⁴ *Id.*, Art. IX(a).

⁹⁵ *Id.*, Art. VIII(a).

⁹⁶ *Id.*, Art. VIII(d)(5) – (10).

⁹⁷ *Id.*, Art. VIII(d)(8), Art. IV.

⁹⁸ The Bureau of Reclamation laid out the blueprint for this comprehensive development in its 1946 report: *The Colorado River: A Natural Menace becomes a National Resource: A Comprehensive Report on the Development of the Water Resources of the Colorado River Basin for Irrigation, Power Production, and Other Beneficial Uses*

of large water storage projects on the main Colorado River at Glen Canyon and on major tributaries including the Green, Gunnison, and San Juan Rivers. In addition there were proposals for reservoirs that would be constructed and store water in one state for use in another. Article IX(a) of the Upper Colorado River Compact provides:

No State shall deny the right of the United States of America and, subject to the conditions hereinafter contained, no State shall deny the right of another signatory State, any person, or entity of any signatory State to acquire rights to the use of water, or to construct or participate in the construction and use of diversion works and storage reservoirs with appurtenant works, canals and conduits in one State for the purpose of diverting, conveying, storing, regulating and releasing water to satisfy the provisions of the Colorado River Compact relating to the obligation of the States of the Upper Division to make deliveries of water at Lee Ferry, or for the purpose of diverting, conveying, storing or regulating water in an upper signatory State for consumptive use in a lower signatory State, when such use is within the apportionment to such lower State made by this Compact.⁹⁹

Of particular concern at the time of negotiation and approval of the Upper Colorado River Compact was the statute in Colorado prohibiting the export of water appropriated in Colorado for use in another state.¹⁰⁰ Article IX ensured that Colorado (or any other Upper Division state) would not apply such a statute to prevent out-of-state transport of water stored in Colorado, either for consumptive use in another state or for use to meet the Upper Basin's responsibilities to the Lower Basin and Mexico pursuant to the 1922 Colorado River Compact.

Article IX(c) of the Upper Colorado River Compact further provides:

Should any facility be constructed in a signatory State by and for the benefit of another signatory State or States or the water users thereof, as above provided, the construction, repair, replacement, maintenance and operation of such facility shall be subject to the laws of the State in which the facility is located, except that, in the case of a reservoir constructed in one State for the benefit of another State or States, the water administration officials of the State in which the facility is located shall permit the storage and release of any water which, as determined by findings of the

in Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming, March 1946, available at <http://www.riversimulator.org/Resources/USBR/Menace.pdf>. A necessary prerequisite for this development was for the Upper Division states to apportion shares of the Upper Basin's allocation under the 1922 Colorado River Compact to each state. Congress authorized the first substantial round of such development in the Colorado River Storage Project Act of 1956.

⁹⁹ Upper Colorado River Compact, Art. IX(a).

¹⁰⁰ The Upper Colorado River Basin Compact, Hearings before Subcommittee on Irrigation and Reclamation of the Committee on Public Lands, U.S. House of Representatives, 81st Congress, 1st Session, at 88 ("It will be recalled that Colorado has a statute forbidding diversions in this State for use in another State"). This is an apparent reference to the predecessor of the current out-of-state export statute discussed in Section 2.c *supra*.

Commission, falls within the apportionment of the State or States for whose benefit the facility is constructed. In the case of a regulating reservoir for the joint benefit of all States in making Lee Ferry deliveries, the water administration officials of the State in which the facility is located, in permitting the storage and release of water, shall comply with the findings and orders of the Commission.”¹⁰¹

This provision ensures that the water laws and other laws of the state in which such a reservoir is located will generally prevail, except that state water administration officials must allow storage and release of water determined by the UCRC to be within the apportionment of the other state that constructed the reservoir. If, however, the facility is a “regulating reservoir for the joint benefit of all States in making Lee Ferry deliveries,” water administration officials must comply with “findings and orders” of the UCRC. It is not clear which findings and orders are referred to here.¹⁰²

