



— BUREAU OF —
RECLAMATION

Pitkin County Contract for Excess Capacity Storage in Ruedi Reservoir

Environmental Assessment

Fryingpan-Arkansas Project

EA No. ECAO-EA-2025-001

Project No. EC-2025-024

**United States Department of the Interior
Bureau of Reclamation
Missouri Basin Region
Eastern Colorado Area Office**

October 2026

In accordance with 516 DM 1 Section 1.5 (e)(4) and Section 1.5 (e)(7), I certify that the breadth and depth of analysis in this environmental assessment have been tailored to ensure compliance with the mandated page limits. Reclamation has considered all factors required by NEPA and has made a good-faith effort to prioritize the most important considerations within NEPA's congressionally mandated page limits and timeframes. This prioritization reflects Reclamation's expert judgment. Any considerations addressed briefly or left unaddressed were deemed, in Reclamation's judgment, to be of comparatively lesser substantive nature and did not meaningfully inform the consideration of environmental effects or the resulting decision on how to proceed.

Furthermore, Reclamation's effort is substantially complete and in Reclamation's expert opinion, it has thoroughly considered the factors mandated by NEPA and the analysis contained therein is adequate to inform and reasonably explain Reclamation's decision regarding the proposed Federal action.

**JEFFREY
RIEKER**

 Digitally signed by JEFFREY RIEKER
Date: 2026.10.06 15:15:57 -06'00'

Jeffrey Rieker
Area Manager

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

ACRONYMS

2018 IGA	2018 Interagency Agreement between Aurora, Busk-Ivanhoe, Inc., and Western Slope Entities	PT	Proposed Threatened
ACHP	Advisory Council on Historic Preservation	Pueblo Water	Board of Water Works of Pueblo, Colorado
af	Acre-Feet	Reclamation	United States Bureau of Reclamation
afy	Acre-Feet per Year	Recovery Program	Upper Colorado River Endangered Fish Recovery Program
Aurora	City of Aurora	Ruedi Exchange	Roaring Fork River to Ruedi Reservoir Exchange
BIWSA	Busk-Ivanhoe Water System	SC	State Special Concern
CDWR	Authority	SE	State Endangered
	Colorado Division of Water Resources	Service	U.S. Fish and Wildlife Service
CEQ	Council on Environmental Quality	SHPO	State Historic Preservation Office
cfs	Cubic Feet per Second	Southeastern	Southeastern Colorado Water Conservancy District
CNHP	Colorado National Heritage Program	ST	State Threatened
CFI, Inc.	Colorado Fuel and Iron Corporation	Storage Contract	Proposed Excess Capacity Storage Contract between Reclamation and Pitkin County
CPW	Colorado Parks and Wildlife	SWA	State Wildlife Areas
CS-I	Cold Stream Tier One	TLRCC	Twin Lakes Reservoir and Canal Company
CS-II	Cold Stream Tier Two	USDA	United States Department of Agriculture
CU	Consumptive Use	USFWS	United States Fish & Wildlife Service
CWCB	Colorado Water Conservation Board	USGS	United States Geological Survey
EA	Environmental Assessment	USACE	United States Army Corps of Engineers
East Slope	Eastern slope of the Continental Divide in Colorado	VFMP	Voluntary Flow Management Program
ECAO	Eastern Colorado Area Office	West Slope	Western slope of the Continental Divide in Colorado
EIS	Environmental Impact Statement		Colorado River Water Conservation District, Basalt Water Conservancy District, Board of Commissioners of Eagle County, Board of Commissioners of Pitkin County, Grand Valley Water Users Association, Orchard Mesa Irrigation Company, and Ute Water Conservancy District
ESA	Endangered Species Act	Western Slope Entities	
FONSI	Finding of No Significant Impact		
Fry-Ark Project	Fryingpan-Arkansas Project		
IGA	Intergovernmental Agreement		
IPaC	US. Fish and Wildlife Service Information for Planning and Consultation		
IPTDS	Independence Pass Transmountain Diversion System		
Ivanhoe Exchange	Ruedi Reservoir to Lake Ivanhoe Exchange		
M&I	Municipal & Industrial		
NEPA	National Environmental Policy Act		
NHPA	National Historic Preservation Act		
NRHP	National Register of Historic Places		
PBO	programmatic biological opinion		
Pitkin	Pitkin County		

Table of Contents

Chapter 1. Introduction and Purpose and Need.....	1
1.1 Introduction	1
1.1.1 Pitkin Excess Capacity Storage Contract.....	1
1.2 Background	2
1.2.1 Fryingpan-Arkansas Project	2
1.2.2 Busk-Ivanhoe System	5
1.2.3 Independence Pass Transmountain Diversion System	6
1.3 Purpose and Need.....	9
1.3.1 Pitkin Storage Contract	9
1.4 Project Scope	10
Chapter 2. Proposed Action and Alternatives.....	11
2.1 Proposed Action.....	11
2.1.1 Pitkin Excess Capacity Storage Contract.....	11
2.2 No Action Alternative	12
2.2.1 Pitkin Excess Capacity Storage Contract.....	12
2.3 Alternatives Eliminated	13
Chapter 3. Affected Environment & Environmental Consequences	13
3.1 Introduction	13
3.2 Resources Considered and Eliminated from Further Analysis	14
3.3 Reasonably Foreseeable Future Actions	15
3.3.1 Upper Colorado River Endangered Fish Recovery Implementation Program	15
3.3.2 Continued reasonably foreseeable future action (but would occur with or without the storage contract)	16
3.3.2.1. Rehabilitation of the Ivanhoe Tunnel	16
3.3.2.2 Ruedi Powerplant Improvements	16
3.4 Water Resources	16
3.4.1 Surface Water Hydrology.....	17

3.4.1.2 Surface Water Impacts	25
3.4.2 Water Rights	39
3.5 Water Quality.....	41
3.6 Cultural Resources and Indian Trust Assets	44
3.6.1 Historic Properties.....	44
3.6.2 Indian Trust Assets.....	45
3.7 Socioeconomics	46
3.8 Hydropower	48
3.8.1 Storage Contract.....	48
3.9 Threatened and Endangered Species.....	49
3.9.1 Upper Colorado River Endangered Fish Recovery Program.....	49
3.9.2 Endangered Species Act Listed Species.....	50
3.9.3 Storage Contract.....	50
3.10 Fisheries and Recreation	54
3.11 Other Resources	58
3.12 Reasonably Foreseeable Effects.....	59
3.13 Summary of Impacts.....	59
4.0 Environmental Commitments.....	62
5.0 Consultation and Coordination	63
5.1 List of Preparers	64
References.....	65

FIGURES

Figure 1-Project Area Map	3
Figure 2-Fryingpan-Arkansas Project	4
Figure 3-Busk-Ivanhoe Storage and Conveyance System.....	7
Figure 4-Independence Pass Transmountain Diversion System	8
Figure 5-Ruedi Reservoir Storage Allocations.....	17
Figure 6-Turquoise Reservoir Storage Allocations	23
Figure 7-Mount Elbert Forebay Allocations.....	24
Figure 8-Twin Lakes Reservoir Storage Allocations.....	25
Figure 9-Flow with and without bypasses/releases, Roaring Fork above Difficult Creek.	29
Figure 10-Flow with and without bypasses/releases, Roaring Fork near Aspen.	31

Figure 11-Flows in the Fryingpan River below Ruedi Reservoir, with and without Storage Contract (Ruedi Exchange), Fryingpan River below Ruedi Reservoir.	33
Figure 12-Flow in the Fryingpan River at the Near Thomasville gage, with and without Storage Contract (Ivanhoe Exchange), Fryingpan River at Thomasville.....	35
Figure 13-Flows in the Fryingpan River at the Near Nast gage, with and without Storage Contract (Ivanhoe Exchange), Ivanhoe Creek below Lake Ivanhoe.....	36
Figure 14-Ruedi Reservoir Historical Elevation and Fluctuation due to Storage Contract.....	37
Figure 15- Exchange Potential into Ivanhoe Reservoir.	38
Figure 16-CDWR Permitted Wells within the Roaring Fork Basin.	40
Figure 17: Water quality segments.....	42
Figure 18- Flows in the Roaring Fork below Ruedi Reservoir, With and Without Exchanges to Storage	55

TABLES

Table 1: Resources Eliminated from Further Analysis.....	15
Table 2: Ruedi Reservoir Pool Volumes.....	18
Table 3: Ruedi Reservoir Water Marketing Contracts.....	19
Table 4: Mean Differences in flow or storage elevation (as applicable).	38
Table 5: Income and Poverty Data	46
Table 6: Federally-listed ESA and other Sensitive Species	51
Table 7: Summary of Impacts	60
Table 8: List of Preparers.....	64

Appendices

Appendix A: 2018 Intergovernmental Agreement between Aurora, CRWCD, Basalt WCD, Eagle County, Pitkin County, Grand Valley Water Users Association, Orchard Mesa Irrigation District, and Ute WCD.

Appendix B: Findings of Fact, Conclusions of Law, Ruling of the Referee, Judgment and Decree for Case No. 2019CW3159, concerning the Application for Water Rights of the City of Aurora, Colorado, acting by and through its Utility Enterprise, in Eagle and Pitkin Counties dated October 31, 2024.

Appendix D: Stream Gage and Other Hydrologic Data Sources

Appendix D: Hydrology Report

Chapter 1. Introduction and Purpose and Need

1.1 Introduction

This Environmental Assessment (EA) addresses a proposed excess capacity storage contract between the Bureau of Reclamation (Reclamation) and Pitkin County (Pitkin) (Storage Contract) for the benefit of City of Aurora (Aurora) and other parties and stakeholders. Pitkin and Aurora would have a separate operating agreement. Reclamation must decide whether to 1) enter into the Storage Contract which would allow Pitkin to use storage space in Ruedi Reservoir for Aurora's water, when available. Because execution of the contract is a federal action, Reclamation must comply with the National Environmental Policy Act (NEPA) of 1969, amendments, and other applicable laws and regulations. This EA has been prepared to analyze and disclose the potential effects associated with the Proposed Action and No Action.

1.1.1 Pitkin Excess Capacity Storage Contract

Reclamation proposes to enter into a long-term (40-year) excess capacity Storage Contract with Pitkin for the joint use of up to 900 acre-feet (af) of storage space in Ruedi Reservoir by Pitkin and Aurora. Ruedi Reservoir is a facility of the Fryingpan-Arkansas (Fry-Ark) Project. An excess capacity storage contract is often referred to as an "if and when" contract, meaning if and when space for non-Project water is available for storage and/or exchange in Reclamation facilities. Under the proposed Storage Contract and its terms, Pitkin would be allowed to use excess space in Reclamation's Ruedi Reservoir, subject to existing storage priorities of Reclamation's Fry-Ark Project and in the Upper Colorado River Basin.

Diversions pursuant to all of the Independence Pass Transmountain Diversion System (IPTDS) water rights utilize Twin Lakes Tunnel No. 1 to transport IPTDS water on the western slope of the Continental Divide in Colorado (West Slope) to Twin Lakes Reservoir located on the eastern slope of the Continental Divide (East Slope). The Storage Contract would facilitate an exchange of water derived from Aurora's Twin Lakes Reservoir and Canal Company (TLRCC) water rights that would be bypassed or released to the upper reaches of the Roaring Fork River and exchanged up the Fryingpan River into Ruedi Reservoir (Ruedi Exchange). The Ruedi Exchange would be accomplished when up to 31.25 cfs of Aurora's TLRCC water right interests in the IPTDS diversion in Grizzly Reservoir and/or the Roaring Fork River near Lost Man Creek are bypassed or released.

The Storage Contract would authorize bypassed or released water to be stored in Ruedi Reservoir when space is available, and when the Colorado Division of Water Resources (CDWR) determines that an exchange may be operated without injury to other senior water rights. The Storage Contract would limit the amount of the Ruedi Exchange to 900 af per year when excess capacity is available. Up to 450 af of the 900 af would be available for additional exchanges upstream to Lake Ivanhoe (aka Ivanhoe Reservoir) where it could then be delivered through the Busk-Ivanhoe Tunnel to Turquoise Reservoir and other infrastructure located in the Arkansas and South Platte River Basins. Any portion of the 900 af not exchanged up to Ivanhoe Reservoir in a year may be exchanged in a subsequent year, used on the West Slope by Aurora or West Slope users, or spilled from Ruedi

Reservoir if it fills. Potential West Slope uses include supporting instream flows in the Roaring Fork River and deliveries to a Pitkin County recreational in-channel diversion water right (Case No. 20CW3082).

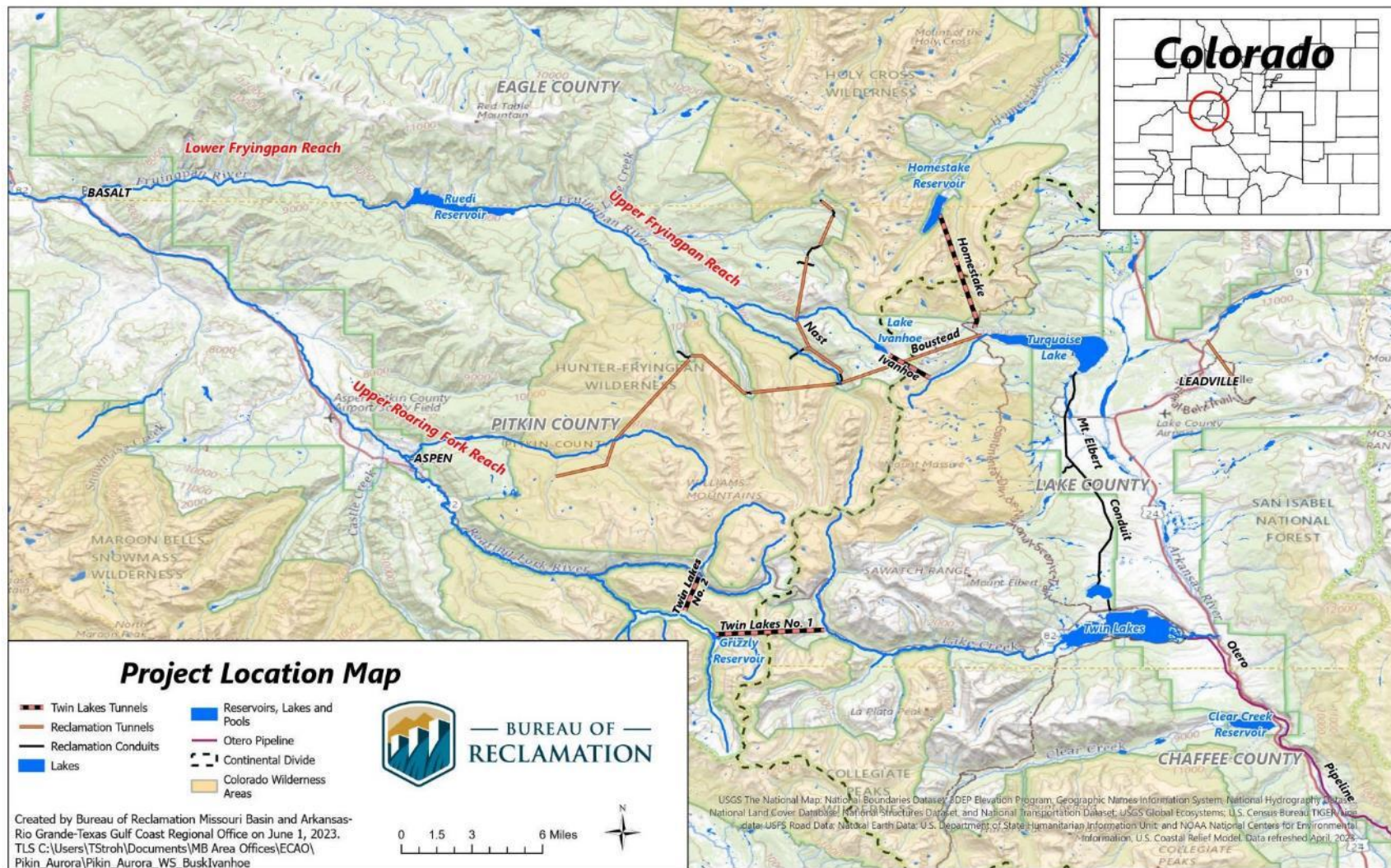
1.2 Background

1.2.1 Fryingpan-Arkansas Project

The Fry-Ark Project is a federal multipurpose, trans-mountain water diversion and delivery project in Colorado. The Fry-Ark Project was authorized in 1962 (by Public Law 87-92, as amended). Southeastern Colorado Water Conservancy District (Southeastern) is the Fry-Ark Project's sponsor/partner who entered into contracts with Reclamation for repayment of construction, operations, maintenance, and replacement costs. The Fry-Ark Project makes possible a 30-year average annual diversion of about 55,000 af of water from the Colorado River Basin. Water from melting snow and runoff in the Fryingpan and Roaring Fork River basins is diverted through the Fryingpan Diversion Dam and the North and Southside Collections Systems. The diverted water is then moved to the Arkansas River Basin via the Boustead Tunnel (Figure 2).

The imported water is conveyed to Turquoise Reservoir on the East Slope, and is typically conveyed through the Mount Elbert conduit to generate electricity at the Mount Elbert Powerplant. The powerplant discharges into Twin Lakes Reservoir and water is eventually released to the Arkansas River for delivery for Arkansas River uses or delivered to Pueblo Reservoir where it is further distributed within Southeastern's boundary to Fry-Ark Project beneficiaries. Pueblo Reservoir is the terminal storage facility for the Fry-Ark Project. Pueblo, Turquoise, and Twin Lakes reservoirs also store non-Project water using storage and conveyance contracts and other agreements established when the Fry-Ark Project was developed.

Ruedi Reservoir was constructed as part of the Fry-Ark Project and provides compensatory storage for West Slope water uses to mitigate impacts from the Fry-Ark Project's East Slope diversions. Ruedi Reservoir is located on the Fryingpan River upstream of Basalt, Colorado. Ruedi water contractors use the water for municipal and industrial (M&I) uses and for irrigation on the West Slope. Ruedi Reservoir also provides water for recreation and fish and wildlife enhancement.



*Note: Homestake Tunnel and Reservoir, Lake Ivanhoe and Ivanhoe Tunnel, Twin Lakes No.1 and No.2, Otero pipeline, and Clear Creek Reservoir are not Reclamation facilities.

Figure 1-Project Area Map

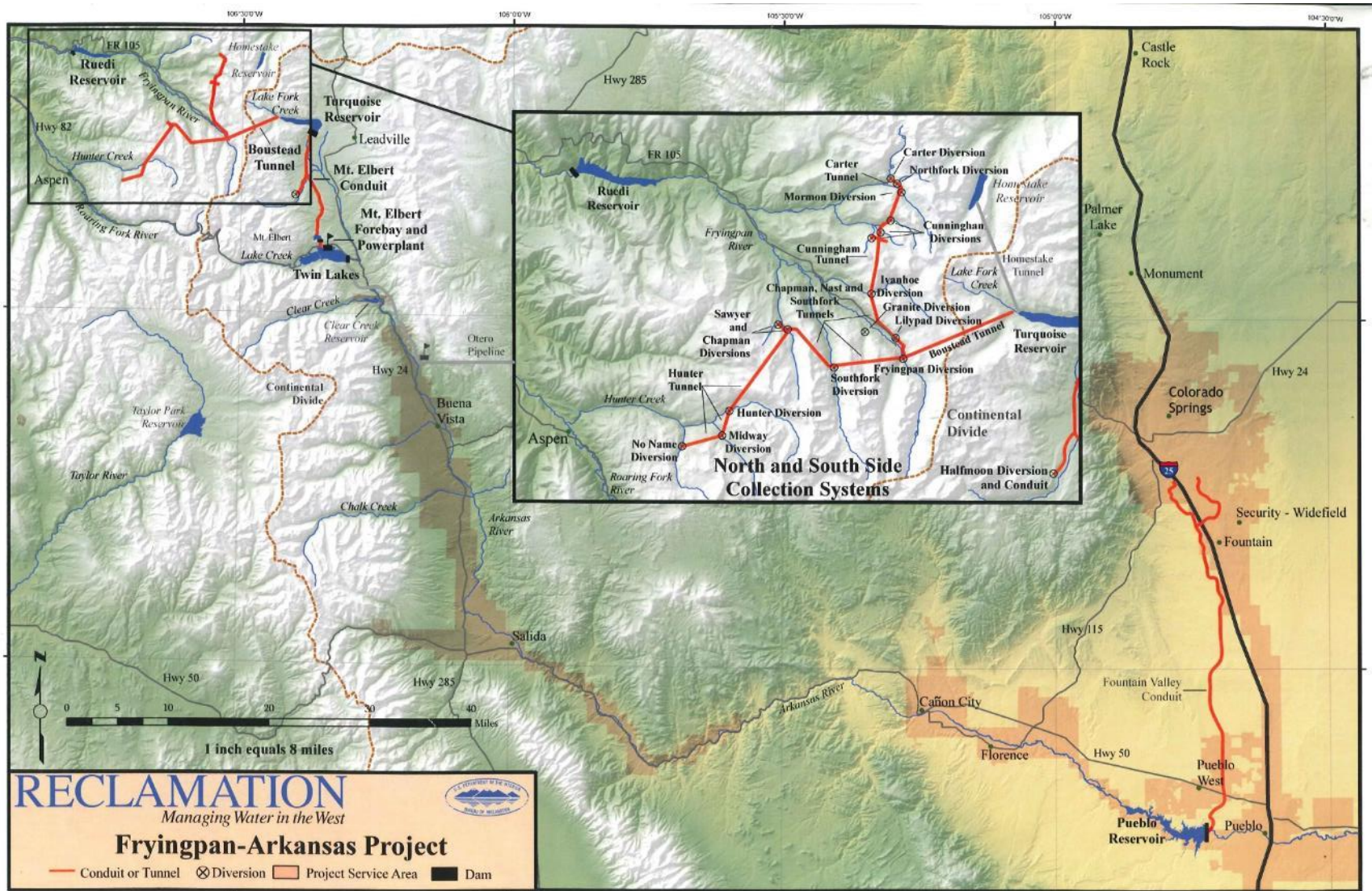


Figure 2-Fryingpan-Arkansas Project

Twin Lakes Reservoir was acquired by Reclamation from the TLRCC. Reclamation entered into a contract with TLRCC to replace TLRCC's storage capacity in the original Twin Lakes Reservoir (54,452 af). Sugar Loaf Dam and Reservoir was acquired from the Colorado Fuels and Iron Corporation and enlarged to create the current Turquoise Reservoir.

1.2.2 Busk-Ivanhoe System

The privately-owned Busk-Ivanhoe Tunnel (aka Carlton Tunnel or Ivanhoe Tunnel), now owned jointly by Pueblo Water and Aurora, was originally constructed for the Colorado Midland Railroad in 1891. It was later converted for automobile traffic and served as a toll road (then State Highway 104) between 1921 and 1942. The tunnel was also used to move West Slope water from Ivanhoe Reservoir to Busk Creek on the East Slope. The tunnel collapsed in 1945 but water was still able to travel through the tunnel through the broken rocks and was used by the Carlton Family and then High Line Canal Company to irrigate lands along Lake Fork Creek and the Arkansas River. The Busk-Ivanhoe System includes water rights for Ivanhoe Reservoir, Ivanhoe Tunnel, Lyle Ditch, Pan Ditch, and Hidden Lake Creek Ditch originally decreed for direct flow and storage for irrigation (see Figure 3). In 1950, the Carltons sold the Busk-Ivanhoe System water rights to the High Line Canal Company.

In 1969, the High Line Canal Company entered into a 40-year contract (9-07-70-W0099) with Reclamation for the storage and carriage of Busk-Ivanhoe System water in facilities of the Fry-Ark Project. The contract committed the United States to convey Busk-Ivanhoe water through the Nast and Boustead Tunnel system at such times as there is unused capacity therein at the most restrictive point in that part of the Nast and Boustead Tunnel system utilized by Busk-Ivanhoe water. The High Line Canal Company was responsible for the delivery to the intake works of the Nast Tunnel on Ivanhoe Creek from the release of water from Ivanhoe Reservoir, less stream transportation charges between Ivanhoe Reservoir and the Nast Tunnel assessed by the Colorado State Engineer. The contract included an annual readiness-to-serve charge to entitle carriage of not to exceed 1,500 af of Busk-Ivanhoe water. Additional amounts could be carried upon payment in advance.

In 1972, Pueblo Water acquired a ½ undivided interest in the Busk-Ivanhoe System from the High Line Canal Company, and Contract No. 9-07-70-W0099 was then amended to exclude the ½ undivided interest that was purchased by Pueblo Water and reduced the High Line Canal Company's conveyance to 750 af. Pueblo Water simultaneously entered into a 25-year conveyance contract (No. 2-07-70-W0104) that authorized the use of Nast and Boustead tunnels for carriage of 750 af of Pueblo Water's Busk-Ivanhoe interests, when unused capacity is available.

The April 1975 Fryingpan-Arkansas Project Final Environmental Statement (FES) (Reclamation, 1975) recognized and addressed the need to convey Busk-Ivanhoe water through the Fry-Ark Project system. The FES stated the following on page II-149:

“The Busk-Ivanhoe Transmountain Diversion system diverts water from the upper Ivanhoe Creek via Carlton Tunnel (Busk-Ivanhoe Tunnel), an old, abandoned railroad tunnel, to Busk Creek which flows into Turquoise Lake. Existing facilities are badly deteriorated. Consequently, the United States has executed water service agreements with the High Line Canal Company and the Board of Water Works of Pueblo, Colorado, separately, to provide for the carriage of their existing water supply through the Nast Tunnel of the North Side Collection System to the Charles H. Boustead Tunnel.”

Pueblo Water filed an application in Colorado Water Court for its portion of the Busk-Ivanhoe System water rights to make changes in use, alternate means of carriage, and places of storage. These water rights were changed in 1993 with the decree for Case No. 90CW340 (<https://dnrweblink.state.co.us/dwr/DocView.aspx?id=1887182&page=1&cr=1>). Contract No. 039E6C0117 was executed in 2003 to replace Contract No. 2-07-70-W0104 and authorized Pueblo Water to utilize the Nast and Boustead tunnels to convey water when unused capacity is available in the Fry-Ark Project tunnel system; the contract has an expiration date in 2043.

The remaining interest in the Busk-Ivanhoe System stayed in High Line Canal Company ownership until 1984 when Busk-Ivanhoe, Inc. was incorporated as a mutual ditch and reservoir company to succeed to the interests of the High Line Canal Company. Contract No. 9-07-70-W0099 was assigned to Busk-Ivanhoe, Inc. in 1986 and expired in 2011. Aurora acquired one hundred percent of Busk-Ivanhoe, Inc. between 1986 to 2001. In 1987, at Aurora's direction, Busk-Ivanhoe, Inc. began using its portion of the Busk-Ivanhoe System water rights in the South Platte River Basin. In 2009 Busk-Ivanhoe, Inc. filed an application in the Colorado Water Court to change the water rights for its ½ undivided interest of the original Busk-Ivanhoe System water rights for municipal use by Aurora in Case No. 09CW0142.

A water right change was granted by Colorado Water Court Division 2 in 2014 but was then reversed in 2016 by the Colorado Supreme Court in its Opinion for Case No. 14SA303 (https://www.courts.state.co.us/userfiles/file/Court_Probation/Supreme_Court/Opinions/2014/14SA303.pdf). A final judgment and decree (<https://dnrweblink.state.co.us/dwr/DocView.aspx?id=3310825&page=1&cr=1>) were finally issued in 2018 after wide ranging settlement discussions and the development of a 2018 Intergovernmental Agreement (2018 IGA) included as Appendix A. The amended findings of fact, conclusions of law, judgment and decree are accessible at: <https://dnrweblink.state.co.us/dwr/DocView.aspx?id=3310825&page=1&cr=1>.

In 2008, Pueblo Water and Busk-Ivanhoe, Inc. (Aurora) formed BIWSA which operates the entire Busk-Ivanhoe System for both entities. Figure 3 shows the Busk-Ivanhoe storage and conveyance system and Reclamation's Nast and Boustead tunnels.

1.2.3 Independence Pass Transmountain Diversion System

TLRCC owns and operates the IPTDS which was constructed between 1933 and 1937 with loans provided by the Reconstruction Finance Corporation Act of 1932. It was constructed to provide supplemental irrigation water to agricultural land located in Crowley County served by the Colorado Canal (Bancroft 1937). IPTDS's major infrastructure is shown in Figure 4 and consists of Grizzly and Lost Man Reservoirs, Twin Lakes Tunnels No. 1 and No. 2, Lincoln Gulch Diversion Dam, and other diversion features on Lost Man, Lincoln, Brooklyn, Tabor, and New York creeks, as well as the Upper Roaring Fork River. IPTDS water is diverted at Grizzly Reservoir to Twin Lakes Reservoir through Twin Lake Reservoir Tunnel No 1. As discussed earlier, Sugar Loaf Dam and Reservoir was acquired by Reclamation from the Colorado Fuels and Iron Corporation and enlarged to create the current Turquoise Reservoir, a feature of the Fry-Ark Project. Aurora currently owns 5 percent or 2,488.475 shares of the IPTDS.

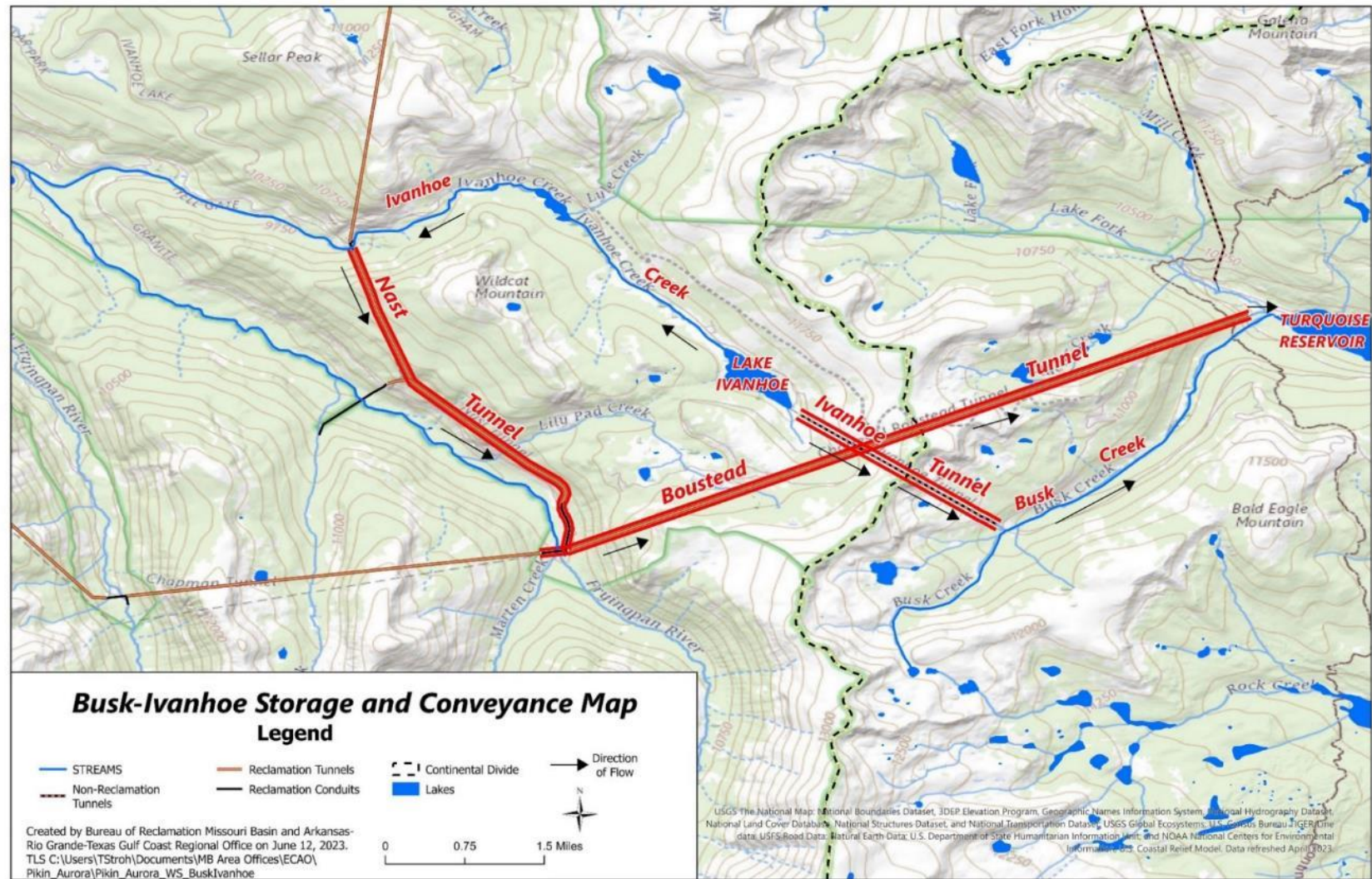


Figure 3-Busk-Ivanhoe Storage and Conveyance System



Figure 4-Independence Pass Transmountain Diversion System

1.2.4 2018 Intergovernmental Agreement

In 2018, Aurora and Busk-Ivanhoe, Inc., (Aurora's ½ undivided interest in the Busk-Ivanhoe System), entered into the 2018 IGA with the Colorado River Water Conservation District, Basalt Water Conservancy District, Board of Commissioners of Eagle County, Board of County Commissioners of Pitkin County (Pitkin), Grand Valley Water Users Association, Orchard Mesa Irrigation Company, and Ute Water Conservancy (referred to here after as the West Slope Entities). The 2018 IGA concluded Aurora would seek adjudication of the Ruedi Exchange and capture for subsequent use deliveries of a portion of its Twin Lakes water placed in the Roaring Fork River basin either near Grizzly Reservoir or near Lost Man Creek. A copy of the 2018 IGA is included as Appendix A.

In accordance with the provisions of the 2018 IGA, Aurora initiated the adjudication of two successive exchanges. The Ruedi Exchange involves up to 900 afy of IPTDS water which Aurora will bypass or release to the confluence of the Roaring Fork and Fryingpan rivers and from that point will exchange that water upstream on the Fryingpan River to Ruedi Reservoir. The Ivanhoe Exchange, is a subsequent, further exchange of a 450 afy subset of the 900 afy, affecting the reach from Ruedi Reservoir up to Ivanhoe Reservoir located on Ivanhoe Creek (Ivanhoe Exchange). The exchanges are described in greater detail later in this EA and in the final decree entered by the Colorado Water Court for Division 5 in Case No. 19CW3159 (Appendix B).

1.3 Purpose and Need

1.3.1 Pitkin Storage Contract

By entering into the Storage Contract with Pitkin, Reclamation is acting pursuant to the Reclamation Act of June 17, 1902 (32 Stat. 388), and acts amendatory and supplementary thereto, including the Reclamation Project Act of August 4, 1939 (53 Stat. 1187), and the Fry-Ark Project Act of August 16, 1962 (76 Stat. 389), as amended.

Exchanges of water rights are governed by Colorado water law and administered by the CDWR.

The Storage Contract is needed to facilitate the Ruedi and Ivanhoe Exchanges and allow storage of Aurora's IPTDS water in Ruedi Reservoir by Pitkin County when bypassed or released as contemplated in the 2018 IGA and included as stipulations in the draft decree for Case No. 09CW0142. The draft contract is being set up as a 2-party contract between Reclamation and Pitkin, and will identify terms and conditions of each of the parties. Pitkin and Aurora will have a separate operating agreement outlining the roles and responsibilities in relation to the implementation. The purpose and need for the excess capacity storage is described below:

The bypassed or released water addresses flow needs of Lincoln Creek and the Roaring Fork River, and other issues including but not limited to turbidity, temperature, habitat, flooding, water quality and other environmental constraints. The greatest benefit to the Roaring Fork River will occur when flow rates are increased in late summer, beginning on July 15 through the fall season. The Storage Contract facilitates the recapture of bypassed or released IPTDS water, and the storage by exchange of up to 900 af of such water in Ruedi Reservoir, when available, for later use by Aurora and West Slope entities.

Uses of the water stored by Aurora in Ruedi Reservoir include:

- a) Exchanges to Ivanhoe Reservoir for export to the East Slope via the Ivanhoe Tunnel (instead of via the IPTDS) and subsequent use by Aurora's customers for all decreed uses, and;
- b) Aurora may also release this water from Ruedi Reservoir to the Fryingpan River to meet future replacement or delivery obligations that Aurora may undertake below Ruedi Reservoir for the benefit of other water users in Colorado Water Division 5.

1.4 Project Scope

For this EA, the Project Area's scope is defined as Ruedi, Grizzly, Twin Lakes, and Turquoise reservoirs; Ivanhoe Reservoir; IPTDS, Busk-Ivanhoe, and Fry-Ark Project conveyance facilities; Lincoln, Lost Man, Ivanhoe Creeks, and Fryingpan and Roaring Fork Rivers (see previous Figure 1). Following guidance in the 2025 DOI NEPA Handbook, Reclamation drew a reasonable and manageable line related to the scope and consideration of environmental effects from the proposed action to include Reclamation facilities and involvement. The scope does not include anything downstream from Turquoise and Twin Lakes reservoirs, Otero Pipeline, or Aurora's existing facilities in the Arkansas and South Platte River basins. Releases from Turquoise and Twin Lakes reservoirs follow the Fryingpan-Arkansas Project Operating Principles, Colorado water law, existing contracts and agreements, or mixes with other water waters beyond Reclamation's control. The proposed Storage Contract is not anticipated to alter diversions or releases in these river basins.

The analysis of potential direct effects associated with the proposed action were bound by what is under Reclamation's control. Tracing the water, Reclamation control of releases at Ruedi Reservoir affect the Fryingpan River, and merges with the Roaring Fork River. Turquoise Reservoir, which is under Reclamation control, receives water from the Fryingpan-Arkansas, private Busk-Ivanhoe, and private Homestake projects. All of those waters move through Reclamation Fryingpan-Arkansas Project facilities before being released at Twin Lakes to the Arkansas River or to the Otero pipeline. Baseline Fryingpan-Arkansas Project operations include movement of Fryingpan-Arkansas, Busk-Ivanhoe, and Homestake project water through Turquoise Reservoir, Mount Elbert Powerplant, and Twin Lakes Reservoir, as well as commitments and agreements associated with Upper Arkansas Voluntary Flow Management Program, and to other East Slope excess capacity/exchange agreements/contracts. The specific facilities are described in more detail in Section 3.4.1.

Chapter 2. Proposed Action and Alternatives

This chapter describes the Proposed Action and the No Action Alternative.

2.1 Proposed Action

The proposed Storage Contract does not contemplate or authorize the construction of any new diversion or delivery facilities to convey IPTDS. Under the Storage Contract, Pitkin would allow Aurora to convey the stored water in the contracted space in Ruedi Reservoir via existing infrastructure. Under the Storage Contract, stored IPTDS water may be released from Ruedi Reservoir, benefitting water users on the Fryingpan and lower Roaring Fork rivers.

2.1.1 Pitkin Excess Capacity Storage Contract

Pitkin has requested a Storage Contract with Reclamation to support the 2018 IGA between West Slope Entities, Aurora, and Aurora's Busk-Ivanhoe, Inc. The Storage Contract will allow Pitkin to store up to 900 AFY of Aurora's IPTDS bypassed or released water rights in Ruedi Reservoir by exchange, if and when space is available.

Any IPTDS water conveyed through Fry-Ark Project power facilities (Mount Elbert Powerplant), or facilities owned by others (Ruedi and Sugarloaf Hydropower plants) will not receive credit for power generation and all revenues, if any derived therefrom, would accrue only to the United States.

Aurora has a decreed river exchange (19CW3159) to divert water into the proposed storage account in Ruedi Reservoir. The exchange would allow the diversion only when it could be replaced with water bypassed or released from the IPTDS. To prevent injury to other water users in the exchange reach, the "Exchange Potential" is the maximum rate water can be diverted at the upstream location without injuring intervening senior water rights, including instream flow rights. Appropriated water rights for instream flow are rights to preserve the natural environment to a reasonable degree for instream flows and natural lake levels.

CDWR would administer the Ruedi and Ivanhoe Exchanges into and from Ruedi Reservoir when excess capacity is available in Ruedi Reservoir, when Exchange Potential is available to Aurora's decreed exchange, and Aurora has IPTDS water physically available, subject to the 2018 IGA.

Under the 2018 IGA (see Appendix A), the Storage Contract's exchange component would operate as follows:

- a. Pursuant to paragraph 19.1.1. of the 2018 IGA, Aurora must first obtain an adjudicated right allowing the exchange of up to 900 af of IPTDS water per year, over which Aurora has maintained dominion and control, from the confluence of the Roaring Fork and Fryingpan Rivers upstream on the Fryingpan River to Ruedi Reservoir (Ruedi Exchange) and an additional exchange, as a component subset of the 900 af, up to 450 af per year from Ruedi Reservoir to Ivanhoe Reservoir located upon Ivanhoe Creek (Ivanhoe Exchange). The final decree in Case No. 19CW3159 is included as Appendix B.
- b. Pursuant to paragraph 19.1.2. of the 2018 IGA, Pitkin must first obtain an excess capacity Storage Contract from Reclamation for the excess capacity storage of up to 900 af of water

in Ruedi Reservoir. Pitkin agrees to store at Aurora's request any water Aurora is able to exchange pursuant to sub-paragraph 19.1.1 above; and

- c. Pursuant to paragraph 19.1.3. and 19.3 of the 2018 IGA, should Pitkin successfully obtain an excess capacity Storage Contract within Ruedi Reservoir described in paragraph 19 of the IGA, Pitkin agrees to pay for a proportional amount of the annual costs based upon its yield in the exchange for those years when the exchange produces a benefit for the Roaring Fork River and Aurora agrees to be responsible for the remaining annual costs.

Aurora has obtained a decree in Case No. 19CW3159, Water Division 5 that allows Aurora to operate appropriate rights of exchange summarized as follows.

From the confluence of the Roaring Fork and Fryingpan Rivers to Ruedi Reservoir

Rate of Exchange: 31.25 cfs total, conditional. (Annual maximum of 900 af)

From Ruedi Reservoir to Ivanhoe Reservoir

Rate of Exchange: 50.0 cfs total, conditional. (Annual maximum of 450 af)

Source of Substitute Supply for Exchanges. The source of substitute supply for these exchanges will be Aurora's described pro rata share of the water derived from the Twin Lakes Project bypassed by the IPTDS or released from Grizzly Reservoir, located in Pitkin County within Lincoln Gulch upon Lincoln Creek, a tributary of the Roaring Fork River, pursuant to the decrees entered in Garfield County, District Court Case No. CA 3082, and W-1901, WD 5.

The appropriation date for the 19CW3159 exchanges is December 19, 2019.

2.2 No Action Alternative

2.2.1 Pitkin Excess Capacity Storage Contract

Under the No Action Alternative, Reclamation would not grant Pitkin's requested Storage Contract and Aurora's IPTDS water would not be stored in Ruedi Reservoir. Pitkin and Aurora would need to explore other options to meet the objectives identified in the 2018 IGA without the use of Ruedi Reservoir. The 2018 IGA describes an alternative to the Storage Contract that Aurora may be able to pursue without an excess capacity storage in Ruedi Reservoir. Section 19.2 states:

"19.2-Aurora, at its discretion, may choose to pursue as an alternative to sub-paragraphs 19.1.1 and 19.1.2 above, adjudication of a junior storage decree for up to 450 A-F within Ivanhoe Reservoir. If such a storage right is obtained, a contract with the operator and owner of Ivanhoe Reservoir is obtained and water is stored thereunder within Ivanhoe Reservoir then during the following Twin Lakes Water Year Aurora will deliver water, in accordance with delivery schedules established under paragraph 19, from facilities owned or controlled by Twin Lakes for the benefit of the Roaring Fork River in a volume equal to one-half of the amount of water placed into Ivanhoe Reservoir the previous Twin Lakes Water Year under this junior decree up to but not exceeding a total of 1,000 af pursuant to paragraphs 18 and 19 and their subparagraphs. The balance of the water placed into Ivanhoe Reservoir the previous Twin Lakes Water Year under that junior storage decree will be recognized as the property of Aurora. Water deliveries for the benefit of Pitkin and/or the West Slope Parties may not be carried over to

succeeding Twin Lakes Water Years. Any such junior storage right may, at Aurora's discretion, be held jointly with the Pueblo Board of Water Works but Aurora's obligations under this Agreement shall continue.”

For purposes of this EA, it is assumed that the 2018 IGA’s Section 19.2 effects to the Roaring Fork River above its confluence with the Fryingpan River would be similar to the No Action Alternative. Without the Storage Contract, it is unlikely that IPTDS bypasses intended for West Slope benefits could be stored in another upstream reservoir and then released later to benefit flows the Fryingpan River and lower Roaring Fork River, or other West Slope uses included in the Proposed Action. Therefore, the No Action Alternative assumes no re-timed releases could occur from other reservoirs to the Fryingpan River.

2.3 Alternatives Eliminated

No other alternatives have been identified that would be capable of facilitating the Ruedi and Ivanhoe Exchanges and storage of Aurora’s IPTDS water in Ruedi Reservoir when bypassed or released as contemplated in the 2018 IGA. Non-Project water cannot be stored in Ruedi Reservoir without a contract with Reclamation.

Construction of new West Slope storage facilities would likely be cost-prohibitive and would not maximize the use of existing infrastructure. Therefore, these types of alternatives were eliminated from further consideration.

Chapter 3. Affected Environment & Environmental Consequences

3.1 Introduction

This chapter describes the environmental resources that could be affected by the Storage Contract and the No Action Alternative. This EA discloses the predicted environmental consequences associated with each alternative. It also discusses past, present, and reasonably foreseeable future actions, common to both alternatives. Reasonably foreseeable effects are discussed in a separate section after all other resources.

Impacts are discussed under the following resource groups for the Project Area that includes:

- Water Resources (e.g., hydrology, surface water, groundwater resources)
- Water Rights
- Water Quality
- Cultural Resources and Indian Trust Assets
- Socioeconomics
- Hydropower

- Threatened and Endangered Species
- Fisheries and Recreation
- Other Resources

The baseline condition or characteristics of each resource are discussed first, followed by predicted impacts associated with the Proposed Action and No Action Alternatives. Separate effects analyses were conducted and are described in this chapter for the Storage Contract. Direct and indirect effects are discussed together if they are reasonably certain to occur and not speculative.

The significance of identified effects on the natural or human environmental quality was assessed based on context, duration, intensity, and/or type.

Context is the setting in which an effect would occur. Duration considers the timeframe over which an effect would occur; it also considers the frequency (return period) with which a particular impact would be expected to occur, if applicable.

The **duration** of an effect can be defined as either short-term or long-term. Long-term effects are those effects that would occur through the life of the contracts. Effects that may occur intermittently (e.g., during certain low flow periods) are also considered long-term effects.

Intensity can be defined as no effect, negligible effects, minor effects, moderate effects, or major effects and its definition can vary by resource.

Type refers to whether the effects are beneficial, no effect, or adverse.

3.2 Resources Considered and Eliminated from Further Analysis

There are no impacts anticipated for the following resources: air quality and noise; geology and soils, land use, vegetation, paleontological resources, and wildlife. Therefore, impacts to these resource areas have been considered but eliminated from further evaluation. Since there would be no change in impacts to these resources under all alternatives, there are no anticipated reasonably foreseeable effects. These resources and the reasons for their elimination are described further in Table 1. The proposed Storage Contract does not involve construction or other ground disturbing activities within the Project Area.

Table 1: Resources Eliminated from Further Analysis

Resource	Rationale for Elimination from Further Analysis
Air Quality and Noise	There will be no construction or ground disturbing activities. Therefore, no air quality or noise impacts are anticipated.
Geology and Soils	Because there are no construction or ground disturbing activities, no geological or soil impacts are anticipated. All changes in streamflow associated with the exchanges would be within the stream channel below the ordinary high-water mark. No increased in erosion or decrease in soil stability is expected.
Land Use	No changes in land use in the Roaring Fork and Fryingpan river basins are predicted to occur. No new facilities will be constructed, nor will uses of water on the East Slope change as a result of the contract. Proposed West Slope uses of exchange water, which include supporting instream flows in the Roaring Fork River and deliveries to a Pitkin County recreational in-channel diversion water right pursuant to future Colorado Water Court approval are predicted to have no effect on land use or vegetation resources.
Paleontological Resources	The contract does not involve construction or other ground disturbing activities that could displace paleontological resources in the Project Area.
Wildlife	See Air Quality and Noise and Land Use rationale above.

3.3 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are independent actions that may cause impacts associated with the Proposed Action and No Action alternative. They are not remote or speculative and are relative to the time frame and Project Area evaluated in the NEPA document. They include both federal and non-federal actions. This EA reviewed the following future actions to determine if they should be considered as reasonably foreseeable and therefore combined with the Proposed Action and No Action alternative when evaluating potential effects.

3.3.1 Upper Colorado River Endangered Fish Recovery Implementation Program

Continued implementation of the Upper Colorado River Endangered Fish Recovery Program in the Upper Colorado River Basin is considered to be reasonably foreseeable. This recovery program is also discussed in greater detail in Section 3.10.1.

Reclamation, as well as other federal and state agencies, and districts and municipalities rely on the recovery program as a reasonable and prudent alternative to avoid jeopardy to four ESA-listed Colorado River fishes for water-related activities associated with historic and future development in the Upper Colorado River Basin. The continued implementation of contracts and agreements for water releases from Ruedi Reservoir to assist meeting downstream endangered fish flows is predicted to continue and is discussed further in other sections of this EA.

In early 2024, the recovery program (Service 2024a) completed an EA to evaluate the environmental effects of extending both the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program beyond 2024.

The U.S. Fish and Wildlife Service (Service) issued a Finding of No Significant Impact on March 29, 2024, and decided to continue both recovery programs with continued coordination in the following six principal recovery elements:

1. Identifying and protecting instream flows
2. Restoring and protecting habitat
3. Managing nonnative fish
4. Propagating, stocking, and maintaining genetic integrity of fish
5. Research and monitoring
6. Public involvement, education, and outreach

Continued implementation of the recovery program provides benefits to the four listed species and continues to provide assurances and ESA protection for historic and future water uses in the Upper Colorado River Basin. Aurora and Pueblo Water have signed recovery agreements with the Service. More information on the recovery program can be found at: <https://coloradoriverrecovery.org/>.

3.3.2 Continued reasonably foreseeable future action (but would occur with or without the storage contract)

3.3.2.1. Rehabilitation of the Ivanhoe Tunnel

Around 2021, BIWSA started to see a noticeable decline in the flow rate in the Ivanhoe Tunnel and found a major tunnel collapse that crushed the pipe carrying Busk-Ivanhoe system water about 500 feet from its west portal. In 2022 and 2023, crews worked to repair the collapsed pipe in the first section of the Ivanhoe Tunnel.

3.3.2.2 Ruedi Powerplant Improvements

Aspen is in the process of developing an application to amend its licenses with the Federal Energy Regulatory Commission (FERC) for its Ruedi Powerplant (P-3603). This would be a non-capacity related amendment to add a second turbine to generate up to the currently licensed 5 megawatt (MW), 20,000,000 kilowatt-hour powerplant. The existing 5 MW turbine generates approximately 4 MW because it is not designed to capture the flows that are more frequently occurring with Reclamation's Ruedi Dam operations for fish flow releases. Aspen operates Ruedi Powerplant as a "run of river" facility and generates electricity under certain flow conditions (See Section 3.9).

The amended FERC license is not considered reasonably foreseeable as an amendment application has yet to be submitted to FERC and appropriate NEPA and other compliance is pending that action. However, because the Ruedi Powerplant is not able to alter releases from Ruedi Dam, an amended FERC license would not affect Ruedi's total downstream releases. However, some Ruedi releases currently bypassed through the dam's outlet works when releases exceed powerplant capacity, could be conveyed through the powerplant if a second turbine is added.

3.4 Water Resources

Water resources evaluated in the EA include surface waters, water rights, and water quality. In addition, the Proposed Action is predicted to have no measurable effect on groundwater resources within the Project Area, therefore no additional groundwater analysis was conducted. Each water

resource is discussed in detail below, as well as anticipated impacts associated with the Storage Contract.

3.4.1 Surface Water Hydrology

Potential changes in surface waters were evaluated and compared to the No Action alternative. Resources analyzed include potentially affected rivers, streams, and reservoirs previously in Figures 1-3 and discussed below.

Ruedi Reservoir—Ruedi Dam forms Ruedi Reservoir which has the capacity to hold approximately 102,000 af of water with a surface area of about 1,000 acres when full as shown in Figure 5. Ruedi Reservoir is a Fry-Ark Project feature and provides compensatory storage for multiple West Slope beneficial uses, including irrigation, M&I, and environmental purposes. A portion of the stored water is reserved for fish and wildlife enhancement including supplemental releases to benefit endangered Colorado River fishes in the 15-mile reach of the Colorado River near Grand Junction. Reclamation also participates in coordinated reservoir operations under the Colorado River Endangered Fish Recovery Program.

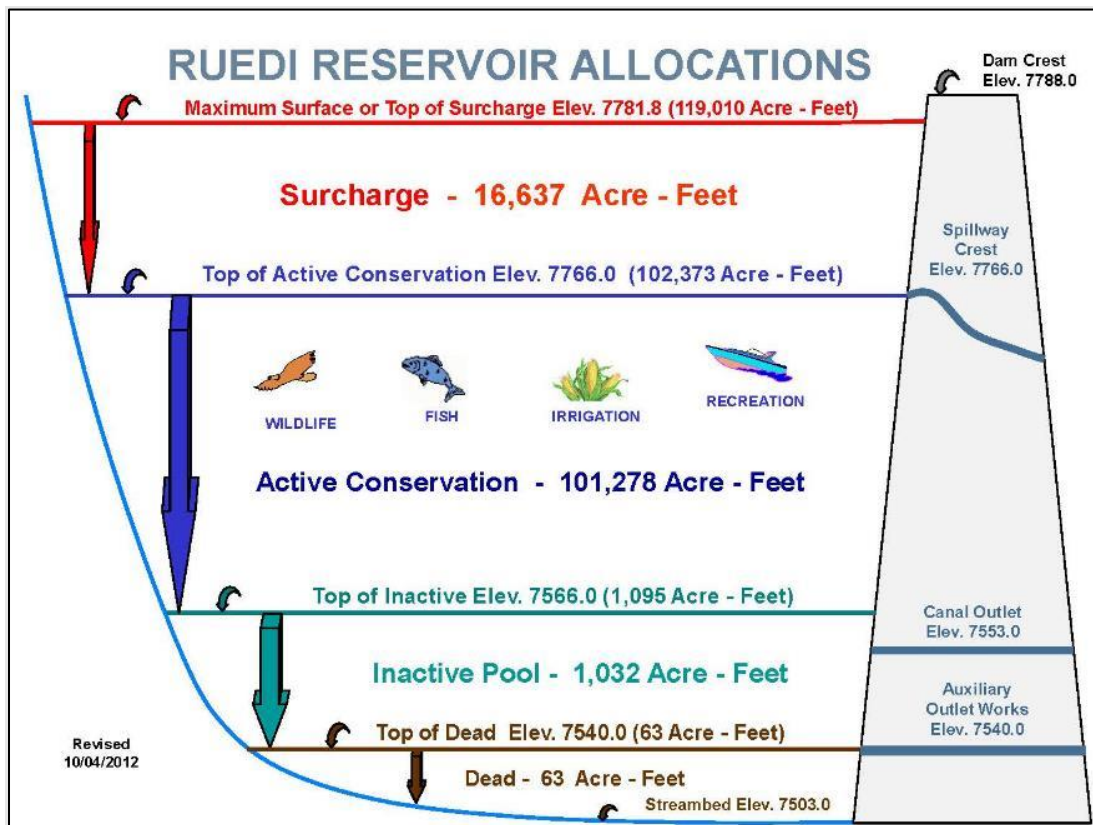


Figure 5-Ruedi Reservoir Storage Allocations

Typically, Ruedi Reservoir fills during spring runoff and stored water is released later in the year. Reservoir storage volumes decline throughout the year with the reservoir elevation frequently reaching its lowest point in April with yearly fluctuations of about 50 feet.

Reclamation holds contracts with West Slope users that are primarily used to augment out of priority diversions. Reclamation completed two rounds of contracting to provide marketable water supplies of up to 51,500 af from Ruedi Reservoir (Reclamation 1983 and 1989).

The Fryingpan-Arkansas Project Operating Principles describe the replacement capacity of Ruedi Reservoir as that portion of the reservoir needed to replace water diverted out-of-priority to the in western Colorado via the Fry-Ark Project. The original replacement reservoir, which was not constructed, would have had a capacity of 28,000 ac-ft. Although not a legally binding maximum, 28,000 ac-ft is generally used as the Replacement Pool amount for analysis purposes. The Regulatory Capacity of Ruedi Reservoir is that portion of the total reservoir capacity not needed for replacement purposes that would serve West Slope users. The Marketable Yield Pool represents the portion of the Regulatory Capacity of Ruedi Reservoir which was dedicated to water marketing purposes. Table 2 summarizes the pools and the volumes associated with each.

Table 2: Ruedi Reservoir Pool Volumes

Pool / Allocation	Volumes (ac-ft)	Subtotals (ac-ft)	Totals (ac-ft)
Replacement Capacity*			Up to 28,000
Regulatory Capacity			73,278
A. Marketable Yield		51,500	
1. Round I Contracts	7,850		
2. Endangered Fish Mitigation for Round II Marketing**	5,000		
3. Existing Round II Contracts (Non-Endangered Fish)	6,114		
4. Endangered Fish Use (10825 Water)	5,412.5		
5. Insurance Pool	2,000		
6. Available for Contract	25,123.5		
B. Withdrawn for Recreation		20,000	
C. Remaining Regulatory		1,778	
Inactive Storage			1,032
Dead Storage			63
Total Storage Capacity			102,373

* The Operating Principles state the replacement capacity is that portion of the reservoir needed to replace out-of-priority diversions to the Arkansas Basin by the Project. For the purpose of analyzing Marketable Yield, the replacement pool was assumed to be 28,000 ac-ft.

** An additional 5,000 ac-ft of water is available from Ruedi Reservoir to benefit endangered fish in 4 years out of 5 through re-regulation of the reservoir.

As part of the Ruedi Reservoir Round II Water Marketing Program, Reclamation committed to withhold 5,000 afy from sales for industrial use to provide conservation flows of endangered Colorado River fish. Reclamation also committed to provide an additional 5,000 afy of conservation flows on at least 4 out of 5 years during the months of July through October through modified operations (Reclamation 1990). This commitment was met with the execution of a 40-year agreement between Reclamation, Colorado Water Conservation Board, and U.S. Fish and Wildlife Service (Agreement No. 0-07-60-W054) for 10,000 afy from the Regulatory Capacity of Ruedi Reservoir. These commitments were also carried forward in the 15-Mile Reach Programmatic Biological Opinion (PBO) (Service 1999). Please see the Threatened and Endangered Species Section of this EA for additional discussion regarding Reclamation's Ruedi Reservoir Round I and II Endangered Species Act (ESA) commitments.

Ruedi's marketable supply is fully contracted as shown in Table 2. Both Round I and II contracts are perpetual contracts and do not allow carryover storage of undelivered water from year to year. The contract year was defined as January 1st to December 31st. The annual receipts for both Round I and Round II are approximately \$73,000 including a proportionate share of the actual annual reimbursable OM&R costs allocable to the marketable yield.

Table 3: Ruedi Reservoir Water Marketing Contracts

Ruedi Round	Year	Contractor's Name	Amount (AF)	Use	Contract No.	Last Contract Amendment
I	1982	Basalt Water Conservancy District	500.0	M&I	2-07-70-W0546	2013
I	1982	Battlement Mesa Metropolitan District	1,250.0	M&I	2-07-70-W0545	2013
I	1990	Colorado Water Conservation Board Agreement ¹	10,000.0	15-Mile Reach minimum flows	07-60-W0540	na
I	1982	Caerus Cross Timbers, LLC ²	6,000.0	M&I (Parachute Creek & Piceance Creek, 15-Mile Reach, augment flows for Green Mountain operations)	2-07-70-W0544	2021
I	1982	West Divide Water Conservancy District	100.0	Municipal & Domestic	2-07-70-W0547	2013
		Ruedi Round I Subtotal	17,850.0			
Ruedi Round	Year	Contractor's Name	Amount (AF)	Use	Contract No.	Last Contract Amendment
II	2013	City of Aspen	400.0	M&I	139D6C0098	na
II	2000	Basalt Water Conservancy District	490.00	M&I	009D6C0014	2013
II	2003	Basalt Water Conservancy District	500.00	M&I	039F6C0012	2013
II	2013	Basalt Water Conservancy District	300.00	M&I	13D6C0099	na
II	1999	Basalt, Town of	200.00	M&I	9-07-60-W0814	2013
II	1999	Basalt, Town of	300.00	M&I	9-07-60-W0815	2013
II	2000	Bailey, Thomas	35.0	M&I	009D6C0037	2013
II	2002	DeBeque	100.00	M&I	029F6C0128	2013
II	2013	DeBeque	25.0	M&I	139D6C0103	na
II	2000	Carbondale	250.0	M&I	009D6C0016	2013

¹ Agreement No. 0-07-60-W0540 between the Colorado Water Conservation Board, U.S. Fish and Wildlife Service, and Reclamation dated February 21, 1990. Provides up to 10,000 afy of water per year from the Regulatory Capacity of Ruedi Reservoir for 40 years.

² Pending assignment to QB Energy Operation and Prairie Energy Partners.

Pitkin County Contract for Excess Capacity Storage in Ruedi Reservoir EA, Colorado

Ruedi Round	Year	Contractor's Name	Amount (AF)	Use	Contract No.	Last Contract Amendment
II	2013	Carbondale	250.0	M&I	139D6C0100	na
II	2000	Colorado River Water Conservation District	500	M&I	009D60111	2013
II	2000	Colorado River Water Conservation District	700	M&I	009D6C0118	2016
II	2003	Colorado River Water Conservation District	530	M&I	039F6C0011	2016
II	2007	Colorado River Water Conservation District	5,000	M&I, 15-Miles Reach, & supplement winter Fryingpan Instream flows	079D6C0106	2016
II	2013	Colorado River Water Conservation District	5,412.5	Supplement flows in 15-Mile Reach per PBO	139D6C0024	na
II	2013	Colorado River Water Conservation District	2,000	Insurance Pool (Red Top Valley Ditch)	139D6C0025	na
II	2013	Colorado River Water Conservation District	4,683.5	M&I and Commercial Agriculture	139D6C0101	na
II	2007	Crown Mountain Park and Recreation District	38	M&I	079F6C0052	2013
II	2013	Crown Mountain Park and Recreation District	62.0	M&I	139D6C0102	na
II	2013	Elk Wallow Ranch, LLC	30.0	M&I and Commercial Agriculture	139D6C0104	na
II	2019	Garfield County	400.0	M&I	199D650074	na
II	1996	Glenwood Springs	500.0	M&I	6-07-60-W0503	2013
II	2000	Owl Creek Meadows LLC	21	M&I	009E6C0147	na
II	1999	Mid-Valley Metropolitan District	300	M&I	9-07-60-W0847	2013
II	2013	Mid-Valley Metropolitan District	100	M&I	139D6C0106	na
II	2001	New Castle	400	M&I	009E6C0129	2013
II	2013	Owl Creek Homeowner's Association	15.0	M&I	139D6C0107	2013
II	2001	Parachute	75	M&I	009D6C0032	2013
II	2013	Palisade	200.0	M&I	139D6C0108	na
II	2000	Rifle	350	M&I	009D6C0042	2013
II	2011	Rifle	200	M&I	119D6C0074	2013
II	2000	Ruedi Water and Power Authority	185	M&I	009D6C0130	2013
II	2009	Silt	83	M&I	099D6C0149	2013
II	2009	Silt	217	M&I	099D6C0147	2013
II	2013	Snowmass Water and Sanitation District	500.0	M&I	139D6C0109	na
II	1999	Starwood Metropolitan District	43	M&I	009D6C0001	2013
II	2013	Summit County	330.0	M&I	139D6C0110	na
II	2013	Ute Water Conservancy District	12,000.0	M&I	139D6C0111	na
II	2003	Vaughan, Ted L. & Hilda M. (West Divide Water Conservancy District)	15	M&I	039F6C0026	2013
II	1996	Westbank Ranch Homeowners Association	20	M&I	6-07-70-W0499	2013
II	2003	West Divide Water Conservancy District	500	M&I	039F6C0025	2013

Ruedi Round	Year	Contractor's Name	Amount (AF)	Use	Contract No.	Last Contract Amendment
II	2000	Wildcat Ranch Association	100	M&I	009D6C0061	2013
II	2013	Wildcat Ranch Association	50.0	M&I and Commercial Agriculture	139D6C0113	na
II	2013	Wildcat Reservoir Company	140.0	M&I and Commercial Agriculture	139D6C0114	na
II	2013	W/J Metropolitan District	100.0	Municipal & Industrial	139D6C0112	na
		Ruedi Rd II Subtotal	38,650.0			
		Total Ruedi Contracted Amount	56,500.0			

The Round I & II contracts include shortages provisions where during shortages all temporary and short-term (5 years or less) contractors are proportionately reduced by up to 100 percent of their contracted amounts first. Second, deliveries to Round II contractors are proportionately reduced by up to 100 percent, and third, deliveries to Round I municipal contractors are proportionately reduced by up to 30 percent; and last, deliveries to Round I contractors are reduced by up to 100 percent based on their contract execution dates.

In 2003, Reclamation entered into another agreement with the Colorado Water Conservation Board and Service (03XX6C0113) to provide 10,825 afy of water from the marketable yield of Ruedi Reservoir for summer and fall base flow augmentation in the 15-Mile Reach. The agreement remained in effect through December 31, 2012, and the Colorado water users continue to meet their 10,825 afy commitment with the CRWCD's 5,412.5 afy of contracted water from Ruedi Reservoir (13D6C0024) and by providing a 5,412.5 afy increase in yield to the Colorado-Big Thompson Project from the relinquishment of Northern Water Conservation District's interest in the New Red Top Valley Ditch Company. On July 5, 1938, Northern Water entered into Repayment Contract No. 9-07-70-W0020 which has been amended and supplemented multiple times. Supplement No. 9 to Contract No. 9-07-70-W0020, dated July 23, 2013, addressed releases from Granby Reservoir of the Red Top Ditch contribution to the 10,825 afy commitment of the Colorado River water users under the 15-Mile Reach PBO.

Grizzly Reservoir—Grizzly Reservoir, also known as Lincoln Gulch Diversion Dam, is a feature of the IPTDS and was constructed in 1933 and enlarged in 1935 (RJH Consulting, Inc. 2022) as part of IPTDS. The 582 af reservoir is owned and operated by the TLRCC and collects and stores waters from tributaries of the Upper Roaring Fork River system. The IPTDS transfers water collected in Grizzly Reservoir to Twin Lakes Reservoir in the Arkansas River Basin via Twin Lakes Tunnel No. 1.

Ivanhoe Reservoir—Ivanhoe Reservoir is a feature of the Busk-Ivanhoe System and has a decreed capacity of 1200 af. The active conservation storage of 752 af acts as a forebay to the Ivanhoe Tunnel, and conveys waters from Ivanhoe, Lyle, Pan, and Hidden creeks in the Upper Fryingpan River Basin under the Busk-Ivanhoe water rights (Aurora 2023). Pueblo Water and Aurora jointly own the Busk-Ivanhoe Project. Water is diverted from Ivanhoe Reservoir through the Ivanhoe Tunnel to Busk Creek and Turquoise Reservoir. As discussed previously, Pueblo Water can also release water stored in Ivanhoe Reservoir to Ivanhoe Creek and then utilize the Nast and Boustead tunnels when excess capacity is available as an alternate method of moving its ½ interest in Busk-Ivanhoe water to Turquoise Reservoir via its contract with Reclamation.

Turquoise Reservoir—Sugarloaf Reservoir was owned by the Colorado Fuel and Iron Corporation (CFI, Inc.). The Sugarloaf Dam was replaced by constructing a new dam and reservoir enlargement in 1965-1968 as part of the Fry-Ark Project, known as Turquoise Reservoir, at a location a short distance downstream which inundated Sugarloaf Dam. Turquoise Reservoir is used to store the Fry-Ark Project's West Slope diversions delivered through the Boustead Tunnel. Turquoise Reservoir has a total storage capacity of 129,398 af with active conservation storage of 120,478 af. Figure 6 illustrates its storage capacity and allocations.

In a 1965 contract with CFI, Inc. (6-07-70-W0089) for the sale of lands, replacement of storage space, and other purposes for construction of the Fry-Ark Project. Reclamation committed that upon enlargement of Turquoise Reservoir, CFI, Inc. was entitled to unrestricted use of 17,416 af of space for the life of the facility. The contract also provided CFI, Inc. with an option to purchase up to 10,000 af of additional storage space for a period of 10 years after completion of the Turquoise Dam construction. Reclamation assigned the contract to the City of Colorado Springs after Colorado Springs purchased CFI, Inc.'s water rights. Colorado Springs sold the 10,000 af of additional space to Aurora and Pueblo Water, resulting in the current storage accounts of 17,416 af controlled by Colorado Springs, 5,000 af controlled by Aurora, and 5,000 af controlled by Pueblo Water. There is no restriction under the 1965 contract on what types of water can be stored in the CF&I space.

In 1965, Reclamation entered into a contract with Aurora and Colorado Springs (6-07-70W0090) for transportation and storage of non-project water from the Homestake Project through Fry-Ark Project facilities including Turquoise and Twin Lakes reservoirs and Mount Elbert Forebay. The contract limits deliveries to 150 cfs of Homestake Project water when space is available through the Mount Elbert conduit, though in practice, Busk-Ivanhoe and Homestake water in Turquoise Reservoir is exchanged for Project water in Twin Lakes, so there is no question that power generated at the Mount Elbert powerplant was generated with Project water.

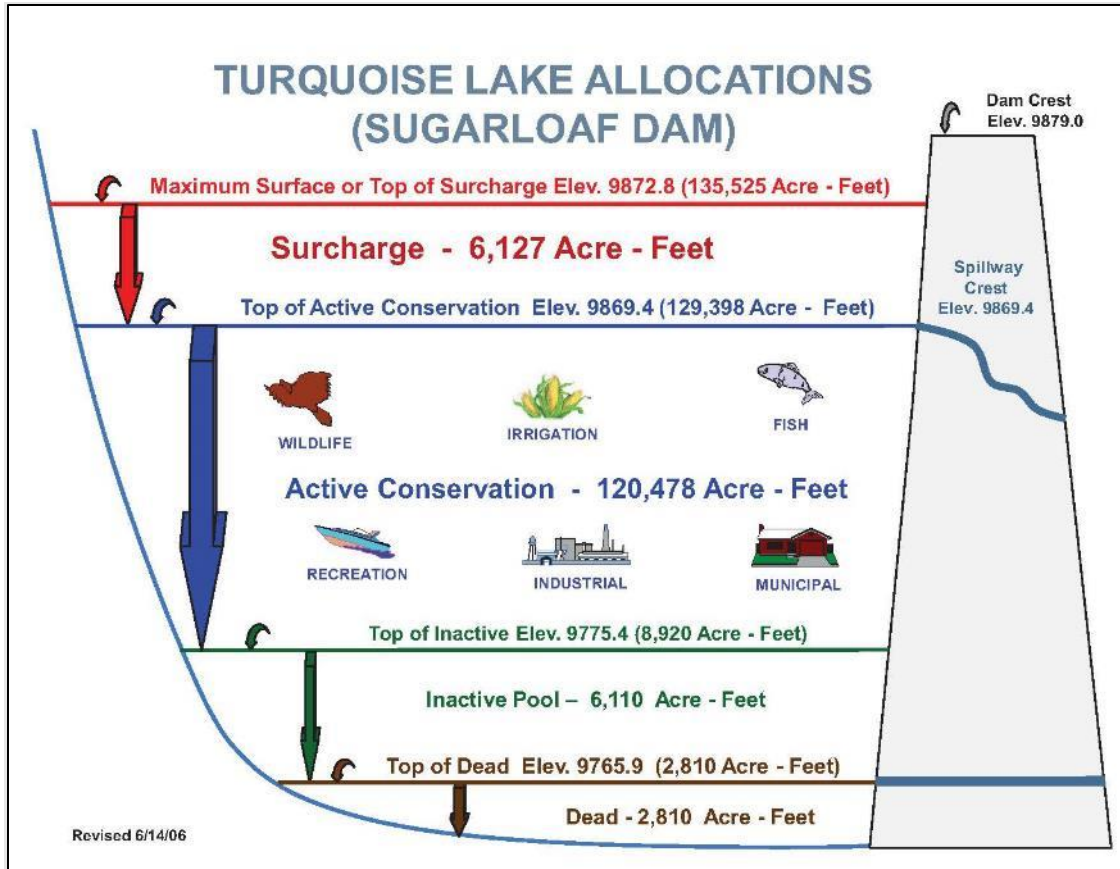


Figure 6-Turquoise Reservoir Storage Allocations

The contract also includes 30,000 af of firm storage for Homestake Project water in East Slope Fry-Ark Project works. The 50-year contract is valid through 2031 and subject to successive renewal of up to 40 years at a time. Sugarloaf Dam releases can be made to either the Lake Fork and the Arkansas River or delivered through the Mount Elbert Conduit to Twin Lakes.

Mount Elbert Forebay—The Mount Elbert Forebay is a Fry-Ark Project feature that provides pump-back storage for power generation at the Mount Elbert Powerplant. Mount Elbert Forebay construction began in 1975 and included a membrane liner to prevent seepage. The forebay is approximately 290 surface acres in size and receives water from the Mount Elbert Conduit and Halfmoon Creek diversions.

Water is stored in the Mount Elbert Forebay until a demand for peak power occurs, when water is released to Twin lakes to generate electrical power. When power demands are low and deliveries through the Mount Elbert Conduit have been curtailed, water can be pumped back up through the penstocks to refill Mount Elbert Forebay. Figure 7 illustrates Mount Elbert Forebay storage capacity and allocations.

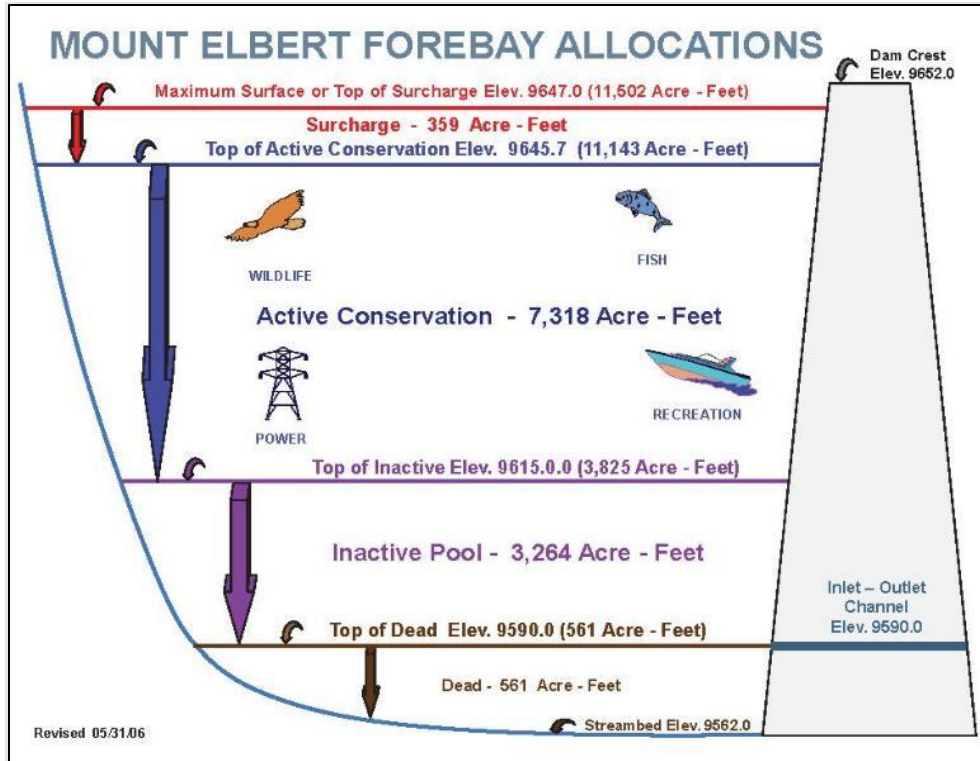


Figure 7-Mount Elbert Forebay Allocations

Twin Lakes Reservoir—Twin Lakes Reservoir as originally constructed by TLRCC had an active decreed capacity of 54,452 af. When the Fry-Ark Project enlarged Twin Lakes Reservoir in 1978, its total active storage capacity was increased to 147,500 af. Figure 8 shows Twin Lakes Reservoir’s storage capacity and allocations.

The reservoir also serves as an afterbay for the Mount Elbert Powerplant, which generates power with releases from the Mount Elbert Forebay during periods of high energy demand. During periods of low energy demand, the powerplant can pump water back to the Mount Elbert Forebay.

When Reclamation acquired and enlarged Twin Lakes Reservoir, it committed to provide 54,452 af of dedicated storage to replace TLRCC’s storage capacity in the original Twin Lakes Reservoir. TLRCC utilizes the space to store and deliver IPTDS water rights transported via Twin Lakes Tunnel No. 1, though this space can also be used to hold other types of water. Both Aurora and Colorado Springs routinely hold water in Twin Lakes Reservoir to stage water ahead of the Otero Pump Station. Twin Lakes Reservoir can also be used by Aurora and Colorado Springs to store up to 30,000 af of Homestake Project water, when combined with any other Homestake Project water stored in Turquoise Reservoir, as provided in Contract No. 6-07-70W0090.

Roaring Fork River—The Roaring Fork River originates in the headwaters of the Sawatch Mountain Range west of the Continental Divide and drops more than 6,000 feet in elevation to its confluence with the Colorado River. It is divided into two reaches, one above and one below its confluence with the Fryingpan River. Flows in this upper reach are heavily influenced by transmountain diversions from Lincoln and Lost Man Creek drainages above Aspen, Colorado via the IPTDS and from Hunter Creek

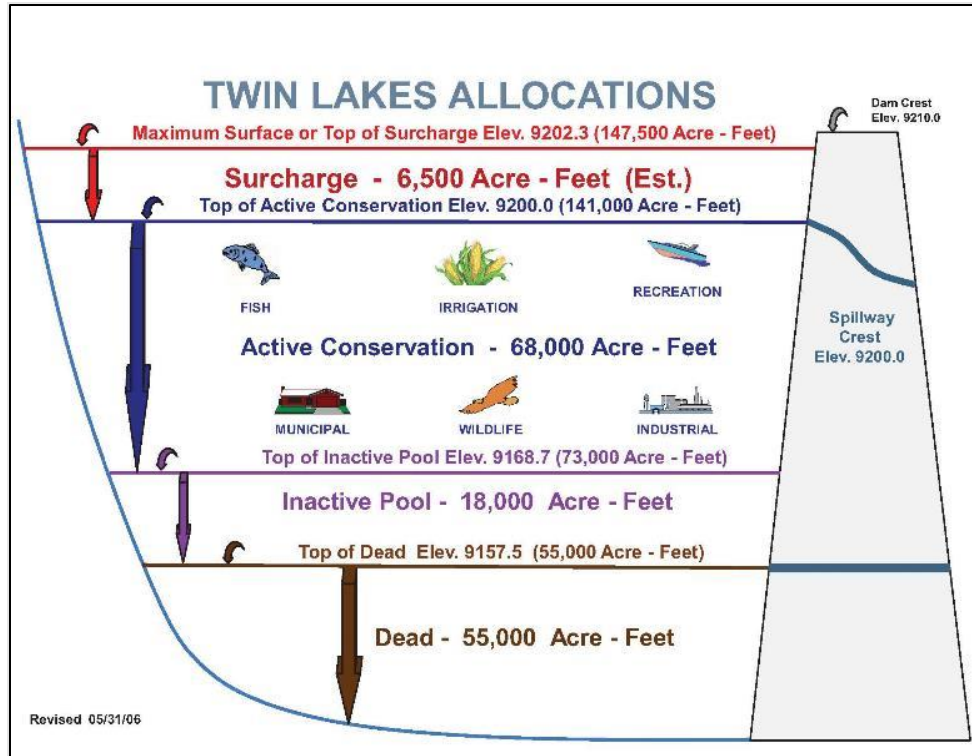


Figure 8-Twin Lakes Reservoir Storage Allocations

Between Aspen and the Roaring Fork's confluence with the Fryingpan River, Hunter-Fryingpan and Maroon Bells/Snowmass Wilderness Areas, make up large portions of the upper Roaring Fork watershed. About 50 percent of native flows in the Upper Roaring Fork watershed are diverted for transmountain diversion (~40 percent) and agricultural and municipal diversions uses near Aspen (~10 percent) (Lotic 2017). Irrigated lands in this reach are generally clustered near Aspen and Basalt.

In the lower reach, beginning at the confluence with the Fryingpan River, the Roaring Fork River flows northwesterly and joins the Colorado River in Glenwood Springs, Colorado. The Fryingpan and Crystal Rivers, and Sopris and Cattle Creeks contribute the majority of tributary inflows in the lower reach.

Fryingpan River—Like the Roaring Fork River, the Fryingpan River above Ruedi Reservoir is greatly influenced by Fry-Ark Project and Busk-Ivanhoe diversions that occur in the Hunter-Fryingpan Wilderness and Ivanhoe Creek watersheds. The lower Fryingpan River is regulated by Ruedi Reservoir.

3.4.1.2 Surface Water Impacts

Data sources used to evaluate changes in hydrology included streamflow, reservoir contents, diversion data, instream flow rights, and Aspen hydroelectric generation data obtained from the U.S. Geological Survey (USGS), Colorado's Decision Support Systems, Reclamation's Hydrobase, Colorado Water Conservation Board, Aspen, and BIWSA.

The following stream gage data (Water Years 1981-2019, unless otherwise noted) was used in the analysis. USGS gage data can be accessed at <https://waterdata.usgs.gov/co/nwis/current/?type=flow> and CDWR gage and diversion data can be accessed at <https://dwr.state.co.us/Tools>.

Fryingpan River near Ruedi (USGS)
Fryingpan River near Meredith (CDWR)
Fryingpan River near Thomasville (CDWR)
Fryingpan near Ivanhoe Reservoir (CDWR)
Roaring Fork above Difficult Creek (USGS)
Roaring Fork River near Aspen (USGS)
Roaring Fork above Lost Man Creek (USGS)
Lincoln Creek below Grizzly (USGS)
Ruedi Reservoir content (USBR)
Ivanhoe Creek near Nast (CDWR)
Ivanhoe Creek diversions 2006-2019(USBR)
Boustead Feeder Canal near Nast (USBR)
Below Ivanhoe Reservoir 2013-2019(BIWSA/CDWR)
Ivanhoe Reservoir contents (BIWSA/CDNR)
Ivanhoe Tunnel (CDWR)
Boustead Tunnel (CDNR)

The significance of effects on surface water resources assessed are described using the following context and intensity:

- **Negligible:** Changes in streamflow or reservoir contents would be unmeasurable or of imperceptible consequence. The change would be considered unmeasurable or imperceptible if it is below the estimated precision of USGS reservoir stage measurements, which is 0.2 percent (Sauer and Turnipseed, 2010).
- **Minor:** Predicted changes would be measurable (i.e., greater than 2 percent), but the change is within the precision of USGS streamflow measurements. The precision of USGS streamflow records for individual days is generally within 10 percent (as described by USGS 1992). For consistency, this same percentage is used for reservoir effects.
- **Moderate:** Measurable changes to streamflow would be greater than 10 percent but would not likely cause an adverse effect with regional consequences. Note that moderate intensity impacts may be reduced by consideration of the context and/or duration of the impacts.
- **Major:** Measurable changes to streamflow would be greater than 10 percent and would cause an adverse effect with regional consequences. Note that major intensity impacts may be reduced by consideration of the context and/or duration of the impacts.

Storage of water in Ruedi Reservoir pursuant to the Storage Contract depends on a number of factors including the availability of excess capacity in Ruedi Reservoir and existence of Exchange Potential.

High Country Hydrology, Inc (2025) conducted an analysis of potential hydrologic effects of the Storage Contract, which is included as Appendix D. Exchange Potential (as defined in Section 2.1.1.) for the Ruedi and Ivanhoe Exchanges was calculated using daily streamflow gage data for the 39-year period of record (water years 1981-2019). Calculations of Exchange Potential were made on a daily basis, and considered historical diversions, Colorado Water Conservation Board (CWCB)

instream flows, diversions by the Fry-Ark Project, and releases made through Ruedi Dam and Ruedi Powerplant.

Under the 2018 IGA for the IPTDS bypasses and releases, Aurora will annually meet with Pitkin County, Colorado River Water Conservation District, and Twin Lakes Company to develop a bypass and release schedule. The timing of bypasses and releases from Grizzly Reservoir and/or the Lost Man Creek Diversion is determined on an annual basis, and is subject to adjustment by the parties during the year. The bypasses and releases from Grizzly Reservoir and/or Lost Man Creek Diversion are generally expected to occur in the late summer or early fall (July, August, or September), which is the period of analysis reflected in Figures 9-11, however, they may occur year-round. The CDWR Division Engineer will determine when there is Exchange Potential from the Roaring Fork River up to Ruedi Reservoir. This will occur independently of the Storage Contract. The IPTDS system was previously shown in Figure 4.

Under the proposed Storage Contract, Reclamation will need to determine if excess capacity space is available in Ruedi Reservoir and if the Ruedi Exchange will have any effects on hydropower operations at the Ruedi Powerplant permitted under a Federal Energy Regulatory Commission permit issued to the City of Aspen. The maximum rate of exchange will be 31.25 cfs. Actual exchange rates may be less, depending on the rate at which water is actually bypassed or released from the IPTDS system, the Exchange Potential between the Roaring Fork and Ruedi Reservoir, and the available space in Ruedi. High Country Hydrology (2025 – Appendix B) assumed that the bypass will occur between July 15 and September 30 of each year at an average release rate of 5.8 cfs.

The Ivanhoe Exchange rate from Ruedi Reservoir to Ivanhoe Reservoir will occur at a maximum rate of 50 cfs, which is enough to move 450 af in 5 days. Actual exchange rates may be less depending on the amount of IPTDS water in storage in Ruedi, the amount of available space in Ivanhoe Reservoir and capacity in the Ivanhoe Tunnel, exchange potential between Ruedi Reservoir and Ivanhoe Reservoir, and the rate of diversion at Nast by the Fry-Ark Project system.

Aurora and Pitkin may also seek administrative approval from the Division Engineer for operation of reservoir trades between Ruedi Reservoir and Ivanhoe Reservoir, where IPTDS water already in storage in Ruedi Reservoir may be traded for water in Ivanhoe Reservoir that was stored under the Ivanhoe rights. The Ivanhoe water accruing to Ruedi Reservoir will then be released and accounted for as water native to the West slope, or in the event of a call at Ruedi Reservoir, transferred to the account for the calling right.

Calculations of Exchange Potential were made on a daily basis, and considered historical diversion, CWCW instream flow, Fry-Ark Project diversions, and releases through Ruedi Dam and Ruedi Powerplant. Excel spreadsheets were used to calculate the exchange potential. The Exchange Potential into Ruedi Reservoir is based on the Fryingpan near Ruedi gage. See Appendix C for gage locations and other hydrologic data sources including the calculated daily change in flows for the Roaring Fork and Fryingpan rivers, and changes in Ruedi Reservoir content.

Excess capacity storage is dependent on space being available in Ruedi Reservoir during the Ruedi Exchange. Fry-Ark Project water would continue to have priority, and any water stored in any excess capacity space would spill when annual Fry-Ark Project inflows fill Ruedi Reservoir. As a result, the Storage Contract will have no effect on the timing or amount of Reclamation's storage of Fry-Ark water and will have no effect on existing Ruedi Reservoir contracts.

Roaring Fork River—The delivery of water to the Roaring Fork River is intended to increase flows after runoff, generally in the late summer and early fall. The 2018 IGA specifies that bypasses will typically occur between July 15 and the fall season, although the exact timing and amount of bypass will vary from year to year, and bypasses are expected to be completed by September 30. As previously mentioned, IPTDS bypasses and releases will occur regardless of whether the Storage Contract is executed, and will occur in both the Proposed Action and No Action alternative.

For the hydrologic effects analysis, bypasses and releases were assumed to occur between July 15 and September 30. Figure 9 shows the historical flow of the Roaring Fork above Difficult Creek gage, and the percentage of flows as a result of the bypass.

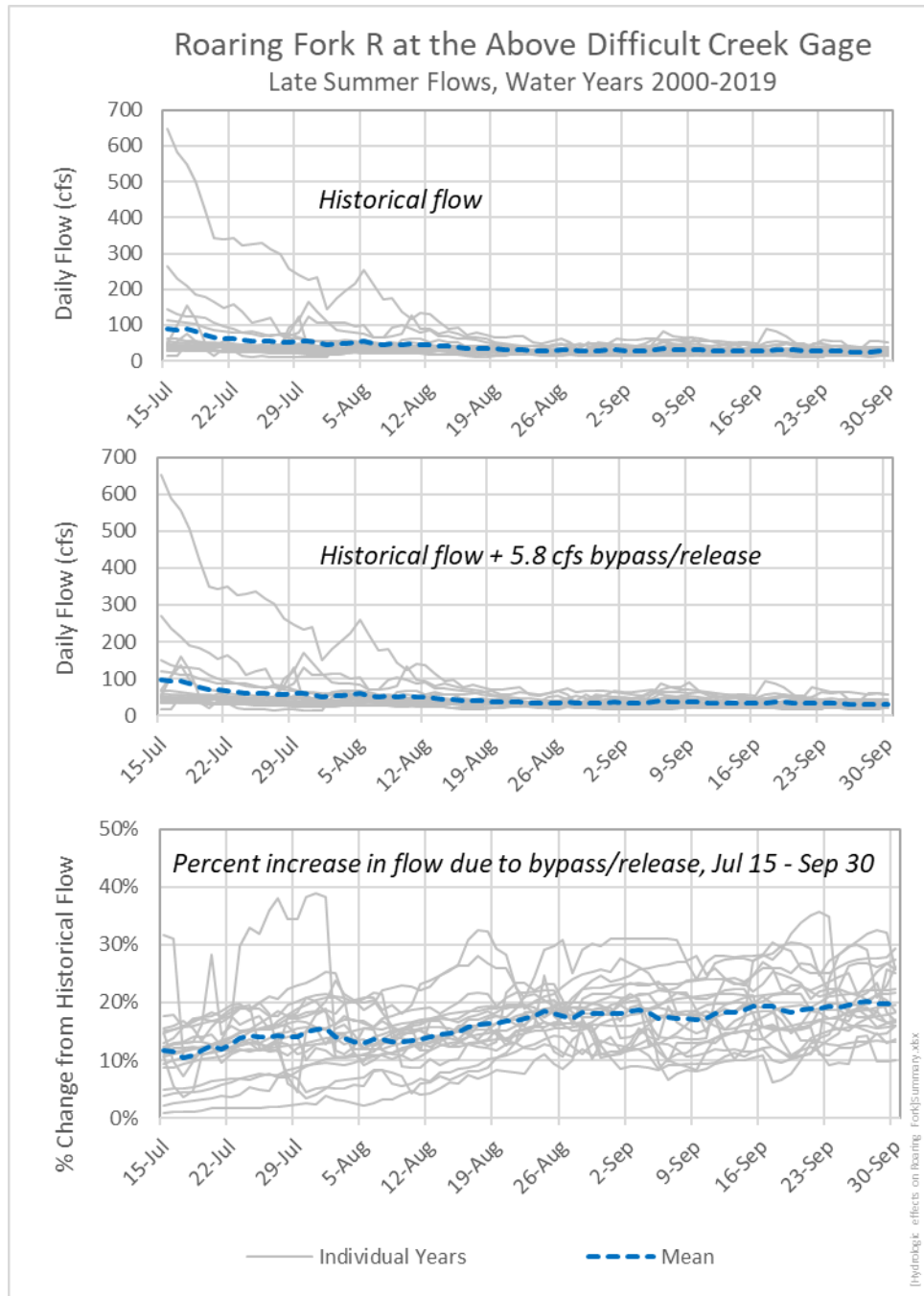


Figure 9-Flow with and without bypasses/releases, Roaring Fork above Difficult Creek.

Based on the 2000-2019 period, the analysis represented in Figure 9 shows bypasses and releases will increase the flow rate above Difficult Creek gage by 1 to 39 percent, with an average increase of 16 percent. Due to the falling limb of the runoff hydrograph, the percent increase in flows in the late summer (August) will be less than those in the early fall (September). When historical flows are very low, the bypass or release can result in a very large percentage increase, although that is not a regular occurrence. Similarly, when historical flows are high, the bypass or release would not result in a significant percentage increase in flows, and likely will be deferred to times when the bypasses or releases would be more beneficial. Because the Roaring Fork River is a gaining stream, the bypass or

release has less of an effect on the Roaring Fork at Aspen than it does above the Difficult Creek gage as shown in Figures 9 and 10.

Figure 10 shows the flow of the Roaring Fork near Aspen for both the historical flow with and without the bypass or release. Traditionally, more flow occurs near Aspen, resulting in less of a percent increase in flow from the bypass or release. The daily increases range from 1 percent to 34 percent, with an average increase of 13 percent.

CWCB holds a 1973 instream flow right (Case No. W-1945) for the Fryingpan River below Ruedi Dam to its confluence with the Roaring Fork River. The minimum instream flow is 36 cfs in the winter/spring (November 1 to April 30), and 110 cfs in the summer and fall (May 1 to October 31). The depletions resulting from the proposed Storage Contract will occur solely on the Fryingpan River, Ivanhoe Creek and Busk Creek, therefore, the remainder of the streamflow analysis focuses on those streams, as discussed below. Because of the bypasses, Lake Creek above Twin Lakes will be slightly less because of the 2018 MOU, and not because of this federal action.

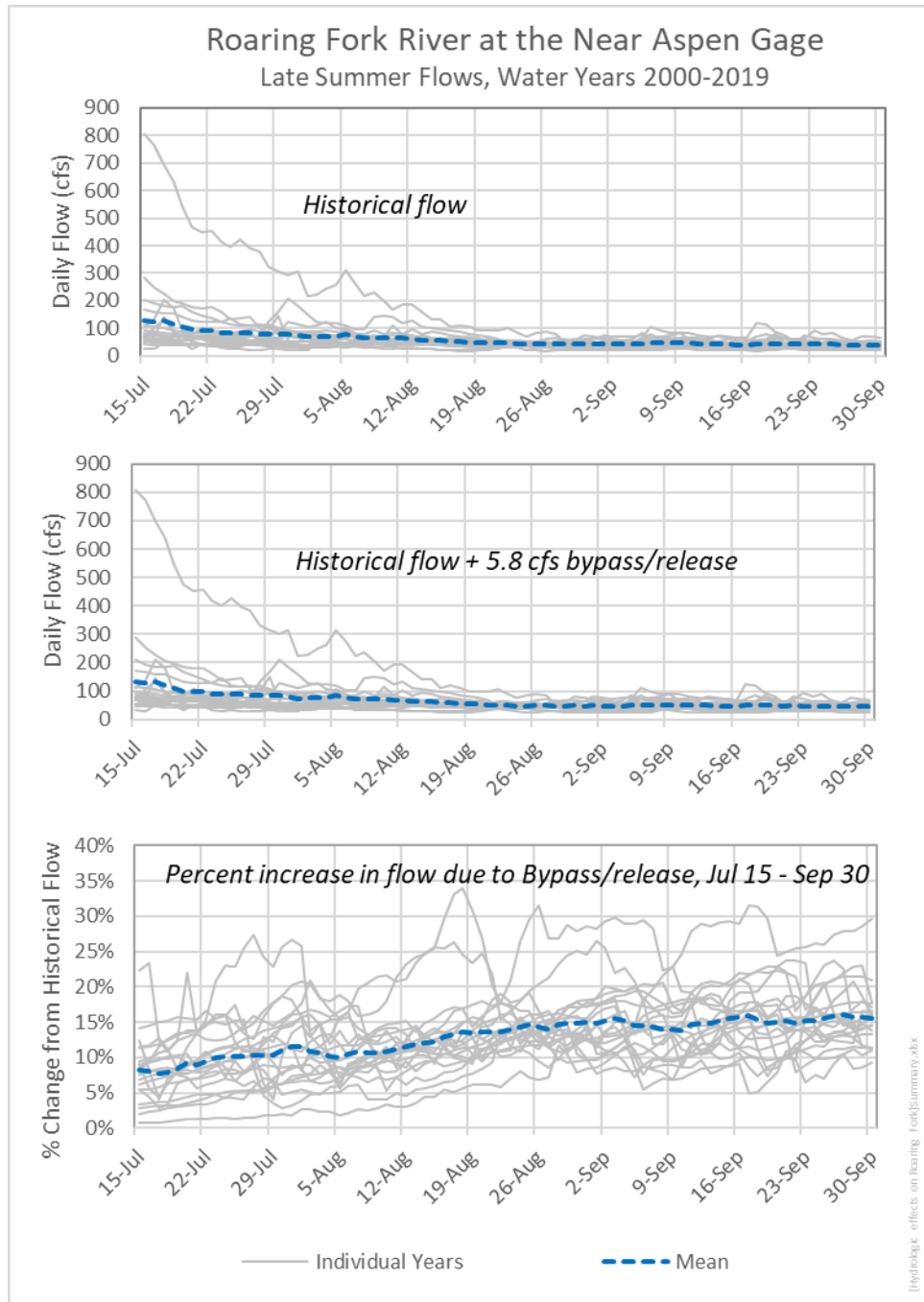


Figure 10-Flow with and without bypasses/releases, Roaring Fork near Aspen.

Fryingpan River— A Storage Contract will have different effects on the Fryingpan River above and below Ruedi Reservoir.

For the Fryingpan River between Ruedi Dam and its confluence with the Roaring Fork River, it is anticipated that flow could be reduced by up to 900 af each year during the July 15 to September 30 period, with the actual release rate and period determined by stakeholders each year. The analysis of hydrologic effects assumed exchange up the Fryingpan River to Ruedi Reservoir will be made from July 15 through September 30, at a rate of 5.8 cfs. The Ruedi Exchange may reduce late-summer

releases from the reservoir. Exchanges would not be made when it would result in flow below the decreed CWCB instream flow below Ruedi Reservoir (Case No. 73W1945).

Figure 11 shows the historical flow below Ruedi Reservoir with and without the Storage Contract (Ruedi Exchange), the reduced flow with the exchange, and the change in flow as a percentage of the historical flow for the 20-year period 2000-2019. The exchange into Ruedi would reduce flows between 0.5 and 9.7 percent, with an average daily reduction of 2.95 percent.

The Ruedi Exchange and Storage Contract would both be limited volumetrically to the 900 af/yr. Due to limited Exchange Potential to Ivanhoe Reservoir, 450 af of the water stored in Ruedi Reservoir would be released at a later time consistent with the uses permitted in Case No. W-1901. Because the timing of the bypasses or releases is presently unknown, the effects of the bypass or release on the Fryingpan River are not included here. However, operation of the Ruedi Exchange will reduce stream flows somewhat during periods of higher flows, retaining water in storage for release at later times, which is expected to benefit the City of Aspen's hydropower operations. Moreover, the moderation of fluctuations in stream flows is expected to benefit anglers. The decreases in flow during exchanges and increases during releases from storage are anticipated to have slight but beneficial effects on river fishing access and fisheries habitat. Pursuant to the 2018 IGA, when IPTDS bypasses or releases are made to benefit users or stream flows below the confluence of the Fryingpan and Roaring Fork rivers, operation of the Ruedi Exchange will also allow maximization of those benefits.

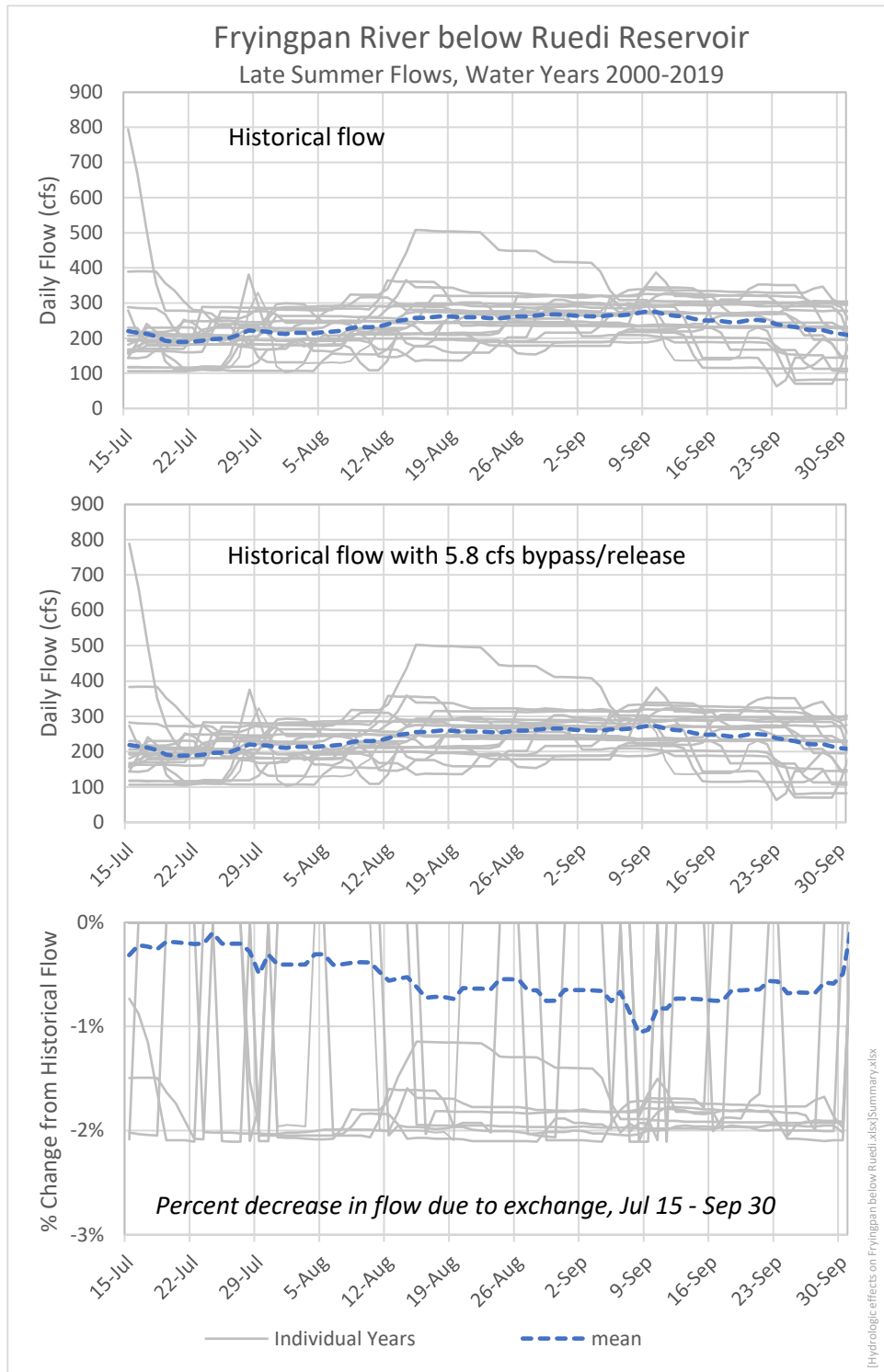


Figure 11-Flows in the Fryingpan River below Ruedi Reservoir, with and without Storage Contract (Ruedi Exchange), Fryingpan River below Ruedi Reservoir.

For the reaches of the Fryingpan River and Ivanhoe Creek between Ruedi and Ivanhoe reservoirs, operation of the contracted storage would also reduce flows, but at a different time and a lower total volume (450 af) than the Ruedi Exchange (900 af).

Because the Ivanhoe Exchanges typically will occur at different times of the year than the Ruedi Exchanges, IPTDS water would typically be stored in Ruedi Reservoir until the Ivanhoe Exchange can be operated. IPTDS water moved upstream via the Ivanhoe Exchange can either be stored in Ivanhoe Reservoir or diverted directly through the Ivanhoe Tunnel to the East Slope.

Effects on flows between Ruedi and Ivanhoe reservoirs are calculated in two places, one at the Fryingpan River Near Thomasville gage, and the other at the Ivanhoe Creek Near Nast gage. Because Ivanhoe Creek is tributary to the larger Fryingpan River, this reach of the exchange has the more limited Exchange Potential. The Ivanhoe Exchange is limited to 450 af/yr, and the annual volume of Exchange Potential frequently exceeds that amount (see Figure 15). Because the timing of the exchange is uncertain, the graphs for Thomasville and Nast gages show the Exchange Potential rather than the exchange. The timing of the actual exchange would likely vary by year.

As term and condition of the decree in Case No. 19CW3159 (Appendix B, ¶ 17.6.1), Aurora agreed to not exercise the Ivanhoe Exchange (exchange from Ruedi Reservoir into Ivanhoe Reservoir) when flows on the Fryingpan River at the Thomasville gage are less than the following levels, or to the extent that the exchange will cause such flows at the Thomasville Gaging Station to be less than the following levels, as established in the Operating Principles for the Fryingpan-Arkansas Project: October 1 through March 31 - 30 cfs; April 1 through April 30 - 100 cfs; May 1 through May 31 - 150 cfs; June 1 through June 30 - 200 cfs; July 1 through July 31 - 100 cfs; August 1 through August 31 - 75 cfs; September 1 through September 30 - 65 cfs. The Instream Flow rights decreed to the CWCW were based on, and are identical to the minimum flows established by the Operating Principles. To ensure the Thomasville gage flows are maintained, Aurora agreed to conditions in the 19CW3159 Decree (Appendix B, Paragraph 17.6.1) requiring that Aurora shall only exercise the exchange when the average Fryingpan River flow measured at the Thomasville gage on the day prior to the exchange is at least 15 cfs greater than the applicable flow level established in the Operating Principles. The period of analysis used for the Ivanhoe Creek near Nast gage was also 2013-2019.

While Exchange Potential varies greatly from day to day and year to year, based on data from 2013-2019, the Ivanhoe Exchange would be able to move up to 450 af into Ivanhoe Reservoir, including past the instream flow right at the Thomasville gage, by mid-June in approximately half of the years. Any anticipated changes in Ivanhoe Reservoir are discussed later in this section.