Strictly on the face of the final sentence of Article IX(c), it is possible to conclude the UCRC has authority to make findings and to order state water officials in states in which there are joint benefit facilities (those storing water for delivery to Lee Ferry, e.g., Lake Powell) to allow the storage and release of water in those facilities. This authority may allow the UCRC to make the appropriate findings and, for example, order Utah to shepherd Compact security water intended for Lake Powell to that destination without interference. This interpretation, although not addressed in legislative history or contemporaneous UCRC minutes, is particularly compelling for situations in which curtailment has been ordered to achieve compliance with the 1922 Compact. It is less clear whether the UCRC is authorized to make findings that additional Compact security water is needed to avoid curtailment of uses in the Upper Basin, although the provision of the 1922 Compact that the Upper Division states “will not cause” a drop in flows below the 75/10 obligation provides persuasive support for such a proactive approach. Having made such a finding, the UCRC might be able to require the shepherding of such water past the headgates of appropriators as necessary to move it to Lake Powell.¹⁰³ Alternatively, because the Upper Division states are bound by

¹⁰¹ Upper Colorado River Compact, Art. IX(c).

¹⁰² The UCRC is authorized to make the following findings:

The capacity of reservoirs constructed to provide water to meet the Lee Ferry obligation. Art. V(b)(1).

The capacity of reservoirs built to provide water for use in another state. Art. V(b)(2).

The quantity of water used each year in the Upper Basin and in each State. Art. VIII(d)(6)

The quantity of water deliveries at Lee Ferry during each water year. Art. VIII(d)(7)

The need for and extent of curtailment of use required to comply with the 1922 Compact. Art. VIII(d)(8).

The quantity of reservoir losses and the share chargeable to each State. Art. VIII(d)(9).

The only specific reference to an order from the UCRC, aside from this reference in Article IX(c), is to enable use of a portion of a reservoir constructed for storage and delivery of water to Lee Ferry to instead be used for consumptive use. Article V(c). In addition, “Findings of fact made by the Commission shall not be conclusive in any court, or before any agency or tribunal, but shall constitute prima facie evidence of the facts found.” Article VIII(g).

¹⁰³ Article IX(a) provides further support (“...for the purpose of diverting, conveying, storing, regulating and releasing water to satisfy the provisions of the Colorado River Compact relating to the obligation of the States of the Upper Division to make deliveries of water at Lee Ferry.”)

the Upper Colorado River Compact, the UCRC’s findings that Compact security water is needed could then trigger efforts by each state to determine how to produce the required amount of water and manage it appropriately.

Whatever the extent of the UCRC’s authority to require or instigate shepherding, it would be bolstered by an agreement among the Upper Division states and the UCRC, acknowledging such authority and supporting a finding by the UCRC in appropriate circumstances, and after consultation with the states, that Compact security water is necessary to comply with the 1922 Compact. In our view it would be desirable for the four states to request a finding from the UCRC of the need for Compact security water, supported by an agreement among the states respecting amounts of water to be provided by each state and the timing within which such water is to be provided. In addition, the agreement would include a commitment by each state to ensure that Compact security can be made available under state law and ultimately delivered to Lake Powell. With this agreement in place, the individual state agencies would be empowered to determine how best to implement the Compact security requirements in their states using their existing authorities and to examine whether additional authorities are needed. An interstate agreement addressing these issues would be prudent in any event.

4. LAKE POWELL ISSUES

The management of Compact security water once it reaches Lake Powell presents still another set of challenges. This water is intended to bolster storage levels and avoid shortages of flows at Lee Ferry that would require curtailment of water uses in Colorado and other Upper Division states. If, however, this water is simply included in the storage volume and levels used to determine releases to the Lower Basin and Lake Mead, as explained below, it may result in excess releases—defeating the purpose for which the water was provided. We provide an overview of Lake Powell operations and then discuss options for ensuring that Compact security water serves its intended purpose.

a. Lake Powell Operations.

Section 602(a) of the 1968 Colorado River Basin Project Act¹⁰⁴ directs the Secretary of the Interior to develop criteria for the coordinated long-range operation of Lake Powell and other Upper Basin reservoirs. These criteria are to provide for annual releases from Lake Powell sufficient to: (1) supply one-half of the “deficiency” of deliveries to Mexico; (2) comply with the 75/10 obligation; and (3) any additional water not required to ensure the delivery of the first two amounts without impairment of annual consumptive uses in the Upper Basin.¹⁰⁵

¹⁰⁴ Pub. Law 90-537, 82 Stat. 900, § 602(a).