Figure 12 shows the potential changes in Fryingpan River flow at Thomasville gage during the Ivanhoe Exchange. The Ivanhoe Exchange can only occur when other senior water rights have been satisfied, including the Fry-Ark Project and CWCW instream flows for the Fryingpan River above Ruedi (Cases No. 73W1955 and 73W1948), and Ivanhoe Creek (Case No. 73CW1952).

Based on daily flows from April 1 to June 30 for 2013-2019, the reduction in flows at Thomasville would range between 0.1 and 8.0 percent, with an average annual reduction of 0.8 percent during the assumed exchange season. The effect of this decrease will be negligible, when the senior water rights described above are met.

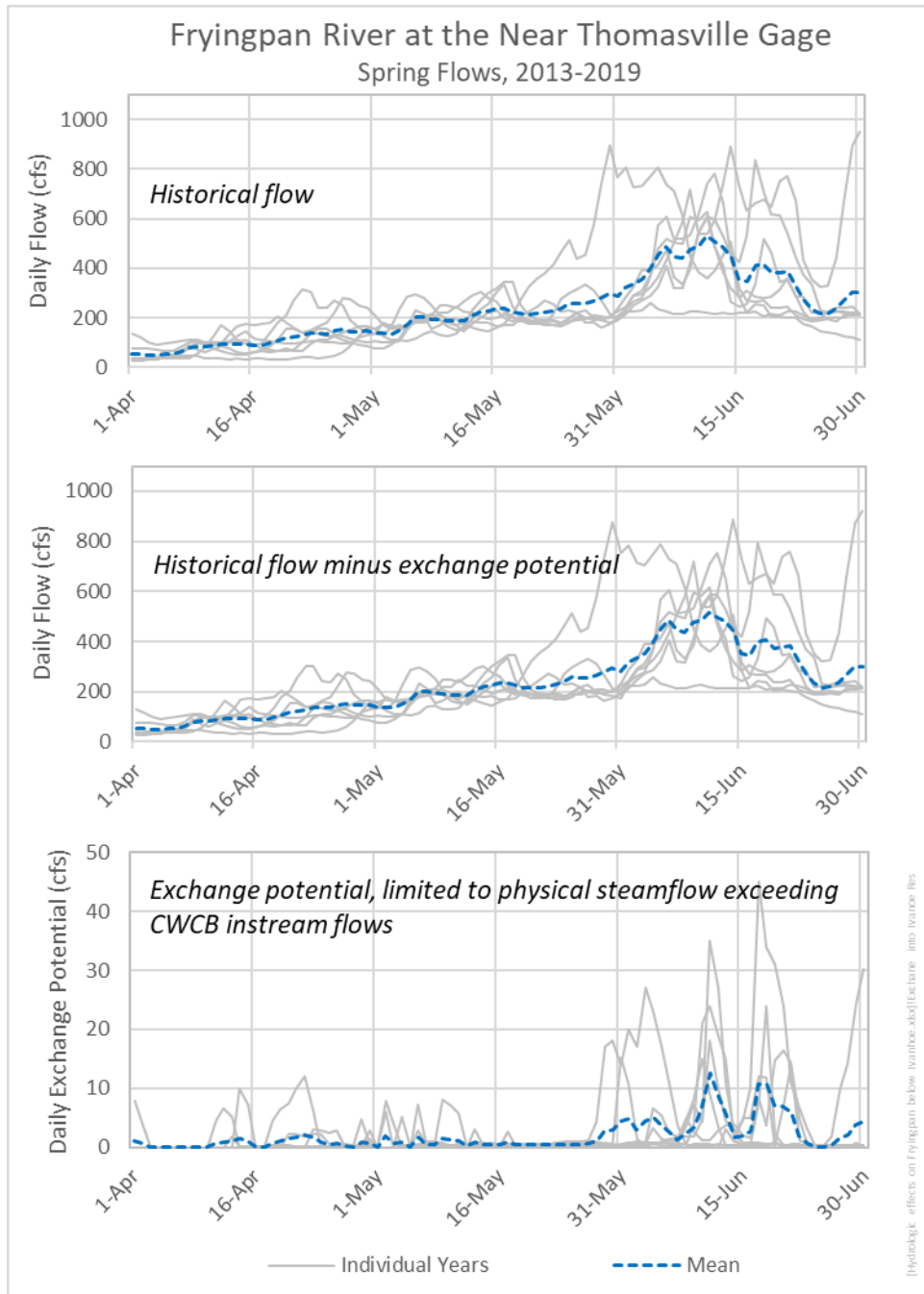


Figure 12—Flow in the Fryingpan River at the Near Thomasville gage, with and without Storage Contract (Ivanhoe Exchange), Fryingpan River at Thomasville.

Ivanhoe Creek—The Ivanhoe Exchange also affects flows in Ivanhoe Creek below Ivanhoe Reservoir. Figure 13 shows predicted changes in flows at the Ivanhoe Creek near Nast gage. There are no instream flow rights between Ivanhoe Reservoir and the Ivanhoe Creek Near Nast gage.

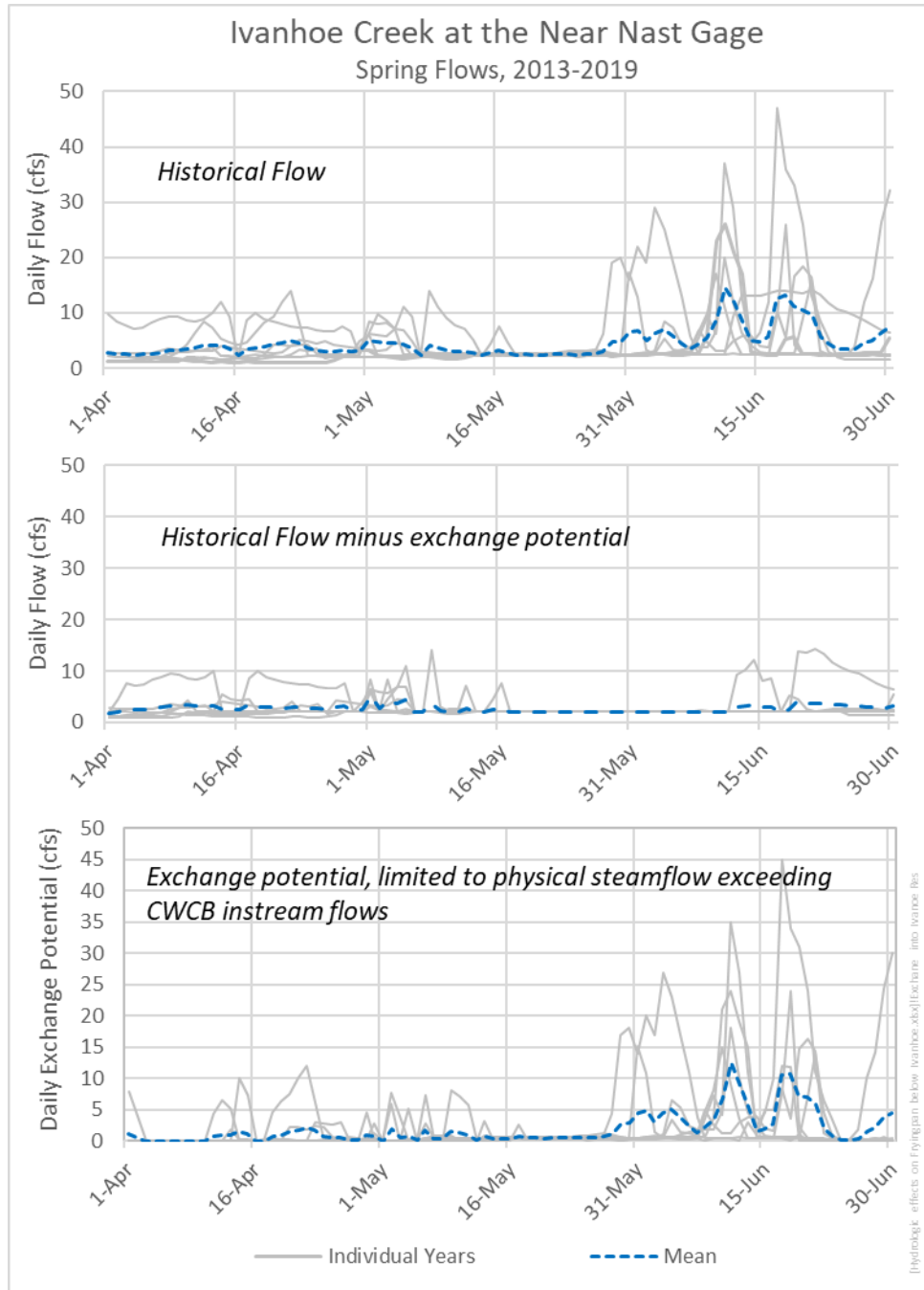


Figure 13-Flows in the Fryingpan River at the Near Nast gage, with and without Storage Contract (Ivanhoe Exchange), Ivanhoe Creek below Lake Ivanhoe.

A fundamental assumption in the Ivanhoe Exchange Potential calculation is that the Fry-Ark Project has diverted as much water as is physically and legally available and that the Ivanhoe Creek Near Nast gage historically records what is in excess of Fry-Ark Project demands. It should be noted that the historical records at the Ivanhoe Creek Near Nast gage may not represent more current Fry-Ark Project operations. Prior to 2007, gate changes were manually adjusted twice a day. After 2007, the gate was automated with a control station at the Chapman Diversion.

The Ivanhoe Exchange will decrease flows in Ivanhoe Creek below Lake Ivanhoe. Based only on the days the Ivanhoe Exchange is assumed to operate, the average flow at the Ivanhoe Creek near Nast gage in the April-June period is predicted to decrease 34 percent, with the largest decreases occurring in June. This exchange can only be operated when Fry-Ark Project and CWCB minimum instream flow rights are satisfied and will not be impacted. This is considered a moderate adverse effect of the Storage Contract. Another stipulation in the 19CW3159 decree (Appendix B, 17.6.2), states that exchanges shall not deplete the flows of Ivanhoe Creek at the Fry-Ark Project's diversion structure, to the extent that such flows are necessary to satisfy Fry-Ark Project diversions pursuant to Southeastern's decreed right to divert 150 cfs from Ivanhoe Creek (unless Southeastern's rights to divert 945 cfs through the Boustead Tunnel are fully satisfied), or to satisfy the Fry-Ark Project's required bypass flows on Ivanhoe Creek based on review of the context and intensity the effect is considered relatively minor.

Ruedi Reservoir and Ivanhoe Reservoir— The surface elevation of Ruedi Reservoir has historically fluctuated 40 and 60 feet in vertical elevation in most years. Under the Storage Contract, Ruedi Reservoir elevations could increase up to 1.2 ft in multiple years, with an average increase of 0.34 feet over the 39-year study period. Figure 14 shows the fluctuation over time of Ruedi Reservoir's historical water surface elevation and the contribution to that fluctuation expected to be caused by the Ruedi Exchange. Based on the 900 af of excess capacity contemplated in the Storage Contract and historic hydrology, the excess capacity account will fill about 25 percent of the time or 12 of 39 years. The average additional storage would be 520 af. This is considered a negligible impact.

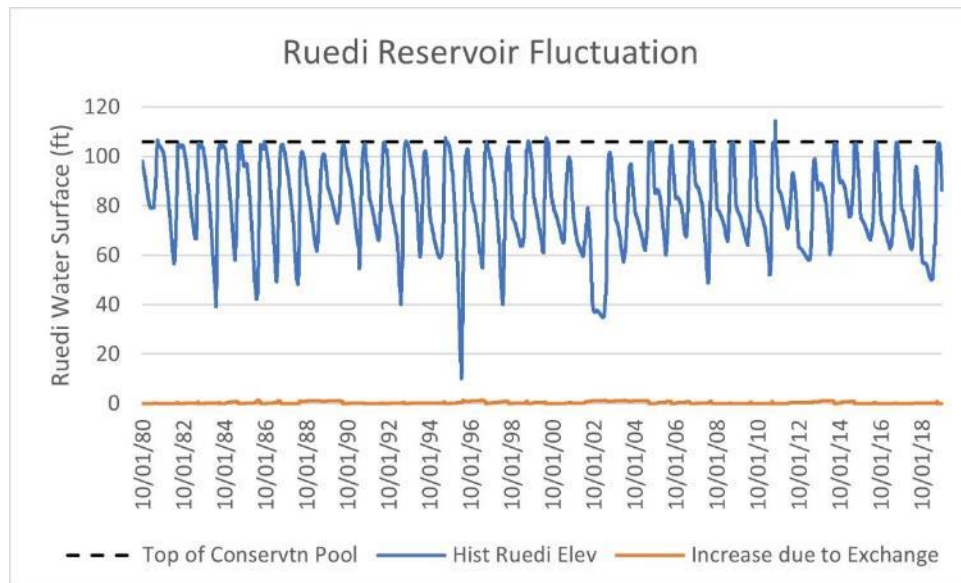


Figure 14-Ruedi Reservoir Historical Elevation and Fluctuation due to Storage Contract.

Only minor changes in Ivanhoe Reservoir under the Ivanhoe Exchange are predicted because any exchanged water would likely be moved immediately through the Ivanhoe Tunnel to Turquoise Lake. Figure 15 shows the daily exchange potential from Ruedi Reservoir to Lake Ivanhoe between April 1 and June 30, based on 2013-2019 hydrology. Exchange potential varies greatly from year to year but using the average flow of all of this period, the Ivanhoe Exchange would be able to move an average of 340 af to Lake Ivanhoe by the end of June, and could have moved all 450 af by mid-June in two of the seven years. The exchanged water would then be moved to Turquoise Reservoir through the Ivanhoe Tunnel and mixed with Aurora's other water rights.

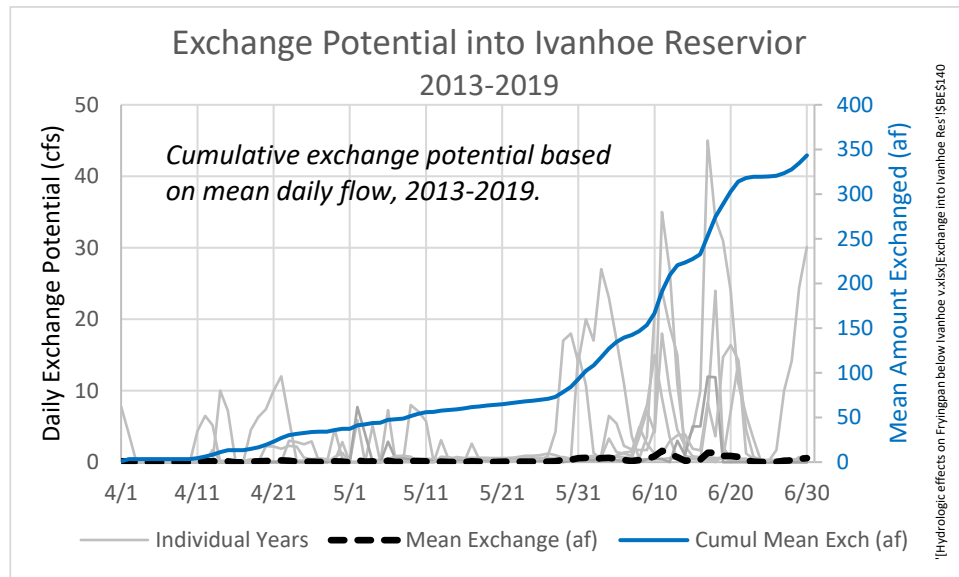


Figure 15- Exchange Potential into Ivanhoe Reservoir.

Table 3 below summarizes the estimated mean differences in flow/storage as measured at existing USGS and CDWR gaging stations between July 15 and September 30 for exchanges into Ruedi Reservoir, and April 1 through June 30 for exchanges into Ivanhoe Reservoir .

Table 4: Mean Differences in flow or storage elevation (as applicable).

Gage or Measuring Station	Difference	Percent Change
West Slope		
Roaring Fork River Near Aspen ¹	+5.8 cfs	13%
Fryingpan River below Ruedi	--5.5 cfs	2.9%
Fryingpan River near Thomasville	-2.1 cfs	0.8%
Ivanhoe Creek at Nast	-2.1 cfs	34%
Ruedi Reservoir	+0.3 ft	<1%
Ivanhoe Reservoir	0.0 ft	0%
East Slope		
Lake Creek above Twin Lakes ¹ (East Slope Stream)	-3.7 cfs	6.7%
Busk Creek	0.0 ft	0%

¹These changes would occur with or without the Storage Contract.

The 19CW3159 decree at Paragraph 17.6.4 requires that Aurora shall not take any actions that would require Reclamation to release additional uncontracted flows from Ruedi Reservoir or require Reclamation to increase Fry-Ark Project collection system bypasses to satisfy instream flow. Entry of a decree in this matter has no effect on the authority of the United States to regulate and/or deny use of Reclamation's facilities.

Paragraph 17.6.5 of the 19CW3159 decree also states that any water stored in Ruedi Reservoir pursuant to a contract with Reclamation, shall be subject to evacuation ("spilled"), including preemptive releases of water made prior to actual physical spills, upon the determination of Reclamation that the space in Ruedi Reservoir occupied by Ruedi Exchange water is needed for Project operations.

Paragraph 17.7 of the 19CW3159 decree also states Aurora will provide the Office of Division Engineer for Water Division 5, the Reclamation official operating Ruedi Reservoir, and the CWCB designated contact reasonable notice as described in the decree.

3.4.2 Water Rights

Surface water and groundwater administration and enforcement in Colorado are primary responsibilities of CDWR. Water rights are decreed and administered under the prior appropriation doctrine. Since 1969, groundwater rights have been administered with a recognition of the connection with surface water and every new well that diverts groundwater must have a permit (CDWR 2024).

Water rights in the Roaring Fork River Basin have been over-appropriated since May 22, 1981, and junior water rights rely on CDWR-approved augmentation plans for out of priority diversions or groundwater pumping to prevent injury to senior vested water rights. A large number of residences in Pitkin and Eagle counties receive water from private wells permitted and administered by CDWR.

The majority of permitted wells in the Project Area occur along the Roaring Fork River between Aspen and Glenwood Springs as shown in Figure 16 (CDWR 2024). A majority of these water users rely on existing Ruedi Reservoir water service contracts previously listed in Table 2 for augmentation.

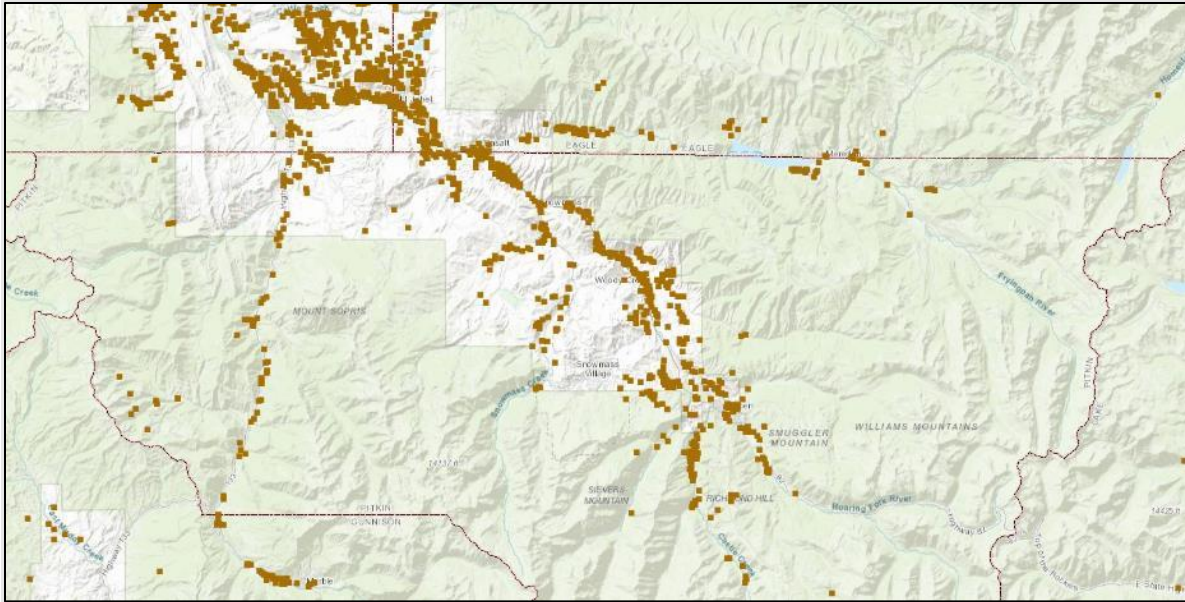


Figure 16-CDWR Permitted Wells³ within the Roaring Fork Basin.

The proposed Storage Contract is predicted to have no adverse effects on existing water rights in the Roaring Fork Basin. CDWR would administer exchanges into and out of Ruedi Reservoir based on senior water rights and CWCIB instream flows listed in Appendix C and discussed in Section 3.4.1. The Storage Contract has the potential to benefit both Aurora and West Slope entities. Bypassed or released IPTDS flows would be protected to the point of exchange as administered by CDWR. This would prevent junior water rights from diverting the bypasses or releases as they flow through Lincoln Creek and the upper Roaring Fork River. When the portion of the water exchanged into Ruedi Reservoir and not exchanged further upstream (approximately 450 afy) is released from Ruedi Reservoir, such releases may be used to meet the needs of West Slope users whose needs include augmentation releases for out of priority junior water rights and well pumping or instream flows, among other uses. However, with or without the Storage Contract, Aurora's IPTDS flows are bypassed or released in the Upper Roaring Fork River per the 2018 IGA. The Storage Contract allows a portion of the bypassed or released flows to be recaptured, stored, and exchanged or released when needed. This is considered a "win-win" benefit for both Aurora and West Slope entities.

In Colorado, Designated Groundwater Basins are areas in the eastern plains of Colorado with very little surface water where users rely primarily on groundwater as their source of water supply.

Designated groundwater rights are administered by CDWR separately from water rights outside the Designated Basins (CDWR 2024). About 95 percent of Aurora's water supply comes from surface water and 5 percent from groundwater with some of the sources from non-renewable bedrock groundwater from the Denver Basin aquifers which include the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers that occur outside the Project Area. The Storage Contract provides

³ Data accessed from CDWR's Website at: <https://maps.dnrgis.state.co.us/dwr/Index.html?viewer=dwrwellpermit>.

increased operational flexibility of Aurora’s surface water sources and would benefit the non-renewable ground water resources by reducing the need to pump groundwater to meet current and future water demands.

3.5 Water Quality

The Colorado Department of Public Health and Environment administers water quality programs in Colorado. The Water Quality Control Commission adopts regulations that define water quality standards for lakes, streams, and wetlands. Regulation No. 31 (5 CCR 1002-31) defines basic standards and methodologies for surface water quality in Colorado.

Regulation No. 33 (5 CCR 1002-33) includes the classifications and numeric standards by segment for the Upper Colorado River Basin and identifies the actual beneficial uses protected by the numeric standards—called “designated uses”—of the water. Stream classifications for reaches in the Project Area and impacted by the Proposed Action are listed below.

Regulation No. 31 (5 CCR 1002-31.13) provides the definitions for classification according to the uses, which are presently suitable or intended to become suitable.

Stream and lake water quality segments in the Project Area include the following list (Figure 17).

COUCRF01-All tributaries to the Roaring Fork River, including all wetlands, within the Maroon Bells/Snowmass, Holy Cross, Raggeds, Collegiate Peaks and Hunter-Fryingpan Wilderness Areas.

COUCRF03A-Mainstem of the Roaring Fork River, from a point immediately below the confluence with Hunter Creek, to a point immediately below the confluence with the Fryingpan River. All tributaries to the Roaring Fork River, including wetlands, from a point immediately below the confluence with Hunter Creek to the confluence with the Colorado River, except for those tributaries included in Segment 1, 3b, 4-10b.

COUCRF03C-Mainstem of the Roaring Fork River from a point immediately below the confluence with the Fryingpan River to the confluence with the Colorado River.

COUCRF05-Mainstem of the Fryingpan River from the source to the confluence with the North Fork Fryingpan River, except for the portion included in Segment 1.

COUCRF06-Mainstem of the Fryingpan River from the confluence with the North Fork Fryingpan River to the confluence with the Roaring Fork River.

COUCRF07-All tributaries to the Fryingpan River, including all wetlands, from the source to the confluence with the Roaring Fork River, except those tributaries included in Segment 1.

COUCRF11-All lakes and reservoirs tributary to the Roaring Fork River within the Maroon Bells/Snowmass, Holy Cross, Raggeds, Collegiate Peaks and Hunter-Fryingpan Wilderness Areas.

COUCRF12-All lakes and tributaries to the Roaring Fork River, except for the specific listings in Segment 11. COUCRF12 includes an additional classification of Direct Use Water Supply and is defined as water supply lakes and reservoirs where there is a plant intake located in the lake or reservoir or a man-made conveyance for the lake or reservoir that is used regularly to provide raw water directly to a water treatment plant that treats and disinfects raw water.

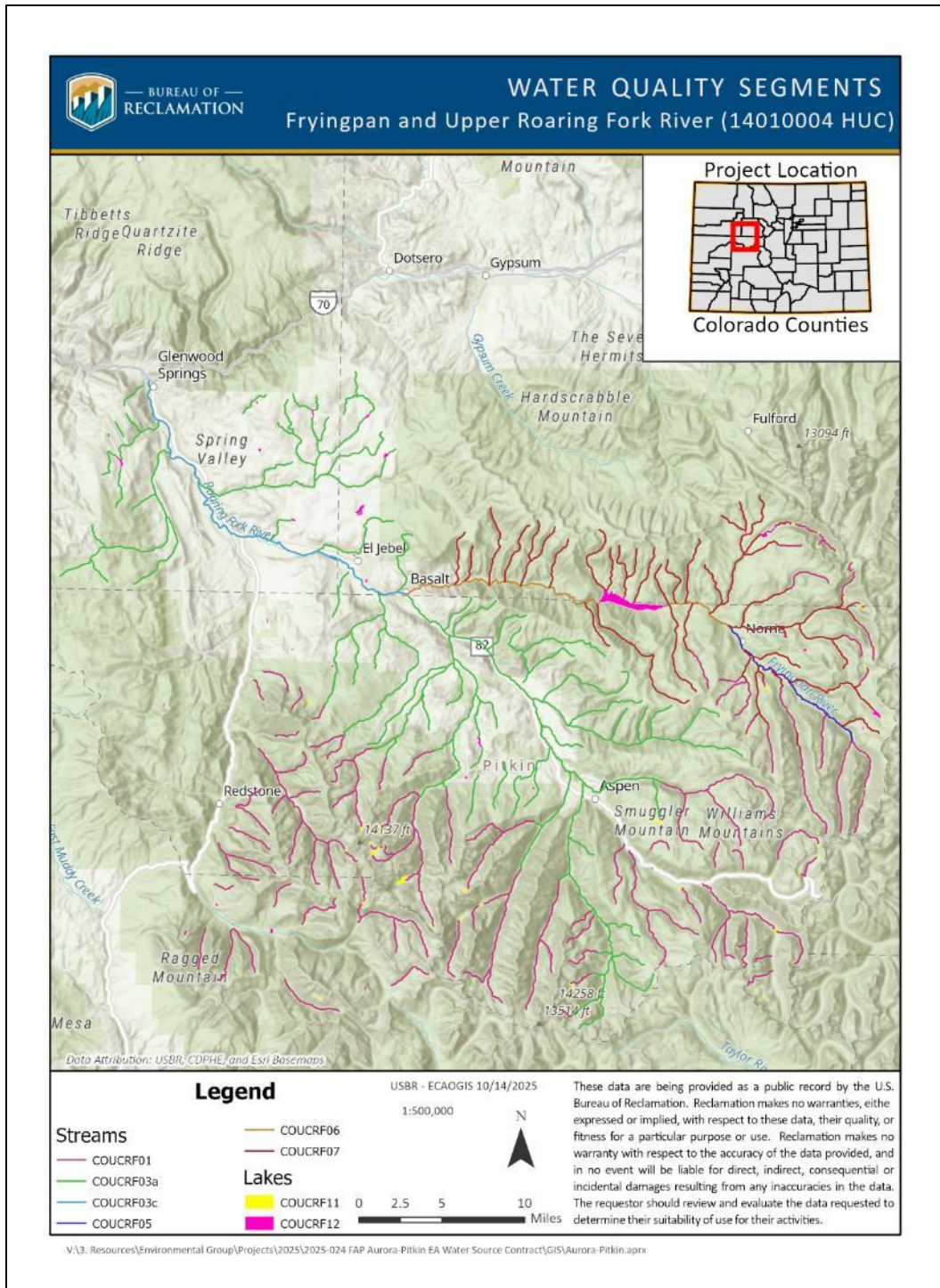


Figure 17: Water quality segments

The regulations also include an antidegradation rule to ensure that water quality is not degraded unless degradation is allowed, while protecting existing uses. Colorado's antidegradation designations are divided into three use tiers.

Use-Protected Water: Degradation may be allowed so long as the designated use of the water (drinking, aquatic life, recreation, and agriculture) is protected.

Reviewable Waters: Includes some antidegradation protections and requires an extra level of review to maintain water quality. No significant degradation is allowed.

Outstanding Waters: Provides the greatest amount of antidegradation protection and existing water quality must be maintained. Includes strict antidegradation protections.

COUCRF01 is designated as Outstanding Waters and includes both Lincoln Creek from Grizzly Reservoir to the confluence with the Roaring Fork River, and Grizzly Creek used for bypasses of the Aurora's IPTDS water. No Outstanding Waters occur within or downstream of the proposed Ruedi and Ivanhoe exchanges and the Fryingpan River and Ivanhoe Creek. All of the segments listed above are designated as Reviewable Waters.

With the exception of COUCRF11, all of the segments listed have designated uses and classifications of:

Agriculture: These surface waters are suitable or intended to become suitable for irrigation of crops usually grown in Colorado and which are not hazardous as drinking water for livestock.

Aquatic Life Cold 1: These are waters that (1) currently are capable of sustaining a wide variety of cold-water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions. Water shall be considered capable of sustaining such biota where physical habitat, water flows or levels, and water quality conditions result in no substantial impairment of the abundance and diversity of species.

Recreation E: Existing Primary Contact Use. These waters are used for primary contact recreation or have been used for such activities since November 28, 1975.

Water Supply: These surface waters are suitable or intended to become suitable for potable water supplies. After receiving standard treatment (defined as coagulation, flocculation, sedimentation, filtration, and disinfection with chlorine or its equivalent) these waters will meet Colorado drinking water regulations and any revisions, amendments, or supplements thereto.

Several water bodies in the Project Area are water quality limited (i.e., impaired) and included on Colorado's 303(d) List of impaired waters. There are no impaired water bodies in the Project Area that are under a Total Maximum Daily Load (TMDL). A TMDL is a water quality target or plan that identifies pollutant sources and allocates loads to the contributing sources, both point and nonpoint.

A TMDL is developed to address a water quality impairment, defined according to whether the stream meets water quality standards. Additional information on TMDLs can be found at: <https://cdphe.colorado.gov/total-maximum-daily-loads-tmdl>.

A recent investigation (Tera Tech 2023) documents the baseline conditions of elevated metals concentrations in Lincoln Creek above Grizzly Reservoir. Evidence from sampling demonstrated significant aquatic life water quality exceedances related to copper in portions of Lincoln Creek and Grizzly Reservoir. The investigation identified two metals-laden discharges in the vicinity of Ruby Mine as contributing to increased metal concentrations. One source was directly from the Ruby Mine portal, the other from the mineralized tributary that originates from a steep sloped valley above the Ruby Mine area and was determined to be of natural origin. The report concluded that while historical mining does appear to play a role in some of the impacts to Lincoln Creek, all data and observations point to natural sources as the major component of metals loading into Lincoln Creek. Ruby Mine's overall contribution to metal loading into Lincoln Creek when compared to naturally occurring sources is very small. Although the mineralized tributary has an effect on water quality and associated impacts, EPA is not authorized to remediate elevated metals concentrations from naturally occurring sources.

CPW (2025) made a preliminary determination that the cause of a fish kill in 2025 at Grizzly Reservoir was due to several contributing factors including deteriorating water quality entering Grizzly Reservoir from Lincoln Creek, rising water temperatures, and the loss of a clean water source due to naturally declining hydrology in the Upper Roaring Fork basin.

Any releases or bypass flows from Grizzly Reservoir have the potential to increase metal load downstream in Lincoln Creek below Grizzly Reservoir and the Roaring Fork River. Conversely, when IPTDS bypass flows are made from Lost Man Creek, upstream of the Roaring Fork River's convergence with Lincoln Creek, these flows would provide for additional dilution downstream. All IPTDS bypasses would occur independently of the Storage Contract in both the No Action and Proposed Action alternatives and any potential increases or decreases in the water quality in the Roaring Fork River and Lincoln Creek would not be attributed to the Storage Contract.

Based on predicted changes in releases from Ruedi Reservoir and Ivanhoe Creek as previously discussed in Section 3.4.1, negligible changes in water quality may occur in the Fryingpan River, Ruedi Reservoir, Ivanhoe Creek, or Ivanhoe Reservoir. As discussed in the project description and surface water resources analysis, exchanges would only occur when bypasses are occurring there are adequate stream flows to allow the exchanges to occur when senior water rights are being satisfied including CWCB minimum instream flows and there is available space in the reservoirs.

3.6 Cultural Resources and Indian Trust Assets

3.6.1 Historic Properties

No construction activities or development are associated with Storage Contract. The contract will rely on use of existing facilities, infrastructure, and reservoir storage. All releases from Ruedi

Reservoir and Ivanhoe Reservoir dam will be made to the Fryingpan River within historic release ranges in the existing river channel.

Reclamation and the Colorado State Historic Preservation Office entered into a Programmatic Agreement (PA) for Reservoir Operations and Storage Contracts on January 23, 2007, pursuant to National Historic Preservation Act. The PA states there is a theoretical possibility of effects at non-Eastern Colorado Area Office reservoirs. However, Reclamation determined the effects will occur with or without the water contracts. The PA allows for implementation of the Storage Contract without further consultation when the expected changes will not exceed the existing high and low pool levels originally established (Reclamation 2007b and 2009). The PA was extended on January 20, 2017, for another 10 year-period.

3.6.2 Indian Trust Assets

Indian trust assets are legal interests in property held in trust by the United States for Indian tribes or individuals. The Secretary of the Interior acts as the trustee and all Department of the Interior agencies share the Secretary's duty to act responsibly to protect and maintain Indian trust assets reserved or granted by the United States to Indian tribes or individuals by treaty, statute, and executive orders. Examples include lands, minerals, hunting and fishing rights, and water rights. No Indian trust assets have been previously identified through government-to-government consultations associated with Fry-Ark Project facilities in the Roaring Fork River Basin.

In accordance with NEPA and related laws, Executive Order 14096, DOI Department Manual 7-Departmental Responsibilities for Consideration and Inclusion of Indigenous Knowledge in Departmental Actions and Scientific Research, and other regulations and policies, Reclamation identified three tribes within the Roaring Fork River Basin culturally affiliated with the study area. The Ute people are the oldest residents of Colorado, inhabiting the mountains and vast areas of Colorado, Utah, Wyoming, Eastern Nevada, Northern New Mexico, and Arizona (Southern Ute Tribe 2024). There are seven bands of Utes that comprise three Indian Tribes. The Southern Ute (Mouache and Caputa bands) and Ute Mountain Ute (Weenuchiu band) reservations are located in southwestern Colorado. The Ute Tribe of the Uintah and Ouray Reservation (Tabeguach, Grand, Yampa and Uintah bands) are located in Northeastern Utah.

The three Ute Tribes hold hunting and fishing rights under the 1874 Brunot Agreement. The Tribes ceded a large portion of their 1868 reservation and the federal treaty allowed the Ute Indians to "hunt upon said lands so long as the game lasts and the Indians are at peace with the white people". The ceded area is located in Colorado and includes about 3.7 million acres of the San Juan Mountains in Southwestern Colorado. The proposed Storage Contract will have no effect on tribal hunting and fishing rights, or the Brunot Agreement area located southwest of the Project Area.

Reclamation sent letters to the Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and The Ute Tribe of the Uintah and Ouray Reservation. The tribal consultation period ended on April 9, 2026 with no responses.

3.7 Socioeconomics

Table 5 includes income/poverty statistics across the counties and municipalities located in the Project Area. Poverty rates for Carbondale (13.2 percent) are higher than the State of Colorado (9.4 percent) (United States Census Bureau 2024).

Table 5: Income and Poverty Data

County or City	River Basin	2020 Population	Median Household Income (USD)*	Persons in Poverty (%)
Pitkin County	Roaring Fork & Fryingpan River	17,358	\$96,123	6.7%
City of Aspen	Roaring Fork River	6,741	\$94,338	6.4%
Eagle County	Roaring Fork & Fryingpan River	55,285	\$98,887	7.2%
El Jebel Census Designated Place	Roaring Fork	4,130	\$120,278	9.4%
Town of Basalt	Fryingpan River	3,984	\$103,049	5.4%
Garfield County	Roaring Fork River			
Town of Carbondale	Roaring Fork River	6,434	\$92,083	13.2%
City of Glenwood Springs	Roaring Fork River	9,963	\$80,806	8.5%
State of Colorado		5,773,714	\$89,302	9.4%

*In 2022 dollars (2018-2022).

Ruedi Reservoir was constructed as part the Fry-Ark Project to provide compensatory storage on the West Slope. Existing water contracts under Ruedi Reservoir Water Marketing Program (Ruedi Rounds I and II listed Table 2 in Section 3.4.1) for Fry-Ark Project water provide substantial economic benefits to the West Slope. Receipts from the sale of water from Ruedi Reservoir are applied to pay for construction and operation and maintenance costs. The final Ruedi Reservoir construction payment was made in 2019.

Development of new water supplies for municipalities has become increasingly expensive as Front Range communities try to meet projected water demands associated with future growth. A recent feasibility study for the South Platte River Basin (SPROWG 2020) estimated capital construction costs to develop additional raw water supplies for the South Platte River Basin range from \$25,800 to \$33,400 per acre-foot for a 50-year life-cycle cost including operation and maintenance. A Denver Metro Demand Gateway was considered at the Prairie Water Project North Campus and assumed that, if supply could be delivered to store at this general location, it could be conveyed to water users such as Denver, Aurora, South Metro Water Supply Authority members, and Brighton. For comparison purposes, the 2020 feasibility study's estimated costs are used to estimate Aurora's costs to replace the 450 af of Aurora's IPTDS water that could not be exchanged, absent the Storage Contract. The estimated costs would be between \$11.61 million and \$15.03 million.

The Roaring Fork Conservancy District and Colorado State University completed studies (Shields et al. 2015, Crandall 2002) for the lower Fryingpan River and Ruedi Reservoir to look at the economic

impact of recreational fishing for the Fryingpan Valley and Pitkin, Eagle, and Garfield counties. Although somewhat dated, the studies looked at linkages in the economy considering the economic impact of recreational fishing is not just limited to direct effects. Recreational expenditures are also linked to other related indirect and induced effects, and when combined with direct effects create a multiplier effect of visitor spending on the local economy. A total of 684 visitors of the lower Fryingpan River and Ruedi Reservoir were surveyed regarding satisfaction levels and preferences, trip-related expenditures, water level influence on visitation patterns, and to provide an open-ended forum for comments (Crandall 2002). This survey was part of a broader study, to understand and define the recreational activities and values, hydrologic conditions, water demands, and aquatic ecosystem health within the context of management of Ruedi Reservoir.

Surveys conducted in 2014 identified that anglers on the lower Fryingpan River traveled in average groups of three with an average trip of 4.3 days. Non-local anglers' average daily expenditure was \$100.88, with higher values in the summer months, translating to total estimated total expenditures for the year of \$3.3 million, \$3.8 million in output, 38 jobs, and \$2.4 million in value added to the three-county region.

For Ruedi Reservoir, anglers traveled in average groups of five with the average daily local angler expenditure of \$18.41 and total expenditures of \$144,237. This translated to \$145,326 in output, 1.2 jobs and \$91,009 in added value. This was less than 4 percent of the estimated economic output derived from fishing activities in the lower Fryingpan River.

For the Roaring Fork River, no specific economic impact study for the Upper or Lower Roaring Fork River specific to recreational fishing was available. However, the Colorado River Outfitters Association (2023) reported 1,541 commercial river rafting user days on the Roaring Fork River above Basalt, and 655 commercial user days below Basalt. The estimated commercial rafting economic impacts for the Roaring Fork River were \$572,918 and \$243,415, respectively. For the period from 1999 to 2022, commercial user days have greater variation in both reaches between years; ranging from 112 user days in 2012 to 6,751 user days in 2019 for the Roaring Fork River above Basalt and 10 user days in 2006 to 7,245 in 2019.

Under both the Storage Contract and the No Action alternative, IPTDS bypass rates, with a maximum bypass of 31.25 cfs, will be developed on an annual basis primarily in the later summer or early fall and increase flows in the Upper Roaring Fork River potentially increasing economic benefits from fishing and boating in the upper reach of the Roaring Fork River. However, when exchanges facilitated by the Storage Contract occur from the Roaring Fork River up to Ruedi Reservoir, flows in the Fryingpan River will be reduced by an equal amount. This could result in a slight increase in the frequency of desirable wading flows in the Lower Fryingpan River days under certain hydrological conditions when flows drop below 250 cfs. However, benefits are predicted to be negligible.

No adverse impacts, but possibly negligible beneficial impacts, to recreation are anticipated as discussed later in Section 3.11 for recreation. Therefore, the Proposed Action is predicted to result

in no measurable changes in economic benefits derived from recreation activities on the Fryingpan and Roaring Fork River or associated with Ruedi Reservoir.

3.8 Hydropower

Hydropower production is an authorized purpose of the Fry-Ark Project with the Reclamation owned Mount Elbert Powerplant. The Mount Elbert Powerplant generates electricity when water is released from Turquoise Reservoir to Twin Lakes Reservoir via the Mount Elbert Conduit (see previous Figures 1 & 2). Water can also be pumped back up to the Mount Elbert Forebay from Twin Lakes Reservoir during periods of low energy demand and then used to generate additional electricity during periods of high demand. The powerplant's two turbines generate up to 100,000 MW each and are operated in reverse when pumping water back up to the Mount Elbert Forebay.

In addition, there are two small Federal Energy Commission (FERC) licensed powerplants on the Fry-Ark Project. The City of Aspen operates 5 MW plant below Ruedi Dam (Ruedi Powerplant) which operates as a “run of the river” hydropower facility (FERC Project No. 3603). STS Hydro, LLC (Renewable World Energies, LLC) operates a 2.5 MW powerplant (Sugarloaf Powerplant) on the Mount Elbert Conduit below Sugarloaf Dam (FERC Project No. 3819). This is also a “run of river” facility that can generate power when Reclamation releases water from Turquoise Dam through the Mount Elbert Conduit. Neither of the FERC powerplants holds water rights, and the plants cannot call for water releases.

3.8.1 Storage Contract

Under the Storage Contract, up to 900 afy of IPTDS's water is exchanged to Ruedi Reservoir and then up to 450 afy to Ivanhoe Reservoir and conveyed to Turquoise Reservoir via Ivanhoe Tunnel. The IPTDS water moved to Turquoise Reservoir is then conveyed through the Mount Elbert Conduit and returned to Twin Lakes Reservoir and is available for power generation at both the Sugarloaf and Mount Elbert Powerplants prior to being delivered to Aurora. However very small, the storage contract results in additional power generation potential at both Sugarloaf and Mount Elbert powerplants.

Estimating changes in any power generation at Ruedi Powerplant is a little more complex because bypassed or released IPTDS flows from the Roaring Fork are exchanged into Ruedi Reservoir. Aurora has committed to a maximum exchange rate of 31.25 cfs, which is equal to its 5-percent pro-rata share of the 625 cfs capacity of the Twin Lakes Tunnel No. 1 (Appendix B). The actual exchange rate may be less, depending on Exchange Potential, available space in Ruedi Reservoir, and other existing restrictions (environmental commitments, CWCBC instream flow requirements, and other agreements).

Each year Aurora will meet with Pitkin County, Colorado River Water Conservation District, and the Twin Lakes Company to develop a bypass schedule. The exact timing of the bypass will be determined on a year-by-year basis but is generally expected to occur in the late summer or early fall (July, August, and September) and may not occur in every year, based on seasonal hydrology. When the bypasses are made, Aurora will work with the Division Engineer to determine if there is

Exchange Potential from the Roaring Fork River up to Ruedi Reservoir, with the City of Aspen to determine if exchanges can be made without impacting Ruedi Powerplant's hydroelectric operations, and with Reclamation to determine if there is space available in Ruedi Reservoir to store the water.

Releases from Ruedi Dam are first made through the powerplant and any dam releases above powerplant capacity are made directly to the Fryingpan River through the main outlet works that has a capacity of 1,750 cfs. Additional releases can also be made through an axillary outlet works which has a capacity of 600 cfs.

High Country Hydrology, Inc.'s analysis (2025) of historical flows below Ruedi Reservoir between 1981-2019 assumes dam releases would need to be in excess of 250 cfs for an exchange to occur. As mentioned previously the maximum exchange rate would be 31.25 cfs.

The Ruedi Hydropower Plant has an operating range between 35 and 300 cfs based on the General Electric hydraulic reaction turbine design criteria dated May 7, 1984. The powerplant normally operates when flows through the powerplant are between 40 and 250 cfs and powerplant operations are "run of the river" with dam releases regulated to address other environmental concerns, primarily fisheries and angler access.

Aurora's commitment to work with the City of Aspen to determine if exchanges can be made without impacting Ruedi Powerplant operations is included in the 2018 IGA. It is considered an environmental commitment and will be incorporated as a contract requirement to mitigate potential negative impacts to power generation that could result from the exchange and Storage Contract.

3.9 Threatened and Endangered Species

3.9.1 Upper Colorado River Endangered Fish Recovery Program

Ruedi Reservoir plays a significant role in recovery actions associated with four Colorado River endangered fish (Colorado pikeminnow, razorback sucker, humpback chub and bonytail).

Designated critical habitat for these species near Rifle, Colorado starts about 19 miles downstream of the Roaring Fork and Colorado River confluence. Ruedi Reservoir operations have been the subject of multiple ESA Section 7 consultations since establishment of the Upper Colorado River Endangered Fish Recovery Program (Recovery Program) in 1988. Additional information on the Recovery Program can be accessed at: <https://coloradoriverrecovery.org/uc/>.

The U.S. Fish and Wildlife Service (2025) determined that the Recovery Program is making sufficient progress and continues to avoid the likelihood of jeopardy resulting from depletion impacts of new projects that have an annual depletion of up to 4,500 af. The Recovery Program's sufficient progress continues to avoid jeopardy for water projects and depletions and provides ESA compliance for some 2,203 projects depleting more than 2.86 million af of water per year.

The U.S. Fish and Wildlife Service's 15-Mile Reach programmatic biological opinion (Service 1999a) provides ESA Section 7 compliance for operations and depletions associated with the Fry-Ark Project, other Reclamation Projects, other depletions, and funding and implementation of Recovery

Program actions in the Upper Colorado River above the confluence with the Gunnison River. In the amended 1995 biological opinion for Ruedi Reservoir Round II Water Sales (Service 1999b), Reclamation was to provide 21,650 af from Ruedi Reservoir for a period of 15 years through agreements.

The 15-Mile Reach programmatic biological opinion (PBO) took precedence over the 1999 Ruedi Reservoir biological opinion and did not require additional commitments of water from Ruedi Reservoir. Reclamation's 21,650 af commitment was reduced in half when the water users began providing 10,825 af per year. The water users' 10,825 af per year commitment is divided equally between East Slope and West Slope water user entities. Please see Section 3.4.1 for additional details regarding Ruedi Reservoir operations, contracts, and agreements associated with ESA compliance. The Storage Contracts will have no effect on the four Colorado River listed fishes or their downstream designated critical habitat.

3.9.2 Endangered Species Act Listed Species

On January 29, 2024, Reclamation requested an official list of threatened and endangered species that may occur in the Project Area or may be affected by the proposed Storage Contract. The Service through its Information for Planning and Consultation (IPaC) website (Service 2024c) identified 14 threatened, endangered, proposed, and candidate species and proposed and final designated critical habitats with potential to occur in the Project Area (Table 6).

For the purposes of meeting ESA Section 7 requirements, this EA serves as the biological assessment and effects analysis for listed species.

3.9.3 Storage Contract

No construction activities or direct changes in land use occur under both the proposed Storage Contract. Potential effects to federal ESA, state listed, and other species are limited to the existing stream channel and reservoir footprints, therefore the Proposed Actions will have no effect on non-aquatic dependent species described in Table 6.

Effects on aquatic dependent species are evaluated and discussed below based on the predicted streamflow and reservoir elevation changes discussed in the Water Resources Section of this Chapter. All predicted changes in streamflow and reservoir elevations would be the direct result of operational changes associated with the Storage Contract and would be confined to the existing stream channel or historical reservoir elevations.

Table 6: Federally-listed ESA and other Sensitive Species

Common Name	Scientific Name	Status ¹	Habitat Association	Aquatic Habitat Dependent Species	Effects Determination
Gray Wolf	<i>Canis lupus</i>	FE SE	Includes temperate forests, mountains, tundra, taiga, and grasslands. This includes a non-essential experimental Colorado population for a grey wolf reintroduction program on the West Slope of Colorado.	No	No effect
Canada Lynx	<i>Lynx canadensis</i>	FT SE	Prefer coniferous forests with many different tree sizes with a thick dense understory. The primary prey species is the snowshoe hare.	No	No effect
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	FT ST	Old-growth or mature forest and canyons with riparian or conifer communities. Critical habitat has been designated within the Arkansas River Basin.	No	No effect
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	FT SC	Riparian corridors, preferring multiple vegetation layers and in Colorado with cottonwoods forming the most likely upper story. Currently nesting in low to moderate elevations in arid to semiarid landscapes.	Yes, riparian obligated	No effect
Bonytail	<i>Gila elegans</i>	FE SE	Colorado River and major tributaries. Designated critical habitat occurs downstream in the Colorado River	Yes	No new depletions associated with the Project Action. Historical depletion effects addressed in prior Section 7 consultations.
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	FE ST	Colorado River and major tributaries. Designated critical habitat occurs downstream in the Colorado River	Yes	No new depletions associated with the Project Action. Historical depletion effects addressed in prior Section 7 consultations.
Humpback Chub	<i>Gila cypha</i>	FT ST	Colorado River and major tributaries. Designated critical habitat occurs	Yes	No new depletions associated with the Project Action. Historical

Common Name	Scientific Name	Status ¹	Habitat Association	Aquatic Habitat Dependent Species	Effects Determination
			downstream in the Colorado River		depletion effects addressed in prior Section 7 consultations.
Razorback Sucker	<i>Xyrauchen texanus</i>	FE SE	Colorado River and major tributaries. Designated critical habitat occurs downstream in the Colorado River	Yes	No new depletions associated with the Project Action. Historical depletion effects addressed in prior Section 7 consultations.
Greenback Cutthroat Trout	<i>Onchorhynchus clarkia stomias</i>	FT ST	Cold-water streams and cold-water lakes with adequate stream spawning habitat present during spring.	Yes	No effect, East Slope species native to the South Platte drainage
Monarch butterfly	<i>Danaus plexippus</i>	FC	Areas with milkweed and flowering plants in fields, roadside areas, open areas, wet areas, and urban gardens.	No	No effect.
Silverspot	<i>Speyeria nokomis nokomis</i>	PFT	Populations of the butterfly are known to occur between 5,200 and 8,300 feet in mountain valleys or near the base of mountains in floodplains.	Yes	No effect
Uncompahgre Fritillary Butterfly	<i>Boloria acrocnema</i>	FE	North facing slopes associated with large patches of snow willow above 12,400 feet.	No	No effect
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	FT	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 6,500 feet in elevation.	Yes	No effect.

Status: FT=Federally threatened; FE = Federally Endangered; FPT = Federal Proposed Threatened; ST= State Threatened; SE= State Endangered.

Source: USFWS 2024c; CPW 2024a

Yellow-billed cuckoo-This federally threatened species is known to occur in low- to moderate elevation native riparian forests lining Western rivers and streams. They are known to breed in only a few locations in Colorado (CPW 2023). Nesting habitat consists of dense closed canopy cottonwood and willow complexes greater than 12 acres in size with an upper-story canopy height greater than 16 feet.

Nesting populations of yellow-billed cuckoo are not known to occur above the confluence of the Roaring Fork and Fryingpan Rivers. Suitable riparian habitats may occur above the confluence in the moderate elevations range along both rivers. However, the predicted changes in streamflow associated with the proposed Storage Contract (Section 3.4) would occur only within the defined stream channel and would not increase or decrease within the seasonal floodplain. In addition, changes in Ruedi Reservoir elevations would be consistent with historical operations. Therefore, the proposed action would result in no effect on the yellow-billed cuckoo.

Greenback cutthroat trout-The historic range of the greenback cutthroat trout included Colorado and Utah but is currently limited to a single stream in the South Platte River Basin outside the species native range. In 2012, a genetic study compared DNA samples from modern and historical samples that determined the only remaining pure greenback population occurs in Bear Creek in the Arkansas River Basin. Many of the populations previously identified as greenbacks are more similar to the Colorado River and Rio Grande cutthroat subspecies. Conservation populations of green lineage Colorado River cutthroat trout occur in headwater streams above the Project Area (Young et al 1996, Hirsch et al 2013) and the Proposed Contract will have no effect on the upstream Colorado River cutthroat populations. In addition, Colorado River cutthroat trout are not a protected species under the ESA. The Proposed Contract will have no effect on greenback cutthroat trout.

Ute ladies'-tresses-Ute ladies'-tresses is a terrestrial orchid that inhabits early-to mid-seral stage wetlands along rivers, streams, canals, lakeshores, and springs (Service 2023). Its historical range includes Colorado, Idaho, Montana, Nebraska, Utah, Washington, and Wyoming. Suitable habitat occurs along the Roaring Fork River downstream of its confluence with the Fryingpan River.

Predicted changes in streamflow associated with the proposed contract would occur only within the defined stream channel and would not increase or decrease within the seasonal floodplain. Changes in Ruedi Reservoir elevations would also be consistent with historical operations. Therefore, the proposed action is predicted to result in no effect to Ute ladies'-tresses.

Silverpot-Silverspot butterflies are known to occur in floodplains of mountain valleys with an elevation range between 5,200 and 8,300 feet in Colorado, New Mexico, and east-central Utah. Silverspot requires moist habitats with a variety of herbaceous and wood vegetation in proximity of bog violet and feeds exclusively on bog violet (Service 2021). The Service's 2021 Species Status Assessment indicates that the lower portions of the Roaring Fork and Fryingpan Rivers are within the northeastern extent of Silverspot's range.

Similar to the yellow-billed cuckoo and Ute ladies'-tresses, the proposed contract is predicted to have no effect on Silverspot suitable habitat within the Project Area and there would be no effect on this species.

There are no new depletions associated with the Fry-Ark Project, IPTDS, or Busk-Ivanhoe System operations and commitments under the 15-Mile Reach PBO continue to be met. The proposed Storage Contract will have no adverse effects on the Colorado River endangered fish. Releases from Ruedi Reservoir stored under the Storage Contract may benefit downstream Colorado River

endangered fish if and when released to assist in meeting flows to the 15-Mile Reach of the Colorado River. Aurora have signed Recovery Agreements with the U.S. Fish and Wildlife Service that extend 15-Mile Reach PBO protections for their historical depletions and operations associated with the IPTDS System.

3.10 Fisheries and Recreation

A review of fisheries and water-based recreation within the Project Area potentially affected by the Storage Contract include those reaches of the Fryingpan and Roaring Fork rivers, Ivanhoe Creek, Ruedi Reservoir, and Ivanhoe Reservoir. Fisheries resources and water-based recreation for each reach or water body are discussed below. See Section 3.8 for a brief discussion on economic impacts of recreation in the Fryingpan and Roaring Fork rivers, as well as Ruedi Reservoir in Pitkin, Eagle, and Garfield counties. Historically, native fisheries in the Fryingpan and Roaring Fork Rivers were composed of Colorado River cutthroat trout, mottled sculpin, and possibly blue head sucker (Ptacek et al 2003).

Fryingpan River-The lower 14 miles of the Fryingpan River below Ruedi Reservoir are designated by CPW as Gold Metal trout water based on the high abundance of quality trout (greater than 14”) (CPW 2024a). Gold Medal Waters must have a minimum of 60 lbs. of trout per acre and 12 quality trout per acre. Gold Medal status is met in this reach with a combination of rainbow and brown trout. Surveys conducted in 2019 below Ruedi Reservoir documented from 104 to 540 lbs./acre biomass for brown trout and 1 to 49 lbs./acre for rainbow trout in five sampling reaches (CPW2024b). Whirling disease drastically impacted the rainbow fisheries. CPW stockings of whirling disease resistant rainbow trout have been occurring to convey whirling disease resistance to the resident rainbow trout population and increase reproduction and recruitment. CPW special regulations for this stretch of the Fryingpan River include fly/lure only, all trout (except brown trout) must be released, and 2 brown trout limit less than 14”.

Upstream of Ruedi Reservoir, CPW’s Colorado Fishing Atlas (2024c) shows brook, rainbow, and brown trout as the primary sport fisheries in the Fryingpan River near Meredith, Colorado and below the confluence of the South Fork Fryingpan River and Fryingpan River. CPW stocks this river reach with subcatchables (~10 inches in length). Further upstream outside the Project Area in the Hunter-Fryingpan Wilderness Area and above Ivanhoe Creek’s confluence with the Fryingpan River, naturally reproducing brook and cutthroat fisheries are reported in CPW’s Fishing Atlas.

Fishing is by far the most common recreational activity on the Fryingpan River. Kayaking is also popular when there is adequate flow. American Whitewater (2024) lists the Fryingpan River from Thomasville upstream to Chapman Campground with Class IV-V⁴ rapids when flows are between

⁴ Class IV rated rapids are classified as advanced and described as intense, powerful but predictable requiring precise boat handling in turbulent water. Class V rated rapids are classified as expert and described as extremely long, obstructed, or violent rapids which expose a paddler to added risk. Full descriptions of the International Scale of River Difficulty can be accessed at: https://www.americanwhitewater.org/content/Wiki/safety:start?#vi_international_scale_of_river_difficulty.

300 and 750 cfs. People also kayak in the Fryingpan River below Ruedi Reservoir (Class IV) when recommended flows are between 200 and 1,500 cfs.

Anglers have difficulty wading below Ruedi Reservoir when flows exceed 250 cfs. During the late summer, it is common for water users with delivery contracts with Reclamation for water stored in Ruedi Reservoir to call for releases, which increases the flow rate above natural flow levels. The exchange of water from the Roaring Fork to Ruedi Reservoir will slightly reduce late summer flows. Figure 18 shows how historical and modified flows compare to the desirable wading flows of 250 cfs.

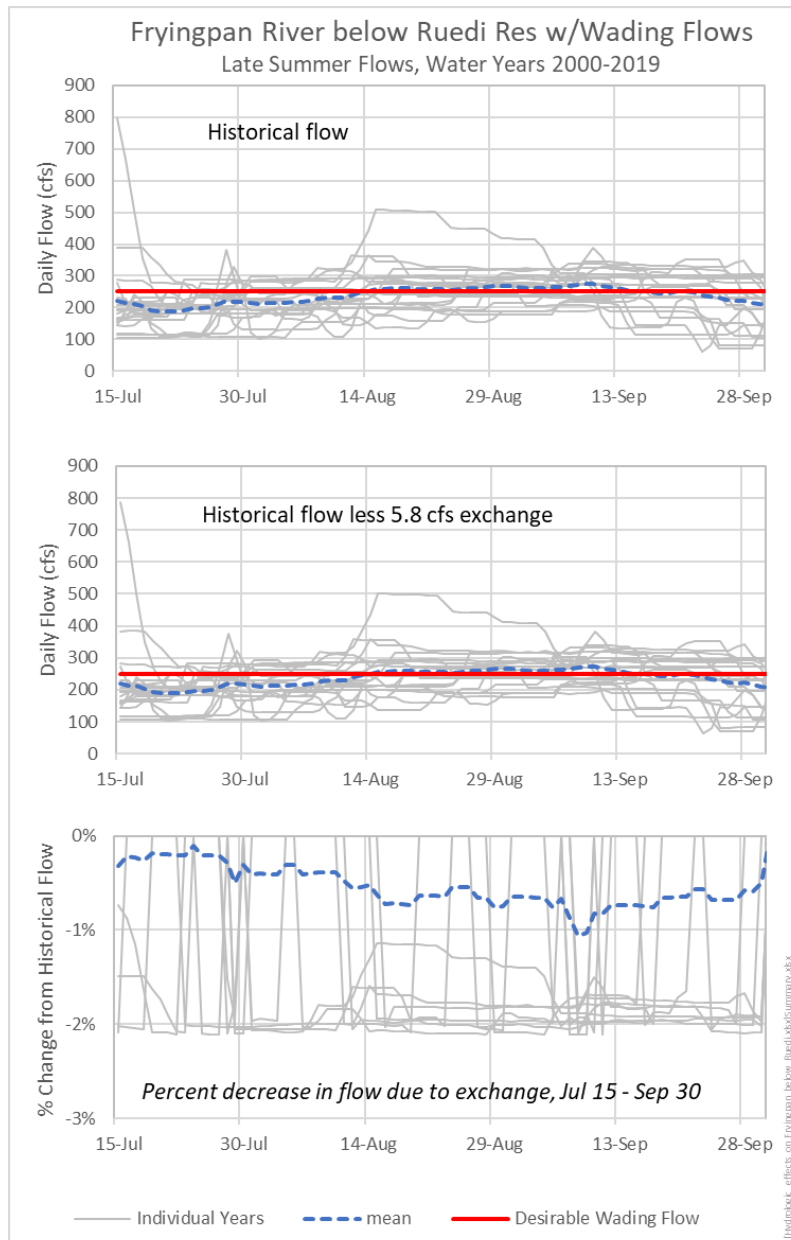


Figure 18- Flows in the Roaring Fork below Ruedi Reservoir, With and Without Exchanges to Storage

Ruedi Reservoir-Ruedi Reservoir’s sport fisheries are predominately comprised of mountain whitefish, yellow perch, kokanee salmon, and brown, rainbow, cutthroat, and lake trout. White sucker and yellow perch. Rainbow and Snake River Cutthroat trout are stocked annually as catchables, as well as fingerling kokanee salmon when available and Ruedi’s lake trout fishery is naturally reproducing (CPW 2024d). For context, 80,000 catchable and 44,500 subcatchable rainbow trout, and 8,000 catchable cutthroat trout were stocked in Ruedi Reservoir in 2021. Yellow perch were illegally introduced into Ruedi Reservoir in 2007 and compete with other desirable sport fisheries. Anglers are encouraged to remove all yellow perch that they catch.

Ivanhoe Creek and Ivanhoe Reservoir-CPW’s Fishing Atlas also indicates that there is a naturally producing brook trout fishery in Ivanhoe Creek downstream of Ivanhoe Reservoir. Ivanhoe Reservoir’s fisheries consist of brook, cutthroat, rainbow, and lake trout with some species being stocked as sub-catchable.

Roaring Fork River-The Roaring Fork River, from its confluence with the Fryingpan River downstream to Colorado River, is also designated as Gold Medal waters. CPW also has special regulations on the Roaring Fork River from Basalt to Upper Woody Creek Bridge (fly/lure only; 2 trout limit; minimum 16 inches) and from Upper Woody Creek Bridge to the McFarlane Creek confluence (fly only; all trout must be released).

Mountain whitefish were stocked into the Roaring Fork River prior to 1970 and established a self-sustaining population. The current fisheries are composed primarily of brown and rainbow trout, and occasional occurrence of brook and cutthroat trout (Ptacek et al 2003).

The Upper Roaring Fork River Management Plan (Lotic 2017) identified that the Roaring Fork River above Difficult Creek immediately below transmountain diversions (IPTDS) frequently runs dry and small reaches, generally clustered near the confluence of Difficult and Lincoln creeks exhibit moderately to severely degraded aquatic and riparian habitat due to the presence of campgrounds, trails, parking lots and recreational uses adjacent to the river. On Lincoln Creek, flow magnitude, duration and variability are also altered by the transmountain diversions and instream flow rights for protection of aquatic life are often not met because of their junior status to IPTDS diversions. Aquatic habitat in the Upper Roaring Fork River above and through Aspen experience similar conditions with moderate degradation due to changes in flow regime, land use, recreation use, and invasive species.

Like the Fryingpan River, fishing on the Roaring Fork is the predominant recreational activity. However, kayaking and rafting are also popular with the Roaring Fork River offering opportunities for beginner to advanced paddlers. Through its 70+ mile journey, the Roaring Fork River drops approximately 6,200 feet and offers some of the most technical and powerful rapids. American Rivers (2024) provides information on eight Roaring Fork River reaches with river difficulty ranging from Class II to V. General flows in the Roaring Fork River from Maroon Creek above Aspen to Glenwood Spring need to be above 200 cfs to be runnable. American Rivers lists the section of the

Upper Roaring Fork River from Weller Lake to Difficult Campground as a Class V+ runnable reach when flows are between 100 to 1,000 cfs.

The Colorado River Outfitters Association (2024) lists eight members who offer commercial floating trips and guided fishing trips in the Roaring Fork and Fryingpan Rivers.

Exchanges under the Storage Contract would be administered by CDWR to protect senior water rights. In addition, Aurora agreed, as a part of a stipulation with Southeastern, to curtail exchanges when doing so would reduce flows at the Thomasville gage below the minimum flows the Fry-Ark Project is limited by, plus 15 cfs. Ruedi Reservoir exchanges are predicted to occur between July 15 and September 30, with an average bypass rate of 5.8 cfs (31.25 cfs theoretical max) resulting in an equal reduced flow in the Fryingpan River below Ruedi Reservoir as discussed in Section 3.4.1.2.2. Fryingpan instream flow rights between Ruedi Dam and the confluence with the Roaring Fork River established in the decree for Case No. W-1945, claimed 39 cfs during the winter and spring (11/1 - 4/30), 110 cfs during the summer and fall (5/1 - 10/31). High Country Hydrology, Inc (2025) in the hydrologic analysis calculated exchange potential by excluding all days when the average daily flow at the Near Ruedi gage was equal to or below the minimum instream flow for these time periods. Rainbow and brown trout are impacted when flows are reduced after they spawn by potentially dewatering some redds (spawning areas). Rainbow trout spawn in the springtime and brown trout spawn in the fall, typically between September and December. Dewatering is not predicted to occur when the Ruedi Exchange is occurring. No adverse effects to rainbow and brown trout are predicted to occur during the Ruedi Exchange.

Negligible benefits to wade fishing may occur during the Ruedi Exchange if the exchange decreases streamflow below Ruedi Dam below 250 cfs. Flows above 250 cfs are generally considered restrictive to stream wading (Reclamation 1989). The Storage Contract is predicted to have no measurable effect on other recreational activities on or adjacent to the Lower Fryingpan River.

Exchanges into Ivanhoe Reservoir will only occur when IPTDS water has already been stored in Ruedi Reservoir when excess capacity space is available. The exchange will typically occur during the peak runoff in May and June, prior to a Ruedi Reservoir fill. There are three CWCB instream flow reaches between Ivanhoe Reservoir and Ruedi Reservoir that would see flows reduced during exchanges as discussed in Section 3.4.1.2.2. The instream flow reaches were established to preserve the natural environment to a reasonable degree and are 1) the Fryingpan River above Ruedi Reservoir up to Thomasville gage, 2) Fryingpan River between the South Fork of the Fryingpan River and Ivanhoe Creek, and 3) Ivanhoe Creek between the Fryingpan River and the Nast Tunnel diversion. Each instream flow reach has seasonal minimum flow requirements as described in their water right decrees. No exchanges are assumed to occur whenever flows are below these instream flow requirements. Minor changes in flows in Ivanhoe Creek during the Ivanhoe Exchange are predicted to have no measurable effect on fisheries or recreation.

When releases of IPTDS water are made from Ruedi Reservoir, flows in the lower Fryingpan and Roaring Fork Rivers would be increased by the amount of the additional release. CWCB holds two

instream flow rights on the lower Fryingpan River (W-1945), and the lower Roaring Fork River (85CW639) summarized in Appendix C. A Colorado Decision Support systems (CDWR 2024) priority analysis for the period between 2014 and 2023 shows both rights out of priority 13.61 percent of the time. However, minimum flows were met because of calling downstream senior water rights in Grand Valley. In the unlikely event flows in the lower Fryingpan and Roaring Fork would drop below the minimum instream flows, IPTDS water may be used to augment flows in both river reaches. This benefit is speculative because the Storage Contract would not require the satisfaction of these minimum flows. However, any exchanges to Ruedi Reservoir and Ivanhoe Reservoir Creek would need to meet all minimum instream flow requirements.

Reservoir elevation changes for Ruedi Reservoir are negligible (+1.4 ft. maximum) as discussed in Section 3.4.1.2.2 and would only occur about 25 percent of the time when excess capacity space is available in Ruedi Reservoir. Although negligible, the Ruedi Exchange would keep Ruedi Reservoir's content higher for longer and provide some fisheries and recreation benefits. Under the Ivanhoe Exchange, water exchanged from Ruedi Reservoir to Ivanhoe Reservoir would likely move instantaneously through the Ivanhoe Tunnel to Turquoise Reservoir, resulting in no change to Ivanhoe Reservoir's elevations. As such, no impacts to fisheries or recreation are predicted.

Also, as discussed previously, bypassed or released flows from IPTDS to the Roaring Fork River as described in the 2018 IGA are intended to improve conditions in the Upper Roaring Fork River and would be implemented independently of the Storage Contracts. Flows in the Roaring Fork River below the Fryingpan River would not change during the Ruedi Exchange and would only occur when IPTDS bypasses or releases are occurring and available for exchange into Ruedi Reservoir. Therefore, the Ruedi Exchange will have no effect on fisheries or recreation in the lower Roaring Fork River.

CPW (Bakich 2024) expressed concerns that Grizzly Creek bypasses may adversely impact fisheries in Lincoln Creek and upper Roaring Fork River based on recent water quality investigations as discussed in Section 3.5. A 2023 report concluded concentrations of copper and other metals in Lincoln Creek, Ruby Mine runoff, and the mineralized tributary present in the Ruby Mine have been increasing since 2001. However, increases in flows in the Roaring Fork River will occur when IPTDS bypasses are made and will occur independent of the Storage Contract.

3.11 Other Resources

Additional effects of the proposed Storage Contract were considered for other resources which include operation and maintenance of Fry-Ark Project and Busk-Ivanhoe facilities and public safety.

The Storage Contract would not involve construction activities, and would only result in minor changes from current operations of Ruedi Dam and Ivanhoe Reservoir but within historical operations. Maintenance and replacement of existing Fry-Ark Project facilities would continue as needed, independent of the proposed contract. The contract would include annual operation, maintenance, and replacements fees assessed on the contract acre-feet of excess capacity storage and

conveyance basis to recover any additional operation and maintenance increases. Therefore, no adverse operation, maintenance and replacement effects are predicted.

To address public safety and other resource concerns, Reclamation attempts to keep changes in releases from Ruedi Reservoir to 50 cfs or less per day. In addition, Reclamation attempts to keep dam discharges below 250 cfs when feasible to avoid Aspen Powerplant bypass and address river access concerns for instream (wading) fishing below Ruedi Reservoir.

Starting in 2022, Colorado River Water Conservation District, CWCB, and Roaring Fork Conservancy District worked to purchase and release water from Ruedi Reservoir in the winter months to boost water levels to mitigate impacts to the Fryingpan River from anchor ice (Colorado Water Trust 2024). Built up anchor ice can damage aquatic habitat when it begins to melt and release in the spring. The Storage Contract would not reduce winter flows and IPTDS water released from Ruedi Reservoir (up to 450 af) for other purposes could also mitigate anchor ice, providing additional benefits.

The proposed Storage Contract is predicted to have no adverse effects on these other resources considered.

3.12 Reasonably Foreseeable Effects

When considering reasonably foreseeable future actions discussed in Section 3.3, reasonably foreseeable effects from the Storage Contract are anticipated to be beneficial to Aurora's water supply, and aquatic resources.

For the Storage Contract, although very small when compared to Aurora's total water system and needs, IPTDS water exchanged for Aurora's use would contribute to reducing the amount of future water development needed to meet Aurora projected future water demands and is considered a beneficial effect. Ruedi Exchanges stored in Ruedi Reservoir for West Slope uses would also provide additional opportunities to retime some releases to incrementally increase Ruedi Reservoir releases for environmental benefits (i.e. anchor ice mitigation, minimum instream flows, enhance recreational and endangered fisheries downstream).

IPTDS flows in the Roaring Fork River and Ruedi Exchange water, when released from Ruedi Reservoir, would continue downstream and potentially assist in meeting endangered fish flow targets in the 15-Mile Reach. Although relatively small when compared to other Ruedi Reservoir releases previously discussed, the Storage Contract would provide benefits to the Upper Colorado River Endangered Fish Recovery Program.

3.13 Summary of Impacts

Table 7 summarizes anticipated effects associated with the proposed Storage Contract when compared to the No Action alternative. With implementation of environmental commitments listed in Section 4.0, the predicted changes in streamflow and reservoir elevations result in negligible to minor effects on the human environment. Potential adverse and beneficial effects, as well as no effect, are listed for the proposed contract. Effects are also discussed previously in greater detail in Sections 3.4.1 to 3.13.

Table 7: Summary of Impacts

Resource Category	Proposed Action	Discussion
Roaring Fork	Negligible effect (increases)	-IPTDS bypass would occur independently of the Storage Contract to benefit the upper Roaring Fork River per the 2018 IGA. -Ruedi Exchanges would not adversely affect flows in the lower Roaring Fork. -Releases of IPTDS stored water in Ruedi Reservoir increase flows in the lower Roaring Fork and may provide negligible benefits depending on timing and distance traveled downstream.
Fryingpan River	Negligible effect (decreases during exchanges, increases when released from storage)	-Flows in the lower Fryingpan below Ruedi would decrease 0.5 to 9.7%, with an average decrease of 2.95% when the Ruedi Exchange is occurring, typically July 15-Sept 30. -Flows in the upper Fryingpan River at Thomasville would decrease between - 0.0 to 8.0%, with an average decrease of 0.8%, typically occurring Apr1-June 30, during the Ivanhoe Exchange.
Ivanhoe Creek	Moderate effect (decreases)	- Flow in Ivanhoe Creek would decrease an average of 34%, in the assumed April 1-June 30 period, during the operation of an Ivanhoe Exchange under the Storage Contract, with the largest decreases occurring in June. All exchanges will only be operated when Fry-Ark Project and CWCB minimum instream flow rights are satisfied.
Ruedi Reservoir and Ivanhoe Reservoir	Negligible effect (increases)	-Ruedi Reservoir elevations are predicted to increase by an average of 0.3 ft, up to a maximum 1.4 ft (in 1 of 39 years analyzed) with the Storage Contract. This represents a change of less than 1% from the No Action Alternative. -Any excess capacity water stored in Ruedi Reservoir could potentially carry over to the next year if Ruedi Reservoir does not fill. -No changes in Ivanhoe Reservoir under the Ivanhoe Exchange are predicted because any exchanged water would likely be moved instantaneously through the Ivanhoe Tunnel to Turquoise Lake. -The Storage Contract would have no effect on existing Ruedi Round I & II water service contracts
Water Rights	Beneficial effect	-The Storage Contract would not adversely affect other senior water rights or CWCB minimum instream flows. -With the Storage Contract, bypassed IPTDS flows would be protected to the point of exchange as administered by CDWR. CDWR administration protects against junior water rights diversions of IPTDS bypasses as they flow through Lincoln Creek and the upper Roaring Fork River.

Resource Category	Proposed Action	Discussion
		-The Storage Contract would provide additional management flexibility for both IPTDS and Busk-Ivanhoe water rights, respectively. -Storage Contract provides a legal method to protect IPTDS bypass flows and for Aurora and Pitkin to recapture, store, and exchange or release the water for additional benefits. -Storage Contract provides a “Win-Win” benefit for both Aurora and West Slope entities.
Water Quality	No effect	-Storage Contract would have no effect on water quality. -No change in water quality is predicted between Grizzly Reservoir and the Roaring Fork River under the proposed action.
Cultural Resources and Indian Trust Assets	No effect	-No cultural or Indian Trust Assets have been identified that would be affected by the Storage Contract. as the Proposed Actions do not involve construction, ground disturbance, or changes in land use.
Socioeconomics	Beneficial effect	-Storage Contract will recapture up to 900 af of IPTDS bypassed or released to the Roaring Fork River for use by Aurora and West Slope needs. -Storage Contract will generate revenue that will be applied to pay for operations and maintenance costs and to reimburse Fry-Ark Project construction costs. -There is predicted to be no measured effect on recreation and tourism revenues associated with the Storage Contract. -The Storage Contract would provide additional revenues for the Fry-Ark Project.
Hydropower	Beneficial effects	-Under the Storage Contract, up to 450 af of additional water could be moved to Sugarloaf and Mt. Elbert powerplants and generate additional green electricity. This would not occur every year and only after IPTDS water has been exchanged via the Ruedi and Ivanhoe Exchanges and moved to Turquoise Reservoir. -Aurora will work with the City of Aspen to determine if exchanges can be made without impacting Ruedi Powerplant hydroelectric operations.
Threatened and Endangered Species	No effect	-Storage Contract would have no effect on listed species or designated critical habitats. -Storage Contract would have no effect on Reclamation’s commitments for Ruedi Reservoir releases to benefit the 15-Mile Reach of the Colorado River.
Fisheries and Recreation	Minor adverse and beneficial effects	-Reductions in flows(5.5 cfs average, 5.8 cfs max) during the Ruedi Exchange under the Storage Contract are not predicted to have an adverse effect on fisheries in the lower Fryingpan River. -Ruedi Exchanges would also be beneficial to wade fishing in the Fryingpan River when an exchange results in flows below 250 cfs.

Resource Category	Proposed Action	Discussion
		-Reductions in flows in the upper Fryingpan River in April, May and June by up to 8% during the operation of an Ivanhoe Exchange, with the largest decreases occurring in June. This exchange can only be operated when Fry-Ark Project and CWCBC minimum instream flow rights are satisfied. The Ivanhoe Exchange would have negligible to minor adverse effects on fisheries above Ruedi Reservoir. -The portion of exchanged water stored in Ruedi Reservoir but not exchanged to Ivanhoe Reservoir could be used to increase flows in the unlikely event that flows in the lower Fryingpan and Roaring Fork Rivers fall below CWCBC minimum instream flows. -Negligible increases (+0.3 ft) in Ruedi Reservoir elevations are predicted to result in negligible beneficial effects to fisheries and recreation.
Other Resources	No adverse effect	The portion of exchanged water stored in Ruedi Reservoir but not exchanged to Ivanhoe Reservoir could be released at times to mitigate anchor ice, which would be beneficial to aquatic habitats in the Fryingpan River downstream of Ruedi Reservoir.

4.0 Environmental Commitments

These commitments will be implemented by Reclamation, Pitkin, and Aurora, as part of the proposed Storage Contract that result from this EA, to help avoid any negative impacts from occurring to the above-described resources in the Fryingpan and Roaring Fork River basins, Fry-Ark Project, and Ruedi Reservoir. No mitigation is proposed.

1. All water must be transported, stored, and released in accordance with Colorado water law and the final decree entered in Case No. 19CW3159.
2. Pitkin and Aurora will have a separate operating agreement. The separate operating agreement will require Aurora to follow the environment commitments in this EA and the excess capacity storage contract between Reclamation and Pitkin.
3. Pitkin and Aurora shall comply with all applicable federal, state, and local laws and regulations associated with the storage contract.
4. Storage Contract shall not impact Reclamation's ability to store, divert, release or exchange Fry-Ark Project water.
5. When Ruedi Reservoir normally fills, there will be no excess capacity storage available for use.

6. Aurora agrees to operate the Ruedi and Ivanhoe exchanges in accordance with applicable water rights decrees and agrees that a violation of those water rights decrees would be determined by the State Engineer Office (CDWR) or a court of competent jurisdiction.
7. Aurora will invite/involve Reclamation when annually meeting with Pitkin County, Colorado River Water Conservation District, and Twins Lakes Company to develop a bypass schedule in accordance with the 2018 IGA.
8. Ruedi and Ivanhoe Exchanges shall not deplete the flows of Ivanhoe Creek at the Fry-Ark Project's diversion structure, to the extent that such flows are necessary to satisfy Fry-Ark Project diversions pursuant to Southeastern's decreed right to divert 150 cfs from Ivanhoe Creek (unless Southeastern's rights to divert 945 cfs through the Boustead Tunnel are fully satisfied), or to satisfy the Fry-Ark Project's required bypass flows on Ivanhoe Creek.
9. In accordance with the decree in case number 19CW3159 (Paragraph 17.6.4) , Pitkin and Aurora shall not take any action that would cause Reclamation to release additional uncontracted flows from Ruedi Reservoir or require Reclamation to increase collection system bypasses to meet Instream Flows.
10. IPTDS water stored in Ruedi Reservoir shall be subject to evacuation ("spilled") upon determination of Reclamation that the space in Ruedi Reservoir occupied by IPTDS water is needed for Fry-Ark Project operations including preemptive releases such as those made prior to physical spills.
11. There shall be no credit to Aurora, or Pitkin for conveyance of any Contractor's water through Project power facilities, and all revenues, if any, derived therefrom shall accrue solely to the United States.

5.0 Consultation and Coordination

This section describes the public involvement activities, agency consultation and coordination, and includes a list of people involved in the preparation of this EA.

Pitkin County held two public regular meetings of the Board of County Commissioners, which included opportunities for public comment, on April 14, 2021 and April 28, 2021 regarding the approval of a resolution adopting the 2018 IGA and an MOU with Aurora, Pitkin County, and Reclamation concerning Reclamation's evaluation of IPTDS water stored in Ruedi Reservoir and exchanges up the Fryingpan River. Additional public outreach was conducted by Pitkin including presentations to Pitkin County Healthy Rivers and other West Slope entities.

Reclamation is consulting with the parties to the IGA, and will utilize Reclamation's website at <https://www.usbr.gov/gp/nepa/sopa.html#ecao> to post the EA and associated appendices.

Reclamation sent letters to the Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and The Ute Tribe of the Uintah and Ouray Reservation. The tribal consultation period ended on April 9, 2026 with no responses.

5.1 List of Preparers

A list of individuals with primary responsibility for conducting this analysis, preparing the document, and providing technical reviews is contained below in Table 8.

Table 8: List of Preparers

Organization	Name	Title	Project Role
Reclamation	Terence Stroh	Regional NEPA/ESA Coordinator	EA Author Resource Descriptions and Effects Analysis
Reclamation	Cathy Johnson	Repayment Specialist	Document Review Water Contracts
Reclamation	Melissa Dykes	Supervisor Contract Specialist	Document Review Water Contracts
Reclamation	Matt Schultz	Environmental Specialist	Document Review
Reclamation	Tim Miller	Hydrologist	Hydrology Ruedi Reservoir Operations
Reclamation	Terry Dawson	Hydrologist	Hydrology Fry-Ark Project Operations
Reclamation	Beth Rush	Archaeologist	Historic and Cultural Resources
Aurora Water	Richard Kienitz	Aurora Water Resource Basin Manager	Hydrology Aurora Water Operations
High County Hydrology, Inc.	John Winchester, P.E.	Consultant	Hydrology

References

- American Whitewater. 2024. River Info. American Whitewater. Website: <https://www.americanwhitewater.org/content/River/view/river-index#>. Access April 2024.
- Aurora. 2024. Prairie Waters. Website https://www.auroragov.org/residents/water/water_system/water_sources/prairie_waters . City of Aurora. Accessed May 28, 2024.
- Aurora. 2023. Busk-Ivanhoe. Website https://www.auroragov.org/residents/water/water_system/recreation/busk_ivanhoe. City of Aurora. Accessed December 18, 2023.
- Bakich, K. 2024. Personal communication with Kendall Bakich, Aquatic Biologist, Colorado Division of Park and Wildlife on April 24, 2024, regarding fisheries resource in the Roaring Fork and Fryingpan Rivers.
- Bancroft, F.N. 1939. The Independence Pass Transmountain Diversion Project, 14 Dicta 109.
- Bolinger, R.A., J.J Lukas, R.S. Schumacher, and P.E. Goble 2024. Climate Change in Colorado. 3rd Edition. Colorado State University. <https://doi.org/10.25675/10217/237323>.
- CDWR. 2024. Water Administration. Colorado Division of Water Resources Website at: <https://dwr.colorado.gov/services/water-administration>. Accessed March 2024.
- Colorado River Outfitters Association. 2024. Roaring Fork. Colorado River Outfitters Association. Idaho Springs, Colorado. Website: <https://www.croa.org/river/roaring-fork-gallery/>. Accessed April 2024.
- Colorado River Outfitters Association. 2023. Commercial River Use in the State of Colorado, 1988 to 2022. 2022 Year End Report. Colorado River Outfitters Association.
- CPW. 2025. News Release: Colorado Parks and Wildlife responds to fish kill in Grizzly Reservoir. Website at: <https://cpw.state.co.us/news/08252025/colorado-parks-and-wildlife-responds-fish-kill-grizzly-reservoir>. Accessed January 2026.
- CPW. 2024a. Threatened and Endangered Species List. Colorado Parks and Wildlife Website at: <https://cpw.state.co.us/learn/Pages/SOC-ThreatenedEndangeredList.aspx>. Accessed January 2024.
- CPW. 2024b. Fryingpan River, Fisheries Management and Survey Information. Glenwood Springs Service Center, Colorado Parks and Wildlife. Downloaded from <https://cpw.state.co.us/thingstodo/Pages/FisherySurveySummaries.aspx> April 2024.
- CPW. 2024c. Colorado Fishing Atlas. Colorado Parks and Wildlife. Website: <https://ndismaps.nrel.colostate.edu/index.html?app=FishingAtlas> accessed April 2024.

- CPW. 2023. CPW Wildlife Shapefile Download. From: Species Activity Data Collection. Redlands, CA: ESRI. Available at: <http://www.arcgis.com/home/group.html?owner=rsacco&title=Colorado%20Parks%20and%20Wildlife%20-%20Species%20Activity%20Data>.
- Colorado Trout Unlimited. 2015. *Colorado's Gold Medal Waters*. Available at: <https://coloradotu.org/blog/2015/11/colorados-gold-medal-water>. Accessed May 2024.
- Colorado Water Conservation Board. 2015. *Colorado's Water Plan*. Available at: <https://dnrweblink.state.co.us/cwcbsearch/ElectronicFile.aspx?docid=199531&dbid=0> Accessed March 2021.
- Colorado Water Trust. 2024. Fryingpan River—Anchor Ice Project. Colorado Water Trust Website: <https://coloradowatertrust.org/projects/fryingpan-river-anchor-ice-project>. Accessed April 2024.
- Crandall, K. 2002. Fryingpan Valley Economic Study. Roaring Fork Conservancy. Basalt, CO. June 21, 2002.
- High Country Hydrology, Inc. 2025. Hydrologic Effects for Twin Lakes-Ivanhoe Reservoir Exchange. High Country Hydrology, Inc. Boulder, CO. Draft March 9, 2022, Finalized December 2, 2025.
- Hirsch, C.L., M.R. Dare, and S.E. Albeke. 2013. Range-wide status of Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*): 2010. Colorado River Cutthroat Trout Conservation Team Report. Colorado Parks and Wildlife, Fort Collins.
- Lotic. 2017. Upper Roaring Fork River Management Plan, 2017. A Joint City of Aspen and Pitkin County Project. Prepared by Lotic Hydrology for the City of Aspen and Pitkin County. 2017.
- National Wild and Scenic Rivers System. 2023. *Colorado*. Available at: <https://www.rivers.gov/colorado.php>. Accessed June 2023.
- Ptacek, J.A., D.E. Rees, and WJ Miller. 2003. A Study of the Ecological Processes on the Fryingpan and Roaring Fork Rivers Related to Operations of Ruedi Reservoir. Miller Ecological Consultants, Inc. June 30, 2003.
- Reclamation. 2017. *Amendment to Programmatic Agreement Between Bureau of Reclamation, Eastern Colorado Area Office, and the Colorado State Historic Preservation Officer for Reservoir Operations and Storage Contracts*. Available at: https://www.usbr.gov/gp/ccao/nepa/fryark_app_h.pdf Accessed March 2021
- Reclamation. 2012. Colorado Water Users' Commitments to Provide 10,825 acre-feet to the 15-Mile Reach of the Upper Colorado River. Environmental Assessment/Finding of No Significant Impact. U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region, Eastern Colorado Area Office. March 2012.
- Reclamation. 2002. Ruedi Reservoir 2012 Agreement, Final Environmental Assessment. EA No. EC-1300-02-01. U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region. March 2002.

- Reclamation. 1990. Record of Decision. Final Supplement to the Final Environmental Statement, Round II Water Marketing Program. Ruedi Reservoir, Fryingpan-Arkansas Project. U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region. January 1990.
- Reclamation. 1989. Ruedi Reservoir, Colorado, Round II Water Marketing Program. Final Supplement to the Environmental Statement, Fryingpan-Arkansas Project, Colorado (FSSES-89-19). U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region. August 1989.
- Reclamation. 1983. Environmental Assessment of Water Marketing Program for Ruedi Reservoir, Colorado. U.S. Department of the Interior, Bureau of Reclamation, prepared by Li Simons & Associates, Inc., Lower Missouri Region.
- Reclamation. 1975. Final Environmental Statement, Fryingpan-Arkansas Project, Bureau of Reclamation, Department of the Interior. INT FES 75-43. April 6, 1975.
- Reclamation. 1960. Fryingpan-Arkansas Project Operating Principles. Adopted by the state of Colorado on April 30, 1959, as amended on December 30, 1959, and on December 9, 1960.
- RJH Consulting Inc. 2022. Loan Feasibility and Evaluation Report. Grizzly Reservoir Rehabilitation, Pitkin County, Colorado. Project No, 21125. Submitted to Twin Lakes Reservoir and Canal Company. <https://www.documentcloud.org/documents/22135670-grizzly-reservoir-report>. May 2022.
- Sauer, V.B., and Turnipseed, D.P. 2010. *Stage Measurement at Gaging Stations: U.S. Geological Survey Techniques and Methods*, Book 3, Chapter A7, 45 p. Available at: <https://pubs.usgs.gov/tm/tm3-a7/tm3a7.pdf>. Accessed January 2021.
- Service. 2025. 2024 Assessment of Sufficient Progress for the Upper Colorado River Endangered Fish Recovery Program in the Upper Colorado River Basin. Memorandum from Deputy Regional Director Anna Munoz to Upper Colorado Endangered Fish Recovery Program Implementation/Management Committee, Consultants, and Interested Parties dated September 8, 2025. U.S. Fish and Wildlife Service, Mountain-Prairie Region. Lakewood, Colorado.
- Service. 2024a. Environmental Assessment. Continuation of the Upper Colorado and San Juan River Endangered Fish Recovery Programs. U.S. Fish and Wildlife Service. San Juan River Basin Recovery Implementation Program, Albuquerque, N.M. and Upper Colorado River Endangered Fish Recovery Implementation Program, Lakewood, Colorado. February 28, 2024.
- Service. 2024b. National Wetland Inventory. Website: <https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper>. Accessed March 2024.
- Service. 2024c. Information for Planning and Consultation (IPaC). U.S. Fish and Wildlife Service Website at: <https://ipac.ecosphere.fws.gov/>. Accessed between January and February 2024.
- Service. 2023. Ute Ladies'-Tresses, 5- Year Status Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Mountain-Prairie Region, Denver, Colorado. August 2023.
- Service. 2021. Species Status Assessment Report for *Speyeria Nokomis Nokomis*. U.S. Fish and Wildlife Service Ecological Services, Western Colorado Field Office, Grand Junction, CO. February 2021.

- Service. 1999. Final Programmatic Biological Opinion for Bureau of Reclamation's Operations and Depletions, Other Depletions, and Funding and Implementation of Recovery Program Actions in the Upper Colorado River above the Confluence with the Gunnison River. Consultation No. ES/GJ-6-CO-99-F-033. U.S. Fish and Wildlife Service, Region 6, Denver, Colorado. December 1999.
- Shields, M., J. Loomis, R. Hill, and H. Tattershall Lewin. 2015. Lower Fryingpan River and Ruedi Reservoir Economic Impact Study. Roaring Fork Conservancy and Colorado State University. July 2015.
- Southern Ute Indian Tribe. 2024. History. Southern Ute Indian Tribe. Website: <https://www.southernute-nsn.gov/history/> accessed in April 2024.
- SPROWG. 2020. Feasibility Study. South Platte Regional Opportunities Water Group. Prepared for Lower South Platte Water Conservancy District. March 2020.
- Tetra Tech, Inc. 2023. Final Preliminary Assessment/Removal Site Evaluation. Combined Assessment Report. Ruby Mining District, Pitkin County Colorado. U.S. EPA ID No. CON000821139. U.S. Environmental Protection Agency, Region 8, Denver, Colorado.
- United States Census Bureau. 2024a. *QuickFacts Colorado*. Available at: <https://www.census.gov/quickfacts/CO>. Accessed January 2024.
- United States Census Bureau. 2024b. Colorado Profiles. Available at: <https://data.census.gov/profile/Colorado?g=040XX00US08>. Accessed January 2024.
- United States Geological Survey. 1992. *OFFICE OF SURFACE WATER TECHNICAL MEMORANDUM NO. 93.07 "Policy Statement on Stage Accuracy"* Available at: <https://water.usgs.gov/admin/memo/SW/sw93.07.html>. Accessed April 2021.
- Young, Michael K., R. Nick Schmal, Thomas W. Kohley, and Victoria G. Leonard. 1996. Conservation status of Colorado River cutthroat trout. General Technical Report RM-GTR-282. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest, and Range Experiment Station. 32 p.

Appendix A: 2018 IGA

2018 Intergovernmental Agreement between Aurora, CRWCD, Basalt WCD, Eagle County, Pitkin County, Grand Valley Water Users Association, Orchard Mesa Irrigation District, and the Ute WCD.

Agreement and Intergovernmental Agreement between Aurora, CRWCD, Basalt WCD, Eagle County, Pitkin County, Grand Valley Water Users Association, Orchard Mesa Irrigation District, and the Ute WCD

This Agreement and Intergovernmental Agreement (the “Agreement”) is entered into as of the Effective Date herein below defined, by and between:

- The City of Aurora, Colorado, a Colorado municipal corporation of the Counties of Adams, Arapahoe, and Douglas, acting by and through its Utility Enterprise ("Aurora") and,
- Busk Ivanhoe, Inc., a Colorado mutual ditch company (“B-I Inc.”), and
- The Colorado River Water Conservation District (“CRWCD”) and,
- The Basalt Water Conservancy District (“BWCD”) and,
- The Board of County Commissioners of Eagle County (“Eagle”) and,
- The Board of County Commissioners of Pitkin County (“Pitkin”) and,
- The Grand Valley Water Users Association (“GVWUA”) and,
- Orchard Mesa Irrigation District (“OMID”) and,
- The Ute Water Conservancy District acting by and through the Ute Water Activity Enterprise (“Ute”).

Individually these entities are sometimes hereinafter referred to as a “Party” and collectively as the “Parties.” The CRWCD, BWCD, Eagle, Pitkin, GVWUA, OMID and Ute are collectively referred to as the “West Slope Parties.”

Table of Contents

I. Introduction and General Provisions.....	3
1. Effective Date	3
2. Subject Areas / Non-severability	3
3. Process	4
4. Not Precedent.....	5
5. No Property Transfers.....	5
6. Non-assignability and No Subleases.....	5
7. No Waiver of Governmental Immunity	6
8. Force Majeure	6
9. No Water Quality Objections.....	6
10. SEO & DEO.....	6
11. Future Cooperation	6

12. Future Dialog	8
13. WD-5, 13CW3109	8
14. Enterprise Obligations	8
15. Miscellaneous	10
II. Roaring Fork River Water Delivery	14
16. Aurora Twin Lakes Ownership.....	14
17. Roaring Fork Delivery Location.....	14
18. Water Deliveries and Bypasses.....	15
19. Exchanged Roaring Fork Deliveries.....	17
20. Further Cooperation Regarding Roaring Fork Flows	19
21. CRWCD Delivery Offset	20
22. Busk-Ivanhoe or Twin Lakes Facility Failure	20
III. Fryingpan River Exchanges and Storage	20
23. BWCD Storage Accounts	20
24. BWCD Exchanges	21
25. BWCD Payments to Aurora	22
26. Accounting Information and Evaporation Charges	22
27. Relative Priorities of Exchanges and Storage.....	22
28. BWCD Ivanhoe Reservoir Releases, Studies and Costs.....	23
29. BWCD Support of Box Creek Reservoir and No Changes to Busk-Ivanhoe Agreements.....	24
IV. Shoshone Outage Protocol & Shoshone Permanency	24
30. ShOP Agreement	24
31. Aurora Ownership.....	24
32. Term of Aurora ShOP Agreement	25
33. Aurora ShOP Agreement	25
34. Shoshone Permanency	27
35. Other Provisions	29
V. Diligence Détente.....	29
36. Diligence Cases.....	29
37. Non-opposition to Diligence.....	35
VI. Entry of Final Decree in WD-2, 09CW142	36
38. Motion for Entry of Decree.....	36

WHEREAS Colorado law authorizes governmental entities to cooperate and enter into Intergovernmental Agreements pursuant to Section 18(2) of Article XIV of the Colorado Constitution and CRS §29-1-203; and,

WHEREAS, Parties who are not governmental entities covered by Section 18(2) of Article XIV of the Colorado Constitution and CRS §29-1-203 enter into this Agreement pursuant to their independent authority and ability to contract; and,

WHEREAS Aurora is the sole owner of the capital stock of B-I Inc., a Colorado mutual ditch company, and B-I Inc. owns an undivided one-half (1/2) interest in the water rights of the Busk-Ivanhoe System; and,

WHEREAS during 2009 B-I Inc. initiated a Water Court action captioned WD-2, 09CW142, wherein the Water Court initially issued a Ruling and Decree on May 27, 2014, and following an appeal to the Colorado Supreme Court as Grand Valley Water Users Association vs. Busk-Ivanhoe Inc., 14SA303, the matter was remanded back to the Water Court on December 5, 2016; and,

WHEREAS thereafter the Parties engaged in extensive settlement discussions to address various matters of mutual concern to them and to develop a stipulated agreement amongst themselves regarding a proposed Amended Findings of Fact, Conclusions of Law, Judgment and Decree comporting with the Colorado Supreme Court's opinion.

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained herein, and other good and valuable consideration, the adequacy and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

I. Introduction and General Provisions

1. **Effective Date.** The "Effective Date" of this Agreement shall be the date on which the Agreement is executed by the last Party to sign.

2. **Subject Areas / Non-severability.** Through this Agreement the Parties address five significant subject areas where the agreements herein set forth will inure to their individual and collective benefit. Although the subject areas may appear to be distinct they were combined for purposes of this Agreement and the Parties agree that regarding this Agreement none of the subject areas are severable from the others. The subject areas are:

- 2.1 Roaring Fork River Water Delivery
- 2.2 Fryingpan River Exchanges and Storage
- 2.3 Shoshone Outage Protocol & Shoshone Permanency
- 2.4 Diligence Detente
- 2.5 Entry of Final Decree in Water Division-2, Case No. 09CW142

These subject areas are considered in sections **II–VI** of this Agreement. Additionally, other

subjects of agreement appear herein and the Parties agree all such subjects of agreement are also non-severable.

3. Process. Following the Effective Date, the Parties shall enter into a Stipulation to which this Agreement shall be attached and incorporated. The Stipulation will be submitted for approval by the Water Court for Water Division 2. If said Stipulation is approved the Agreement shall be enforceable as an Order of the Court amongst the Parties subject to this paragraph 3 and its subparts. The Parties agree the contemplated Stipulation shall bind and benefit them; however, individuals, including but not limited to other parties appearing in WD-2, 09CW142 and the Cases consolidated therewith (WD-1, 09CW272 and WD-5, 09CW186) other than the Parties are neither bound by nor are they intended to benefit from this Agreement or the contemplated Stipulation. Immediately following approval of the Stipulation, the Parties will jointly seek entry by the Division 2 Water Court of the Draft Decree attached hereto as Exhibit A as the Final Decree in WD-2, 09CW142 providing, *inter alia*, for a 60-year rolling average of 2,416 A-F of diversions per year, a 20-year rolling average of 3,192 A-F per year and an annual maximum 4,064 A-F. Aurora and B-I Inc. agree these diversions are contingent upon continuing compliance with the obligations and requirements of this Agreement by Aurora and B-I Inc. and their successors in interest if any.

3.1 Should the Draft Decree be entered as the Final Decree, and the periods for any appeal or other reconsideration of the entry of said Decree expire without appeal or reconsideration, the Parties will promptly proceed to implement all other agreements contained within this Agreement. If such occurs the Initiation Date is the date after which the Decree becomes final and all appeal and reconsideration periods have ended. Prior to the Initiation Date, the Parties will cooperate in good faith to support the desired completion of the subject areas of this Agreement.

3.2 The Parties acknowledge the Water Court could decline to enter the Draft Decree as submitted and/or there could be further appellate proceedings. If the Draft Decree is not entered as the Final Decree or the Draft Decree is reconsidered or appealed, the Parties will hold in abeyance implementation of all agreements contained in this Agreement until following the conclusion of any reconsideration or appeal proceedings. If, at the conclusion of any reconsideration, appeal or other proceedings, the Draft Decree is entered as the Final Decree the Parties will promptly proceed to implement all agreements contained within this Agreement.

3.3 If at the conclusion of any reconsideration, appeal or other proceedings the Draft Decree is not entered as the Final Decree this Agreement and the Stipulation referenced in this paragraph 3 will terminate and the Parties will be released from all duties and obligations to implement any of the agreements contained in this Agreement unless the Parties unanimously agree in writing as set forth in paragraph 3.4.

3.4 If any Water Court, reconsideration, appeal or other proceedings result in the entry of a changed or modified form of the Draft Decree, the Parties agree to confer within

7-days of the entry of any changed or modified form of decree. After conferral the Parties must unanimously agree in writing among themselves to promptly proceed to implement the agreements contained within this Agreement or to otherwise amend the Agreement. If the Parties do not reach such unanimous agreement within 30-days of entry of a changed or modified form of the Draft Decree, any single Party may, by written notice to the other Parties, terminate this Agreement and the Stipulation referenced in this paragraph 3 no later than 45-days following entry of a changed or modified form of the Draft Decree. Upon such termination, the Parties will be released from all duties and obligations to implement any of the agreements contained in this Agreement and the Stipulation referenced in this paragraph 3 and Aurora agrees it will seek to withdraw the changed or modified form of decree entered. Alternatively, the Parties agree they will move to have the Water Court reconsider and enter a decree consistent with this Agreement and the Stipulation. The West Slope Parties agree to support such withdrawal or reconsideration motion. The Parties agree in the event of the entry and subsequent withdrawal of a decree not unanimously agreed upon that each of them retain their legal positions regarding WD-2, 09CW142 as those positions existed when 14SA303, was remanded back to the Water Court. The Parties agree any invocation of the Water Court's retained jurisdiction as described in paragraph 38 of the Draft Decree will not be considered a reconsideration, appeal or other proceeding as described in this paragraph 3. The Parties further agree that none of them will seek to invoke the referenced Water Court's retained jurisdiction, except as provided for in paragraph 19.1 of the proposed decree, unless there is unanimous agreement among the Parties to do so.

4. Not Precedent. This Agreement and the components thereof are the result of substantial and extensive settlement discussions. It is specifically understood and agreed by the Parties that the acquiescence of the Parties and the components thereof were the result of current specific factual and legal circumstances of the Parties and upon the numerous and interrelated compromises reached by the Parties. Thus the existence of this Agreement and the components thereof shall never give rise to any argument, claim, defense or theory of acquiescence, waiver, bar, merger, stare decisis, res judicata, estoppel, laches or otherwise, nor to any administrative or judicial practice or precedent, by or against any of the Parties in any other agreement, matter, case or dispute, nor shall testimony concerning such agreement or acquiescence of any Party to this Agreement and the components thereof be allowed in any other matter, case or dispute. The Parties agree they do not intend this Agreement and the components thereof to have the effect of precedent or preclusion on any factual or legal issue in any other matter.

5. No Property Transfers. The Parties agree no portion of this Agreement should be construed or interpreted as a transfer of title or a transfer of ownership of any water, water right or any facility for the supply, treatment and distribution of water owned by any of the Parties.

6. Assignability and Delegation, if any. The rights and duties of the Parties under this Agreement and the Stipulation will apply to, bind and obligate any and all successors or delegates in interest of the Parties if any are allowed. Unless specifically set forth herein, none of the Parties may assign their rights nor delegate their duties hereunder without the prior written consent of the other Parties. Further none of the Parties may sell or sublease any of benefits derived hereunder without the permission of the other Parties, which permission individual

Parties may grant or withhold at their discretion. Nevertheless, the prohibition expressed in the previous sentence does not apply to the circumstance of a recipient being able to sell, lease or otherwise fully use in any fashion water derived from any benefit inuring to such recipient.

7. No Waiver of Governmental Immunity. Notwithstanding any provisions of this Agreement to the contrary, no term or condition of this Agreement shall be construed or interpreted as a waiver, either expressed or implied, of the monetary limitations on liability or any of the immunities, rights, benefits or protections provided to any Party under the Colorado Governmental Immunity Act, § 24-10-101, et seq. C.R.S., as amended or as may be amended. The Parties understand and agree liability for claims for injuries to persons or property arising out of the alleged negligence of any Party, their officials and employees may be controlled or limited by said Act, as amended or as may be amended. Any provision of this Agreement, whether or not incorporated herein by reference, shall not be interpreted to control, limit or otherwise modify so as to limit any liability protection of any Party pursuant to the above cited laws.

8. Force Majeure. Subject to the terms and conditions in this paragraph, no Party to this Agreement shall be liable for any delay or failure to perform under this Agreement due solely to conditions or events of *force majeure*; provided that: (i) the non-performing Party gives the other Parties prompt written notice describing the particulars of the occurrence of the *force majeure*; (ii) the suspension of performance is of no greater scope and of no longer duration than is required by the *force majeure* event or condition; and (iii) the non-performing Party proceeds with reasonable diligence to remedy its inability to perform and provides weekly progress reports to the other Parties describing the actions taken to remedy the consequences of the *force majeure* event or condition.