¹⁰⁵ *Id.*

The Long Range Operating Criteria (LROC)¹⁰⁶ address this requirement of Section 602(a) and provide the basis for determining how much water can be retained in Lake Powell every year. The LROC require review of historical and projected future water conditions to identify an amount of water that should be retained in storage in Lake Powell to ensure the ability to satisfy the Lee Ferry requirement while allowing the Upper Division states to use their compact entitlements.¹⁰⁷ Water not required to be retained in storage to meet these criteria is available for release to the Lower Basin.¹⁰⁸

Lake Powell operations and the implementation of Section 602(a) are currently controlled by the 2007 Interim Guidelines,¹⁰⁹ which determine releases from Glen Canyon Dam based on relative reservoir levels in Lake Powell and Lake Mead. All water stored in Lake Powell is included in determining the reservoir elevation level for the purpose of determining the operational procedures that will be followed.¹¹⁰ Under the Interim Guidelines, elevation levels in Lake Powell are divided into “tiers” that determine actual operations and releases.¹¹¹ Releases of more than the minimum amount necessary to meet legal requirements may be ordered to balance or equalize the contents in Lake Powell and Lake Mead when Lake Powell levels are relatively high and Lake Mead levels are relatively low.¹¹²

b. Considerations for Managing Compact Security Water.

The primary purpose for creating Compact security water and shepherding it to Lake Powell is to voluntarily reduce the risk that storage levels in Lake Powell become critically low – in essence, a bank deposit that can be drawn upon in adverse circumstances. The hydroelectric power turbines in Glen Canyon Dam no longer function below elevation 3490 feet (above sea level), and the ability to deliver sufficient water to meet the 75/10 obligation is threatened. Compact security water and associated shepherding actions would thus be aimed at keeping storage elevations at least above 3490 feet or a higher elevation designed to ensure safe operating conditions and productive and continuous hydropower generation and revenues over the long term. If, however, this water is included in the quantities and

¹⁰⁶ Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1966 (Pub. L. 90-537), modified March 21, 2005, 70 Fed. Reg. 15873.

¹⁰⁷ *Id.* Art. II.

¹⁰⁸ *Id.*

¹⁰⁹ Record of Decision, Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, December 2007 (“Interim Guidelines”), Sections X.A, XI.G. Section XI.G.6 of the Interim Guidelines provides for the coordinated operations of Mead and Powell, primarily intended to balance and equalize storage in these two reservoirs.

¹¹⁰ For operational purposes, elevation levels projected for January 1 are used. Decisions about operation of Glen Canyon Dam are continuously examined in what are called “24-month” studies, updated monthly. See 24 Month Study, U.S. Bureau of Reclamation, <https://www.usbr.gov/uc/water/crsp/studies/>. Actual operations are based on the “annual operating plan.” See Annual Operating Plans, U.S. Bureau of Reclamation, <https://www.usbr.gov/uc/water/rsvrs/ops/aop/>.

¹¹¹ See Lake Powell Operations, Equalization and the Interim Guidelines, U.S. Bureau of Reclamation, <https://www.usbr.gov/uc/rm/crsp/gc/Eq-IntGuide/Eq-IntGuidelines-Fact.pdf>.

¹¹² Interim Guidelines, Section XI.G.6

elevations used to determine releases to the Lower Basin, the benefits of the Compact security water could potentially be undermined.¹¹³

The Upper Division states, in consultation with Reclamation and the Lower Division states, will need to consider how Compact security water would be managed in Lake Powell. One option would be to place it in a separate “account,” with some similarities to the manner in which “intentionally created surplus”¹¹⁴ water is treated in Lake Mead as separate from the annual deliveries from the Upper Basin. Like Intentionally Created Surplus (ICS), Compact security water in Lake Powell should be carried over and available for use in subsequent years and assessed for evaporation, either a fixed percentage or as a proportion of Lake Powell’s overall evaporation. Like ICS, the water bank would be evacuated if Lake Powell’s natural inflow needed the space. Detailed accounting would be maintained.