9. No Water Quality Objections. The Parties acknowledge the quantity of water that may be stored, delivered and/or exchanged pursuant to various provisions of this Agreement is raw water derived from, and comingled with, water from multiple stream sources. Thus, the Parties agree not to object to the quality of the raw water that may be stored, delivered and/or exchanged pursuant to various provisions of this Agreement.

10. SEO & DEO. The Colorado State Engineer and the Division Engineers for Water Division's 1, 2 and 5 ("SEO & DEO") are Opposers in WD-2, 09CW142, WD-1, 09CW272 and WD-5, 09CW186, and have not previously stipulated to the entry of a decree. The Parties agree to use their best efforts to seek the SEO's & DEO's confirmation that the means for implementing the provisions of this Agreement can be administered by the SEO & DEO and the SEO's & DEO's agreement to the entry of the Draft Decree set forth in Exhibit A. The SEO & DEO are not parties to this Agreement and nothing in this Agreement shall affect the ability of the SEO & DEO to comply with their statutory and administrative duties, including participating in subsequent water court proceedings to ensure their ability to administer any subsequent decrees entered by the water courts.

11. Future Cooperation. A fundamental premise of this Agreement is the Parties will not actively seek to undermine, or encourage others to undermine, the Parties' respective interests and resources committed, compromised, dedicated or otherwise addressed in this Agreement. For

purposes of this paragraph, "Adverse Action" means an action of a legislature, court, administrative agency, regulatory body or other governmental entity that would cause a material adverse impact to a Party's interests or resources committed, compromised or otherwise addressed in this Agreement. In the event that an Adverse Action is proposed or is likely to occur as the result of an action by a Party to this Agreement, the Party whose interests or resources would suffer a material adverse impact will notify the other Parties. The Party affected by the Adverse Action and the Party or Parties whose action caused it to arise will diligently meet and discuss in good faith the potential detrimental effect of such Adverse Action, with the goal of determining whether any action by any one of them could avoid the Adverse Action or mitigate its impact on the affected Party. Each Party to such discussion agrees to evaluate in good faith whether it can implement changes in its operations or undertake other efforts that would achieve this goal, and to implement any such efforts as may be agreed to in such discussion.

11.1 As part of this Agreement the West Slope Parties understand that Aurora seeks to develop two projects, Wild Horse Reservoir in Water Division 1 and Box Creek Reservoir in Water Division 2. Should the West Slope Parties, jointly or individually, determine a need to participate in any of the permitting processes associated with either Wild Horse Reservoir or Box Creek Reservoir, they agree that (a) they will notify Aurora of their concerns as soon as practicable during the NEPA scoping process and diligently work in good faith with Aurora to find a solution; and (b) any participation in the permitting processes by the West Slope Parties will not seek to prevent the project in its entirety and comments or requests may be raised only for the purpose of addressing water related impacts caused directly by either of the two above specified projects on the West Slope (defined as geographic areas west of the Continental Divide).

11.2 Additionally, the West Slope Parties further agree they will not oppose in Water Court or permitting processes 1) the need for any changes in points of diversion for the development of facilities under WD-5, Case Nos. 88CW449, 95CW272 (A) and/or existing Homestake system conditional water rights; 2) Aurora's obtaining permits to rebuild, repair or replace if necessary the Carlton Tunnel to its existing decreed carrying capacity, and/or emergency or temporary use of the Nast and/or Boustead Tunnels through an excess capacity contract with the U.S. Bureau of Reclamation; and 3) Pitkin obtaining a Bureau of Reclamation contract for use of Ruedi Reservoir as described within this Agreement. In the context of this Agreement, "not oppose" means a Party will not take actions to impair or impede the moving party's or parties' ability to obtain necessary certifications, permits, licenses, contracts, decrees and/or authorizations, including county 1041 regulations, needed to complete the identified project as long as such repair or replacement is not an expansion of existing decreed water rights. However, this Agreement shall not preclude any Party from submitting fair comments to governmental entities, including identification of issues of concern not in conflict with the spirit of this Agreement, or participating in any water court proceeding.

11.3 Any Party to this Agreement that is a permitting authority for an identified particular project will be exempt from the provisions of this paragraph 11 for such identified particular project.

12. Future Dialog. The Parties agree to from time to time conduct meetings and conversations about water matters of mutual benefit and of concern to them individually.

13. WD-5, 13CW3109. WD-5, 13CW3109 is a recreational in-channel diversion application by the City of Glenwood Springs. Aurora is an opposer in that case. Aurora agrees to continue to meet in good faith with the Applicant in that case toward the end of resolving contested issues.

14. Enterprise Obligations.

14.1 Sole Obligation of Aurora's Utility Enterprise. This Agreement shall never constitute a general obligation or other indebtedness of the City of Aurora, Colorado ("City") or a multiple fiscal year direct or indirect debt or other financial obligation whatsoever of the City within the meaning of the Constitution and laws of the State of Colorado or of the Charter and ordinances of the City. In the event of a default by Aurora's Utility Enterprise of any of its obligations under this Agreement, the other Parties shall have no recourse for any amounts owed to it against any funds or revenues of the City except for those revenues derived from rates, fees or charges for the services furnished by, or the direct or indirect use of, the Water System and deposited in the Water Enterprise Fund, as the terms "Water System" and "Water Enterprise Fund" are defined in City Ordinance No. 2003-18, and then only after the payment of all operation and maintenance expenses of the Water System and all debt service and reserve requirements of any bonds, notes, or other financial obligations of the Utility Enterprise secured by a pledge of the net revenues of the Water Enterprise Fund. Notwithstanding any language herein to the contrary, nothing in this Agreement shall be construed as creating a lien upon any revenues of the Utility Enterprise or the City. Aurora represents this Agreement has been duly authorized, executed and delivered by Aurora and constitutes a valid and legally binding obligation of Aurora, enforceable against Aurora in accordance with the terms hereof, subject only to the terms hereof and to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and to general principles of equity.

14.2 Sole Obligation of Ute Water Activity Enterprise. This Agreement shall never constitute a general obligation or other indebtedness of Ute Water Conservancy District ("Ute District") or a multiple fiscal year direct or indirect debt or other financial obligation whatsoever of the Ute District within the meaning of the Constitution and laws of the State of Colorado. In the event of a default by the Ute Water Activity Enterprise ("Ute Enterprise") of any of its obligations under this Agreement, the other Parties shall have no recourse for any amounts owed to it against any funds or revenues of the Ute District except for the revenues of the Ute Enterprise derived from pursuing, continuing and conducting all of the District's Water Activities, as that term is defined in the resolution creating the Ute Enterprise and any existing and future amendments thereto, and then only after the payment of all operation, maintenance and other expenses related to the District's Water Activities and all debt service and reserve requirements of any bonds, notes, or other financial obligations of the Ute Enterprise secured by a pledge of the net revenues of the Ute Enterprise. Notwithstanding any language herein to the contrary, nothing in this

Agreement shall be construed as creating a lien upon any revenues of the Ute Enterprise or the Ute District. Ute represents that this Agreement has been duly authorized, executed and delivered by Ute and constitutes a valid and legally binding obligation of Ute, enforceable against Ute in accordance with the terms hereof, subject only to the terms hereof and to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and to general principles of equity.

14.3 Sole Obligation of Basalt Water Activity Enterprise. This Agreement shall never constitute a general obligation or other indebtedness of BWCD or a multiple fiscal year direct or indirect debt or other financial obligation whatsoever of the BWCD within the meaning of the Constitution and laws of the State of Colorado. In the event of a default by the BWCD of any of its obligations under this Agreement, the other Parties shall have no recourse for any amounts owed to it against any funds or revenues of the BWCD except for the revenues of its Basalt Water Activity Enterprise (“Basalt Enterprise”) derived from pursuing, continuing and conducting all of its Water Activities, as that term is defined in any resolution creating or defining the Basalt Enterprise and any existing and future amendments thereto, and then only after the payment of all operation, maintenance and other expenses related to the Basalt Enterprise’s Water Activities and all debt service and reserve requirements of any bonds, notes or other financial obligations of the Basalt Enterprise secured by a pledge of the net revenues of the Basalt Enterprise. Notwithstanding any language herein to the contrary, nothing in this Agreement shall be construed as creating a lien upon any revenues of the Basalt Enterprise or the Basalt District. BWCD represents that this Agreement has been duly authorized, executed and delivered by BWCD and constitutes a valid and legally binding obligation of BWCD, enforceable against BWCD in accordance with the terms hereof, subject only to the terms hereof and to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and to general principles of equity.

14.4 Sole Obligation of the Colorado River Water Conservation District acting by and through its Colorado River Water Projects Enterprise. This Agreement shall never constitute a general obligation or other indebtedness of the CRWCD or a multiple fiscal year direct or indirect debt or other financial obligation whatsoever of the CRWCD within the meaning of the Constitution and laws of the State of Colorado. In the event of a default by the CRWCD of any of its obligations under this Agreement, the other Parties shall have no recourse for any amounts owed to it against any funds or revenues of the CRWCD except for the revenues of its Colorado River Water Projects Enterprise (“CRWCD Enterprise”) derived from pursuing, continuing, and conducting all of its Water Activities, as that term is defined in the resolution creating the CRWCD Enterprise and any existing and future amendments thereto, and then only after the payment of all operation, maintenance and other expenses related to the CRWCD Enterprise’s Water Activities and all debt service and reserve requirements of any bonds, notes or other financial obligations of the CRWCD Enterprise secured by pledge of the net revenues of the CRWCD Enterprise. Notwithstanding any language herein to the contrary, nothing in this Agreement shall be construed as creating a lien upon any revenues of the CRWCD Enterprise or the CRWCD. CRWCD represents that this Agreement has been duly authorized, executed and delivered by CRWCD and constitutes a valid and legally binding obligation of CRWCD, enforceable

against CRWCD in accordance with the terms hereof, subject only to the terms hereof and to applicable bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and to general principles of equity.

15. Miscellaneous

15.1 Intent of Agreement. This Agreement is intended to describe the rights and responsibilities of and between the Parties and is not intended to, and shall not be deemed to confer rights upon any persons or entities not named as Parties or as authorized assigns, nor to limit in any way the powers and responsibilities of the Parties, or any other entity not a Party or assign hereto.

15.2 Entire Agreement. This Agreement represents the entire bargain and contract of the Parties and none of the Parties has relied upon any fact or representation not expressly set forth herein. All prior and contemporaneous conversations, negotiations, possible alleged agreements, representations, covenants and warranties concerning the subject matter hereof, are merged in this Agreement.

15.3 Multiple Originals. This Agreement may be simultaneously executed in any number of counterparts, each one of which shall be deemed an original, but all of which constitute one and the same Agreement.

15.4 Amendment. This Agreement may be amended, modified, changed or terminated in whole or in part only by written agreement duly authorized and executed by the Parties.

15.5 Headings for Convenience. Headings, titles and the table of contents contained herein are intended for the convenience and reference of the Parties only and are not intended to confine, limit or describe the scope of intent of any provision of this Agreement.

15.6 Governing Law. This Agreement and its application shall be construed in accordance with the law of the State of Colorado.

15.7 No Attorney Fees. In the event of any litigation, mediation, arbitration or other dispute resolution process arising out of or related to this Agreement each Party agrees to be responsible for its own attorney and other professional fees, costs and expenses associated with any such proceedings.

15.8 No Construction Against Drafter. This Agreement was drafted by Aurora with review and comment from the attorneys for the other Parties. Accordingly, the Parties agree the legal doctrine of construction against the drafter will not be applied should any dispute arise concerning this Agreement.

15.9 Non-Severability; Effect of Invalidity. Each provision of this Agreement is intertwined with the others and is not severable unless by mutual consent of the Parties. If any provision of this Agreement or the application thereof to any person or circumstance shall, at any time or to any extent, be held invalid or unenforceable for any reason by a

Court of competent jurisdiction the Parties shall promptly meet in order to enact a new agreement that as near as possible replicates the provisions hereof.

15.10 Waiver of Breach. Waiver of breach of any of the provisions of this Agreement by any Party shall not constitute a continuing waiver of any subsequent breach by said Party of either the same or any other provision of this Agreement.

15.11 Non-Business Days. If any date for any action under this Agreement or its application falls on a Saturday, Sunday or a day that is a "holiday" as such term is defined in Rule 6 of the Colorado Rules of Civil Procedure, then the relevant date shall be extended automatically until the next business day.

15.12 Recitals. The recitals herein are hereby incorporated into this Agreement.

15.13 No Recordation. The Parties expressly agree this Agreement will not be recorded in any Clerk and Recorder's Office within or outside of Colorado except as may be required for the act of approving this Agreement by any one of the Parties. All Parties expressly agree this unmodified Agreement may be referenced, included or otherwise incorporated in any future or pending Water Court Application or administrative proceeding before the office of the Colorado State Engineer.

15.14 Authority of the Parties. Subject to the terms this Agreement, the Parties each affirm and represent they have the full power and authority to execute this Agreement.

15.15 No Agency Created and No Third Party Beneficiaries. This Agreement is not intended and shall not be construed to create any joint venture, agency relationship or partnership between the Parties. None of the Parties shall have any right or authority to act on behalf of or bind another Party. The agreements herein and the benefits therefrom are solely intended for the Parties hereto and are not for the benefit of, nor may they be claimed as benefits, by third parties.

15.16 Execution of Additional Documents. The Parties agree to execute any further documents reasonably necessary to complete the transactions provided for or contemplated by this Agreement.

15.17 Specific Performance. The Parties hereto are entitled to seek the remedy of specific performance regarding any breaches hereof by another Party.

15.18 Notice. Except as to any operational communications that the Parties may subsequently agree are best handled through electronic or telephonic means, all notices, requests, demands or other communications (collectively, "Notices") hereunder shall be in writing and given by (i) established express delivery service which maintains delivery records requiring a signed receipt, (ii) hand delivery or (iii) certified or registered mail, postage prepaid, return receipt requested to the Parties at the following address, or at such other address as the Parties may designate by Notice in the above manner.

To Aurora and/or B-I Inc.:

City of Aurora
15151 East Alameda Parkway, Suite 3600
Aurora, CO 80012-1555
Attn: Director, Aurora Water

with copy to City of Aurora
15151 East Alameda Parkway, Suite 5300
Aurora, CO 80012-1555
Attn: City Attorney

with copy to Hamre, Rodriguez, Ostrander & Dingess, PC
3600 Yosemite Street, Suite 500
Denver, CO 80237-1829
Attn: John M. Dingess, Esq.

To CRWCD: Colorado River Water Conservation District
Attention: General Manager
P.O. Box 1120
Glenwood Springs, CO 81602

with copy to: Colorado River Water Conservation District
Attention: General Counsel
P.O. Box 1120
Glenwood Springs, CO 81602

To BWCD: Basalt Water Conservancy District
P.O. Box 974
Glenwood Springs, CO 81602

with copy to: Balcomb & Green, P.C.
P.O. Drawer 790
Glenwood Springs, CO 81602
Attn: Christopher L. Geiger, Esq.

To Eagle: Eagle County Attorney
P.O. Box 850
500 Broadway
Eagle, CO 81631-0850

with copy to: Balcomb & Green, P.C.
P.O. Drawer 790
Glenwood Springs, CO 81602
Attn: Christopher L. Geiger, Esq.

To Pitkin: Pitkin County Attorney's Office
530 East Main Street, Suite 301
Aspen, CO 81611

with copy to: Pitkin County Manager's Office
530 East Main Street, Suite 302
Aspen, CO 81611

To GVVUA: Grand Valley Water Users Association
Attention: General Manager
1147 24 Road
Grand Junction, CO 81505

with copy to: Williams, Turner & Holmes, P.C.
Attention: Kirsten M. Kurath
744 Horizon Court, Suite 115
Grand Junction, CO 81506

To OMID: Orchard Mesa Irrigation District
Attention: District Manager
668 38 Road
Palisade, CO 81526

with copy to: Williams, Turner & Holmes, P.C.
Attention: Kirsten M. Kurath
744 Horizon Court, Suite 115
Grand Junction, CO 81506

To Ute: Ute Water Conservancy District
Attention: Manager
2190 H ¼ Road
Grand Junction, CO 81505

with copy to: Ute Water Conservancy District
Attention: General Counsel
2190 H ¼ Road
Grand Junction, CO 81505

with copy to: Williams, Turner & Holmes, P.C.
Attention: Kirsten M. Kurath
744 Horizon Court, Suite 115
Grand Junction, CO 81506

Notices shall be effective (i) the day of delivery indicated by the delivery receipt when sent by an established express delivery service which maintains delivery records requiring a signed receipt, (ii) upon receipt by the addressee of a hand delivery, or (iii) the day of delivery indicated by the Return Receipt when mailed via Certified or Registered mail, postage prepaid, Return Receipt Requested.

15.19 No Other Agreement or Decree Modified. Unless specifically identified and referenced in this Agreement no other agreement or contract between any of the Parties or between any Party and a third party, or any water decree or stipulation is modified or changed by this Agreement.

15.20 Failure to perform any obligation contained in this Agreement by any Party shall constitute a default. Any Party may seek legal or equitable recourse in any court of competent jurisdiction including suspension of the terms of this Agreement, the Stipulation and the Decree. Failure to enforce any default shall not be construed as a waiver by any Party of the default or remedies for breach. If, for any reason except for failures described in paragraphs 8, 22 and 23 hereof, Aurora fails or is unable to fulfill its obligations under the provisions of this Agreement, Aurora's diversions of the Busk-Ivanhoe water rights that are the subject of this Agreement shall cease until such time as Aurora is again in compliance with this Agreement. Any such cessation of Busk-Ivanhoe diversions by Aurora will not excuse or postpone any other obligations of Aurora set forth in this Agreement.

II. Roaring Fork River Water Delivery

16. Aurora Twin Lakes Ownership. Aurora currently owns 2,488.475 shares of the Twin Lakes Reservoir and Canal Company ("Twin Lakes") representing approximately five percent of the total issue of 49,588.965 shares. The Parties acknowledge Aurora's ability to request the activities of Twin Lakes hereinafter described is limited and subject to its pro rata ownership. Twin Lakes by mention of its name in this Agreement is not made a party hereto; no Party is due any third-party performance from Twin Lakes. If the sale of shares of stock, dilution of the current shares, or changes in the rights represented by Aurora's current shares of stock occur such that Aurora no longer has interest or benefit of Twin Lakes shares of stock as contemplated and described in this Agreement and this change results in an inability of Aurora or its successor to fulfill the obligations of this Agreement then B-I Inc./Aurora are in default pursuant to paragraph 15.20 above until such time as the preexisting stock condition is restored, but Aurora's and B-I Inc.'s other obligations under this Agreement shall remain. This Agreement does not change, modify, revise or amend any other contract or agreement between any of the Parties and Twin Lakes. Aurora agrees that it will not request Twin Lakes to perform any illegal operations or activities. The Parties agree that Twin Lakes assumes no liability for any operations it conducts pursuant to the terms of this Agreement. Further, the Parties agree that in the event operations of Twin Lakes conducted pursuant to the terms of this Agreement result in the initiation of legal proceedings against Twin Lakes then Twin Lakes may immediately cease such operations pending resolution of the said legal proceedings against Twin Lake to its satisfaction.

17. Roaring Fork Delivery Location. As a Twin Lakes shareholder Aurora may call for deliveries and bypasses of its "in priority" water derived from the transbasin component of its

Twin Lakes shares at or near the outlet of Grizzly Reservoir, a facility with an operating volume of approximately 500 A-F, located in Pitkin County within Lincoln Gulch upon Lincoln Creek, a tributary to the Roaring Fork River. Consistent with Twin Lakes operating requirements and requests of Pitkin and the CRWCD, deliveries may also be made from Twin Lakes' facilities located on the Roaring Fork River near Lost Man Creek.

18. Water Deliveries and Bypasses. Subject to the following, pursuant to the Twin Lakes decrees and according to its operating principles and provided Aurora's ownership of Twin Lakes shares yield to Aurora an amount equal to or greater than the bypasses or releases of water from the Independence Pass Trans-mountain Diversion System during the subject year, beginning in the Twin Lakes Water Year (October 1 - September 30 Twin Lakes Water Year) following the Initiation Date, Aurora will cause to be delivered through bypasses or releases to the Roaring Fork River up to a total of 900 A-F of its Twin Lakes water each Twin Lakes Water Year. As used within Section II of this Agreement the term "bypass" means water diverted pursuant to Aurora's Twin Lakes shares under the Twin Lakes' priority and then delivered to the Roaring Fork River at a time when such water is physically and legally available under such right. Annually, designated representatives of Pitkin, CRWCD, Aurora and Twin Lakes will develop, subject to the terms of this Agreement, detailed delivery schedules reasonably considering and reflecting the desired rate, timing, amount, location and ultimate use of the water, as well as the operational needs and constraints upon the Independence Pass Transmountain Diversion System. Pitkin, CRWCD, Aurora and Twin Lakes may consult with other appropriate parties, if any, in developing the delivery schedules. Delivery schedules may be updated from time-to-time throughout the Water Year as warranted by hydrology, operational constraints or other factors. It is recognized by the Parties that deliveries under this paragraph will be conducted in a manner designed to maximize benefits to Roaring Fork River stream flows which is a benefit to the West Slope Parties and the Colorado River basin as stated in paragraph 20. Delivery of this water will be completed by the end of the Twin Lakes Water Year. Aurora will not carry over to following years any undelivered or un-bypassed water. The Parties agree any water provided per the terms of this paragraph 18 and its subparts retains its identity as water derived from the exercise of the Twin Lakes water rights. The water deliveries and bypasses contemplated by this paragraph 18 are not contingent upon the operation of any exchange described in paragraph 19. Other water users may be allowed to operate exchanges or otherwise divert and provide a substitute supply for the Twin Lakes water bypassed, so long as the DEO ensures delivery of the bypassed amount, minus transit losses, to any exchange from point or point of delivery to an actual decreed location of use. The Twin Lakes water will be delivered to the Roaring Fork River as described in 18.1 and 18.2 below:

18.1 Annual Roaring Fork Delivery. 900 A-F will be delivered annually during each Twin Lakes Water Year from or through Grizzly Reservoir, or bypassed from the Twin Lakes System's Roaring Fork diversions. If Aurora's 2,488.475 Twin Lakes shares do not yield 900 A-F as a result of drought or other climatic conditions or the physical capacity of the facilities of Twin Lakes as described in paragraph 22, then such lesser amount supported by the yield of Aurora's 2,488.475 shares will be delivered. 700 A-F of the 900 A-F will be delivered as a bypass of Aurora's Twin Lakes "in priority" water at or near the Twin Lakes diversion points in the Lincoln Creek Drainage near Grizzly Reservoir or its diversion points on the Roaring Fork River near Lost Man Creek. Subject to the forgoing and the following

considerations the remaining 200 A-F of the 900 A-F will be released from Grizzly Reservoir generally at the end of summer and during the fall seasons consistent with the annual delivery schedule as may be modified during the Twin Lakes Water Year and the operational requirements of Twin Lakes. If not physically released from Grizzly Reservoir this remaining 200 A-F will be bypassed instead of released from storage if hydrologic conditions and operational constraints of Twin Lakes warrant. In any event the Parties acknowledge that 200 A-F will be the maximum release to Lincoln Creek that can be made from Grizzly Reservoir storage in any year. The Parties recognize that Twin Lakes operational and infrastructure maintenance needs and stream flow needs of Lincoln Creek and the Roaring Fork River, including but not limited to turbidity, temperature, habitat, flooding, water quality and other environmental constraints, may require that these releases consist of low flows that begin in mid-summer and end in late-summer. Annual delivery of this 200 A-F of released water will be consistent with the considerations used for the 700 A-F of bypassed water described above. Typically the delivery of water to the Roaring Fork River will provide the greatest benefit in the second half of the summer, beginning July 15, through the fall season. Pitkin and Aurora acknowledge that water delivered to the Roaring Fork River by Aurora before this time, during the runoff, is not generally needed and in wet years may exacerbate flood risk. Delivered water, bypasses and releases from Grizzly Reservoir, will normally be Aurora's interest in its yield of the IPTDS. Aurora's yield from its Twin Lake's shares is delivered daily to Aurora and other Twin Lakes shareholders on a prorated basis. Aurora agrees to use best efforts to accommodate desires for late season deliveries and conversely Pitkin recognizes Aurora's delivery of water as bypasses or releases will be based upon Aurora's annual yield as currently reflected by Aurora's ownership of 2488.475 shares in Twin Lakes Reservoir and Canal Company. Nevertheless, while Pitkin and Aurora recognize neither one of them can compel aggregation of deliveries of Twin Lakes water owned by Aurora with Twin Lakes water owned by other shareholders, if circumstances allow Aurora will not require that its deliveries be limited to its daily proration of Twin Lakes yield. The Expression of Mutual Intent between Aurora and Twin Lakes, attached hereto as Exhibit F, and the expectations of Aurora and Twin Lakes contained in that letter agree with Pitkin's expectations and describe satisfaction, without modification, of the water delivery obligations contained in Section II of this Agreement. Delivery of water to the Roaring Fork will be based upon protocol described in Paragraphs 18, 19 and 20 and their subsections.

18.2 Recovery Year Reduction of Annual Water Delivery. Subject to the conditions herein stated, the 900 A-F of annual delivery and/or bypass will be reduced to 800 A-F for the subject year if Aurora's total system storage is at or below sixty percent (60%) of total capacity on any April 1. Aurora's total system storage is described in Exhibit E. Aurora agrees to update its amount of total system storage as changes occur to reflect addition or loss of storage facilities, changes in contract storage capacity, enlargement of facilities or other changes in storage volume. Annually, Aurora will communicate to the West Slope Parties its total system storage quantity on April 1 and express that amount as a percentage of total system capacity and describe the methodology for this calculation. This Recovery Year Reduction allowance will cease once Aurora's total system storage has recovered to eighty percent (80%) of total capacity and delivery of the 100 A-F will once again be subject to temporary suspension should total system storage fall to sixty percent (60%) or below.

Nevertheless, the Recovery Year Reduction described in this paragraph will not apply during any year or years that Aurora's total system storage is at or below sixty percent (60%) of total capacity on any April first as a result of Aurora filling expanded system capacity resulting from construction of additional storage space, the acquisition of additional contract storage space, enlargement of existing facilities, or increase in storage volume.

19. Exchanged Roaring Fork Deliveries. Subject to the conditions stated in this paragraph 19 and the remainder of Section II of this Agreement, in the Twin Lakes Water Years following the Initiation Date Aurora may cause to be delivered for the benefit of the Roaring Fork River up to an additional 100 A-F of water annually during the diversion season that if delivered would make the amount of water delivered or bypassed to the Roaring Fork River in such a year pursuant to paragraphs 18 and 19 and their subparagraphs up to but not exceeding 1,000 A-F. Annually, prior to the initiation of diversions by Twin Lakes designated representatives of Pitkin, CRWCD, Aurora and Twin Lakes will develop subject to the terms of this Agreement detailed delivery schedules for water available under this paragraph 19 reasonably considering and reflecting the desired rate, timing, amount, location and ultimate use of the water, as well as the operational needs and constraints upon Aurora as a Twin Lakes shareholder plus constraints upon the Twin Lakes company and all Twin Lakes facilities. Pitkin, CRWCD, Aurora and Twin Lakes may consult with other appropriate parties, if any, in developing the delivery schedules. Delivery schedules may be updated from time-to-time throughout the Water Year as warranted by hydrology, operational constraints or other factors identified in this Agreement. It is recognized by the Parties that deliveries under this paragraph 19 will be conducted in a manner designed to maximize benefits to Roaring Fork River stream flows which benefits the West Slope Parties and the Colorado River basin as stated in paragraph 20. Those Parties will also invite the U.S. Bureau of Reclamation to participate in such meetings.

19.1 The Exchanged Roaring Fork Delivery will be contingent upon and limited by the following:

19.1.1 Aurora must first obtain an adjudicated right allowing the exchange of up to 900 A-F of Twin Lakes Water over which Aurora has maintained dominion and control in any one year from the confluence of the Roaring Fork and Fryingpan Rivers upstream on the Fryingpan River to Ruedi Reservoir and an additional exchange, as a component subset of the 900 A-F, up to 450 A-F in any one year from Ruedi Reservoir to Ivanhoe Reservoir located upon Ivanhoe Creek. Ivanhoe Reservoir is owned by Pueblo Water and operated by the Busk-Ivanhoe Water System Authority. The Parties acknowledge neither Pueblo Water nor the Busk-Ivanhoe Water System Authority assume any liability for any operations or activities conducted pursuant to the terms of this Agreement. Any storage of exchanged water in Ivanhoe Reservoir must be pursuant to a contract with the owner and operator of Ivanhoe Reservoir; and,

19.1.2 Pitkin must first obtain a continuing contract from the U.S. Bureau of Reclamation for "If-&-When" storage of 900 A-F of water in Ruedi Reservoir. Pitkin agrees to store at Aurora's request any water Aurora is able to exchange pursuant to sub-paragraph 19.1.1 above; and,

19.1.3 Water must be placed into Ivanhoe Reservoir pursuant to the operation of sub-paragraphs 19.1.1 and 19.1.2 above. Thereafter, during the following Twin Lakes Water Year, Aurora will deliver for the benefit of Pitkin and/or the West Slope Parties from facilities owned or controlled by Twin Lakes upon detailed delivery schedules established under paragraph 19 water in a volume equal to one-quarter of the amount of water placed into Ivanhoe Reservoir the previous Twin Lakes Water Year up to a maximum of 100 A-F. The water placed into Ivanhoe Reservoir the previous Twin Lakes Water Year will continue to be recognized as derived from the exercise of Twin Lakes water rights and the property of Aurora. Water deliveries for the benefit of Pitkin and/or the West Slope Parties may not be carried over to succeeding Twin Lakes Water Years.

19.1.4 Aurora will have discretion to not place water into Ivanhoe Reservoir if Aurora in good faith determines 1) such would be detrimental to Busk-Ivanhoe System senior water rights, or 2) such is not in accord with any contract with the operator and owner of Ivanhoe Reservoir.

19.2 Aurora at its discretion may choose to pursue as an alternative to sub-paragraphs 19.1.1 and 19.1.2 above, adjudication of a junior storage decree for up to 450 A-F within Ivanhoe Reservoir. If such a storage right is obtained, a contract with the operator and owner of Ivanhoe Reservoir is obtained and water is stored thereunder within Ivanhoe Reservoir then during the following Twin Lakes Water Year Aurora will deliver water, in accordance with delivery schedules established under paragraph 19, from facilities owned or controlled by Twin Lakes for the benefit of the Roaring Fork River in a volume equal to one-half of the amount of water placed into Ivanhoe Reservoir the previous Twin Lakes Water Year under this junior decree up to but not exceeding a total of 1,000 A-F as pursuant to paragraphs 18 and 19 and their subparagraphs. The balance of the water placed into Ivanhoe Reservoir the previous Twin Lakes Water Year under that junior storage decree will be recognized as the property of Aurora. Water deliveries for the benefit of Pitkin and/or the West Slope Parties may not be carried over to succeeding Twin Lakes Water Years. Any such junior storage right may, at Aurora's discretion, be held jointly with the Pueblo Board of Water Works but Aurora's obligations under this Agreement shall continue.

19.3 The filing and pursuit of applications for the exchange and/or storage water rights described within this paragraph 19 by Aurora will be in its discretion and at its sole cost. If Aurora proceeds with the adjudication of either or both of the exchange or storage rights discussed within paragraph 19 then Pitkin will request and pursue the If-&-When water storage contract within Ruedi Reservoir described within this paragraph 19. Aurora agrees it will be solely responsible for the costs of obtaining any such contract. Should Pitkin successfully obtain an If-&-When water storage contract within Ruedi Reservoir described within this paragraph 19 Pitkin agrees to pay for a proportional amount of the annual costs based upon its yield in the exchange for those years when the exchange produces a benefit for the Roaring Fork River and Aurora agrees to be responsible for the remaining annual costs. Aurora agrees not to seek any exchange right that would be senior to any exchange by BWCD described in Section **III**, below. Should Aurora decide to pursue an application

for an exchange and/or storage rights, the Parties agree to discuss, in good faith, whether Aurora should include within such application, to the extent legally allowed, the ability to beneficially use water in the Roaring Fork River below Maroon Creek, including but not limited to, use for instream flow purposes in the Roaring Fork River as administered by the Colorado Water Conservation Board ("CWCB"), for delivery to the Pitkin County Recreational In-channel Diversion decreed in Case No. 10CW305, Water Division 5 or for use in the BWCD's augmentation plan(s).

19.4 The Parties agree any water moved into Ivanhoe Reservoir by the exchange procedure described in paragraph 19.1 retains its identity as water derived from the exercise of the Twin Lakes water rights and is not counted against any volumetric limitations of any Busk-Ivanhoe System water right including any and all Busk-Ivanhoe junior rights.

19.5 Water delivered to the Roaring Fork River as a result of an exchange into Ruedi and Ivanhoe Reservoirs pursuant to this paragraph 19 will be made consistent with the deliveries described in paragraph 18 and its subsections.

19.6 All Parties agree to not oppose any Water Court proceeding by Aurora initiated solely to obtain decreed rights of exchange or changes as necessary to move Twin Lakes water or a junior Ivanhoe Reservoir storage right in accordance with the provisions of this paragraph 19. The Parties agree they will not oppose the issuance of an If-and-When contract by the U.S. Bureau of Reclamation for storage of water as herein described. The Parties further agree to reasonably cooperate with Aurora in exploring and possibly implementing alternative locations and methods for Aurora to exchange water delivered at Grizzly Reservoir after it passes the City of Aspen for the benefit of Aurora.

20. Further Cooperation Regarding Roaring Fork Flows. In the event of any unresolved dispute concerning the rate and timing of the Roaring Fork Delivery water pursuant to paragraphs 18 or 19, Aurora, CRWCD and Pitkin, agree amongst themselves that such dispute may be resolved by adjusting the rate and timing of the Roaring Fork Delivery in order to most closely achieve improvement and increases to streamflow in the Roaring Fork River and other consumptive and non-consumptive uses that do not require any change in the character of the water delivered to the Roaring Fork River drainage at times when it is most needed and produces the most benefit for the Roaring Fork River. In the event that, following such consultation process, the CRWCD and Pitkin do not reach agreement amongst themselves regarding any adjustment in flow rate or timing of flows provided under paragraphs 18 and 19, the CRWCD will defer to the position of Pitkin. The Parties recognize that there may be times or entire water years when Pitkin and CRWCD request that no water deliveries be made to the Roaring Fork River as a consequence of substantial or sufficient river flows present in the Roaring Fork or its tributaries or because of a threat of flooding in the Roaring Fork River drainage. At such times, Pitkin and the CRWCD's request for abatement of delivery will be honored and delivery obligations will be resumed later in the year to the extent possible given considerations described in paragraph 18 and 19. The Parties further agree to reasonably cooperate with each other and Pitkin County entities in exploring and possibly implementing alternative locations and methods for increasing Roaring Fork River Flows through the City of Aspen. Should such a project be undertaken, and Aurora agrees at its discretion to financially participate, it will do so in an

amount up to 1,000 A-F if available. If Aurora participates in such project, Aurora's delivery obligations set forth in paragraph 18 and 19 will be reduced by Aurora's volume of participation proportionately. Additionally, the Parties also agree and acknowledge that none of them have any intent to assert, and do not assert, that future activities under this Section II of this Agreement constitute relinquishment or abandonment of any of Aurora's ownership of any Twin Lakes water or water right. Further the Parties agree to cooperate in the future to prevent or combat attempts to allege relinquishment or abandonment of Aurora's ownership of any Twin Lakes water or water right as a result of their activities under this Section II of this Agreement.

21. CRWCD Delivery Offset. The CRWCD is the beneficiary of portions of the rights decreed in Twin Lakes' so-called junior decree entered in WD-5, 95CW321. Thereunder, at certain times water is delivered for the benefit of CRWCD. The Parties agree that in years when water is delivered for the benefit of CRWCD pursuant to WD-5, 95CW321 the amount of water so delivered to the Roaring Fork River will reduce by an equal amount Aurora's delivery obligations under paragraph 18, above. Nevertheless, the combined release of stored water from Grizzly Reservoir pursuant to paragraphs 18 and 19 and any Grizzly Reservoir storage release made pursuant to the terms of the decree, stipulation, and implementing agreements related to WD-5, 95CW321 shall not exceed 200 A-F in any year. The Parties acknowledge and agree that this Agreement is not intended to, and does not, interpret, change, modify, revise, amend, replace, displace, supersede or otherwise impact the decree and existing stipulations entered in WD-5, 95CW321, or any existing contract or agreement related to WD-5, 95CW321.

22. Busk-Ivanhoe or Twin Lakes Facility Failure. In the event of a Busk-Ivanhoe facility (including but not limited to the Carlton Tunnel) failure or a situation requiring substantial and unusual maintenance that prevents delivery of Busk-Ivanhoe System water to WD-2 or the delivery of water contemplated in paragraphs 18 and 19, the provisions of paragraphs 18 and 19 herein will be suspended until such time as the failed facilities are repaired and operating. This same suspension will also apply if Twin Lakes experiences a failure of its Grizzly Reservoir and/or facilities thereto or planned or unplanned necessary maintenance that prevents the delivery of water contemplated in paragraph 18 and 19.

III. Fryingpan River Exchanges and Storage

23. BWCD Storage Accounts. Following the Initiation Date Aurora will provide BWCD, on a permanent basis, a storage account for the storage of up to 50 A-F of water within, and release from, Ivanhoe Reservoir in any one Reservoir Accounting Year (May 1-April 30). This storage account will be pursuant to a contract between Aurora, BWCD and the owner and operator of Ivanhoe Reservoir. BWCD will be allowed to carry over its water in this Ivanhoe Reservoir storage account from one Reservoir Accounting Year to the next but the total amount of BWCD water available for use by BWCD in Ivanhoe Reservoir storage may not exceed 50 A-F in any single Reservoir Accounting Year. Aurora will also provide BWCD on a permanent basis a Non-site Specific storage account not to exceed 50 A-F at a location or locations to be determined by Aurora within one or more storage facilities of the Aurora Water supply system. BWCD will be allowed to carry over its water in this Non-site Specific storage account from one Reservoir Accounting year to the next. Should BWCD deplete its Ivanhoe Reservoir storage

account of its stored water within any one Reservoir / Accounting Year and not be able to refill this space through exchanges or substitute water supply plans, and provided that BWCD has water available to it in the Non-site Specific storage account, Aurora will replace up to 50 A-F within the Ivanhoe Reservoir storage account and take for Aurora's own use an equal amount from the Non-site Specific storage account. Both the Ivanhoe Reservoir and Non-site Specific storage accounts will be initially filled with water available to BWCD through exchanges or substitute water supply plans that BWCD may legally operate into Ivanhoe Reservoir, and may be refilled by BWCD through exchanges or substitute water supply plans that BWCD can operate into Ivanhoe Reservoir at any time during any Reservoir Accounting Year. All storage of water in Ivanhoe Reservoir under this paragraph 23 and other operations involving Ivanhoe Reservoir pursuant to this Agreement will be conducted by Aurora so as not to impact water yields of the Busk-Ivanhoe System to its other owners. In the event of a failure of Ivanhoe Reservoir facilities or a situation requiring planned or unplanned necessary maintenance that prevents storage or releases of water as contemplated in paragraphs 23-28, the provisions of paragraphs 23-28 that cannot be executed in the event that water storage or releases are prevented will be suspended until such time as necessary maintenance, repair or replacement is completed on the failed facility. The Parties acknowledge this Agreement does not change, modify, revise, amend, replace, displace or supersede any currently existing contract or agreement between Pueblo Water and Aurora concerning the Busk-Ivanhoe Water System Authority.

24. BWCD Exchanges. BWCD will move up to 100 A-F of water into Ivanhoe Reservoir storage by adjudicated exchange or administratively approved exchanges, substitute water supply plans and/or contract exchanges that BWCD will have responsibility for obtaining. BWCD agrees to be responsible for all costs associated with any adjudication(s), substitute supply plan(s) or contract(s). Regarding the Non-site Specific storage, so long as such water remains readily available for BWCD's use, Aurora may "place" at its cost some or all of the volume of water in excess of 50 A-F that BWCD has legally and physically moved into Ivanhoe Reservoir in any one Reservoir Accounting Year into the storage facility or facilities of Aurora's choice through its internal accounting procedures or otherwise. If Aurora does not move water into Non-site Specific storage during any Reservoir Accounting Year, the volume available for use by BWCD in Ivanhoe Reservoir storage during said year may still not exceed 50 A-F. Any BWCD water remaining in Ivanhoe Reservoir storage at the end of a Reservoir Accounting Year that Aurora could have placed, but did not, into the Non-site Specific storage account during said year will be carried over into the BWCD storage accounts, and applied first to the Ivanhoe Reservoir account, for the subsequent Reservoir Accounting Year. All Parties agree to non-monetary support and non-opposition regarding any Water Court proceeding by BWCD initiated solely to obtain decreed rights of exchange to move water into Ivanhoe Reservoir, as well as any Water Court proceeding by Aurora initiated solely to obtain decreed rights of exchange to move BWCD water from Ivanhoe Reservoir into the Non-site Specific storage account, for the purpose of this Section III. All Parties further agree to non-monetary support and non-opposition to any administrative request for approval of any exchange or substitute water supply plans by BWCD initiated solely to obtain permitted rights of exchange to move water into Ivanhoe Reservoir, as well as any administrative request for approval of any exchange or substitute water supply plans by Aurora initiated solely to obtain permitted rights of exchange to move BWCD water from Ivanhoe Reservoir into the Non-site Specific storage account, for the purposes of this Section III.

Aurora agrees it will assess on an objective basis any request by BWCD to Aurora for a contract exchange to move water into the storage accounts.

25. BWCD Payments to Aurora. BWCD will annually pay to Aurora the following described portion of Ivanhoe Reservoir's operation and maintenance expenses. The amount will equal one percent (1%) of the annual operations and maintenance budgeted costs for Ivanhoe Reservoir system. This calculation shall include all costs related to Ivanhoe Reservoir and other west slope components of the Busk-Ivanhoe System. This payment will also cover all BWCD's operations and maintenance payment obligations concerning the Non-site Specific storage account. Aurora will provide an invoice to BWCD for all of the charges by November 30 of each year and payment therefor will be due within 90 days. The one percent (1%) of the annual operations and maintenance budgeted costs for Ivanhoe Reservoir system BWCD obligation is proportionate to 50 A-F. By way of example, if BWCD placed a total of five (5) A-F into Ivanhoe Reservoir during a Reservoir Accounting Year, then BWCD would owe ten (10) percent (10%) of the one percent (1%) of the annual operations and maintenance budgeted costs for Ivanhoe Reservoir system. This obligation will become effective when BWCD actually utilizes either storage account, and will lapse if BWCD relinquishes rights to use both storage accounts or upon abandonment or cancellation of BWCD water rights placed into the storage accounts.

26. Accounting Information and Evaporation Charges. As between themselves, BWCD and Aurora agree that: 1) BWCD and Aurora will provide each other with all information known and available to them and needed for accounting of the BWCD water stored in the Ivanhoe Reservoir and Non-site Specific storage accounts; and, 2) BWCD will be responsible for payment of all evaporation charges associated with any water stored in either account; and, 3) the amount of evaporation for the Ivanhoe Reservoir storage space will be proportionally determined by comparing the amount of water BWCD has in storage with the total amount in storage within Ivanhoe Reservoir; and, 4) the amount of evaporation for the Non-site specific storage space will be proportionally determined by comparing the amount of water BWCD has in storage with the total amount in storage within the facility or facilities where Aurora chooses to accommodate said water.

27. Relative Priorities of Exchanges and Storage. As of the Effective Date of this Agreement neither Aurora nor the Busk-Ivanhoe system hold any decreed, permitted or contractual rights of exchange from points on or below the Fryingpan River to Ivanhoe Reservoir. So long as BWCD is reasonably diligent in requesting and prosecuting decreed rights of exchange to move water into Ivanhoe Reservoir storage space, including such amounts as Aurora may "place" into the Non-site Specific storage space, Aurora agrees it will not seek nor operate any adjudicated exchange into Ivanhoe Reservoir, including but not limited to any exchange described in paragraph 19 above, with an administration date senior to that obtained by BWCD if such Aurora exchange would call out the BWCD exchange. Additionally, so long as BWCD is reasonably diligent in requesting and prosecuting decreed rights of exchange to move water into the 50 A-F of Ivanhoe Reservoir storage space and 50 A-F of Non-site specific storage space, Aurora agrees it will not seek nor operate the junior storage decree described in paragraph 19.2 above with an administration date senior to that obtained by BWCD for its exchange if such Aurora junior storage decree would diminish the contemplated yield of the BWCD exchange.

28. BWCD Ivanhoe Reservoir Releases, Studies and Costs. BWCD will utilize its water in the storage accounts for purposes of supplying augmentation or substitute supplies to the Fryingpan River above Ruedi Reservoir or for stream flow support in that stream reach. Absent any agreement with the CWCB for instream flow use, releases solely for stream flow support may be subject to other water users operating exchanges or otherwise diverting the water, or if also being released to replace out-of-priority depletions or for a decreed beneficial use, other water users may operate exchanges or otherwise divert the water and provide a substitute supply for the released water, so long as the DEO ensures delivery of the released amount, minus transit losses, to any decreed point of replacement or use. BWCD may request releases of water from the storage accounts at any time and Aurora will take all reasonable steps to accommodate these requests. Aurora will not object to BWCD's use of the water placed into the storage accounts described in paragraph 23 for any legal beneficial use at any location within its service area. Although the Fryingpan River basin above Ruedi presents the most likely place of use, BWCD may find need for this supply in other locations within its service area, and if so Aurora will not object thereto. BWCD and Aurora acknowledge the Ivanhoe Reservoir is situated at high altitude and winter season releases will pose challenges. Nevertheless BWCD and Aurora agree to reasonably assist one another and to employ temperature appropriate and situationally reasonable methods in overcoming such challenges. Initially, BWCD and Aurora will cooperatively seek agreement with the CWCB that might allow BWCD to avoid winter releases. Concurrently, Aurora and BWCD agree to cooperatively study various methods of accomplishing winter releases if such are necessary and Aurora agrees it will pay for the initial feasibility study up to \$25,000 for such study. In addition to that investigation, BWCD agrees to study the potential for other winter augmentation sources such as releases from other impoundments tributary to the Fryingpan River. BWCD agrees to pay all costs for this investigation. If Ivanhoe Reservoir releases are still determined to be required, then Aurora and BWCD agree to pay one-half each up to a joint total of \$260,000.00 (up to \$130,000 each) for any necessary construction and installation of facilities that, in the exercise of non-arbitrary good faith, both Aurora and BWCD determine are necessitated by the study. Both entities must agree to the development of the project determined from the study and each will pay equal amounts for the project development. BWCD agrees it will pay for the hydrologic modeling of the Fryingpan Basin needed to support the exchange requests for movement of water into Ivanhoe Reservoir. BWCD will share the hydrologic modeling it develops with Aurora. Aurora will conduct and pay for a capacity survey of Ivanhoe Reservoir if needed for this study. Aurora will share the capacity survey with BWCD. As of the Effective Date Aurora and BWCD have identified the following three potential winter-release alternatives: 1) siphon pipeline; 2) small pump station and pipeline; and 3) a jack and bore pipeline conveying water around Ivanhoe Reservoir by gravity flow. These alternatives are listed by way of example and are not meant to exclude other agreed upon methods including, but not limited to, approved slug releases. Aurora and BWCD agree their rights and obligations under this Section III are conditional upon entry of a contract between Aurora, BWCD and the owner and operator of Ivanhoe Reservoir authorizing BWCD's use of Ivanhoe Reservoir as they agree for the purposes of Section III. Aurora and BWCD agree they will actively cooperate in diligent good faith attempts to obtain required authorization for such use of Ivanhoe Reservoir and to implement the provisions of Section III of this Agreement. If despite such efforts such authorization is not obtained Aurora agrees it will pay up to \$130,000.00 discussed above toward alternative solutions to make 50 A-F of water available to BWCD tributary to the Fryingpan River that does not involve use of Ivanhoe Reservoir.

29. BWCD Support of Box Creek Reservoir and No Changes to Busk-Ivanhoe Agreements. In view of the agreements in this Section III, BWCD specifically acknowledges Aurora is working toward developing a water reservoir in Lake County, Colorado referred to as the Box Creek Reservoir, generally described in Exhibit B. BWCD agrees to acknowledge its support for Aurora's development of Box Creek Reservoir in writing in the form of Exhibit C, attached, as may be requested by Aurora. This Agreement does not change, modify, revise or amend any other contract or agreement between any of the Parties and B-I Inc. Aurora agrees that it will not request B-I Inc. to perform any illegal operations or activities. The Parties acknowledge this Agreement does not change, modify, revise, amend, replace, displace or supersede any currently existing contract or agreement between Aurora, B-I Inc., the Busk-Ivanhoe Water System Authority or Pueblo Water concerning the Busk-Ivanhoe System.

IV. Shoshone Outage Protocol & Shoshone Permanency

30. ShOP Agreement. The Shoshone Power Plant is a mainstem hydroelectricity plant with generation facilities located adjacent to the mainstem of the Colorado River downstream from its confluence with Shoshone Creek and west of Exit 125 of Interstate Highway 70 ("SPP"). The SPP is currently owned and operated by Public Service Company of Colorado, d/b/a Xcel Energy ("PSCo"). The SPP has a senior hydropower water right with a 1902 Appropriation for 1250 cfs ("Senior Hydropower Right") and a junior hydropower water right with a 1929 Appropriation for 158 cfs ("Junior Hydropower Right"). The Senior Hydropower Right and the Junior Hydropower Right are collectively referred to for purposes of this Agreement as the "SPP Water Rights." Several entities,¹ some of whom are parties to this Agreement entered into an Agreement dated June 27, 2016 referred to as the Shoshone Outage Protocol (US Bu Rec Agreement No. 13XX6C0129) ("ShOP Agreement"). The parties to the ShOP Agreement 1) recognized when the SPP is operating its river call it can command the flow of the Colorado River and certain tributaries in certain stream conditions by exercising the Senior Hydropower Right against upstream junior water rights; 2) recognized whenever the SPP is not operating because of repairs, maintenance or other reasons, the SPP river call cannot be exercised and upstream junior water rights would be able to divert water; 3) recognized a desire of some to maintain the flow regimen of the Colorado River as historically influenced by the Senior Hydropower Right; and 4) agreed among themselves to implement certain operating procedures during times when the SPP was not operating. Included within the ShOP Agreement were provisions when certain parties thereto would not divert under their water rights per the operating procedures.

31. Aurora Ownership.

31.1 The Parties acknowledge Aurora is the owner of one-half of the Homestake System which system includes, inter alia, the Homestake water rights first decreed in Eagle County District Court Case No. CA-1193 with Appropriation dates of 1952. The Parties

¹ US Bureau of Reclamation, Colorado Division of Water Resources, Denver Water Board, CRWCD, Middle Park WCD, Northern Colorado WCD & its Municipal Subdistrict, Grand Valley Water Users Association, Orchard Mesa Irrigation District and the Grand Valley Irrigation Company

further acknowledge that as a one-half owner of the Homestake System Aurora cannot bind, and is not binding, the owner of the other one-half of the Homestake System, Colorado Springs-Utilities, to any of the provisions hereof. In view of the forgoing Aurora agrees that, subject to the further terms and provisions herein stated, it will subject its one-half of the Homestake water rights to the terms herein following. The Parties acknowledge this Agreement does not change, modify, revise, amend, replace, displace or supersede any currently existing contract or agreement between the City of Colorado Springs and Aurora concerning the Homestake System ("Homestake Agreements").

31.2 The Parties acknowledge Aurora is the owner of two-thirds of the outstanding shares of the Fremont Pass Ditch Company ("FPDC") which Company owns Columbine Ditch water rights decreed in Civil Action No. 963, District Court for Eagle County, WD-5, 90CW340, 09CW187 and 09CW188. The Parties further acknowledge that as a two-thirds owner of the FPDC Aurora cannot bind, and is not binding, the owner of the other one-third of the FPDC, the Climax Molybdenum Company ("CMC"), to any of the provisions hereof including anything that may interfere with CMC's rights under any FPDC operating agreement, contracts or practices. Those CMC rights include, inter alia, the right to use all of the water available by the FPDC rights within any given year. In view of the forgoing Aurora agrees that, subject to the further terms and provisions herein stated, it will subject its two-thirds of the FPDC water rights, when the same are not otherwise available to CMC, to the terms herein following.

32. Term of Aurora ShOP Agreement. The initial term of Aurora's agreement regarding its one-half of the Homestake water rights and two-thirds of the FPDC water rights in accordance with the ShOP Agreement as herein specified ("Aurora ShOP") will be until June 27, 2056. This period will commence immediately following the Initiation Date as described in Section I. of this Agreement.

33. Aurora ShOP Agreement. Under this Aurora ShOP, if the SPP is not calling because of repairs, maintenance or other reasons and flow at the Dotsero Gauge is less than or equal to 1,250 cfs (not including Shepherded Stream Flow Reservoir Releases²) Aurora agrees to operate its one-half of the Homestake water rights and two-thirds of the FPDC water rights as if the Senior Hydropower Right was calling for a flow of 1,250 cfs at the Dotsero Gauge. Aurora agrees that if it acquires or appropriates any water rights that are junior to and legally and physically subject to the Senior Hydropower Right call, then Aurora will operate such right pursuant to the Aurora ShOP in accordance with the terms of this Agreement.

² The Parties adopt the definition of Shepherded Streamflow Reservoir Releases and considerations thereof as set forth in the ShOP Agreement. In the ShOP Agreement Shepherded Streamflow Reservoir Releases are defined as those reservoir releases made for the reservoir owners' purposes of increasing stream flows either at the Shoshone Power Plant, in the 15-Mile Reach, or at other stream locations at the rates and volumes of the reservoir releases, provided such releases are made for decreed beneficial uses for instream or in-channel purposes at any such locations including, but not limited to, endangered fish species purposes within the 15-Mile Reach. The 15-Mile Reach is the reach of the Colorado River which extends from the point at which the tailrace common to the Grand Valley Power Plant and the Orchard Mesa Irrigation District pumping plant returns to the Colorado River below the Grand Valley Irrigation Company diversion dam, downstream to the confluence of the Colorado River and Gunnison River.

33.1 During Aurora ShOP Operations defined in paragraph 33 above, Aurora agrees that, with respect to its one-half interest in the Homestake Project, the West Slope parties to the 2010 Consolidated Water Exchange Agreement between Aurora, CRWCD and others (the “2010 Consolidated Exchange Agreement”) may operate exchanges into the 4,000 acre foot portion of West Slope credit available pursuant to the 2010 Consolidated Exchange Agreement at Homestake Reservoir. If the 4,000 acre foot West Slope credit available pursuant to the 2010 Consolidated Exchange Agreement at Homestake Reservoir is full or if the West Slope parties to that agreement do not operate under that exchange, then Aurora will operate its one-half of the Homestake water rights and two-thirds of the Fremont Pass Ditch Company water rights as if the Senior Hydropower Right was calling for a flow of 1,250 cfs at the Dotsero Gauge set forth in paragraph 33 above.

33.2 Voluntary Lease During Aurora ShOP operations. If the 4,000 acre foot West Slope credit available pursuant to the 2010 Consolidated Exchange Agreement at Homestake Reservoir is full during Aurora ShOP operations, then Aurora may choose to lease from the CRWCD, on a one-year spot-market basis (i.e., if-available), up to 500 acre feet from the CRWCD’s Wolford Mountain Reservoir water marketing pool for replacement purposes by Aurora. The CRWCD agrees that, due to the unique nature of this Agreement and the mutual compromises included herein, the rate of any such lease shall not be greater than two times the CRWCD’s then-current spot-market lease rate for in-basin municipal use. The form of such lease will be generally consistent with the CRWCD’s then-current standard form contract, the current version of which is attached for example purposes only as Exhibit D attached to this Agreement. The Parties agree to not oppose Aurora’s efforts to use water leased pursuant to this paragraph 33.2 by exchange or substitute supply for replacement purposes in accordance with the priority system.

33.3 Drought Exception to Aurora ShOP. If the following two conditions exist (“Drought Triggers”) as of April 1, and for the duration of such period that both conditions exist, Aurora will not be required to follow the Aurora ShOP: 1) the “most probable” forecast of streamflow prepared by the Natural Resources Conservation Service (or such other forecast as the CRWCD and Aurora agree to use) indicates the April – July undepleted streamflow at the Colorado River near Dotsero Gauge will be less than or equal to the eighty-five percent (85%) of average; and 2) Aurora’s total system storage is at or below sixty percent (60%) of total capacity on April 1 and has not reached eighty (80%) of total capacity at any time thereafter. For purposes of this Agreement, Aurora’s total system storage is defined as set forth on Exhibit E to this Agreement.

33.4 “Paper-fill” Accounting during Aurora ShOP Operation. The Parties acknowledge the Colorado State Engineer’s administrative practice of “Paper-fill” accounting. Generally, under this administrative practice, if a storage facility is in-priority and can store water but the operator(s) thereof choose not to store water, then the State Engineer or his/her designee account for the water storage right as though water was physically placed into storage or otherwise diverted. The Parties acknowledge that pursuant to the Colorado State Engineer’s current administration regarding ShOP Agreement operations, bypasses made in the current year are only accounted for under that year’s storage volume and are not accounted for under the storage volume in the next Homestake Reservoir Water Year (November –

October 31). If future administrative actions by the Colorado State Engineer require that bypasses under the Aurora ShOP made in the then-current year are accounted against the Homestake Reservoir storage decree under both the current year and following years' storage volume, then, if as a result of Aurora's operations under Aurora ShOP, the "Paper-Fill" accounting against Aurora's Homestake water rights exceeds 500 A-F in the then-current storage season, the Aurora ShOP Operation will be excused for the remainder of that storage season and the subsequent year(s) to the extent of and so long as such "Paper-Fill" that exceeds 500 A-F. Alternatively, Aurora may choose to lease from any West Slope supplier or the CRWCD's Woford Mountain Reservoir water marketing pool, on a one-year spot-market basis (i.e., if-available), up to the amount of any Paper-fill for the then current storage season for exchange and replacement purposes by Aurora so that Aurora may divert and store water at its facilities and so that water will be released from Woford Mountain Reservoir or other sources as a component of achieving the flow related goals of the Aurora ShOP. The CRWCD agrees that, due to the unique nature of this Agreement and the mutual compromises included herein, the rate of any such lease shall not be greater than two times the CRWCD's then-current spot-market lease rate for in-basin municipal use. The form of such lease will be generally consistent with the CRWCD's then-current standard form contract, the current version of which is attached for example purposes only as Exhibit D attached to this Agreement. The Parties agree to not oppose Aurora's efforts to use water leased pursuant to this paragraph 33.4 by exchange or substitute supply for replacement purposes in accordance with the priority system.

33.5 Aurora agrees that it will not divert or exchange any of the water released or bypassed by any party pursuant to the ShOP Agreement or otherwise operate its system or water rights in a manner that will diminish the benefit of the ShOP Agreement to the stream system of the flows of up to 1,250 cfs at the Dotsero Gauge.

34. Shoshone Permanency. CRWCD, BWCD, Eagle, GVVUA, OMID and Ute (in addition to other western slope entities who are not parties to this Agreement) seek to achieve permanent protection of the flow regime created by operation of the SPP regardless of whether the SPP continues to operate in the future ("Shoshone Permanency"). Aurora agrees to not oppose Shoshone Permanency as follows:

34.1 Aurora will not oppose a sale or other form of transfer of interest by PSCo of its SPP and/or SPP Water Rights, including any contractual interest therein, to the CRWCD or any other West Slope entity or consortium containing West Slope entities for the purpose of achieving Shoshone Permanency.

34.2 Aurora will not seek to acquire or participate in the acquisition of the SPP and/or the SPP Water Rights. Except as may occur with respect to a potential acquisition of the SPP and/or SPP Water Rights or interest therein by a West Slope entity consistent with paragraph 34.1, above, Aurora will not support the acquisition of the SPP and/or the SPP Water Rights itself or by any other entity.

34.3 The Parties recognize the existence of that certain 2007 Agreement Concerning Shoshone Call between the City and County of Denver, acting by and through its Board of

Water Commissioners (“Denver Water”) and PSCo (the “2007 Call Reduction Agreement”). The 2007 Call Reduction Agreement provides, that under certain defined drought conditions, Denver Water is entitled to pay PSCo to reduce (or “relax”) the call of the SPP Water Rights. The Parties further recognize that Article VI.E.2 of the 2012 Colorado River Cooperative Agreement provides that Denver Water, with the support of the West Slope signatories, may request PSCo to amend the 2007 Call Reduction Agreement to “relax” the call of the SPP Water Rights to 704 cfs, during extreme drought conditions, for an expanded period during the winter months subject to certain terms and conditions described in CRCA Article VI.E.2.a-e (“CRCA Winter Call Reduction”). Aurora agrees that it will not seek or support any additional “relaxation” of the SPP Water Rights, except as expressly provided for in paragraphs 34.4.1. and 34.4.2. below.

34.4 Aurora will not oppose an agreement between a West Slope entity or entities, the CWCB, and any other entity entered for the purpose of adding instream flow as an additional use of the Senior Hydropower Right (“CWCB Agreement”). In addition thereto, Aurora will not oppose the entry of a final water court decree for the purpose of adding instream flow as an additional use of the Senior Hydropower Right (“ISF Application”). Aurora’s non-opposition to any such CWCB Agreement and ISF decree shall be contingent on inclusion of the following terms in the CWCB Agreement and ISF Application:

34.4.1 The 2007 Call Reduction Agreement, including any future amendment providing for a CRCA Winter Call Reduction, will be made permanent and made applicable to any ISF use of the Senior Hydropower Right.

34.4.2 In the event of a curtailment, or valid threat or expectation thereof, resulting from a call upon the waters of the State of Colorado resulting from enforcement of the Colorado River Compact and/or the Upper Colorado River Basin Compact, the Parties to the CWCB Agreement will work cooperatively with flexibility among themselves and other water users, including Aurora, toward a goal of minimizing or avoiding desperate adverse impacts to entities on either side of the Continental Divide.

34.5 Aurora recognizes that the West Slope Parties, upon acquiring any interest in the SPP Water Rights, may also request that instream flow uses be added as an additional use to the Junior Hydropower Right. Aurora agrees to participate in good faith discussions and negotiations with the West Slope Parties, the CWCB, and any other parties regarding the addition of instream flow uses to the Junior Hydropower Right. Any agreement with the CWCB and any water court decree adding instream flow uses to the Junior Hydropower Right will at a minimum be subject to the terms identified in paragraphs 34.4.1 and 34.4.2 above. Additionally, the West Slope Parties agree to diligently meet and negotiate in good faith with Aurora regarding the inclusion of Aurora’s Drought Exceptions, described in paragraph 33.3, to any final agreement with the CWCB for any instream uses of the SPP Water Rights in excess of 1,250 cfs.

34.6 After instream flow use has been added as an alternate use of the Senior Hydropower Right and/or Junior Hydropower Right, the CRWCD agrees that, during a drought period that meets the drought conditions described in paragraph 33.3, above, Aurora may choose to lease from any West Slope supplier or the CRWCD's Wolford Mountain Reservoir water marketing pool, on a one-year spot-market basis (i.e., if-available), up to the amount of any shortage in fill for the then current storage season for replacement purposes by Aurora. The CRWCD agrees that, due to the unique nature of this Agreement and the mutual compromises included herein, the rate of any such lease shall not be greater than two times the CRWCD's then-current spot-market lease rate for in-basin municipal use. The form of such lease will be generally consistent with the CRWCD's then-current standard form contract, the current version of which is attached for example purposes only as Exhibit D attached to this Agreement. The Parties agree to not oppose Aurora's efforts to use water leased pursuant to this paragraph 34.6 by exchange for replacement purposes in accordance with the priority system. The lack of water available for lease by the CRWCD to Aurora on a spot-market basis pursuant to this paragraph 34.6 shall not excuse operation of Aurora's water rights in accordance with the priority system as junior to, and subject to, the call of the SPP Water Right being exercised for instream flow purposes.

35. Other Provisions. As hereinafter described the following agreements are made.

35.1 Some of the Parties are among the numerous entities that comprise the Upper Colorado River Wild and Scenic Alternative Management Plan Stakeholder Group ("UPCO SG"). The Parties agree to support the recognition of the ShOP and Shoshone Permanency provisions of this Agreement as a cooperative measure and/or long term protective measure submitted by the Parties that are members of the UPCO SG for the benefit of river Segment 7 (immediately downstream of the confluence of the Eagle and Colorado Rivers to one-half mile east of No Name Creek).

35.2 The Parties, except any Party that is a permitting authority for the Eagle River MOU process³, will not to seek as a condition of any Eagle River MOU permitting process minimum base flows in the Colorado River at the current location of the Dotsero Gauge in excess of the total of the SPP water rights described in paragraph 30. However, this provision shall not prevent the Parties from advocating for high flow season channel maintenance and channel flushing flows.

V. Diligence Détente

36. Diligence Cases. The Parties either individually or through association have interests in certain conditionally decreed water rights that arise in Water Division 5 as more thoroughly described as follows:

³ The Eagle River MOU is a 1998 agreement between Aurora, Colorado Springs, CRWCD, Cyprus Metals Company (Climax), and the Vail Consortium (Eagle River W&SD, Upper Eagle Regional Water Authority and Vail Associates Inc.) that, *inter alia*, proposes certain joint use projects.

36.1 Aurora:

WATER DIVISION 5

Next Diligence Deadline	Case Number	Applicant	Case Name
	W-1869 (10/2/1979) 82CW151 86CW155 92CW136 00CW228 07CW199 16CW3011 (Pending)	Twin Lakes Reservoir and Canal Company	New York Collection Canal Supplement
	88CW449 (7/16/2002) 08CW111 (2/24/2010) 16CW3022 (9/17/17)	Homestake Partners	Camp Hale
	95CW272(A) (3/16/2011) 17CW3064 (Pending)	Homestake Partners	Homestake II
8/31/2019	09CW188 (8/4/2013)	Fremont Pass Ditch Company	Columbine Ditch Junior Water Right
2/28/2020	CA-1193 (7/10/1968) W-45 (6/14/1971) W-620 (6/14/1973) W-2321 (12/12/1974) W-2321-78 (8/19/1980) 82CW120 (9/27/1984) 86CW141 (3/6/1987) 90CW117 (3/14/1994) 00CW037 (10/2/2000) 06CW225 (9/16/2007) 13CW3045 (2/9/2014)	Homestake Partners	Original Homestake Project
6/30/2023	98CW270 (2/6/2003) 09CW17 (10/11/2010) 16CW3131 (6/13/2017)	Homestake Partners et al	Roaring Fork and Homestake Exchanges
5/31/2015	CA-3082 W-64 W-722 W-722-76 80CW180 84CW162 88CW206 94CW105 01CW057 07CW145 (5/27/2009) 15CW3050 (Pending)	Twin Lakes Reservoir and Canal Company	Roaring Fork Diversion Dam Gulch Collection Canal and Lost Man Diversion Dam, components of IPTDS
5/31/2018	CA-4613	Southeastern Colorado	Roaring Fork and Fryingpan

	W-829 01CW265 09CW40	Water Conservancy District	Project Facilities
--	----------------------------	-------------------------------	--------------------

36.2 CRWCD:

Next Diligence Deadline	Case Number	Name of Structure
BASALT PROJECT:		
Aug 2020	CA 4613(58); CA 4613 (66); W-44; W-789(76); 80CW94; 84CW70; 88CW85; 95CW52; 03CW41; 11CW96	Basalt Conduit; Basalt Power Plant & Penstock; Landis Canal; Spring Valley Siphon; Stockmen's Ditch Ext. & Enlargement
BATTLEMENT MESA PROJECT:		
Nov 2018	13368 (Mesa); 05CW8; 11CW172	Brush Creek Canal; Buzzard Creek Dam & Reservoir; Colorado Canal; Harrison Canal; Owens Creek Reservoir
KOBÉ PROJECT:		
June 2022	C.A. 6404 (Garfield); W- 789(76); 80CW94; 84CW63; 88CW83(88)(92); 94CW187; 01CW17; 07CW119; 15CW3055	Kobe Canal; Kobe Canal Alternate Point; Mount Logan Canal; Mount Logan Dam & Reservoir; Roan Creek Feeder Canal
FRASER VALLEY PROJECT:		
Dec 2019	84CW551; 84CW552; 84CW553; 93CW139; 93CW140; 93CW141; 99CW227; 06CW92; 13CW46	Fraser Feeder Canal; Fraser Pumping Plant & Pipeline; Ranch Creek Reservoir
REDCLIFF PROJECT:		

Next Diligence Deadline	Case Number	Name of Structure
Aug 2018	W-3472; 83CW30; 87CW8; 94CW13; 00CW105; 03CW41; 11CW94	Cross Creek Extension of the Fall & Peterson Creek Conduits
Aug 2018	CA 1193 (62)(65)(66)(68); W-56; W-789(76); 80CW94; 84CW70; 88CW85; 95CW52; 03CW41; 11CW94	Iron Mountain Reservoir, Pando Feeder Canal
Aug 2018	81CW345; 90CW95; 96CW264; 03CW41; 119CW94	Iron Mountain Reservoir, 2 nd Filling
EAGLE PINEY PROJECT:		
Dec 2021	CA1548; 02CW125; 13CW3079	Piney River Unit
WEST DIVIDE PROJECT:		
April 2020	CA 4613(58)(66); CA 4954; CA 5584; W-44; W-789(76); W-3888; 79CW308; 79CW315; 80CW94; 84CW70; 88CW85; 95CW52; 03CW41; 11CW93	Avalanche Canal & Siphon; Dry Hollow Feeder Canal; Dry Hollow Reservoir; Four Mile Canal & Siphon; Horsethief Canal; Kendig Reservoir; Kendig Reservoir 1 st Enlargement; West Divide Canal; West Mamm Creek Reservoir
WOLCOTT PROJECT (Water Division 5):		
Oct 2018	CA 1529 (Eagle); 80CW94; 84CW70; 88CW85; 95CW52; 03CW41; 11CW95	Wolcott Pumping Pipeline; Wolcott Reservoir
WOLFORD MOUNTAIN RESERVOIR PROJECT (WMR):		
Aug 2020	91CW252; 02CW81; 09CW14	WMR/Green Mtn Substitution

Next Diligence Deadline	Case Number	Name of Structure
April 2023	87CW284; 95CW251; 02CW107; 09CW81; 16CW3082	Gunsight Pass Reservoir Power Right (WMR)
Oct 2020	03CW302	WMR 2 nd Enlargement
Jan 2020	98CW237; 06CW146; 13CW3008	WMR Refill Right
June 2023	98CW270; 09CW17; 09CW28; 16CW3131	Homestake Reservoir Exchange
Jan 2024	05CW265; 17CW3100	WMR Moser Exchange

36.3 BWCD:

Next Diligence Deadline	Case Number	Applicant	Name of Water Rights
	02CW077 (1 of 2) 17CW3256 (Pending)	BWCD	Any and all conditional water rights, including appropriative rights of exchange
December, 2018	02CW077 (2 of 2)	BWCD	Any and all conditional water rights, including appropriative rights of exchange
July, 2020	11CW096	BWCD / CRWCD	Any and all conditional water rights including: - Basalt Conduit - Landis Canal - Spring Valley Siphon - Stockman's Ditch Extension and Enlargement - Basalt Power Plant and Penstock

36.4 Pitkin:

Next Diligence Deadline	Case Number	Applicant	Name of Water Right
Pending Decree	17CW3204	Pitkin County Board of County Commissioners (PCBOCC)	Pitkin County Airport Exchange
March 2018	11CW35	PCBOCC	Paepcke Well and Pitkin County Airport well field
July 2018	11CW55	PCBOCC	Pitkin County Landfill Ponds
June 2020	10CW305	PCBOCC	White Water Park RICD
July 2022	16CW3016	PCBOCC	Bivert Ditch Second Enlargement

36.5 Eagle:

Next Diligence Deadline	Case Number	Applicant	Name of Water Rights
March, 2018	05CW161	Eagle / Crown Mountain Park and Recreation District	Any and all conditional water rights including: - Mt. Sopris Tree Nursery Well No. 1, First Enl. - Mt. Sopris Tree Nursery Well No. 3, First Enl. - Mt. Sopris Tree Nursery Well No. 4, First Enl. - Mt. Sopris Tree Nursery Well No. 5 - Crown Mountain Pond

36.6 Ute:

36.8.1. The conditional water rights decreed to the following structures, all of which are more specifically described in the diligence decree entered in Case No. 2011CW53, District Court, Water Division No. 5:

- 36.8.1.1 Atwell East Ditch, Supplemental Point of Diversion, Component of the Ute Water Conservancy District Water System, in the amount of 2.82 c.f.s., conditional.
- 36.8.1.2 Atwell Waste & Seep Water Ditch Component of the Ute Water Conservancy District Water System, in the amount of 0.06 c.f.s., conditional.
- 36.8.1.3 Big Park Reservoir Component of the Ute Water Conservancy District Water System, in the amount of 5650 acre feet, conditional.
- 36.8.1.4 Bridges Switch Pumping Plant and Pipeline Component of the Ute Water Conservancy District Water System, in the amount of 30 c.f.s., conditional.

- 36.8.1.5 Coon Creek Pipeline Component of the Ute Water Conservancy District Water System, in the remaining conditional amount of 0.4 c.f.s.
- 36.8.1.6 Coon Creek Pipeline Enlargement, in the amount of 1.5 c.f.s., conditional.
- 36.8.1.7 Jerry Creek Reservoir No. 2 Component of the Ute Water Conservancy District Water System (Jerry Creek Priority), in the amount of 7,791 acre feet, conditional.
- 36.8.1.8 Ute Pumping Station and Pipeline Component of the Ute Water Conservancy District Water System, in the amount of 50 c.f.s., conditional.
- 36.8.1.9 Kirkendall Reservoir, also known as Hunter Reservoir, in the amount of 582.49 acre feet, conditional.
- 36.8.1.10. Kirkendall Reservoir ("Hunter Reservoir"), Ute Water Enlargement, in the amount of 1,340 acre feet, conditional.

A diligence application for all of the above described conditional water rights was filed in March, 2018.

36.8.2 The conditional water right decreed to Monument Reservoir No. 1, Ute Water Enlargement, in Case No. 2009CW30, District Court, Water Division No. 5, in the amount of 4,682 acre feet, conditional. A diligence application for this conditional water right was filed in March, 2018.

36.8.3 The conditional water right decreed to Willow Creek Reservoir in Case No. 2009CW29, District Court, Water Division No. 5, in the amount of 19,448 acre feet, conditional. A diligence application for this conditional water right was filed in March, 2018.

36.8.4 The conditional water rights decreed to the following structures, both of which are more specifically described in the diligence decree entered in Case No. 2011CW172, District Court, Water Division No. 5:

- 36.8.4.1 Owens Creek Reservoir, in the amount of 31,786.1 acre feet, conditional. Ute owns an undivided 22.5% interest in this conditional water right.
- 36.8.4.2 Buzzard Creek Dam and Reservoir, in the amount of 20,000 acre feet, conditional. Ute owns an undivided 22.5% interest in this conditional water right.

The next diligence application for the above described conditional water rights is due to be filed in November, 2018.

37. Non-opposition to Diligence. The Parties agree that they will not oppose any Water Court filing for any of the above listed matters requesting only a finding of reasonable diligence and a continuation of such water right(s) for a period of 15-years following the Initiation Date of this Agreement. Filings, or portions of filings, requesting a determination(s) a water right(s) was (were) made absolute are not subject to these non-opposition provisions. In circumstances when

a diligence request is made in the same case as a request to make absolute is also made, Parties will be free to participate in the portion of such case dealing with any absolute request while not participating in the diligence portion. Regarding cases noted as "Pending" in paragraph 36, all Parties who are existing opposers in such a matter are not restricted as to their continued opposition, if any, in said pending case(s).

VI. Entry of Final Decree in WD-2, 09CW142

38. Motion for Entry of Decree. Pursuant to the provision of paragraph 3 above, the Parties will seek entry of the Draft Decree attached hereto as Exhibit A.

* * * *

CITY OF AURORA, COLORADO,
ACTING BY AND THROUGH ITS
UTILITY ENTERPRISE



Bob LeGare, Mayor

7-31-18

Date

ATTEST:



Michael Lawson, Interim City Clerk

08/01/18

Date

APPROVED AS TO FORM FOR AURORA:



Christine McKenney
Senior Assistant City Attorney

7/30/2018

Date

18036693
ACS #



John Dingess, Special Counsel

06/18/2018

Date

STATE OF COLORADO)

) ss

COUNTY OF ARAPAHOE)

The foregoing instrument was acknowledged before me this 1st day of August, 2018,
by Bob LeGare, Mayor, acting on behalf of the Utility Enterprise of the City of Aurora,
Colorado.

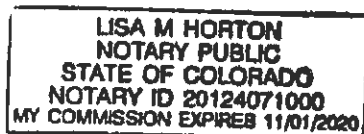
Witness my hand and official seal.



Notary Public

My commission expires: 11/01/2020

(SEAL)



BUSK-IVANHOE, INC.

a Colorado mutual ditch company

By:

Tom Simpson

President

ATTEST:

By:

Leiana Baker

Secretary

STATE OF COLORADO)

COUNTY OF Arapahoe)

ss

The foregoing instrument was acknowledged before me this 30 day of July, 2018, by Tom Simpson, President of Busk-Ivanhoe Inc.

Witness my hand and official seal.

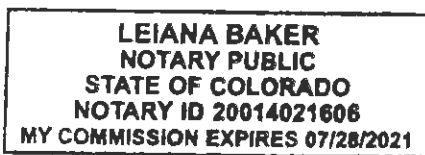
Leiana Baker

Notary Public

My commission expires:

7-28-21

(SEAL)



COLORADO RIVER WATER CONSERVATION DISTRICT

By: Tom Alvey
Tom Alvey, President

Attest: Andrew A. Muller
By: Andrew A. Muller
Andrew A. Muller, Secretary/General Manager

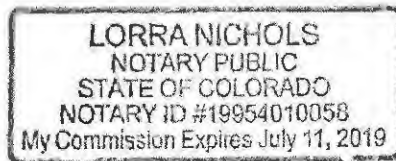
STATE OF COLORADO)
) ss
COUNTY OF GARFIELD)

The foregoing instrument was acknowledged before me this 18 day of July, 2018, by Tom Alvey, President of the Colorado River Water Conservation District.

Witness my hand and official seal. Lorra Nichols
Notary Public

My commission expires: 7-11-2019

(SEAL)



COUNTY OF EAGLE, STATE OF COLORADO,
By and Through Its
BOARD OF COUNTY COMMISSIONERS

By: *[Signature]*
Kathy Chandler-Henry, Chair *Pro Tem*
[Signature]

Attest:

By: *[Signature]*
Regina O'Brien, Clerk to the Board



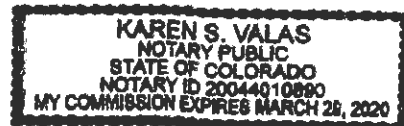
STATE OF COLORADO)
) ss
COUNTY OF EAGLE)

The foregoing instrument was acknowledged before me this 17 day of July, 2018,
by ~~Kathy Chandler-Henry, Chair.~~ *Jeannette McQueeney Chair Pro Tem*

Witness my hand and official seal. *[Signature]*
Notary Public

My commission expires: 3/29/20

(SEAL)



BASALT WATER CONSERVANCY DISTRICT

By: Don Boyer
Don Boyer, President

Attest:

By: Scott Leslie
Scott Leslie, Secretary

STATE OF COLORADO)
) ss
COUNTY OF GARFIELD

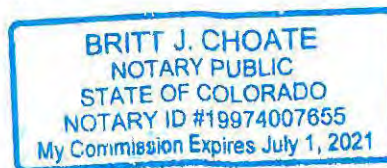
The foregoing instrument was acknowledged before me this 10th day of July, 2018,
by Don Boyer, President of the Basalt Water Conservancy District.

Witness my hand and official seal.

Britt Choate
Notary Public

My commission expires: July 1, 2021

(SEAL)



BOARD OF COUNTY COMMISSIONERS
OF PITKIN COUNTY

By: Patti Clapper
Patti Clapper, Chair

Date: 06-28-2018

ATTEST
By: Jeanette Jones
Jeanette Jones
Deputy County Clerk

APPROVED AS TO FORM:

By: [Signature]
John M. Ely
Pitkin County Attorney

By: [Signature]
Jon Peacock,
Pitkin County Manager

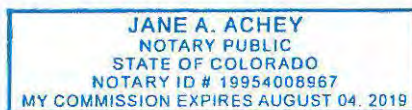
STATE OF COLORADO)
) ss
COUNTY OF PITKIN)

The foregoing instrument was acknowledged before me this 28th day of June, 2018,
by Patti Clapper, Chair.

Witness my hand and official seal. Jane A. Achey
Notary Public

My commission expires: August 4, 2019

(SEAL)



GRAND VALLEY WATER USERS ASSOCIATION

By: Joseph C. Bernal
Joseph C. Bernal, Board President

Attest:

By: D. Kim Albertson
D. Kim Albertson, Board Secretary

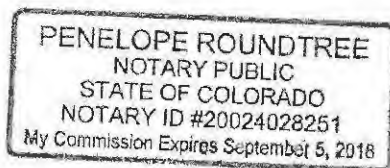
STATE OF COLORADO)
) ss
COUNTY OF MESA)

The foregoing instrument was acknowledged before me this 12th day of July, 2018,
by Joseph C. Bernal, Board President of the Grand Valley Water Users Association.

Witness my hand and official seal. Penelope Roundtree
Notary Public

My commission expires: 09/05/2018

(SEAL)



ORCHARD MESA IRRIGATION DISTRICT

By: Bruce Talbott
Bruce Talbott, Board President

Attest:

By: Melvin Rettig
Melvin Rettig, Board Vice President and Secretary

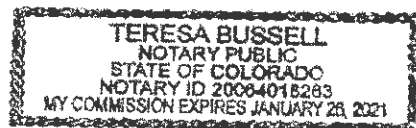
STATE OF COLORADO)
) ss
COUNTY OF MESA)

The foregoing instrument was acknowledged before me this 5th day of July, 2018,
by Bruce Talbott, Board President of the Orchard Mesa Irrigation District.

Witness my hand and official seal Teresa Buswell
Notary Public

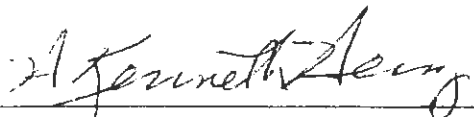
My commission expires: 4/25/2021

(SEAL)

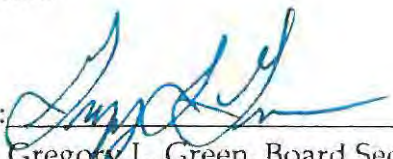


**Agreement and Intergovernmental Agreement between Aurora, CRWCD,
Basalt WCD, Eagle County, Pitkin County, Grand Valley Water Users
Association, Orchard Mesa Irrigation District, and the Ute WCD**

UTE WATER CONSERVANCY DISTRICT
Acting by and through the
UTE WATER ACTIVITY ENTERPRISE

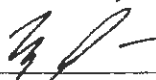
By: 
H. Kenneth Henry, Board President

Attest:

By: 
Gregory L. Green, Board Secretary

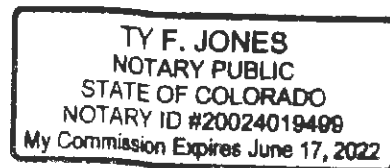
STATE OF COLORADO)
) ss
COUNTY OF MESA)

The foregoing instrument was acknowledged before me this 11th day of July, 2018, by H. Kenneth Henry, Board President, and Gregory L. Green, Board Secretary, of the Ute Water Conservancy District, acting by and through the Ute Water Activity Enterprise.

Witness my hand and official seal. 
Notary Public

My commission expires: 6/17/22

(SEAL)



Exhibits

Exhibit A	Decree
Exhibit B	Description of Box Creek Project
Exhibit C	Box Creek Support Letter
Exhibit D	Form of Lease
Exhibit E	Aurora System Storage
Exhibit F	Expression Of Mutual Intent Letter

Appendix B: Case No. 2019CW3159

Findings of Fact, Conclusions of Law, Ruling of the Referee, Judgment and Decree for Case No. 2019CW3159, concerning the Application for Water Rights of the City of Aurora, Colorado, acting by and through its Utility Enterprise, in Eagle and Pitkin Counties dated October 31, 2024.

DISTRICT COURT, WATER DIVISION 5, COLORADO Garfield County Courthouse 109 8th Street, Suite 104 Glenwood Springs, Colorado 81601 CONCERNING THE APPLICATION FOR WATER RIGHTS OF THE CITY OF AURORA, COLORADO, ACTING BY AND THROUGH ITS UTILITY ENTERPRISE IN EAGLE AND PITKIN COUNTIES	DATE FILED October 31, 2024 CASE NUMBER: 2019CW3159 ▲ COURT USE ONLY ▲ Case No. 19CW3159
FINDINGS OF FACT, CONCLUSIONS OF LAW, RULING OF THE REFEREE, JUDGMENT AND DECREE OF THE WATER COURT	

This matter comes before the Water Court upon the Application of the City of Aurora, Colorado, acting by and through its Utility Enterprise, for a Ruling and Decree approving appropriative rights of exchange. The Court, having considered the pleadings, the evidence, the stipulations of the parties, the comments of the Division Engineer, and being fully advised in the premises makes the following Findings of Fact, Conclusions of Law, Ruling of the Referee, Judgment and Decree ("Decree").

I. FINDINGS OF FACT

1. **Applicant.** The name, address and telephone number of the Applicant is:

The City of Aurora, Colorado, a municipal corporation of the counties of Adams, Arapahoe, and Douglas, acting by and through its Utility Enterprise ("Aurora" or "Applicant")
15151 E. Alameda Pkwy, Ste 3600
Aurora, CO 80012-1555
Telephone: (303) 739-7370
Email: AuroraWater@auroragov.org

2. **Summary of Application.** Aurora is a party to an Agreement and Intergovernmental Agreement between Aurora, Colorado River Water Conservation District, Basalt Water Conservancy District, Board of County Commissioners of Eagle County, Board of County Commissioners of Pitkin County, Grand Valley Water Users Association, Orchard Mesa

Irrigation District, and the Ute Water Conservancy District, effective date August 1, 2018 (the “Settlement Agreement”). *Inter alia*, the Settlement Agreement addressed resolution of a matter in Water Court Division 2, Case No. 2009CW142 amongst certain parties thereto, and is filed in the Court’s file for Case No. 2009CW142. As contemplated and limited by the terms of the Settlement Agreement, Aurora seeks judicial determination of appropriative rights of exchange by which 900 acre-feet of water of the Twin Lakes Reservoir and Canal Company (“Twin Lakes”), available to Aurora via its share ownership and over which Aurora has maintained dominion and control in any one year will be moved as follows. Water from Grizzly Reservoir will be placed into Lincoln Gulch, a tributary of Lincoln Creek, or bypassed from the Twin Lakes system’s Roaring Fork River basin facilities into other tributaries of the Roaring Fork River, and then exchanged from the confluence of the Roaring Fork and Fryingpan Rivers upstream on the Fryingpan River to Ruedi Reservoir and an additional exchange, as a component subset of the 900 acre-feet, up to 450 acre-feet in any one year from Ruedi Reservoir upstream to Ivanhoe Reservoir located upon Ivanhoe Creek for subsequent movement into Water Division 2.

Aurora currently owns 2,499.275 shares of Twin Lakes representing approximately five percent of the total issue of 49,588.965 shares. As a Twin Lakes shareholder, Aurora is entitled to an annual pro rata share of water available under the water rights for the the Independence Pass Transmountain Diversion System (“Twin Lakes Project”), adjudicated by the decree in Civil Action No. 3082 (District Court, Garfield County) dated August 25, 1936 (“CA 3082”), and modified by the decree in Water Court Division 5, W-1901, dated May 12, 1976 (“W-1901”). Aurora may call for deliveries and bypasses of its “in priority” water derived from this described pro rata share at or near the outlet of Grizzly Reservoir, located in Pitkin County within Lincoln Gulch upon Lincoln Creek, a tributary of the Roaring Fork River approximately latitude – longitude 39° 04’ 48.13” N - 106° 36’ 59.35” W. Water released or bypassed by Twin Lakes into Lincoln Gulch or other tributaries of the Roaring Fork River pursuant to Aurora’s call for deliveries and bypasses as contemplated herein (including any such Twin Lakes water subsequently exchanged into Ruedi Reservoir or Ivanhoe Reservoir) shall be accounted toward the volumetric diversion limits applicable to the described Aurora pro rata share of the Twin Lakes Project set forth in the decrees entered in CA 3082 and W-1901.

3. Aurora filed this Application on December 23, 2019, and the Water Judge referred it to the Water Referee by Order dated December 23, 2019.
4. Timely and adequate notice of the pendency of these proceedings *in rem* was given in the manner required by law. The Water Court has jurisdiction over the subject matter of this proceeding and over all whose interests may be affected by the decree herein, whether they have appeared or not.
5. **Opposers.** Timely statements of opposition were filed by the following parties. The time for filing statements of opposition has now expired.

5.1. City of Aspen (“Aspen”)

- 5.2. The Basalt Water Conservancy District
 - 5.3. Board of Water Works of Pueblo, Colorado (“Pueblo Water”)
 - 5.4. Busk-Ivanhoe Water System Authority
 - 5.5. Colorado River Water Conservation District and Colorado River Water Conservation District, acting by and through its Colorado River Water Projects Enterprise (“River District”)
 - 5.6. City of Colorado Springs, acting through its enterprise Colorado Springs Utilities
 - 5.7. Colorado Water Conservation Board (“CWCB”)
 - 5.8. Southeastern Colorado Water Conservancy District (“Southeastern”)
6. **Settlement.** Applicant has reached a stipulated settlement in this matter with the following parties:
- 6.1. Southeastern, by stipulation dated March 22, 2021.
 - 6.2. City of Colorado Springs, acting through its enterprise Colorado Springs Utilities, by stipulation dated May 10, 2021.
 - 6.3. City of Aspen, by stipulation dated November 10, 2021.
 - 6.4. The Basalt Water Conservancy District, by stipulation dated April 20, 2022.
 - 6.5. The River District, by stipulation dated February 14, 2023.
 - 6.6. CWCB, by stipulation dated April 11, 2023.
 - 6.7. Pueblo Water, by stipulation dated October 5, 2023.
 - 6.8. Busk-Ivanhoe Water System Authority, by stipulation dated October 5, 2023.
7. This Decree is no less restrictive upon the Applicant, nor less protective of opposing parties, than any earlier version to which a party stipulated.
8. The land and water rights involved herein are not included within the boundaries of any designated ground water basin. The rights requested herein do not require the construction of any new wells.
9. **Summary of Consultation.** On March 30, 2020, the Division Engineer for Water Division 5 issued his Summary of Consultation Report. The Applicant submitted its Response to the Division Engineer’s Summary of Consultation Report on May 7, 2020. On February 28, 2021, the Division Engineer for Water Division 5 issued his Supplemental Summary of Consultation Report. The Applicant submitted its Response to the Division Engineer’s Supplemental Summary of Consultation Report on April 30, 2021. The issues raised therein have been adequately addressed in this Decree.
10. Aurora is a Colorado municipal corporation whose boundaries currently encompass land located within the South Platte River Basin in the counties of Adams, Arapahoe, and Douglas. Aurora owns and maintains facilities to provide municipal water service to the citizens within its municipal boundaries as they now exist and as they may exist in the future, as well as those with whom it has agreements for water service.

- 10.1. Aurora, either individually or in cooperation with others, is the owner of numerous water rights and water diversion and storage facilities that either arise in or are located within the Colorado River, Arkansas River, and South Platte River basins. Water from the Colorado River Basin facilities flows through and from time-to-time is stored in facilities located in the Arkansas River Basin (including Turquoise and Twin Lakes Reservoirs). Water from the Arkansas River Basin and water from the Colorado River Basin that is brought into the Arkansas River Basin, is conveyed via pipeline to the South Platte River Basin for storage (including Spinney Mountain, Strontia Springs, Rampart, Quincey, and Aurora Reservoirs), treatment and distribution for beneficial use. These facilities along with facilities for treatment and distribution for water, collection and treatment of wastewater and recovery and reuse comprise Aurora's extensive unified system for gathering, treatment, distribution, recovery, and reuse (including the Sand Creek Wastewater Recycling Plant and the Prairie Waters Project water reuse facilities) of water resources.
11. Aurora's municipal water demand has continued to grow, and Aurora has demonstrated a need for, and a non-speculative intent to appropriate, the rights of exchange for which confirmation is sought herein in order to move its water more efficiently to locations from which it can be transported to its place of use.
12. Aurora has initiated the conditional appropriative rights of exchange as described below. See **Exhibit A**, an illustrative map, attached hereto.
- 12.1. Name and location of points and structures defining exchange reaches:
- 12.1.1. *Confluence of the Roaring Fork River and the Fryingpan River.* The confluence of the Roaring Fork River and the Fryingpan River is located in Eagle County, Colorado, at a point that lies approximately latitude – longitude 39° 21' 59.57" N - 107° 02' 03.29" W (UTM X 324756.8, UTM Y 4359427.9). ("Exchange-From Point")
- 12.1.2. *Ruedi Reservoir.* Ruedi Reservoir is located in Sections 7, 8, 9, 11 and 14 through 18, T. 8 S., R. 84 W., 6th P.M., in Eagle and Pitkin Counties. The dam axis intersects the right abutment at a point whence the SW corner of Section 7, T. 8 S., R. 84 W. of the 6th P.M. bears N. 82°10'W. a distance of 1,285 feet (UTM X 343376.6, UTM Y 4358734.6). ("Exchange-From Point" and "Exchange-To Point")
- 12.1.3. *Ivanhoe Reservoir.* Ivanhoe Reservoir is formed by a dam approximately 21 feet high across the natural bed of Ivanhoe Creek, a tributary of the Fryingpan River, and situated at UTM X 369871, UTM Y 4348153 (WDID 3803732). ("Exchange-To Point")
- 12.2. Description of Exchanges: Aurora will operate the following appropriative rights of exchange.

12.2.1. *From the confluence of the Roaring Fork and Fryingpan Rivers to Ruedi Reservoir.*

12.2.1.1. Rate of Exchange: 31.25 c.f.s. total, conditional. (annual maximum of 900 acre-feet)

12.2.2. *From Ruedi Reservoir to Ivanhoe Reservoir.*

12.2.2.1. Rate of Exchange: 50.0 c.f.s. total, conditional. (annual maximum of 450 acre-feet)

12.3. Source of Substitute Supply for Exchanges. The source of substitute supply for these exchanges will be Aurora's described pro rata share of the water derived from the Twin Lakes Project bypassed at the Independence Pass transmountain diversion system or delivered at Grizzly Reservoir, located in Pitkin County within Lincoln Gulch upon Lincoln Creek, a tributary of the Roaring Fork River, determined pursuant to the decrees entered in CA 3082 and W-1901.

12.4. Date of Appropriation: December 19, 2019.

12.4.1. Aurora initiated the foregoing exchange appropriations by taking the following actions which constitute a valid "first step" of a conditional appropriation: 1) the adoption of Aurora City Council Resolution No. R 2019-117; 2) the filing of this Application, and 3) field surveys and the posting of signs at the Exchange-From and Exchange-To Points.

12.4.2. *Date water applied to beneficial use.* Not applicable.

12.5. Uses. All uses for which Aurora's described pro rata share of the water derived from the Twin Lakes Project is decreed in CA 3082 and W-1901, and which can be lawfully made by Aurora, as stated in W-1901, p.22, ¶ 2: Direct flow and storage for irrigation, domestic, commercial, industrial, municipal and all beneficial purposes. Any water from Aurora's described pro rata share of the water derived from the Twin Lakes Project that is not diverted to the east slope may be used in Water Division 5 as authorized by the decree in W-1901 and may be exchanged in accordance with the terms and conditions of this decree. No change of use of Aurora's described pro rata share of the water rights for the Twin Lakes Project is sought by the Applicant nor is such a change necessary for use of such water in the exchanges requested herein.

12.6. Places of Use.

12.6.1. The Twin Lakes Project water available for use by Aurora pursuant to the subject exchanges is intended for use in or for the benefit of Aurora's current and future service areas served by its municipal water supply and water reuse systems and any areas within the South Platte River Basin including areas served by its connections

with other systems, and by any current or future water supply contracts or obligations of Aurora. Currently, Aurora is located in Township 3 South, Ranges 64, 65, 66 and 67 West, 6th P.M. in Adams County; Township 4 South, Ranges 64, 65, 66 and 67 West and Township 5 South, Ranges 65, 66 and 67 West, 6th P.M. in Arapahoe County; and Township 6 South, Ranges 65 and 66 West, 6th P.M. in Douglas County. Aurora's service area has changed from time to time and will continue to do so. Aurora may also use the water to meet its replacement or delivery obligations in Water Division 5.

12.6.2. As provided in the Settlement Agreement, the Twin Lakes Project water available for use by Aurora under the subject exchanges is also intended for use in the Roaring Fork River Basin below the confluence of the Roaring Fork River and Maroon Creek for beneficial uses as may be allowed consistent with the uses described in paragraph 12.5, above, including but not limited to the following purposes: (1) to supplement instream flow uses in the Roaring Fork River administered for the CWCBC, pursuant to such agreements with the CWCBC and to the water court or administrative approvals as are appropriate and necessary to implement such use (no instream flow use is decreed herein); (2) for delivery to the Pitkin County Recreational In-channel Diversion water right decreed in Case No. 10CW305, Water Court Division 5; and (3) pursuant to future water court approval, other uses including but not limited to use in the current and future augmentation plans of the Basalt Water Conservancy District within its boundaries, as those boundaries may change from time to time or as may be allowed by intergovernmental agreement. These Roaring Fork Basin uses will be subject to prospective further agreement(s) to be made among the West Slope Parties to the Settlement Agreement in regard to their sequence and implementation and further water court or administrative approval, either by amendment of this decree or a separate water court or administrative application.

The places of use described in the above paragraphs are in accordance with the decree entered in W-1901 and no change in place of use of Aurora's pro rata share of the water rights for the Twin Lakes Project was sought by the Applicant nor is such a change necessary for use of such water in the exchanges requested herein.

13. Reservoir Trade. The application in this case sought approval of a "Contract Exchange", which is one of the operations referred to as a "Reservoir Trade" in that memo from State Engineer Kevin Rein and Division Engineer for Water Division 2 Bill Tyner to Arkansas River Basin water users dated January 22, 2020, on the subject of "Reservoir Trades and Substitutions in Water Division 2." The Court has determined that C.R.S. § 37-92-302(1)(a) does not provide the legal authority for it to enter a decree for a claim for a Reservoir Trade, and the proposed provisions relating thereto have been removed from this Decree. Nothing in this Decree shall be interpreted to preclude Aurora from operating a Reservoir Trade subject to administrative approval by the Division Engineer. The CWCBC has entered into an amended stipulation in this case regarding Aurora's operation of any such Reservoir Trade and the court approved such stipulation on September 19, 2024.

14. **Can & Will.** The Court finds Aurora has demonstrated a substantial probability the conditional exchanges sought to be confirmed herein can and will be completed, and that water can and will be put to beneficial use within a reasonable time. The Court further finds the future operation of the exchange rights will depend upon water demands of Aurora that will fluctuate from year to year and additionally will vary with the availability of substitute supply and exchange potential in the stream. Accordingly, the Court will not arbitrarily establish a time for which Aurora must make absolute the entire amount of exchange requested. Rather, the timing of that process is best treated as provided in C.R.S. § 37-92-301(4).

14.1. Demand for Water. Aurora's population and municipal water demand have been growing for several decades and continues to grow. Aurora continually updates its population and municipal water demand projections as provided in its Integrated Water Master Plan. These projections consider various planning scenarios considering different growth possibilities and climate conditions. Aurora reasonably projects, based on substantiated population projections and per capita water usage requirements that reflect its aggressive water conservation measures and water reuse efforts, that by 2070 its average annual water demand, after consideration of current anticipated reuse, will exceed the combined yield of Aurora's currently absolute water rights and the anticipated yield of its conditionally decreed water rights.

14.2. Existence of Unappropriated Exchange Potential. Aurora's engineering analyses have shown, and the Court finds, that there is sufficient unappropriated exchange potential within the exchange reaches defined above for Aurora to operate the exchanges described herein.

14.3. Use of Lands and Facilities. Although a present right to use all lands and facilities involved in an appropriation is not required for the issuance of a conditional decree, the Court finds that Aurora has a number of rights that bear on its ability to complete the appropriation. Aurora owns Busk-Ivanhoe, Inc., which owns a one-half interest in the Busk-Ivanhoe System, which includes Ivanhoe Reservoir, and Aurora expects to be able to store exchanged water in Ivanhoe Reservoir. Consistent with the terms of the Settlement Agreement, Pitkin County, in consultation with Aurora, is currently negotiating arrangements for the storage of exchanged water in Ruedi Reservoir. Aurora does not believe there are any insurmountable blocks to finalizing those arrangements.

14.4. Need. Aurora has demonstrated a need for, and a non-speculative intent to appropriate, the water right for which confirmation is sought herein.

14.5. Technical Feasibility. All necessary structures involved in these exchanges are in existence.

14.6. Financial Feasibility. Aurora's Utility Enterprise has the ability to raise capital through operating revenues, and if necessary, through issuing bonds. Aurora has sufficient

economic means to pay for the construction of any necessary facilities that are not yet in existence.

- 14.7. Regulatory Feasibility. Aurora has not been denied any government permit or approval that it must obtain to complete the subject appropriations. Nothing in this decree expands, narrows or in any manner affects the authority of any governing entity or agency, including Aurora, with regard to the applicability or issuance of any permit, or the obligations imposed thereunder.
15. The appropriative rights of exchange for which confirmation is sought herein are necessary to allow Aurora to most efficiently use the water rights that will be used as substitute supply. Ivanhoe Reservoir, into which water will be exchanged, is used for the storage of other water rights owned by Aurora and/or others. Water from Ivanhoe Reservoir is transported through the Continental Divide into Turquoise Reservoir, one of the Arkansas basin facilities described above in paragraph 10.1. These exchange appropriations are one component of Aurora's above described extensive unified system for gathering, treatment and distribution, recovery, and reuse of water for the benefit of its citizens or to satisfy its water supply contractual obligations. The use and operation of these exchange appropriations is not only dependent upon Aurora's system demand and stream exchange potential but is also affected by the yield of other water rights and exchanges currently operated by Aurora. For the purposes of showing diligence and completion of the claimed rights of exchange, diligence as to any part of Aurora's water rights system (from the Busk-Ivanhoe facilities in Water Division 5 to facilities in Water Division 2 and Water Division 1 for transmission, treatment, distribution, use and reuse) which is used to operate or benefits from the exchange water rights herein requested may be claimed and considered in finding that reasonable diligence has been shown in the development of the appropriative rights herein requested, such as operations and activities necessary to operate the exchanges described herein and necessary to transport the exchanged water to Aurora and to distribute to its customers.
16. Present evidence of water quality demonstrates that, subject to the terms and conditions herein, the water to be released as substitute supply is of a quality and quantity sufficient to meet the requirements for which the water of senior appropriators who will receive such substitute supply has normally been put, and that the operation of these exchanges will therefore comply with C.R.S. § 37-80-120(3). In the future, the State Engineer will make such determinations as to the quality, quantity, and continuity of the substitute supply as may be required by C.R.S. § 37-80-120(3) in order to protect the existing uses of senior appropriators.
17. **Terms and Conditions.** If the exchanges described above are operated in accordance with the terms and conditions set forth below, no injury will result to the owners of, or persons entitled to use water under other vested water rights or decreed conditional water rights.
- 17.1. The water diverted by the exchanges shall take on all the legal characteristics of the water provided as substitute supply, and the water provided as substitute supply shall take on the legal characteristics of the water that was diverted by exchange.

- 17.2. Aurora shall tabulate daily and report monthly the amount of water exchanged pursuant to this Decree, for each of the structures involved. Aurora shall account for the storage, release and eventual use or export from Water Division 5 of the water exchanged pursuant to this Decree so that the sources of substitute supply described in paragraph 12.3 are fully tracked and accounted for in the Colorado River Basin. The accounting for the exchanges granted herein shall be accomplished by Aurora, pursuant to accounting forms approved by said Division Engineer. Said forms may be revised from time to time by the Division Engineer as necessary. The initial proposed accounting forms are included in **Exhibit B** hereto. Applicant must obtain the Division Engineer's approval of the initial accounting forms prior to operation of the conditional appropriative rights of exchange decreed herein. Upon the Division Engineer's approval of the initial accounting forms, Applicant shall file the approved accounting forms with the Court, with service on the opposers herein. Thereafter the accounting forms may, due to operational experience and with approval of the Division Engineer, require further modifications, which further modified accounting forms shall be consistent with, and include the information required by, this Ruling and Decree. Such further modified accounting forms must be approved by the Division Engineer and, upon such approval, filed by Aurora with the Court, with service on the opposers herein. Resolution of disputes concerning accounting forms is a water matter to be determined by the Court in accordance with C.R.S. §§ 37-92-101, *et seq.* Electronic copies of any reports filed or prepared pursuant to this Decree shall be provided to any other party in this matter and the U.S. Bureau of Reclamation ("Reclamation") upon its request.
- 17.3. Aurora will store water in the facilities identified as Exchange-To Points only when, and to the extent, it possesses a legal right that allows it to do so.
- 17.4. Any exchange requested above will not be operated unless and until Fryingpan-Arkansas Project diversions from Ivanhoe Creek are being fully met.
- 17.5. The exchanges claimed herein will be limited and subject to the terms of the Settlement Agreement.
- 17.6. Ruedi Reservoir. Applicant recognizes that Ruedi Reservoir is owned by Reclamation and operated as part of the Fryingpan-Arkansas Project. Any use of Fryingpan-Arkansas Project facilities, including Ruedi Reservoir for storage, exchange, conveyance, or other use pursuant to this decree, will occur only with the written permission of the owner of said facilities, and will be made consistent with the Fryingpan-Arkansas Project Operating Principles in House Document No. 130, 87th Congress, 1st Session (the "Operating Principles"), and such other policies, procedures, contracts, charges and terms as may be lawfully determined by Reclamation or its successors in interest, in their good faith discretion. Applicant acknowledges that it has no right to the use of Ruedi Reservoir beyond that granted by any such written permissions. This decree does not give Applicant any rights to ownership or use of any Fryingpan-Arkansas Project structure, does not alter

any existing rights (including any right to renew existing contracts) Applicant may otherwise have and does not alter the respective rights or authority of Reclamation. Moreover, Applicant shall not operate the exchange rights decreed herein in a manner that would interfere with the lawful operation of the Fryingpan-Arkansas Project.