Although ICS is counted in determining the elevation level in Lake Mead for the purpose of balancing and equalization releases and for determining shortages,¹¹⁵ it is critical that Compact security water in Lake Powell not be counted for these purposes. To generate the funding required to obtain voluntary conservation of Compact security water, the funders (whether state, federal, or private) will need to be assured that the water conserved will be banked in Lake Powell and provide the intended benefit to the Upper Basin. Similar to the banking of water underground in the Lower Basin, a Lake Powell Compact security bank provides flexibility to get through dry periods without tremendous economic disruption. If the addition of Compact security water triggers additional releases from Lake Powell, the bank account is not secure and deposits into it are much less likely.

Although ICS is counted in Lake Mead’s elevation for the purpose of determining balancing releases, doing so does not threaten the existence of the ICS as it would for Compact security water in Lake Powell if subject to balancing or equalization. Indeed, it has the benefit of keeping storage elevations higher than they would otherwise be, thus helping to avoid a shortage declaration. While there are restrictions on the delivery of ICS to contractors based on hydrologic conditions, it is not subject to release to others. It remains in Lake Mead until called for by its creator. In addition, while ICS provides carryover flexibility to Lower Basin contractors, the Compact and Interim Guidelines assure them that Upper Basin deliveries will continue regardless of hydrology. In contrast, Upper Basin water users are exposed to the full volatility of nature, potentially requiring curtailment of long-established uses to meet Compact requirements. Having a Compact security bank in Lake Powell can mitigate this serious risk, if it is reliably there when needed.

¹¹³ Equalization and balancing releases are based on the projected relative elevations of Lake Powell and Lake Mead on January 1. Additional Compact security water in Lake Powell would increase elevations in Powell, possibly triggering additional releases. Interim Guidelines, Section XI.G.6.

¹¹⁴ This category of water is authorized in the Interim Guidelines, Section XI.G.3.

¹¹⁵ Under the Interim Guidelines, the Secretary is to declare a shortage condition if storage levels in Lake Mead are projected to be at or below elevation 1075 on January 1 of any year. Interim Guidelines, Section 2(d)(1)(a). Such a declaration means reductions in deliveries of water to Arizona and Nevada.

Rules concerning the treatment of Compact security water in Lake Powell would need to be adopted through agreement among all of the Colorado River Basin states and the Department of the Interior. The Upper Division states will need to consider whether Compact security water deriving from each state would be maintained in separate accounts or, alternatively, whether all Compact security water would be maintained in a joint account, benefiting the entire system. There will likely be limits on the overall amount of Compact security water that could reside in Lake Powell at any given time, determination of evaporation charges, and possibly seepage and system assessments.¹¹⁶ It should be recognized that resolution of these interstate issues concerning the treatment of Compact security water in Lake Powell will be particularly difficult, contentious, and time-consuming.

5. CONCLUSION

Storing additional water in Lake Powell when declining storage levels threaten curtailment makes good sense. Increased uncertainty about future hydrology and heightened volatility in supplies accentuate the prudence of such a program. As a practical matter, the ability to shepherd this Compact security water in Colorado and other states is essential to achieving the intended result. The legal and policy issues associated with making this water available, moving it to Lake Powell, and managing its use once in storage are formidable. Work will need to be done within each of the Upper Division states to ensure the state's water law will support this use of water and that the water can be administered in-state to avoid consumption by other water users.

The Upper Division states will need to work together to decide the best mechanism for ensuring that water coming from upstream states can pass through downstream states and reach Lake Powell undiminished except for transit losses. They will need to reach agreement on methods to measure and account for this water. The Upper Colorado River Commission could serve to facilitate the development and transport of Compact security water pursuant to an agreement among the UCRC and the Upper Division states. The seven basin states and the U.S. will need to agree on the management of the water once it reaches Lake Powell. Given the obvious benefits of enabling such efforts and the current focus on Drought Contingency Planning, these discussions should begin soon. The fact that Compact security water and shepherding inter-relate with multiple other issues does not mean that a discussion of these issues should be postponed. Rather, it suggests that these interdependent issues must be worked on contemporaneously. Colorado water officials, water users, and other interested parties can and should begin the internal state discussions concerning shepherding, in conjunction with instigating the broader conversations among the Upper Division states, the UCRC, the appropriate federal agencies, and the Lower Division states.

¹¹⁶ See U.S. Bureau of Reclamation, Colorado River Basin Study, Technical Report G and Appendix G2. There are complex legal and policy issues associated with adding water to Lake Powell and establishing separate accounts for this water. This paper does not attempt to address those issues in the detail required for a thorough analysis.