- 17.6.1. Applicant shall not exercise an exchange from Ruedi Reservoir into Ivanhoe Reservoir under this decree when flows on the Fryingpan River at the “Thomasville Gaging Station” (09080000) are less than the following levels, or to the extent that the Applicant’s exchange will cause such flows at the Thomasville Gaging Station to be less than the following levels, as established in the Operating Principles for the Fryingpan-Arkansas Project: October 1 through March 31 - 30 c.f.s.; April 1 through April 30 - 100 c.f.s.; May 1 through May 31 - 150 c.f.s.; June 1 through June 30 - 200 c.f.s.; July 1 through July 31 - 100 c.f.s.; August 1 through August 31 - 75 c.f.s.; September 1 through September 30 - 65 c.f.s. To ensure the Thomasville Gaging Station flows are maintained, the Applicant shall only exercise an exchange under this Decree when the average Fryingpan River flow measured at the Thomasville Gaging Station on the day prior to the exchange is at least 15 c.f.s. greater than the applicable flow level established in the Operating Principles. See **Exhibit C** - Calculation of Exchange Potential into Ivanhoe Reservoir.
- 17.6.2. Applicant’s exchanges shall not deplete the flows of Ivanhoe Creek at the Fryingpan-Arkansas Project’s diversion structure, to the extent that such flows are necessary to satisfy Fryingpan-Arkansas Project diversions pursuant to Southeastern’s decreed right to divert 150 c.f.s. from Ivanhoe Creek (unless Southeastern’s rights to divert 945 c.f.s. through the Boustead Tunnel are fully satisfied), or to satisfy the Project’s required bypass flows on Ivanhoe Creek.
- 17.6.3. Applicant shall not exercise an exchange under this decree into Ruedi Reservoir when the bypass requirement below Ruedi Reservoir is not satisfied and will not cause flows measured on the Fryingpan River near Ruedi, CO, at stream gage ID 09080400 to be less than the following levels: May 1 through October 31 – 110 c.f.s.; November 1 through April 30 – 39 c.f.s.
- 17.6.4. Applicant shall not take any actions that would require Reclamation to release any additional uncontracted flows from Ruedi Reservoir or require Reclamation to increase the Project’s collection system bypasses to satisfy instream flows. Entry of a decree in this matter has no effect on the authority of Reclamation to regulate and/or deny use of its federal facilities.
- 17.6.5. Any water stored in Ruedi Reservoir pursuant to a contract with Reclamation, shall be subject to evacuation (meaning spilled), including preemptive releases of water made prior to actual physical spills, upon Reclamation’s determination that the space in Ruedi Reservoir occupied by the Applicant’s water is needed for Fryingpan-Arkansas Project operations.

17.6.6. Applicant acknowledges it must apply for and obtain contractual arrangements and approval for its plans of use and operation of water in and through Ruedi Reservoir before it can store water in or operate exchanges to or from Ruedi Reservoir, and that a valid contract permitting such storage must be in effect at any time Applicant's storage or exchange to or from Ruedi Reservoir may occur. Pitkin County, in consultation with Applicant, has sought such contractual arrangements. The following conditions shall apply to the negotiation, execution, and operation of the requested contract allowing Applicant's storage of water in, or exchange water to or from, Ruedi Reservoir.

17.6.6.1. Applicant shall promptly provide Southeastern and the River District with a copy of any further contract request hereinafter made to Reclamation by Applicant or Pitkin County and of any contract entered into with Reclamation, concerning Applicant's use of Ruedi Reservoir. Applicant shall not store water in, or exchange water to or from, Ruedi Reservoir, prior to providing Southeastern and the River District with a copy of an executed contract authorizing such use.

17.6.6.2. Southeastern reserves the right to provide any comments or objections to, and to participate in any consideration of, any contract that will permit Applicant's storage of water in, or exchange of water to or from, Ruedi Reservoir, to the full extent that such participation is authorized by law or permitted by Reclamation in its discretion. Applicant shall not object to Southeastern's exercise of such rights. The River District reserves the right to provide comments and to participate in any consideration of, any contract that will permit Applicant's storage of water in, or exchange of water to or from, Ruedi Reservoir, for the sole purpose of ensuring that any authorization is consistent with the Settlement Agreement.

17.6.7. Applicant may only exercise an exchange at times when Ruedi Reservoir is projected to fill, pursuant to the most recent forecast issued by Reclamation.

17.6.8. The Applicant calculated the travel time for bypass flows from Grizzly Reservoir to the confluence of the Roaring Fork River and the Fryingpan River ("the Confluence") to be 21 hours 2 minutes. The Applicant calculated the travel time for flows between Ruedi Reservoir and the Confluence to be approximately $5\frac{3}{4}$ hours. To provide continuity in flow below the exchange reach, the flows at Ruedi should be changed $15\frac{1}{4}$ hours after the gates are changed at Grizzly. In the event the Division Engineer determines a more accurate travel time between Grizzly Reservoir and the Confluence, or Ruedi Reservoir and the Confluence, Aurora shall cause operation of the gates at Grizzly Reservoir pursuant to the Division Engineer's calculations.

- 17.6.9. Applicant may exercise the exchange decreed in this case into Ruedi Reservoir at times when the elevation of Ruedi Reservoir as shown on Reclamation's website, https://www.usbr.gov/gp-bin/arcweb_rueresco.pl (or such other Reclamation or United States government website that may in the future contain this information) is at elevation 7730 acre-feet or above. If the elevation is below 7730 feet, Applicant will contact Aspen to determine if Aspen believes the elevation is sufficient for it to efficiently generate hydropower without the risk of equipment damage. If Aspen consents to operation of the exchange and there is available exchange potential, exchanges may occur. The terms and conditions of this paragraph regarding exchange at elevation below 7730 feet are applicable only at times when the City of Aspen is actively generating hydropower at the Ruedi Power Plant or intends to do so at the time of the exchange. At all other times, Applicant may exchange at its discretion and consistent with this decree, up to the amount of the available exchange potential.
- 17.7. Aurora will provide the Office of Division Engineer for Water Division 5, the Reclamation official operating Ruedi Reservoir, and the CWCB designated contact reasonable notice prior to operating the exchange rights herein decreed. Each time Aurora requests to operate the exchanges decreed herein upon less than 24 hours' notice, the Division Engineer and Reclamation shall have the discretion to decide whether such notice is reasonable under the circumstances of that request. Operation of the exchanges must not interfere with Reclamation's operations of the Fryingpan-Arkansas Project.
- 17.8. The exchanges decreed herein may not operate from time to time due to a call within the exchange reach, including a call from an instream flow water right.
- 17.9. Aurora shall not operate the exchanges decreed herein so as to prevent any intervening water right, or downstream water right, senior to the priority of these exchanges, including instream flow rights, or any other decreed appropriate right of exchange senior to these exchanges, from diverting or using the amount of water to which it would have been legally entitled in the absence of these exchanges, subject, however, to the requirements of C.R.S. § 37-92-102(2)(b).
- 17.10. Aurora will operate the river exchange into Ivanhoe Reservoir (as described in paragraph 12.2.2.) only after it has completed diversions for its Busk Ivanhoe water rights for that year, either because of volumetric limitations or because of other operational considerations. Accordingly, Aurora will be operating the river exchange only on native streamflow not on its senior Busk Ivanhoe water rights.
- 17.11. Live Stream. In addition to all other stream flow conditions set forth in this decree, the proposed exchanges decreed herein shall only occur when a live stream is present between the Exchange-From Point(s) and the Exchange-To Point(s) of each exchange to be operated. The exchanges decreed herein are limited to no more than the minimum amount of stream flow existing between the point of release of the substitute supply and the point at which water is withdrawn from the surface stream before the exchange is initiated. Live

stream is defined to mean any amount of visible flow of water in the streambed or an artificial structure built to convey water past a dry-up reach on a stream.

- 17.12. Transit losses shall be assessed on Aurora's substitute supply between the point of bypass or release from the west slope components of the Independence Pass Transmountain Diversion System and the Confluence. Diversions made pursuant to the appropriative rights of exchange decreed herein shall be made concurrently with such releases or bypasses after accounting for travel times as provided in paragraph 17.6.8. Actual transit losses will be determined and assessed by the Division Engineer in accordance with C.R.S. §§ 37-80-102(7) and 37-83-104.
- 17.13. Nothing herein shall be construed to create any right on the part of Aurora to utilize land or structures owned by third parties for the diversion, carriage, or storage of water. Further, the entry of this decree shall neither enlarge nor diminish any right currently possessed by Aurora to use lands, structures, or facilities. Aurora may utilize land for the construction and operation of such structures only to the extent it has acquired the right to so use such land from the appropriate entities, by purchase, by exercise of the power of eminent domain, or by other appropriate means.
- 17.14. Gages and measuring facilities and equipment already exist at the various diversion, storage, and release structures involved in these exchanges and within the affected stream reaches sufficient to provide the information necessary to administer the exchanges for which confirmation is sought herein. The Division Engineer and all parties to this matter have timely access to the subject stream information. Aurora will install additional gages, measuring facilities and equipment as are reasonably required by the Division Engineer to allow administration of the exchanges decreed herein, including measurement of outflows or releases from Ivanhoe Reservoir.
- 17.15. Aurora's use of its described pro rata share of Twin Lakes Project water shall be in accordance with the by-laws and corporate documents of Twin Lakes and the decrees entered in CA 3082 and W-1901.
- 17.16. Aurora agrees to not operate its *Ruedi Reservoir to Ivanhoe Reservoir* exchange against releases of water made by Pueblo Water or the Busk-Ivanhoe Water System Authority or their successors or assigns from Ivanhoe Reservoir to Ivanhoe Creek and down to the Nast Tunnel intake pursuant to Pueblo Water's contract with Reclamation dated September 25, 2003, or any amendment thereto, or any subsequent contract with Pueblo Water, the Busk-Ivanhoe Water System Authority, or their successors or assigns that allows for Busk-Ivanhoe water owned or controlled by Pueblo Water or any member of the Busk-Ivanhoe Water System Authority to be conveyed through the Nast and Boustead Tunnels.
- 17.17. The exchange of water from *Ruedi Reservoir to Ivanhoe Reservoir* under the conditional right of exchange claimed herein will be limited by and subject to the terms of the Intergovernmental Agreement governing use of Ivanhoe Reservoir between the Basalt

Water Conservancy District, the City of Aurora, the Pueblo Board of Water Works, and the Busk-Ivanhoe Water System Authority, fully executed on August 28, 2020, or as amended by the parties thereto.

17.18. Any exchange by the Applicant into Ivanhoe Reservoir is limited to the storage space defined in the Intergovernmental Agreement identified in paragraph 17.17 above. Accordingly, Aurora may use at any given time up to one-half of the active capacity of Ivanhoe Reservoir. In addition, Aurora may use greater than one-half of the active capacity of Ivanhoe Reservoir on an if-and-when basis to the extent the Pueblo Board of Water Works is not using that capacity.

17.19. In no event shall the operation of the any exchange decreed herein result in a determination by the Division Engineer of a paper fill of storage water rights in Ivanhoe Reservoir owned by Pueblo Water.

II. CONCLUSIONS OF LAW

18. The foregoing Findings of Fact are incorporated into these Conclusions of Law to the extent they constitute conclusions of law.
19. This Court has jurisdiction over the subject matter of this case, to enter the decree requested, and over all persons affected thereby, whether they appeared or not. This is a “water matter” as described in C.R.S. §§ 37-92-101, *et seq.*
20. The exchanges described in the foregoing Findings of Fact are appropriative water rights with a date of appropriation and, like other appropriative water rights, must be adjudicated and exercised in accordance with their priority vis-à-vis other decreed exchanges.
21. “The diversions [by exchange] at the upstream point take the character of the water right used as a source of downstream substitute supply.” *Centennial Water & San. Dist. v. City and County of Broomfield*, 256 P.3d 677, 684 (Colo. 2011). “Because exchanges involve a delivery of substitute supply water to the stream and continuity with an upstream diversion, a non-injurious diversion at the upstream point must take on the character of the water right used as a source of downstream supply.” *Id.* at 686.
22. This Application was properly filed with the Water Court pursuant to C.R.S. § 37-92-302(1)(a). Full and adequate notice of the claims adjudicated herein has been given in the manner required by law.
23. Aurora has met all required standards and burdens of proof necessary to adjudicate the requested exchanges, and is, therefore, entitled to a decree confirming its conditional appropriative rights of exchange.

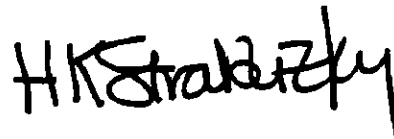
24. When Aurora operates its exchanges in accordance with the terms and conditions described herein, no owner of or persons entitled to use water under a vested water right or a decreed conditional water right will be injured.
25. The subject exchanges are part of a unified extensive system for gathering, treatment and distribution of water described herein. Aurora's ability to complete and make absolute the appropriative rights of exchange granted herein is dependent in large part on several factors set forth in the Findings of Fact, therefore, based on the foregoing Findings of Fact, for purposes of showing diligence and completing the appropriative rights of exchange, diligence as to any part of the Aurora water rights system which is used to operate or benefit from the exchanges herein granted may be considered diligence as to completion of the appropriative rights of exchange. Neither current economic conditions beyond the control of the applicant which adversely affect the feasibility of perfecting a conditional water right nor the proposed use of water from a conditional water right nor the fact that one or more governmental permits or approvals have not been obtained shall be considered sufficient to deny a diligence application, so long as other facts and circumstances which show diligence are present. C.R.S. § 37-92-301(4).
26. The operation of an exchange will not result in water quality injury provided that the water given as a substitute supply is of a quality that meets the requirements for the uses to which the water has normally been put by the senior appropriators who receive that substitute supply. *City of Thornton v. City and County of Denver*, 44 P.3d 1019, 1030 (Colo. 2002); C.R.S. §§ 37-92-305(5) and 37-80-120(3).
27. Exchange appropriations are not subject to the retained jurisdiction provision of C.R.S. § 37-92-304(6). *City of Florence v. Pueblo Board of Water Works*, 793 P.2d 148, 152 (Colo. 1990).

III. RULING OF THE REFEREE

28. The foregoing Findings of Fact and Conclusions of Law are incorporated as part of this Judgment and Decree.
29. Aurora's appropriation of the exchanges described above are hereby confirmed, subject to the terms and conditions stated herein.
30. The rights of exchange confirmed herein were appropriated and applied for in 2019 and shall be administered as junior to all water rights and exchanges decreed as being senior to that date.
31. Aurora has entered into the stipulations listed in paragraph 6, above. These stipulations are hereby approved and shall bind and benefit Aurora and the other parties thereto. Except as expressly provided in this Decree, the parties in this case other than the signatories to these stipulations are neither bound by, nor do they benefit from these stipulations.

32. This Decree is entered into by the parties in this matter by way of compromise and settlement of this litigation and the agreement of said parties for entry of said draft decree shall not be construed as concurrence by these parties beyond the Decree adjudicated herein regarding any findings of fact or conclusions of law contained therein or with the engineering methodologies utilized by either party in arriving at this Decree, and nothing contained in this Decree shall be binding upon any of the parties in any proceeding other than the current proceeding and any subsequent proceedings involving the same rights adjudicated herein.
33. After entry of this decree and upon the sale or other transfer of the conditional water rights described in paragraph 12, the transferee, if any, will file with this Court a notice of transfer, stating the title and case number of this ruling, a description of the conditional water rights transferred, its address, and a copy of the recorded deed. The owner of the conditional water rights decreed herein will notify the clerk of this Court of any changes in its mailing address.
34. A certified copy of this Decree may be recorded in the offices of the county clerk and recorder for the above-captioned counties.
35. There being no just reason for delay, the Water Court directs that final judgment enter a set forth above, in accordance with C.R.C.P. 54(b), as to claims set forth in the Application and addressed in this Decree.

Dated this 1st Day of October, 2024. BY THE REFEREE:



Holly K. Strablitzky, Water Referee
Water Division No. 5, State of Colorado

IV. JUDGMENT AND DECREE OF THE WATER COURT

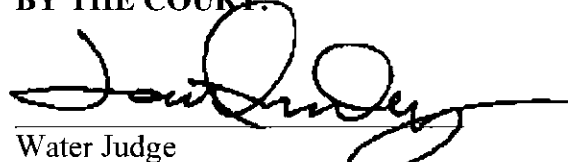
THE COURT FINDS THAT NO PROTEST WAS FILED IN THIS MATTER. THE FOREGOING RULING IS CONFIRMED AND APPROVED AND IS HEREBY MADE THE JUDGMENT AND DECREE OF THIS COURT.

The conditional water rights described herein shall be in full force and effect until the end of six years after the last day of the month the Water Court enters this Judgment and Decree. If the Applicant wishes to maintain the conditional water rights thereafter, Applicant shall file an application for finding of reasonable diligence on or before that date or make a showing on or before then that the conditional water rights have become absolute water rights by reason of the completion of the appropriation.

Any request for a future finding of reasonable diligence shall be filed in October 2030.

DATED: October 31, 2024

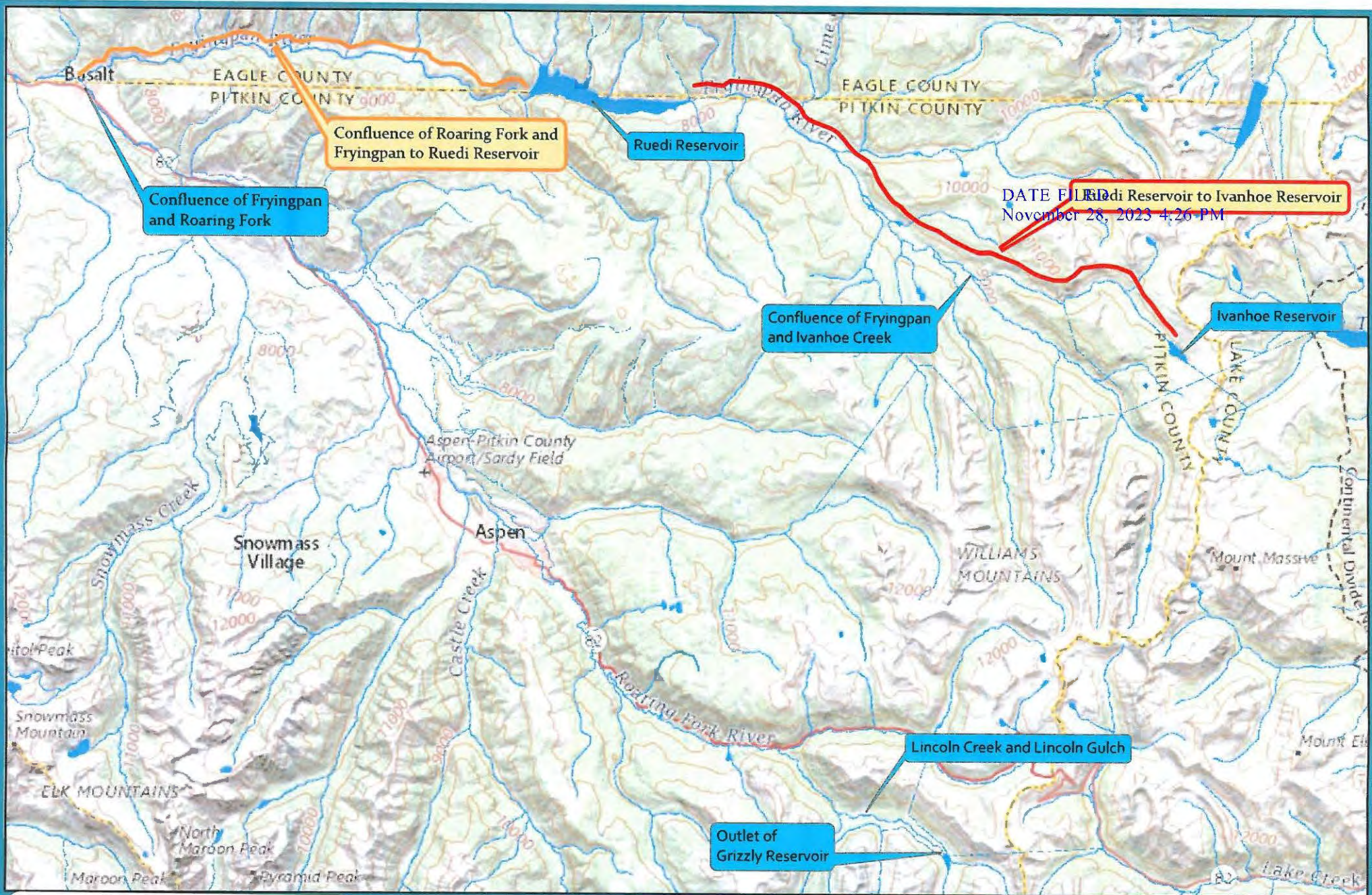
BY THE COURT:

A handwritten signature in black ink, appearing to read 'John F. Neiley', written over a horizontal line.

Water Judge
Colorado Water Court Division 5
John F Neiley
District Court Judge

ATTACHMENTS

- Exhibit A -** Map illustrating the location of the Exchange-From and Exchange-To Points described herein.
- Exhibit B -** Draft Accounting
- Exhibit C -** Memo regarding Calculation of Exchange Potential into Ivanhoe Reservoir



WD-5, 19CW3159

Busk-Ivanhoe Exchange Reaches
Exchange Reach ID

— Confluence of Roaring Fork and Fryingpan to Ruedi Reservoir

— Ruedi Reservoir to Ivanhoe Reservoir

Exhibit A

0 2.5 5 10 Miles



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	https://waterdata.usgs.gov/nwis/uw709073300					1																										
	https://waterdata.usgs.gov/nwis/uw709073550					Bypasses - Deliveries (in CFS)				Transit Loss (in CFS)				Exchange into Ruedi			Aurora Twin Lakes - Ruedi Storage (in Acre-Ft)								Aurora Twin Lakes - Inshore Storage (in Acre-Ft)							
Date	LINGRCC	BOAICCC	FryArk LC	FryArk RF	Ris CRWCC	Roaring Fork	Lincoln Creek	Delivery to Gintley	Total (CFS)	From RF Inlet	From LC Inlet	From Gintley Delivery	Total 13 (CFS)	Rate (CFS)	Volume (AF)	Total (AF)	6/10 Total 13 (AF)	Inflow	Delivery to FryArk RF	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage	From Inshore Storage
5/1/2020						0	0																									
5/2/2020						0	0																									
5/3/2020						0	0																									
5/4/2020						0	0																									
5/5/2020						0	0																									
5/6/2020						0	0																									
5/7/2020						0	0																									
5/8/2020						0	0																									
5/9/2020						0	0																									
5/10/2020						0	0																									
5/11/2020						0	0																									
5/12/2020						0	0																									
5/13/2020						0	0																									
5/14/2020						0	0																									
5/15/2020						0	0																									
5/16/2020						0	0																									
5/17/2020						0	0																									
5/18/2020						0	0																									
5/19/2020						0	0																									
5/20/2020						0	0																									
5/21/2020						0	0																									
5/22/2020						0	0																									
5/23/2020						0	0																									
5/24/2020						0	0																									
5/25/2020						0	0																									
5/26/2020						0	0																									
5/27/2020						0	0																									
5/28/2020						0	0																									
5/29/2020						0	0																									
5/30/2020						0	0																									
5/31/2020						0	0																									

DATE FILED
August 5, 2021 2:36 PM

Exhibit B
Page 1
Twin Lakes Deliveries-Bypasses/Transit
Losses/Exchanges

City of Aurora (COA) Twin Lakes water right W/S Operations	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
COA Delivery from Grizzly																	
COA Bypass to Roaring Fork																	
COA Bypass to Lincoln Creek																	
COA Transit loss to Confluence of Roaring Fork and Frying Pan																	
COA Beginning of Year Storage in Ruedi Reservoir																	
COA Inflow by River Exchange to Ruedi																	
COA Delivery to Frying Pan R. from Ruedi																	
COA Outflow by RIVER EXCHANGE																	
COA Outflow by RESERVOIR TRADE																	
COA End of year Storage																	
COA Exchange to Ivanhoe Lake																	
COA Reservoir Trade to Ivanhoe Lake																	
COA Evaporation and loss in Ivanhoe Lake																	
COA Delivery from Ivanhoe Lake to Ivanhoe Creek																	
COA Delivery from Ivanhoe Lake to Carlton Tunnel																	
COA additional Twin Lakes Delivery obligation following year to Roaring Fork	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	https://wa https://waterdata.usgs.gov/nwis/uv?090725				Bypasses - Deliveries (in CFS)				Transit Loss (in CFS)				Exchange into Ruedi			Aurora Twin Lakes - Ruedi Storage (in Acre-Ft)								Aurora Twin Lakes - Ivanhoe Storage (in Acre-Ft)								
Date	ROALMCC	O	FryArk LC	FryArk RF	CRWCD	Roaring Fork	Lincoln Creek	Delivery fm Sittelly	Total (CFS)	From RF Byp.	From LC Byp.	From Grazing Delivery	Total 13 (CFS)	Rate (CFS)	Volume (AF)	Total (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	1057031-97 (AF)	
5/1/2020																																
5/2/2020																																
5/3/2020																																
5/4/2020																																
5/5/2020																																
5/6/2020																																
5/7/2020																																
5/8/2020																																
5/9/2020																																
5/10/2020																																
5/11/2020																																
5/12/2020																																
5/13/2020																																
5/14/2020																																
5/15/2020																																
5/16/2020																																
5/17/2020																																
5/18/2020																																
5/19/2020																																
5/20/2020																																
5/21/2020																																
5/22/2020																																
5/23/2020																																
5/24/2020																																
5/25/2020																																
5/26/2020																																
5/27/2020																																
5/28/2020																																
5/29/2020																																
5/30/2020																																
5/31/2020																																
Totals						0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Memo

To: John Dingess, Esq.
From: John Winchester, P.E.

Date: January 15, 2021

Re: Calculation of exchange potential into Ivanhoe Reservoir, Case No. 5-2019CW3159

DATE FILED
August 5, 2021 2:36 PM

This memorandum explains the calculation of Aurora's physically and legally available exchange potential between Ruedi Reservoir and Ivanhoe Reservoir contemplated in Case No. 5-2019CW3159. The paragraph numbers referenced in this document refer to the draft decree for that case dated January 12, 2021.

Summary of the River Exchange

Aurora will operate the river exchange from Ruedi Reservoir to Ivanhoe Reservoir during times when conditions permit to move up to 450 acre-feet per year (af/yr) of its Independence Pass Transmountain Project (a.k.a. Twin Lakes) water to the Carlton Tunnel.

Aurora has agreed to release or bypass (bypass) up to 900 acre-feet af/yr of its Twin Lakes water to the headwaters of the Roaring Fork River. The bypass will reduce the amount of water Aurora has historically diverted to the east slope, however the exchange of 450 af/year is designed lessen the amount of bypass.

Operation of the River Exchange

Aurora will coordinate with west slope entities each year to schedule the bypass of the Twin Lakes water. The timing of the release is not fixed because the purpose of the bypass is to supplement low flows in the Roaring Fork River. Aurora anticipates it will typically bypass water in July, August and September.

Water will be exchanged, when conditions permit, to Ruedi Reservoir as the bypass reaches the confluence of the Roaring Fork River and the Fryingpan River. Because the bypasses are timed to bolster low flows, Aurora will have little ability - if any - to time the release to coincide with times when streamflows on the Fryingpan River are favorable for exchanging water.

River exchanges from Ruedi Reservoir to Ivanhoe Reservoir when all conditions in the decree are met, including the Colorado Water Conservation Board (CWCB) instream flow rights and the Fryingpan-Arkansas System (Fry-Ark) decreed water rights near Nast. Consequently, Aurora anticipates that most river exchanges to Ivanhoe will occur during the peak of the runoff season, so water exchanged into Ruedi Reservoir in the late summer of one year will be stored through the winter and exchanged up to Ivanhoe Reservoir the following year.

Physical River Exchange Potential

The river exchange depends on data from three stream gages, Ivanhoe Creek below Ivanhoe Reservoir (Busk-Ivanhoe Company), the Ivanhoe Creek near Nast (USGS 09077610), and the Fryingpan River at Thomasville (USGS 09080000).

Aurora has agreed to only operate the exchange when there is a continuous live stream in the exchange reach (section 17.10), so the physical exchange is limited to the minimum flow at these three points unless a dry stream is observed at an intervening location. Because Ivanhoe Creek and the Fryingpan River are in the headwaters of the basin and there are no significant intervening diversions, these streams are gaining streams, so flows in the reaches below the gages are generally higher than the flow at the gage.

The Ivanhoe Creek near Nast gage is below the Fryingpan-Arkansas (Fry-Ark) diversion on Ivanhoe Creek, so the gage records flows remaining after Fry-Ark diversions.

Legal River Exchange Potential

The following is a list of legal constraints used in calculating the potential river exchange from Ruedi Reservoir to Ivanhoe Reservoir.

1. The maximum rate of the river is limited in section 12.2.2.1 of the proposed decree to 50 cubic feet per second (cfs). Aurora will not call for a river exchange under this decree at an instantaneous rate of more than 50 cfs or its equivalent of 99.2 acre-feet (af) per day.
2. The maximum annual volume of the river exchange is limited in section 12.2.2.1 of the proposed decree to 450 af/year. Aurora will not call for a river exchange from Ruedi to Ivanhoe that will cause the cumulative total to exceed 450 af in any water year (Oct-Sep).
3. The Colorado Water Conservation Board (CWCB) has two instream flow (ISF) rights in the exchange reach:
 - a. Fryingpan River, measured at the Thomasville gage, Case No. 5-73W1955,
 - i. 30 cfs (10/1 - 3/31),
 - ii. 100 cfs (4/1 - 4/30),
 - iii. 150 cfs (5/1 - 5/31),
 - iv. 200 cfs (6/1 - 6/30),
 - v. 100 cfs (7/1 - 7/31),
 - vi. 75 cfs (8/1 - 8/31),
 - vii. 65 cfs (9/1 - 9/30)
 - b. Ivanhoe Creek measured at the Near Nast gage, Case No 5-73W1952,
 - i. 1 cfs (10/1 - 3/31),
 - ii. 2 cfs (4/1 - 9/30)

Aurora will not call for a river exchange at a rate that causes the streamflow at these locations to drop below the ISF in effect at the time of the exchange.

4. In a proposed stipulation with the Southeastern Water Conservancy District (SEWCD), Aurora agrees to not call for a river exchange at a rate that will cause the flow at the Thomasville gage to fall below the instream value for the current month plus 15 cfs.

5. Aurora will only exchange water when it is able to release replacement water from Ruedi Reservoir. Aurora will not call for an exchange rate that is greater than the supply available on that day.
6. Aurora will only exchange water when it has a legal destination to put the exchanged water, either into storage in Ivanhoe Reservoir or delivered concurrently through the Ivanhoe Tunnel.
7. Aurora will operate the river exchange only after it has completed diversions for its Busk Ivanhoe water rights for that year, either because of volumetric limitations or because of other operational considerations. Because of this, Aurora will be operating the river exchange only on native streamflow not on its senior BI Water right.

Aurora's maximum legal exchange rate on any given day is the minimum of these seven factors.

Actual River Exchange Potential

The actual exchange potential at any given time is the minimum of the legal and physical exchange potentials. The limitation on the exchange potential can change during the day due to natural streamflow or changes in the operation of the Busk-Ivanhoe or Fryingpan-Arkansas systems.

Operation of the River Exchange

As part of its regular operations, Aurora will monitor the amount of Twin Lakes water in its Ruedi account, the amount of unused space or diversion capacity through the Carlton Tunnel, streamflows at the Thomasville, Nast, and Ivanhoe Reservoir gages listed above, and the diversions of the Fry-Ark system.

When Aurora has water to exchange and anticipates that exchange potential will exist in the exchange reach, Aurora will contact the operations staff at Reclamation and the District 38 Water Commissioner to indicate it would like to make the exchange, and to coordinate the execution of the exchange.

Aurora has agreed to provide 24-hour notice of its desire to execute a river exchange when possible, though if stream conditions were to unexpectedly change to allow the exchange, Aurora may request a river exchange with less notice.

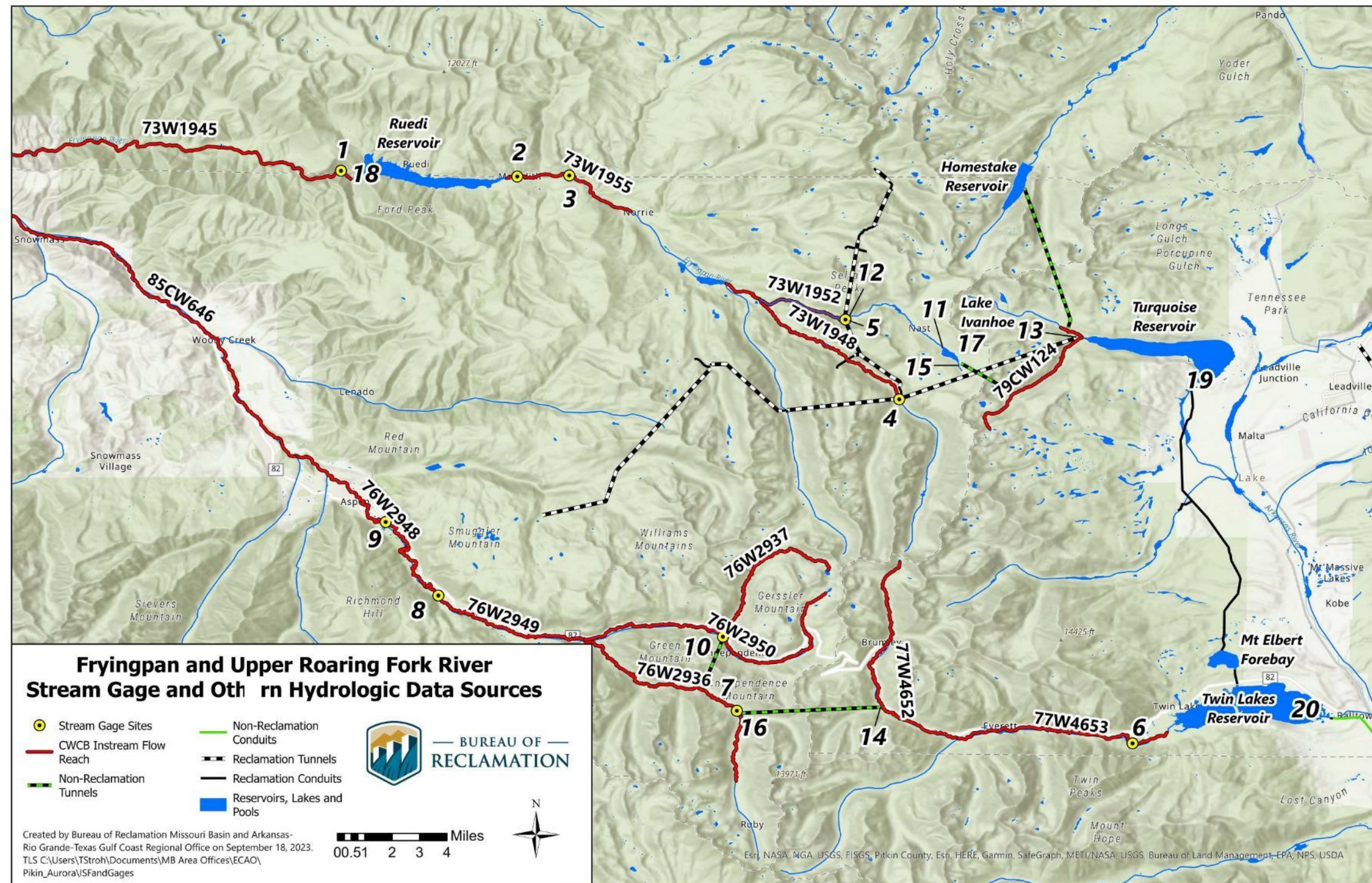
When river exchanges are made, the Busk-Ivanhoe Company will divert native streamflow into storage at Ivanhoe Reservoir, and at the same time Reclamation will either transfer water from Aurora's account to the calling account in Ruedi Reservoir, or release Aurora's stored water from Ruedi Reservoir to the Fryingpan River, accounting for transit time in both cases. Once the desired volume has been exchanged or streamflows drop and eliminate the exchange potential, the Busk-Ivanhoe Company will resume bypassing out-of-priority native streamflow, and Reclamation will either cease the book-over of water between accounts or will stop releasing water from Aurora's account.

The Busk-Ivanhoe Company will keep records of exchanges made, the water in storage in Ivanhoe Reservoir by water type, and deliveries of its Twin Lakes water through the Carlton Tunnel. Accounting will be coordinated between the Company partners – Aurora Water and the Board of Water Works of Pueblo, SECWCD, Reclamation, and Division 5.

Appendix C: Stream Gage and Other Hydrologic Data Sources

ID	Name	Data Source	Period of Record
Stream Gage			
1	Fryingpan River near Ruedi	USGS	1981-2019
2	Fryingpan River near Meredith	CDWR	1975-2020
3	Fryingpan River near Thomasville	CDWR	1975-2020
4	Fryingpan near Ivanhoe Reservoir	CDWR	1981-2019
5	Ivanhoe Creek near Nast	CDWR	1975-2020
6	Lake Creek above Twin Lakes Reservoir	CDWR	2000-2019
7	Lincoln Creek below Grizzly	USGS	1981-2021
8	Roaring Fork above Difficult Creek	USGS	1980-2021
9	Roaring Fork River near Aspen	USGS	1964-2021
10	Roaring Fork above Lost Man Creek	USGS	1981-2021
Diversion Structure			
11	Below Ivanhoe Reservoir	BIWSA/CDWR	
12	Ivanhoe Creek Feeder Canal near Nast	Reclamation	2006-2022
13	Boustead Tunnel (CDNR,	CDWR	
14	Independence Pass Tunnel No 1 (Twin Lakes Tunnel No 1)	CDWR	1973-2020
15	Ivanhoe Tunnel	CDWR	2012-2019
Reservoir Content			
16	Grizzly Reservoir content	CDWR	
17	Ivanhoe Reservoir contents	BIWSA/CDWR	1981-2019
18	Ruedi Reservoir content	Reclamation	1981-2019
19	Turquoise Reservoir content	Reclamation	1981-2019
20	Twin Lakes Reservoir content	Reclamation	1981-2019

CWCB Instream Flow					
River—Case Number	Date	Upper	Lower	Flow (cfs)	Notes
Busk Creek—79CW0124	03/14/1979	Headwaters	Turquoise Reservoir	3	1/1 to 12/31
Fryingpan River—73W1955 (Above Ruedi)	07/12/1973	North Fork Fryingpan River	Ruedi Reservoir	30 100 150 200 100 75 65	10/1 to 3/31 4/1 to 4/30 5/1 to 5/31 6/1 to 6/30 7/1 to 7/31 8/1 to 8/31 9/1 to 9/30 (Subject to the Operating Principles of the Fry-Ark Project)
Fryingpan River—73W1948 (Below Ivanhoe Creek)	07/12/1973	Marten Creek	South Fork Fryingpan River	6 12	10/1 to 3/31 4/1 to 9/30 (Subject to the Operating Principles of the Fry-Ark Project)
Fryingpan River—73W1945 (Below Ruedi Reservoir)	07/12/1973	Rocky Fork Creek	Roaring Fork River	39 110	11/1 to 4/30 5/1 to 10/31
Ivanhoe Creek—73W1952	07/12/1973	Ivanhoe Creek Diversion (Fry-Ark)	Fryingpan River	1 2	10/1 to 3/31 4/1 to 9/30 (Subject to the Operating Principles of the Fry-Ark Project)
Lake Creek—77W4653	1/19/1977	Nork Fork/South Fork	Twin Lakes Reservoir	20	1/1 to 12/31
Lake Fork Creek—77W4647	1/19/1977	Mill Creek	Turquoise Reservoir	7	1/1 to 12/31
Lincoln Creek—76W2936	01/14/1976	Galena Creek	Roaring Fork River	8	1/1 to 12/31
Lost Man Creek—76W2937	01/14/1976	Outlet of Lost Man Lake	Roaring Fork River	4	1/1 to 12/31
North Fork Lake Creek—77W4652	1/19/1977	Headwaters	South Fork Lake Creek	10	1/1 to 12/31
Roaring Fork River—76W2949 (Above Aspen)	01/14/1976	Lincoln Creek	Difficult Creek	15	1/1 to 12/31
Roaring Fork River—85CW0646 (Below Aspen)	11/8/1985	Maroon Creek	Fryingpan River	30 55	10/1 to 3/31 4/1 to 9/30
Roaring Fork River—85CW0639	44/8/1985	Fryingpan River	Crystal River	75 145	10/1 to 3/31 4/1 to 9/30



*Note: Homestake Tunnel and Reservoir, and Lake Ivanhoe and Ivanhoe Tunnel are not Reclamation facilities.

Appendix D: Hydrology Report

Hydrologic Effects for Twin Lakes – Ivanhoe Reservoir Exchange in Support of the Environmental Assessment for an Excess-Capacity Storage Contract in Ruedi Reservoir. Dated December 2, 2025

Aurora Water

Hydrologic Effects for Twin Lakes – Ivanhoe Reservoir Exchange

in Support of the Environmental Assessment for an Excess-Capacity
Storage Contract in Ruedi Reservoir

Draft - March 9, 2022

Finalized December 2, 2025

Prepared By:

By High Country Hydrology, Inc.

Boulder Colorado

303-258-3567



November 24, 2025

Austin Hamre, Esq.
Hamre, Rodriguez, Ostrander & Prescott, P.C.
188 Inverness Dr. W. Suite 430
Englewood, CO 80112

Re: Engineering Report in Support of Aurora's Excess-Capacity Contract in Ruedi Reservoir

Dear Austin,

This letter accompanies a revised report of the hydrologic effects that likely to occur if Reclamation issues an excess-capacity (a.k.a. if-and-when) storage contract to store Twin Lakes water in Ruedi Reservoir. The calculation of exchange potential remains the same as the draft report, with two changes:

- First, the original report relied on professional judgement to identify when the bypasses from the Twin Lakes system would take place. Since the original report was written, Aurora has coordinated with Pitkin County and other stakeholders to bypass Twin Lakes water for several years, and this experience showed that the original window for the exchange, September 1 through October 31, is later than what the parties have agreed to in actual practice. The revised report has the bypasses being made from July 15 through September 30. Increasing the length of the exchange window decreased the average rate of exchange, but increased the amount exchanged in some years. And,
- Second, a fifth limitation was added to the exchange into Ruedi reservoir, that the exchange couldn't happen when the elevation of Ruedi Reservoir was below 7730 feet. Adding this limitation reduced the exchange in some years.

The graphics and tables in the report have been revised to reflect this new window.
Please contact me if you have any questions or need additional information.

Sincerely,

John Winchester, P.E.
High Country Hydrology, Inc.
Boulder CO 80302
303-258-3567
john@highcountryhydrology.com



Description of Proposed Action

Aurora is seeking an Excess Capacity contract in Ruedi Reservoir to facilitate the delivery of part of its water from the Independence Pass Transmountain Diversion System (IPTDS) through the Ivanhoe (a.k.a. Carlton) Tunnel.

Background

Aurora is a shareholder in the Twin Lakes Company, which owns the Independence Pass Transmountain Diversion System. Aurora's approximate five-percent ownership in the company entitles it to an average of 2,450 acre-feet (af) of water each year, of which 2,220 af comes from the west slope.

As part of change case No. 2009CW142 (Division 2), Aurora signed an intergovernmental agreement (IGA) with the Colorado River Water Conservancy District, Basalt WCD, Eagle County, Pitkin County, Grand Valley Water Users Association, Orchard Mesa Irrigation District, and the Ute WCD. In exchange for settling the exchange case, Aurora agreed to bypass or release (hereafter collectively referred to as bypass) up to 900 af of its IPTDS west slope water down the Roaring Fork River to its confluence with the Fryingpan River. West slope entities want the bypass of IPTDS water to enhance flows in the Roaring Fork River above the confluence of the Roaring Fork River and the Frying Pan River during late summer for aesthetic and environmental purposes.

Aurora has obtained a decree to exchange water from the Roaring Fork River into Ruedi Reservoir, and from Ruedi to Ivanhoe Reservoir. Aurora is pursuing a contract with Reclamation to store water in Ruedi Reservoir so it can recapture water it bypasses pursuant to the IGA. This report presents the hydraulic effects of these exchanges on various streams.

Operation

Each year Aurora will meet with Pitkin County, the Colorado River Water Conservancy District, and the Twin Lakes Company to develop a bypass schedule. The exact timing of the bypasses will be determined on a year-by-year basis, but they are generally expected to occur in the late summer or early fall, perhaps in July, August, or September. When the bypasses are made, Aurora will work with the Division Engineer to determine if there is exchange potential from the Roaring Fork River up to Ruedi Reservoir, with the Town of Aspen to determine if exchanges can be made without impacting the Town's hydroelectric operations, and with Reclamation to determine if there is space available in Ruedi Reservoir to store the water.

River exchanges between Ruedi and Ivanhoe reservoirs will be coordinated with the Division Engineer, Reclamation, and the Southeastern Water Conservancy District to ensure that the exchange does not injure senior water rights. In a stipulation with Southeastern, Aurora agreed to curtail exchanges when doing so would reduce flows at Thomasville below the minimum flows the Fry-Ark Project is limited by, plus a 15 cubic foot per second (cfs) safety factor. The minimum flows at the Thomasville gage for Aurora to exchange are: October 1 through March 31 - 45 cfs; April 1 through April 30 - 115 cfs; May 1



through May 31 - 165 cfs; June 1 through June 30 - 215 cfs; July 1 through July 31 - 115 cfs; August 1 through August 31 - 90 cfs; September 1 through September 30 - 80 cfs.

Timing and amounts

Aurora may bypass IPTDS water at a rate up to 31.25 cfs, which is equal to its 5-percent pro-rata share of the 625 cfs capacity of the Twin Lakes Tunnel No. 1. The decreed rate of exchange up the Fryingpan River to Ruedi is limited to 31.25 cfs, however, in actual practice the exchange rate will probably be less but last longer, and will depend on the rate at which water is bypassed from the IPTDS, the exchange potential between the Roaring Fork and Ruedi Reservoir, and the storage space available in Ruedi.

The river exchange rate from Ruedi Reservoir to Ivanhoe Reservoir has a decreed maximum rate of 50 cfs, a rate sufficient to move 450 af in about five days. The actual exchange rate may be less depending on the amount of IPTDS water in storage in Ruedi, the amount of available space in Ivanhoe Reservoir and/or the excess capacity in the Ivanhoe Tunnel, the exchange potential between Ruedi and Ivanhoe reservoirs, and the rate of diversion at Nast by the Fry-Ark system.

Aurora may also seek administrative authorization to perform reservoir trades between Ruedi and Ivanhoe reservoirs, where IPTDS water in Ruedi will be exchanged “on paper” for water in Ivanhoe Reservoir that was stored under the Ivanhoe rights. The same volume of water in Ruedi Reservoir will then be released and be accounted for as water native to the west slope. Due to restrictions on refilling space in Ivanhoe Reservoir vacated by the release of Reservoir Trade water, this operation will likely occur only rarely.

Two-step operation – Roaring Fork to Ruedi, Ruedi to Ivanhoe

Aurora is requesting a contract to use up to 900 af of excess capacity in Ruedi Reservoir. Aurora’s plan is to bypass up to 900 af of its IPTDS water in the late summer or early fall, and, when streamflow conditions below Ruedi allow, exchange that water up to Ruedi Reservoir. Unless streamflow conditions above Ruedi allow it to move on to Ivanhoe Reservoir in the same year, the water will be held in the reservoir over the winter, and then up to 450 af will be exchanged up to Ivanhoe Reservoir and delivered through the Ivanhoe Tunnel.

Because streamflow in Ivanhoe Creek and the Fryingpan River during the summer, fall, and winter typically won’t support the exchange after senior decreed rights are satisfied, the exchange from Ruedi Reservoir to Ivanhoe Reservoir is expected to take place near the peak of runoff in the following year.

Use of excess-capacity space

Water supply reservoirs are designed to store water when streamflow is high and release it when streamflow is lower, which means most reservoirs are less than full at least part of the year. It is not uncommon for multi-purpose reservoirs to lease the unused or excess capacity to other water users. While Ruedi Reservoir has not historically issued contracts for the use of excess capacity, it is quite common in other reservoirs in Colorado such as Pueblo Reservoir, another Bureau of Reclamation facility.



Excess capacity contracts usually specify the amount of space being leased, the time period when the space will generally be available, and sometimes the type of water that can be stored in the space. To prevent injury to the reservoir's water rights, a common requirement is that if the reservoir fills, the water stored in the excess capacity space spills first.

In exchange for allowing a water user to store water in the reservoir, the user pays a one-time and/or annual water storage fee to the reservoir owner.

The contents of Ruedi Reservoir typically fluctuate throughout the year. The reservoir most often fills during runoff in July and then falls through the year as the reservoir releases water from storage. The lowest storage volumes are frequently reached the following April before the start of Spring runoff.

How Aurora proposes to use the reservoir space

If streamflows were regularly high enough to support an exchange directly from the Roaring Fork River to Ivanhoe Reservoir, Aurora would not need the storage account in Ruedi Reservoir. Because there typically isn't exchange potential through the entire reach between the Roaring Fork and Ivanhoe when the water will be bypassed by the Twin Lakes System, Aurora proposes to use storage space in Ruedi Reservoir to retime the movement of its water to times exchange potential is available. This will be done by using Ruedi Reservoir to capture Aurora's bypass of IPTDS water as it passes and is exchanged upstream from the confluence of the Roaring Fork and the Fryingpan Rivers, store the water through the winter in Ruedi Reservoir, and then exchange it up to Ivanhoe Reservoir the next year. Because the water will initially be stored in the summer and fall and then exchanged out in the spring, the reservoir space will allow re-timing the delivery of water from the low-flow season in the fall to the spring when flows on the upper Fryingpan River and Ivanhoe Creek are higher and able to accommodate the exchange.

Timing of storage carryover

When Aurora has water in storage in Ruedi Reservoir at the start of runoff, the reservoir will fill as it normally does. As water stored under the reservoir's rights begin to invade Aurora's if-and-when storage account, water in Aurora's account will be spilled out of that account and be replaced with water diverted under Ruedi's rights.

Aurora's water exchanged into Ruedi in the late summer or fall will need to be carried over to the spring of the next water year. If there is a year where Ruedi does not physically spill and Aurora is not able to exchange its water in Ruedi up to Ivanhoe, some or all of Aurora's water may be carried over into the post-runoff part of the year.

Aurora has applied for water rights to exchange up to 900 af of water to Ruedi Reservoir each year, but can exchange only 450 af up to Ivanhoe Reservoir. Aurora is exploring alternative ways to use the remaining 450 af of water stored in Ruedi, including uses possibly beneficial to the west slope water users, but at this time has no formalized plan for how the water will be used.



Based on an analysis of streamflow data, the travel time from Grizzly Reservoir to the confluence with the Fryingpan River is 21:02 hours, and from Ruedi Reservoir to the Roaring Fork is 5:44 hours. To keep streamflows in the Roaring Fork below the Fryingpan River whole, gate changes at Ruedi should be made 15 hours and 18 minutes (rounded to 15hr 20min) after gate changes at Grizzly. These travel times were based on records from low-flow periods, similar to those anticipated during the proposed operations. Actual travel time may be less during higher flows, though bypasses are not expected to occur when streamflows are already high.

Description of Analysis

River exchanges were calculated using daily stream gage data for the full period that gage records were kept, which resulted in a period of record of 39 years (water years 1981-2019). Calculations of exchange potential were made on a daily basis, and considered historical diversions, CWCB instream flows, and diversions by the Aspen hydroelectric plant and the Southeastern Water Conservancy District.

Excel spreadsheets were used to calculate the exchange potential¹. For transparency, calculations were made using spreadsheet formulas rather than performing them with Visual Basic (VBA) code. The daily time series data was arranged in columns, and calculations progress from left to right in each worksheet. User-selectable options are included across the top of the sheet near the column where the input variable is used in the calculation. Blocks of monthly and annual summary tables are included in the last block of columns at the far-right side of the sheet.

Generally speaking, the exchange potential calculated by the gage data is reduced as calculations progress from left to right in the sheet.

Data used

Streamflow, reservoir contents, diversion data, insteam flow rights, and Town of Aspen hydroelectric generation data came from a variety of sources, including the U.S. Geological Survey, Colorado Division of Natural Resources, Reclamation (Hydrobase), the Colorado Water Conservation Board, the Town of Aspen, and the Busk-Ivanhoe Company.

State, USBR, and USGS gauges

Gage data relied upon included:

- Fryingpan River near Ruedi (1981-2019, USGS)
- Fryingpan River near Meredith (1981-2019, Colo DWR)
- Fryingpan River near Thomasville (1981-2019, Colo DWR)
- Fryingpan River near Ivanhoe Lake (1981-2019, Colo DWR)
- Ruedi Reservoir contents (1981-2019, USBR)
- Ivanhoe Creek near Nast (1981-2019, Colo DWR)

¹ Current version: [Ivanhoe exchange potential2024-10-14.xlsx](#)



Hydrologic Effects Report

- Ivanhoe Creek diversions (2006-2019, USBR)
- Boustead Feeder Canal near Nast (Fry-Ark diversions, 1981-2019, USBR)
- Below Ivanhoe Reservoir (2013-2019, BI Company /Colo DWR)
- Ivanhoe Reservoir contents (1981-2019, BI Company /Colo DWR)
- Ivanhoe Tunnel (1981-2019, Colo DWR)
- Boustead Tunnel (1981-2019, Colo DWR)

CWCB instream flows

Instream flow rights considered in the analysis include:

- Fryingpan R below Ruedi Reservoir
- Fryingpan R at Thomasville gage
- Fryingpan R at Near Meredith gage
- Ivanhoe Cr at Near-Nast gage

The CWCB instream rights, which vary by season and/or month, are contained in tables in the Excel workbook used to calculate exchange potential. There is no instream flow right between Ivanhoe Reservoir and the Near-Nast gage.

Limitations on exchanges

The exchange into Ruedi is based on the Fryingpan near Ruedi gage, which is located just below Ruedi dam, because it is the only gage on the Fryingpan between the dam and the confluence with the Roaring Fork. While there is no other reasonable alternative to using this gage to calculate the exchange potential for the entire reach, the use of this gage is considered conservative because streams in this area typically gain as they flow downstream, and the gage is located at the top of the exchange reach.

The analysis methodology does not include a minimum operational rate of exchanges. Exchanges into Ruedi, or from Ruedi to Ivanhoe Reservoir, are considered feasible even if there is only a fraction of a cfs more streamflow than the CWCB instream flow or other allowable minimum flow. The consequence of that is the change in flow can be a very small fraction of the flow, when flows are higher but the amount available for exchange is very low (a 0.1 cfs exchange out of 50 cfs of physical flow), or a very large fraction, when streamflow is small but the exchange potential is a large percentage of the total flow (3 cfs exchange out of 5 cfs physical flow). In practice, the reservoir control and measurement structures will likely dictate a minimum rate of exchange, below which flows cannot be practically measured or controlled.

Timing of Bypasses from Twin Lakes system

The delivery of water to the Roaring Fork River is intended to increase flows in the summer, after runoff wanes. The IGA specifies that bypasses will typically begin after July 15 (para 18), and will end by September 30 (para 18.1). The exact timing and amount of the bypasses will vary from year to year. As stated in the IGA (para 19),

“Annually, prior to the initiation of diversions by Twin Lakes designated representatives of Pitkin, CRWCD, Aurora and Twin Lakes will develop subject to the terms of this Agreement detailed delivery schedules for water available under this paragraph 19 reasonably considering and reflecting the desired rate, timing, amount, location and ultimate use of the water, as well as the operational needs and constraints upon Aurora as a Twin Lakes shareholder plus constraints upon the Twin Lakes company and all Twin Lakes facilities. Pitkin, CRWCD, Aurora and Twin Lakes may consult with other appropriate parties, if any, in developing the delivery schedules. Delivery schedules may be updated from time-to-time throughout the Water Year as warranted by hydrology, operational constraints or other factors identified in this Agreement. It is recognized by the Parties that deliveries under this paragraph 19 will be conducted in a manner designed to maximize benefits to Roaring Fork River stream flows which benefits the West Slope Parties and the Colorado River basin as stated in paragraph 20.”

The calculation of exchange potential assumed that 31.25 cfs could be exchanged on any day from April through September, but the hydrologic effects for the exchange potential were calculated for times bypasses are more likely to occur, July through September.

CWCB instream

Exchange from the Roaring Fork River to Ruedi Reservoir

One instream flow right covers the entire reach between Ruedi Dam and the confluence of the Fryingpan and the Roaring Fork rivers. Established in Water Division 5 Case No. W-1945, it claims 39 cfs during the winter and spring (11/1 - 4/30), 110 cfs during the summer and fall (5/1 - 10/31). The calculation of exchange potential excluded all days when the average daily flow at the Near Ruedi gage was equal to or below the claimed flows for the claimed dates.

Exchange from Ruedi Reservoir to Ivanhoe Reservoir

The exchange from Ruedi to Ivanhoe includes three reaches protected by instream flows (Division 5 Case Nos. W1955, W1948, and W1952);

- on the Fryingpan River, 4.4 miles between Ruedi Reservoir and the North Fork of the Fryingpan River, (30 cfs 10/1-3/31, 100 cfs 4/1-4/30, 150 cfs 5/1-5/31, 200 cfs 6/1-6/30, 100 cfs 7/1-7/31, 75 cfs 8/1-8/31, 65 cfs 9/1-9/30). The Thomasville gage is approximately a tenth of a mile downstream of the upper terminus.
- on the Fryingpan River, 2.2 miles between the South Fork of the Fryingpan River and Ivanhoe Creek (6 cfs 10/1 - 3/31, and 12 cfs 4/1 - 9/30). There are no gauges in this reach.
- on Ivanhoe Creek, 2.8 miles between the Fryingpan River and the Fry-Ark Nast Tunnel diversion (1 cfs 10/1 - 3/31, and 2 cfs 4/1 - 9/30). The Near Nast gauge is approximately 350 feet downstream of the upper terminus.

The calculation of exchange potential assumed that no exchange was possible whenever flows were below these rates.



Aspen hydro-electric

The Town of Aspen holds a 300 cfs water right to generate hydroelectric power. The plant typically operates between 50 and 275 cfs. According to a report assessing the plant, the current plant should not operate below 40-50 cfs because of potential damage to the turbine, and has generally operated up to 250 cfs, with an optimal rate of 142 cfs and 272 feet of head.

This analysis assumes Aspen will modify its equipment so it can generate power at 300 cfs. The calculation of exchange potential and the hydrologic effects presume that Aurora can exchange past the hydroelectric plant when the flow at the Near Ruedi gage was less than 50 cfs (but above the instream flow) or greater than 300 cfs.

Fry-Ark diversions

The Fry-Ark diversion at Nast is most commonly limited by the instream flow right at Thomasville. In section 17.6.1 of the Decree, Aurora agrees to curtail exchanges when doing so would reduce the flow at Thomasville below the decreed instream flow rate plus 15 cfs.

In section 17.6.2 of the Decree, Aurora agrees to curtail exchanges when they will deplete Ivanhoe Creek below the Fry-Ark right at Nast for 150 cfs, unless the Boustead Tunnel is already fully satisfied.

The calculation of exchange potential and hydrologic effects included these limitations.

Ivanhoe System diversion and storage

The projection of how contents in Ivanhoe Reservoir flows through the Ivanhoe Tunnel was based on historical flows, with the exchanged flows factored in. This analysis is somewhat subjective, because Aurora may choose to operate its portion of the reservoir differently than it has historically in order to facilitate deliveries of the Twin Lakes water. At the same time Aurora will be adding Twin Lakes water to Ivanhoe Reservoir, it will, per terms in the IGA, give up 50 af of storage it used historically, allowing the space to be used by the Basalt Water Conservancy District for augmentation purposes.

Description of Effects

Hydrologic effects were calculated using historical streamflow and reservoir data, and comparing the historical flows, contents, and elevations with the modeled value if Aurora had operated the exchange during the 1989-2019 period. Because the exchange rate and period will be set each year by making reasonable projections about the future hydrology four to six months into the future, daily modeling based on past data will be different than operations will be in the future. The Effects modeling assumes bypasses will occur July 15 through September 30, which should provide a realistic projection of the timing and magnitude of the changes in streamflow and reservoir storage.

Illustration of Differences

The following graphs show the difference in flows and storage in affected streams and reservoirs. Tables of daily and monthly data are included in the appendix.



Roaring Fork River

Because of prior agreements, Aurora will make bypasses down the Roaring Fork River even if the it does not obtain an excess capacity contract in Ruedi Reservoir. Nevertheless, changes in flow in the Roaring Fork River are included for context. The calculated effects for the Roaring Fork River are based on the assumption that the bypass will occur from July 15 through September 30 of each year, at an average bypass rate of 5.8 cfs.

Figure 1 shows the historical flow of the Roaring Fork above Difficult Creek, and the percent change in flows that the bypasses will cause.

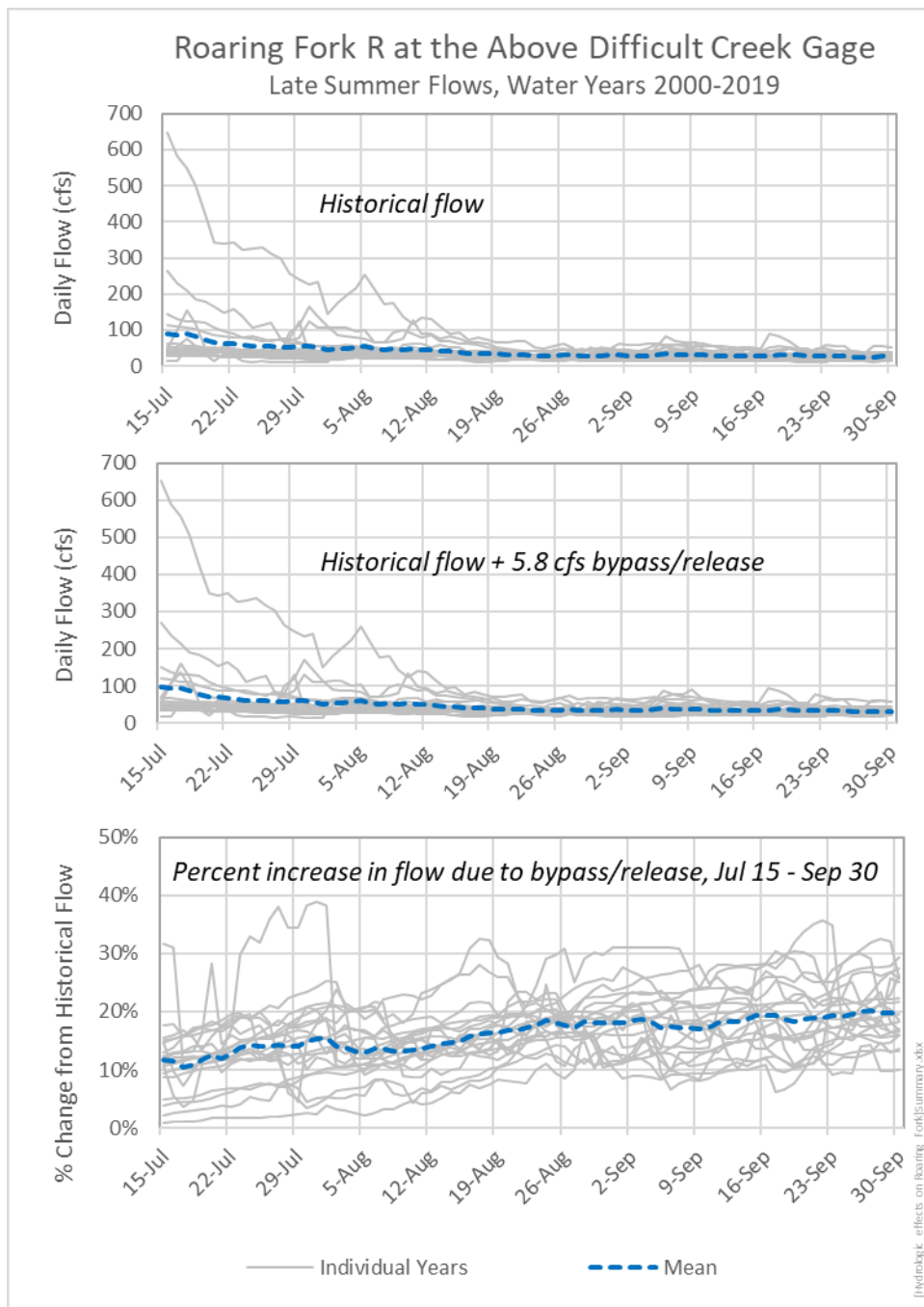


Figure 1. Flow with and without bypass, Roaring Fork above Difficult Creek.

Based on the 2000-2019 period, the analysis represented in Figure 9 shows bypasses will increase the flow rate above Difficult Creek gage between 1 to 39 percent, with an average increase of 16 percent. Due to the falling limb of the runoff hydrograph, the percent increase in flows in the late summer (August) will be less than those in the early fall (September). When historical flows were very low, the bypass would have resulted in a very large percentage increase, although low flows are not a regular



occurrence. Similarly, when historical flows are high, the bypass would not result in a significant percentage increase in flows, and likely will be deferred to times when the bypasses would be more beneficial. Because the Roaring Fork River is a gaining stream, the bypass has less of an effect on the Roaring Fork at Aspen than it does above the Difficult Creek gage as shown in Figures 9 and 10.

Figure 2 shows the flow of the Roaring Fork near Aspen for both the historical flow with and without the bypass. Traditionally, more flow occurs near Aspen, resulting in less of a percent increase in flow from the bypass. The daily increases range from 1 percent to 34 percent, with an average increase of 13 percent.

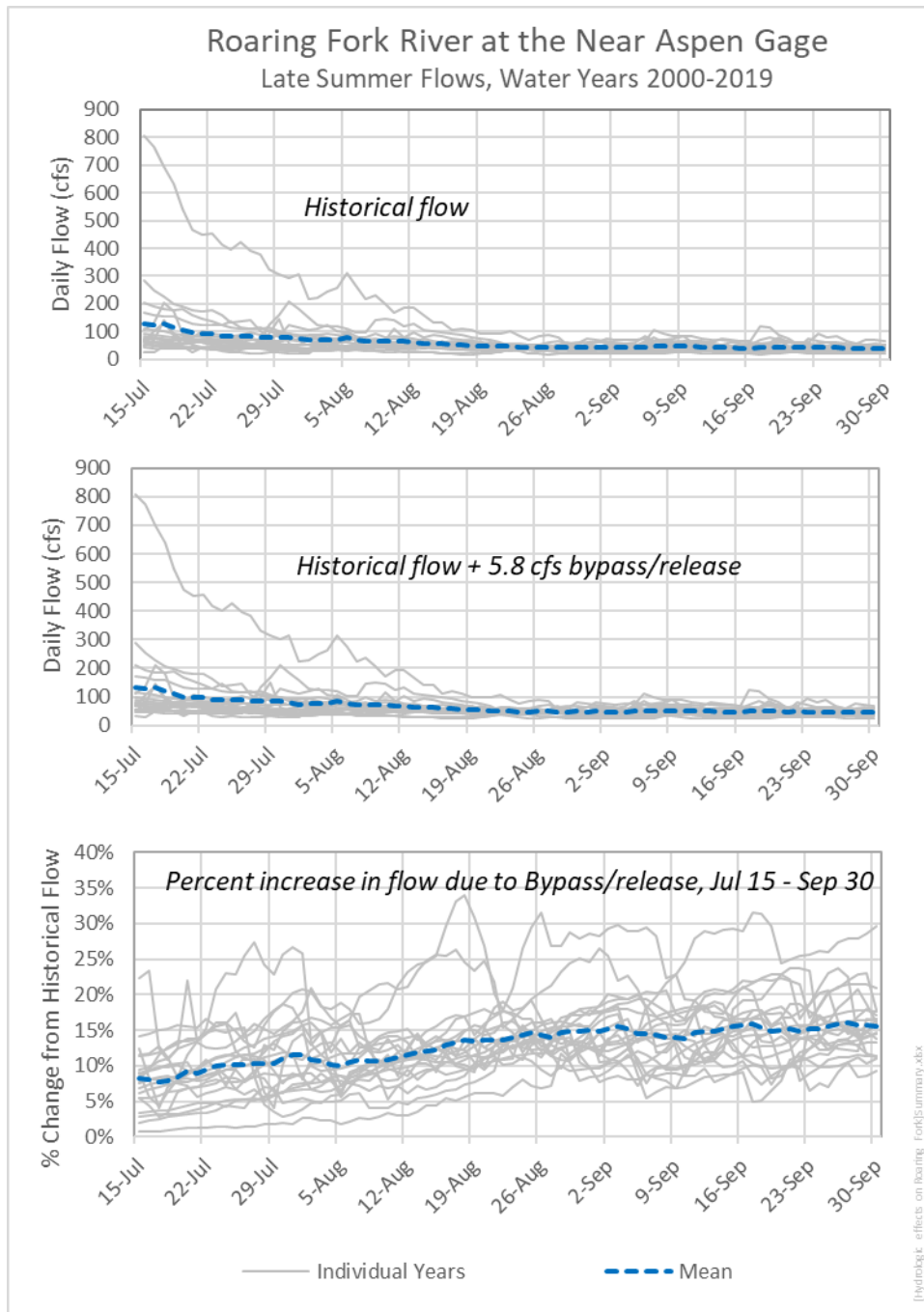


Figure 2. Flow with and without bypass, Roaring Fork near Aspen

Fryingpan River Below Ruedi

The proposed action anticipates that as the bypass flows pass the confluence of the Roaring Fork and the Fryingpan River, an equal amount of water, less any transit loss assessed by the Division Engineer, will be exchanged up to Ruedi Reservoir, reducing flows in the Fryingpan River from the confluence with



Hydrologic Effects Report

the Roaring Fork to Ruedi Reservoir. Figure 3 shows the historical flow below Ruedi Reservoir with and without the Storage Contract (Ruedi Exchange), the reduced flow with the exchange, and the change in flow as a percentage of the historical flow for the 20-year period 2000-2019. The exchange into Ruedi would reduce flows between 0.5 and 9.7 percent, with an average daily reduction of 2.95 percent.

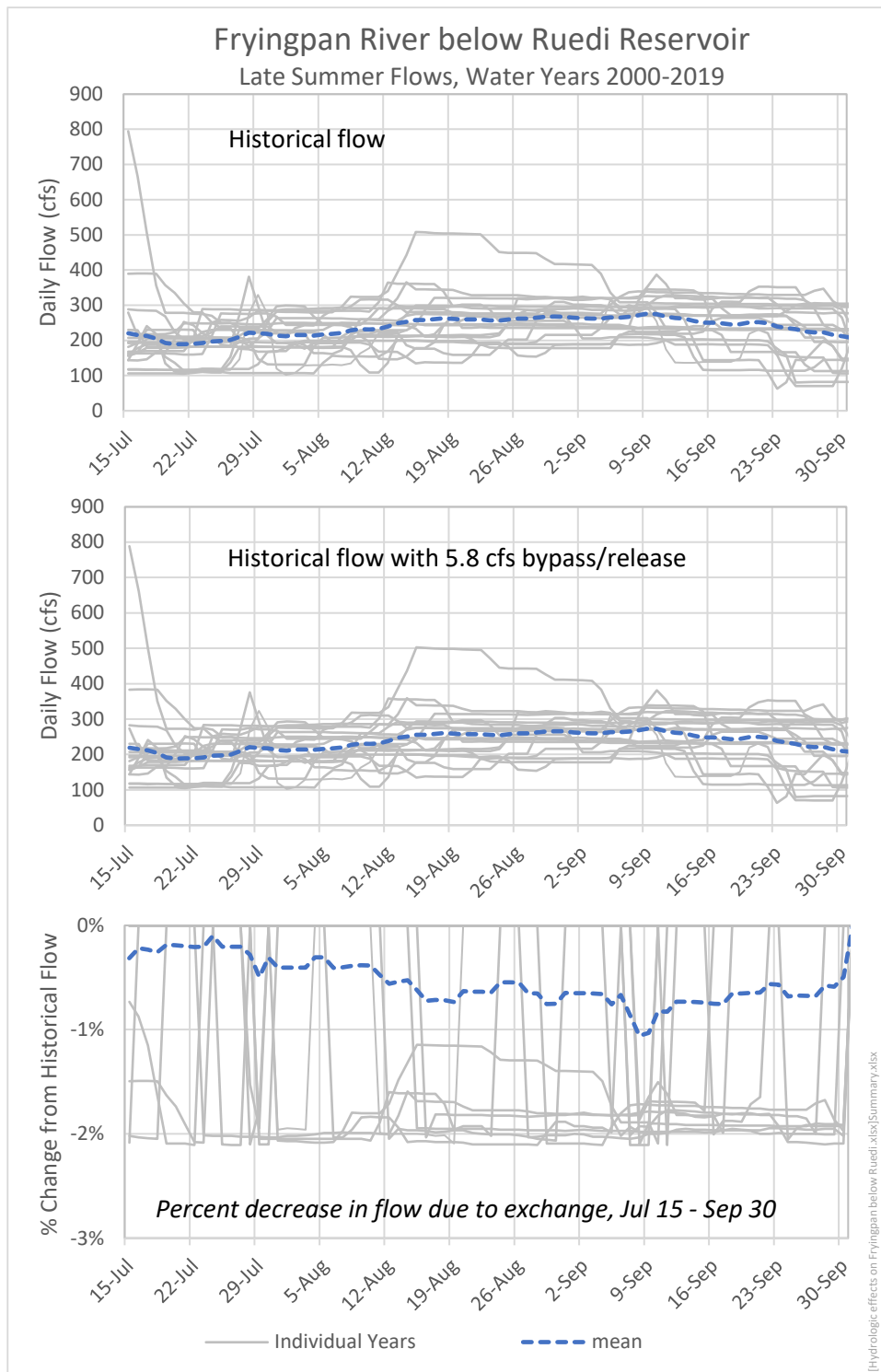


Figure 3. Flow with and without exchange, Fryingpan River below Ruedi Reservoir

Ruedi Reservoir

Aurora's use of storage space in Ruedi Reservoir may cause small increases in Ruedi storage during the late summer, fall, winter, and early spring seasons.

Figure 4 shows Aurora's account would fill approximately 25% of years (12 out of 39), with an average fill of 520 af. The analysis was completed assuming that Aurora's water would start to spill when Ruedi Reservoir was full except for Aurora's space (e.g., if Aurora had 900 af in storage, Ruedi would start to spill when the total contents got within 900 af of being physically full. Conversely, the analysis assumes Aurora could carry water over from one year to the next if Ruedi did not fill, which is shown in Figure 4 where the contents stay at 900 af for more than one year.

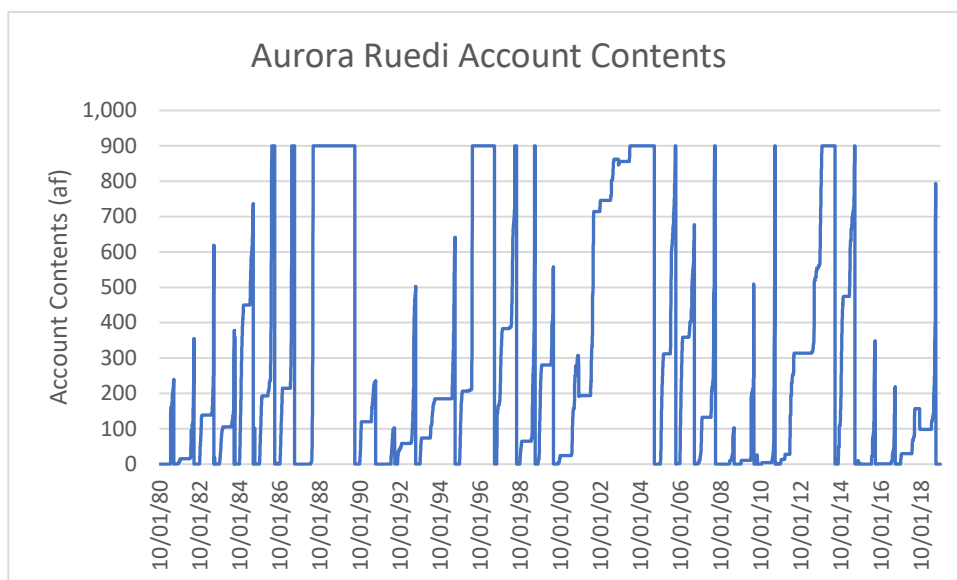


Figure 4. Additional Storage in Ruedi Reservoir as a Result of the Exchange

Figure 5 shows the fluctuation over time of Ruedi Reservoir's historical water surface elevation and the contribution to that fluctuation expected to be caused by the Ruedi Exchange. The reservoir elevation could increase by up to 1.4 feet because of Aurora's storage of additional water.

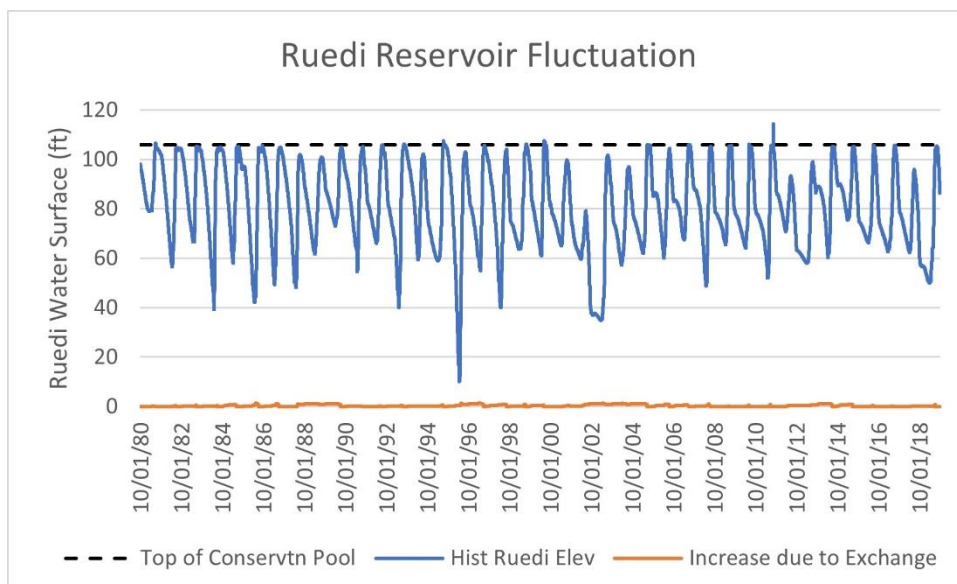


Figure 5. Change in Storage in Ruedi Reservoir as a Result of the Exchange

Fryingpan River and Ivanhoe Creek Between Ruedi and Ivanhoe Reservoirs

The analysis of the exchange into Ivanhoe Reservoir is limited to the 2013-2019 period because of the availability of daily flow records immediately below Ivanhoe Reservoir.

Figure 6 shows the potential changes in Fryingpan River flow at Thomasville gage during the Ivanhoe Exchange. The Ivanhoe Exchange can only occur when other senior water rights have been satisfied, including the Fry-Ark Project and CWCB instream flows for the Fryingpan River above Ruedi (Cases No. W1955 and W1948), and Ivanhoe Creek (Case No. W1952).

Based on daily flows from April 1 to June 30 for 2013-2019, the reduction in flows at Thomasville would range between 0.0 and 8.0 percent, with an average reduction of 0.8 percent during the assumed exchange season.

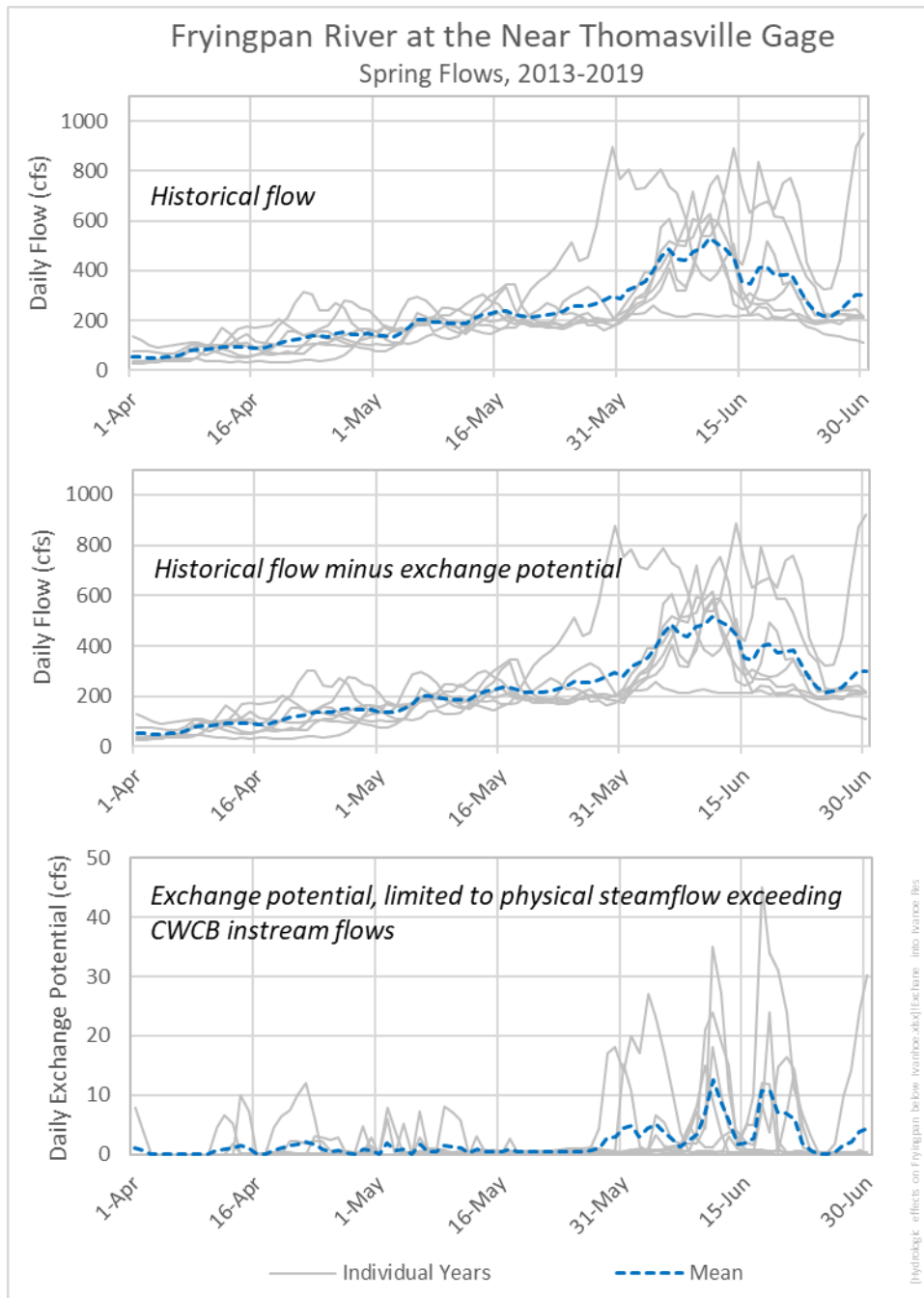


Figure 6. Flow with and without bypass, Roaring Fork River at Thomasville

Potential changes in flows were calculated for Ivanhoe Creek at the near Near-Nast gage, shown in Figure 7. There is no instream flow on Ivanhoe Creek between Ivanhoe Reservoir and Nast. Above Nast, the flow of Ivanhoe Creek during most of the potential exchange season is controlled by the Fry-Ark Nast diversion, which calls water down to that point. There is a 1 cfs (10/1 - 3/31) or 2 cfs (4/1 - 9/30) instream right from Nast to the confluence with the Fryngpan River. The 2 cfs right is in effect most of the potential exchange season. Considering only the days the Ivanhoe Exchange is predicted to operate,



Hydrologic Effects Report

modelling shows a decrease in average flow from 6.1 cfs to 4.0 cfs; a difference of 2.1 cfs or 34%, but still a factor of two higher than the rate of the CWCB instream flow.

The potential reduction in flow due to the exchange is greatest during the month of June. If all daily data is included in the calculation, the mean flow reduction at the Nast gage does not exceed 13 percent.

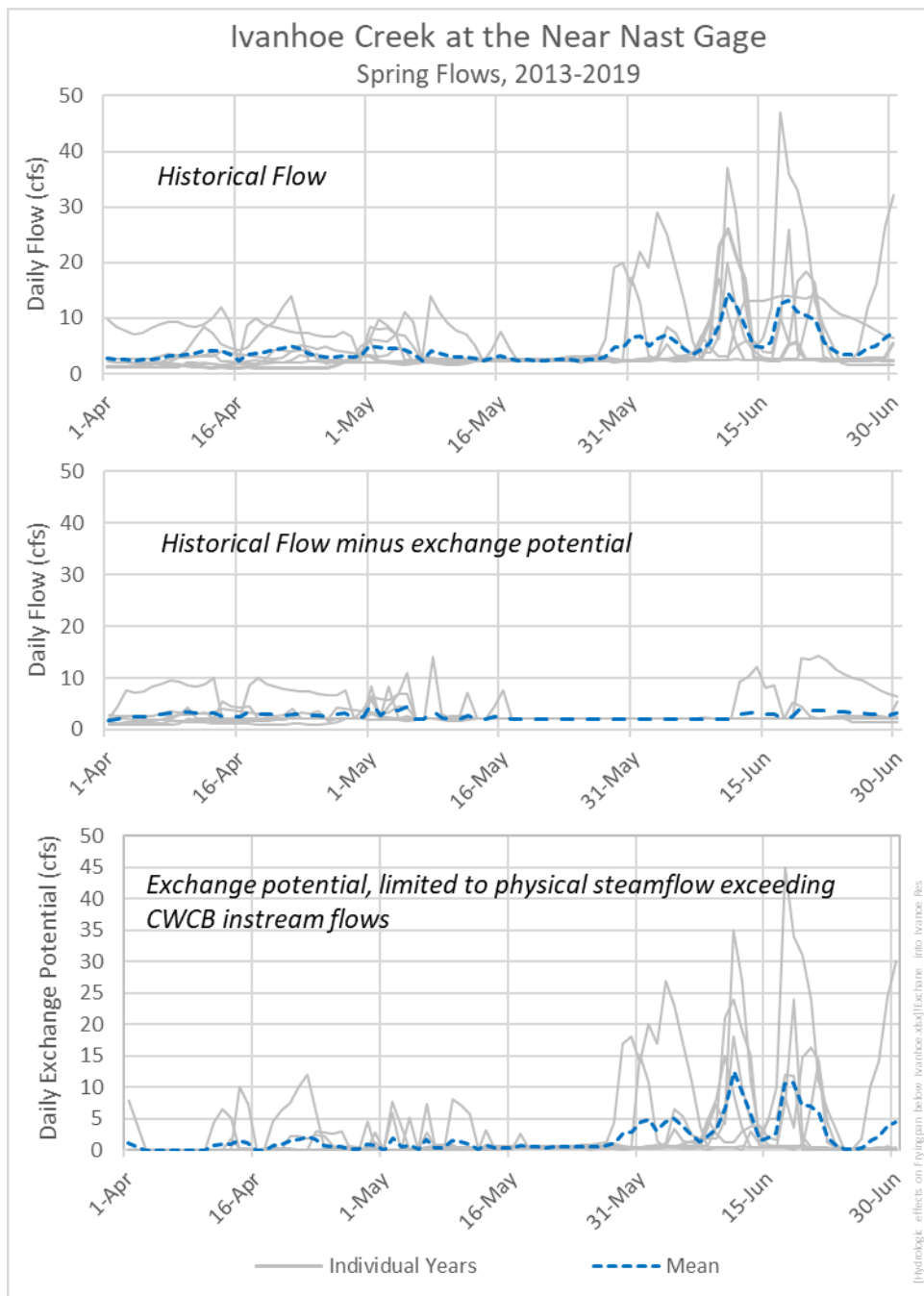


Figure 7. Flow with and without bypass, Ivanhoe Creek below Ivanhoe Lake

Figure 8 shows the daily exchange potential from Ruedi Reservoir to Lake Ivanhoe between April 1 and June 30, based on 2013-2019 hydrology. Exchange potential varies greatly from year to year but using the average flow of all of this period, the Ivanhoe Exchange would be able to move an average of 340 af to Lake Ivanhoe by the end of June, and could have moved all 450 af by mid-June in two of the seven years. The exchanged water would then be moved to Turquoise Reservoir through the Ivanhoe Tunnel and mixed with Aurora's other water rights.

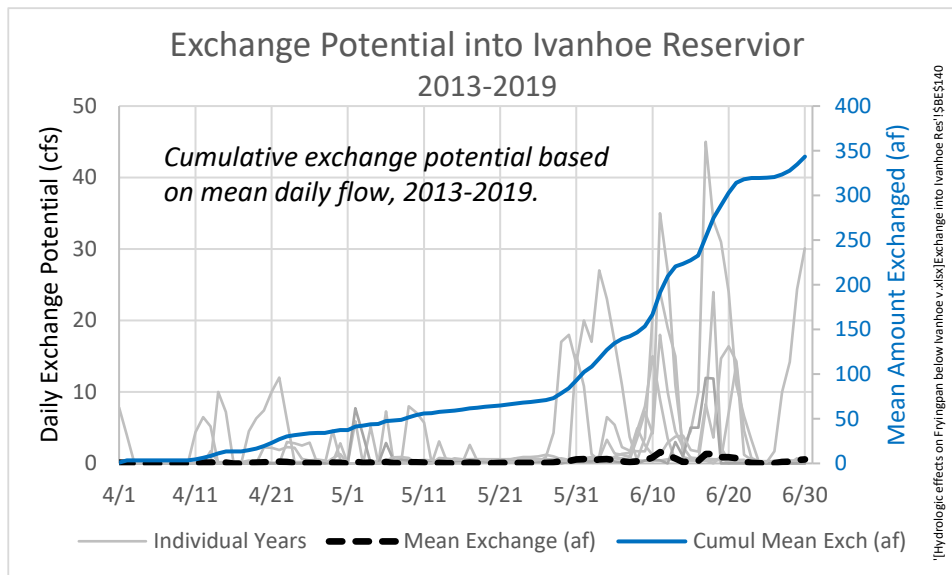


Figure 8. Exchange Potential into Ivanhoe Reservoir

While the exchange into Ivanhoe varies greatly from year to year, using the average flow of all years, exchange is able to move 450 af by mid-June.

Lake Creek above Twin Lakes Reservoir

Bypassing west slope Twin Lakes water will result in less water in Lake Creek between the outlet of Tunnel No. 1 and Twin Lakes Reservoir. Again, Aurora will make bypasses into and down the Roaring Fork River even if the City does not obtain an excess capacity contract in Ruedi Reservoir. Nevertheless, to be completely transparent the following analyses the flow differences in Lake Creek caused by the IGA requiredbypasses.

To make the 900 af bypass, the Twin Lakes Company will bypass 700 af of Tunnel No. 1 diversions when they would have otherwise occurred, followed by the release of an additional 200 af of water from storage in Grizzly Reservoir. This means that while the flows in the Roaring Fork will increase from August 1 through September 30, fall tunnel diversions will be curtailed for a shorter period. To calculate the change in flow on the east slope, historical tunnel diversion records were reduced by 7.5 cfs starting on August 1. Daily flows were reduced until the bypassed volume equals 700 af. Using the average of the historical daily diversion, the bypass of tunnel flow lasted until September 17. The release from Grizzly was then made from September 18 through September 30. This means that the effects of the bypass will be approximately two weeks shorter on Lake Creek than on the Roaring Fork or the Fryingpan rivers.

If the bypass took place during the peak of runoff when the tunnel was flowing full, the effect would be negligible, between 1 and 2 percent. Figure 9 shows that bypassing 5.8 cfs from July 15 through September 30 will reduce the flow in Lake Fork above Twin Lakes an average of 3.7 cfs, or 6.7%.

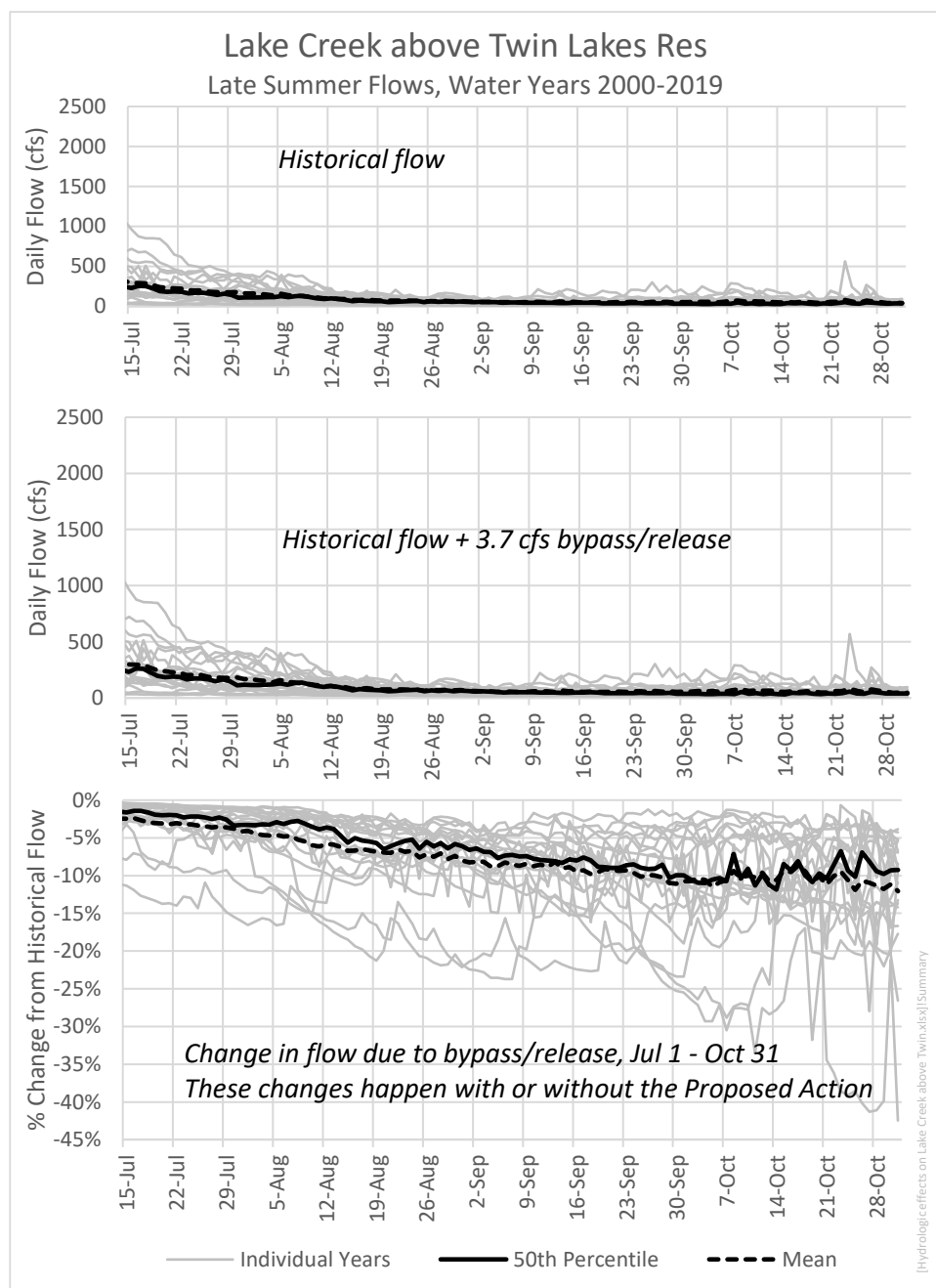


Figure 9. Flow with and without bypass, Lake Creek above Twin Lakes Reservoir

The storage in Ivanhoe Reservoir is unlikely to measurably change as a result of the bypass and exchange, because Aurora will continue try to fill its space in the reservoir as quickly as possible during spring runoff, will divert water through the tunnel, and then release water from storage once the tunnel rights are out of priority. Water exchanged into Ivanhoe Reservoir will either displace water already in storage for delivery through the tunnel, or will be delivered directly through the tunnel without being stored.

Similarly, there is unlikely to be any measurable change in the contents of Twin Lakes Reservoir because of Aurora's bypass and exchange. Aurora's bypass of 900 af of the average delivery of the system's 44,400 af is approximately 2 percent of the system yield, however through the exchange, Aurora hopes to recapture 450 af and deliver it through the Ivanhoe system back to Twin Lakes for diversion by the Otero Pump Station.

There will be an increase in flow in Busk Creek, however because there are no stream gages on that stream any estimates of the Effects would have very low level of confidence.

Average daily/Monthly Differences:

Summarizing the changes in hydrology with single values risks oversimplification of complex and nuanced systems. However, because there may be some benefit in seeing the general direction and magnitude of change, these results are presented in Table 1.

Table 1. Mean differences in flow/storage, Aug 1-Sep31.

Basin	Feature	Feature	Difference (actual)	Difference (%)
West Slope	Stream	Roaring Fork ¹	+5.8 cfs	+13%
		Fryingpan R bel Ruedi	-5.5 cfs	-2.9%
		Fryingpan R nr Thomasville	-2.1 cfs	-0.8%
		Ivanhoe Cr at Nast	-2.1 cfs	-34%
East Slope	Storage	Ruedi Res	+0.3 ft	<1%
		Ivanhoe Reservoir	0.0 ft	0%
	Stream	Lake Cr above Twin Lakes ¹	-3.7 cfs	6.7%
		Busk Creek	0.0 ft	0%

¹ These changes occur regardless of any action or non-action by Bureau of Reclamation.



Hydrologic Effects Report

Appendix

The Appendix contains tables of daily and monthly output from the hydrologic effects analysis.

These tables are essentially unreadable in this format, but show what was produced as part of the analysis.



Hydrologic Effects Report

Roaring Fork River

[illegible][illegible][illegible][illegible]



Hydrologic Effects Report

Fryingpan River below Ruedi Reservoir

[illegible]



Hydrologic Effects Report

Ruedi Reservoir Contents

Mean Historical Contents (af)																
month																
year	10	11	12	1	2	3	4	5	6	7	8	9				
1981	29,510	29,541	29,571	29,602	29,632	29,661	29,692	29,722	29,753	29,783	29,814	29,845				
1982	29,875	29,906	29,936	29,967	29,997	30,026	30,057	30,087	30,118	30,148	30,179	30,210				
1983	30,240	30,271	30,301	30,332	30,362	30,391	30,422	30,452	30,483	30,513	30,544	30,575				
1984	30,605	30,636	30,666	30,697	30,727	30,757	30,788	30,818	30,849	30,879	30,910	30,941				
1985	30,971	31,002	31,032	31,063	31,093	31,122	31,153	31,183	31,214	31,244	31,275	31,306				
1986	31,336	31,367	31,397	31,428	31,458	31,487	31,518	31,548	31,579	31,609	31,640	31,671				
1987	31,701	31,732	31,762	31,793	31,823	31,852	31,883	31,913	31,944	31,974	32,005	32,036				
1988	32,066	32,097	32,127	32,158	32,188	32,218	32,249	32,279	32,310	32,340	32,371	32,402				
1989	32,432	32,463	32,493	32,524	32,554	32,583	32,614	32,644	32,675	32,705	32,736	32,767				
1990	32,797	32,828	32,858	32,889	32,919	32,948	32,979	33,009	33,040	33,070	33,101	33,132				
1991	33,162	33,193	33,223	33,254	33,284	33,313	33,344	33,374	33,405	33,435	33,466	33,497				
1992	33,527	33,558	33,588	33,619	33,649	33,679	33,710	33,740	33,771	33,801	33,832	33,863				
1993	33,893	33,924	33,954	33,985	34,015	34,044	34,075	34,105	34,136	34,166	34,197	34,228				
1994	34,258	34,289	34,319	34,350	34,380	34,409	34,440	34,470	34,501	34,531	34,562	34,593				
1995	34,623	34,654	34,684	34,715	34,745	34,774	34,805	34,835	34,866	34,896	34,927	34,958				
1996	34,988	35,019	35,049	35,080	35,110	35,140	35,171	35,201	35,232	35,262	35,293	35,324				
1997	35,354	35,385	35,415	35,446	35,476	35,505	35,536	35,566	35,597	35,627	35,658	35,689				
1998	35,719	35,750	35,780	35,811	35,841	35,870	35,901	35,931	35,962	35,992	36,023	36,054				
1999	36,084	36,115	36,145	36,176	36,206	36,235	36,266	36,296	36,327	36,357	36,388	36,419				
2000	36,449	36,480	36,510	36,541	36,571	36,601	36,632	36,662	36,693	36,723	36,754	36,785				
2001	36,815	36,846	36,876	36,907	36,937	36,966	36,997	37,027	37,058	37,088	37,119	37,150				
2002	37,180	37,211	37,241	37,272	37,302	37,331	37,362	37,392	37,423	37,453	37,484	37,515				
2003	37,545	37,576	37,606	37,637	37,667	37,696	37,727	37,757	37,788	37,818	37,849	37,880				
2004	37,910	37,941	37,971	38,002	38,032	38,062	38,093	38,123	38,154	38,184	38,215	38,246				
2005	38,276	38,307	38,337	38,368	38,398	38,427	38,458	38,488	38,519	38,549	38,580	38,611				
2006	38,641	38,672	38,702	38,733	38,763	38,792	38,823	38,853	38,884	38,914	38,945	38,976				
2007	39,006	39,037	39,067	39,098	39,128	39,157	39,188	39,218	39,249	39,279	39,310	39,341				
2008	39,371	39,402	39,432	39,463	39,493	39,523	39,554	39,584	39,615	39,645	39,676	39,707				
2009	39,737	39,768	39,798	39,829	39,859	39,888	39,919	39,949	39,980	40,010	40,041	40,072				
2010	40,102	40,133	40,163	40,194	40,224	40,253	40,284	40,314	40,345	40,375	40,406	40,437				
2011	40,467	40,498	40,528	40,559	40,589	40,618	40,649	40,679	40,710	40,740	40,771	40,802				
2012	40,832	40,863	40,893	40,924	40,954	40,984	41,015	41,045	41,076	41,106	41,137	41,168				
2013	41,198	41,229	41,259	41,290	41,320	41,349	41,380	41,410	41,441	41,471	41,502	41,533				
2014	41,563	41,594	41,624	41,655	41,685	41,714	41,745	41,775	41,806	41,836	41,867	41,898				
2015	41,928	41,959	41,989	42,020	42,050	42,079	42,110	42,140	42,171	42,201	42,232	42,263				
2016	42,293	42,324	42,354	42,385	42,415	42,445	42,476	42,506	42,537	42,567	42,598	42,629				
2017	42,659	42,690	42,720	42,751	42,781	42,810	42,841	42,871	42,902	42,932	42,963	42,994				
2018	43,024	43,055	43,085	43,116	43,146	43,175	43,206	43,236	43,267	43,297	43,328	43,359				
2019	43,389	43,420	43,450	43,481	43,511	43,540	43,571	43,601	43,632	43,662	43,693	43,724				
Change in Contents (af)																
month																
year	10	11	12	1	2	3	4	5	6	7	8	9	max	% of 900af		
1981	0	0	0	0	0	0	22	172	150	0	0	3	172	19%		
1982	12	15	15	15	15	15	18	98	199	0	0	0	199	22%		
1983	39	128	139	139	139	139	139	147	223	1	0	0	223	25%		
1984	22	85	105	105	105	105	105	114	177	47	0	0	177	20%		
1985	88	324	438	450	450	450	485	609	236	29	0	0	609	68%		
1986	61	180	193	193	193	206	255	779	900	175	2	0	900	100%		
1987	29	168	215	215	215	215	229	720	900	58	0	0	900	100%		
1988	0	0	0	0	0	0	1	82	838	900	900	900	900	100%		
1989	900	900	900	900	900	900	900	900	900	900	900	900	900	100%		
1990	900	900	900	900	900	900	900	900	900	203	0	0	900	100%		
1991	43	119	120	120	120	120	120	153	213	149	0	0	213	24%		
1992	0	0	0	0	0	0	2	55	99	7	5	36	99	11%		
1993	46	57	58	58	58	58	59	91	294	340	0	0	340	38%		
1994	30	74	74	74	74	74	74	86	130	171	184	184	184	20%		
1995	184	184	184	184	184	184	184	213	427	140	0	0	427	47%		
1996	95	198	206	206	206	208	210	583	900	900	900	900	900	100%		
1997	900	900	900	900	900	900	900	900	840	0	99	169	900	100%		
1998	256	373	384	384	384	384	388	516	700	900	87	0	900	100%		
1999	33	64	65	65	65	65	65	140	448	290	0	37	448	50%		
2000	215	280	281	281	281	281	282	400	74	0	0	7	400	44%		
2001	23	24	24	24	24	24	24	87	171	265	296	226	296	33%		
2002	194	194	194	194	194	194	223	404	695	714	714	715	715	79%		
2003	742	746	746	746	746	746	757	810	858	862	862	853	862	96%		
2004	856	856	856	856	856	856	864	900	900	900	900	900	900	100%		
2005	900	900	900	900	900	900	900	900	540	0	0	0	900	100%		
2006	56	248	311	312	312	312	438	639	741	461	1	2	741	82%		
2007	164	341	359	359	359	359	371	412	525	382	0	2	7	525		
2008	45	130	132	132	132	132	148	225	658	174	0	0	658	73%		
2009	0	0	0	0	0	0	3	12	47	47	0	0	47	5%		
2010	4	10	10	10	10	10	86	210	74	1	8	0	210	23%		
2011	0	4	4	4	4	4	4	19	400	0	0	0	400	44%		
2012	8	13	15	28	28	38	185	249	306	314	314	314	314	35%		
2013	314	314	314	314	314	314	314	314	324	459	536	555	570	63%		
2014	782	900	900	900	900	900	900	900	900	720	0	6	90	100%		
2015	235	444	474	474	474	474	505	651	706	680	0	5	2	706		
2016	0	0	0	0	0	0	0	5	62	238	0	0	0	238		
2017	0	0	0	0	0	0	0	4	30	147	7	0	0	147		
2018	20	30	30	30	30	30	30	30	65	116	157	157	130	157		
2019	98	98	98	98	98	98	98	105	135	296	192	0	0	296		
mean													520	58%		