

WATER MARKETING POLICY FOR THE YAMPA BASIN AUGMENTATION
PLAN OF THE
UPPER YAMPA WATER CONSERVANCY DISTRICT
FOR AUGMENTATION PLAN SERVICE

ADOPTED JULY 12, 2023

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1. PURPOSE OF MARKETING PROGRAM

The Upper Yampa Water Conservancy District's purpose is to conserve, develop, and stabilize supplies of water for domestic, irrigation, manufacturing, and other beneficial uses and by the construction of works for such purposes. The District also plans for and assists with the development of water resources of the District for municipal, domestic, industrial, recreational, and other beneficial uses of water resources within the District among other purposes. The District's water rights include rights to Stagecoach and Yamcolo reservoir water among others.

The District is authorized to appropriate water rights and initiate and implement plans for augmentation for the benefit of water users within the District's boundaries. Water is available to provide contracts to District constituents to augment their out-of-priority depletions pursuant to the Augmentation Decree of the District Court for Water Division No. 6, Case No. 06CW049, which is defined below. The District's Board of Directors has approved the marketing of such water and other District water supplies as may be used to complement the use of such Reservoirs' water supplies through a contracting program described herein.

2. AUTHORITIES UNDER PROGRAM

- a. The General Manager is delegated the authority of the Board to implement and administer this Policy and the issuance of the augmentation contracts made pursuant to this Policy for Small Applications and Small Commercial Applications as defined in this Policy not exceeding 10-acre feet per year, and authority to approve assignments of all contracts issued for both Small and Large Applications. The General Counsel shall assist in the negotiation and drafting of the contracts.
- b. The Board retains authority to approve Large Applications and Large Commercial Applications along with all other powers not specifically delegated.
- c. The General Manager and General Counsel may make non-substantive interpretations of the Water Marketing Policy for the Yampa Basin Augmentation Plan and the Yampa River Augmentation Contract on a case-by-case basis, where reasonably necessary to accomplish the objectives of this Policy, including non-substantive changes to the form of contract adopted under this Policy.

3. DEFINITIONS

- a. "Area A": Areas described below and governed under this Water Marketing Policy; provided, that only the portions of Area A that are located within the District's boundaries may be served by the District.

- b. “Area B”: Areas outside of Area A as described below.
- c. “Augmentation Decree”: Decree entered in Case No. 06CW49, District Court, Water Division 6, on December 15, 2008, as such Decree may be amended.
- d. “Augmentation Plan” or “Plan for Augmentation”: Means a detailed plan to increase the supply of water available for beneficial use as defined in C.R.S. § 37-92-103(9).
- e. “Contract”: A water allotment contract issued by the District for delivery of water up to the annual amount specified in the Contract (“Contracted Water”) consistent with this Water Marketing Policy for the Yampa Basin Augmentation Plan to the person(s) or legal entity(s) named in the Contract (the “Contractor(s)”).
- f. “District”: The Upper Yampa Water Conservancy District, a political subdivision of the State of Colorado, its Board of Directors, employees and agents.
- g. “General Manager”: The general manager of the District.
- h. “Division Engineer”: The engineer assigned to oversee the water matters for Water Division No. 6 as specified under C.R.S. § 37-92-202.
- i. Equivalent Residential Unit (“EQR”): Equal to 350 gallons per day.
- j. “Large Applications”: A contract application to the District to augment uses, other than commercial or industrial uses, with a planned average daily diversion rate in excess of 112 gallons per minute (0.25 c.f.s.) or that identifies planned total annual diversions exceeding thirty (30) acre feet per year.
- k. “Large Commercial Applications”: A contract application to the District to augment commercial or industrial uses that either exceeds a planned average daily diversion rate of 15 gallons per minute or for which the following commercial EQR ratings do not apply, or both:
 - Office = 0.6 EQR/1,000 square feet.
 - Warehouse – 0.30 EQR/1,000 square feet.
 - Retail Sales = 0.60 EQR/1,000 square feet.
- l. “Small Applications”: A contract application to the District to augment commercial or industrial uses with planned diversions not to exceed an average daily diversion rate of 15 gallons per minute and for which the diversion and depletion criteria detailed in paragraphs 9.A through 9.E of the Augmentation Decree apply, or to augment any other uses with planned diversions not to exceed 112 gallons per minute (0.25 c.f.s.) or that identifies planned total annual diversions not exceeding thirty (30) acre feet per year and for which the diversion and depletion criteria detailed in paragraphs 9.A through 9.E of the Augmentation Decree apply.
- m. “Small Commercial Applications”: A contract application to the District to augment commercial or industrial uses that does not exceed a planned average daily diversion

rate of 15 gallons per minute and for which the following commercial EQR ratings apply:

- Office = 0.6 EQR/1,000 square feet.
- Warehouse – 0.30 EQR/1,000 square feet.
- Retail Sales = 0.60 EQR/1,000 square feet.

n. Uses

- i. “Commercial Use”: Water for motels, hotels, restaurants, office buildings, shops stores and other commercial facilities, military and nonmilitary institutions, and water for off-stream fish hatcheries.
- ii. “Domestic Use”: The use of water by individuals, cities, towns, public or quasi-public districts, private corporations, homeowners’ associations, or other entities used for all such indoor household purposes as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and such outdoor purposes as watering lawns and gardens, excepting only the commercial, industrial and irrigation uses of water defined.
- iii. “Industrial Use”: Water used for fabrication, processing, washing, and cooling, and includes such industries as chemical and allied products, food, mining, paper and allied products, petroleum refining, and steel, including cooling system, cooling-system type, mining water use, public-supply deliveries, public-supply water use, self-supplied water use, and thermoelectric-power water use.
- iv. “Irrigation Use”: Water that is applied by an irrigation system to assist in the growing of crops and pastures or to maintain vegetative growth in recreational lands such as parks and golf courses including water that is applied for pre-irrigation, frost protection, chemical application, weed control, field preparation, crop cooling, harvesting, dust suppression, the leaching of salts from the root zone, and water lost in conveyance.
- v. “Livestock Use”: Water used to water domesticated livestock such as cattle or horses, such use shall require 11 gallons of water per day per head and is considered 100% consumptive.
- vi. “Recreation Use”: The use of water to replace the evaporative loss from ponds, reservoirs, stream channels, spas, pools and similar water features.
- o. “Water Court”: The District Court in and for Colorado Water Division No. 6 as defined in C.R.S. § 37-92-201.

4. SOURCES AND SCOPE OF MARKETING PROGRAM

a. Sources of Water available for augmentation or exchange

- i. "Stagecoach Reservoir Supply": Water delivered from Stagecoach Reservoir, for which storage water right decrees were obtained by the District in Case Nos. CA3538, W-414-72, W-946-76, W-1091-76, 94CW149, 95CW78, 97CW84, and 01CW41, District Court for Colorado Water Division No. 6, and for which additional storage water right decrees may be obtained in the future by the District, water available from the District's contractual right to water deliveries, and other water sources available to the District for use in its Water Marketing Program.
- ii. "Yamcolo Reservoir Supply": Water delivered from Yamcolo Reservoir, for which storage water right decrees were obtained by the District in Case Nos. W-946-76, 82CW211, 01CW41, and 03CW58, District Court for Colorado Water Division No. 6, and for which additional storage water right decrees may be obtained in the future by the District, water available from the District's contractual right to water deliveries, and other water sources available to the District for use in its Water Marketing Program.

b. Volumetric Description

The total maximum amount of augmentation or exchange water involved in and committed to the District in this plan for augmentation is 2,000 acre feet or such lesser amount available pursuant to retained jurisdiction or future board direction. The amount needed by any individual Contractor will depend on the nature and amount of its uses and, in some situations, the location of its diversions and return flows in relation to senior diversions.

c. Geographic Area

Area A is a region within the Yampa River basin upstream from the confluence of the Yampa River and Elkhead Creek where use of the water rights in the Augmentation Decree can fully augment structures developed by District Contractors. **Exhibit A.** All areas outside of the below described areas are referred to as Area B. The augmentation plan allows direct augmentation on the Yampa Mainstem and exchange augmentation on the Yampa Tributaries. The amounts of water available for exchange have been allocated among the sub areas within District Area A as described below. The exchange amounts represent consumptive use amounts associated with diversions by District Contractors within the respective sub-Area A.

- i. Area A-1: Includes all areas tributary to the Upper Yampa River above Stagecoach Reservoir dam to an upstream terminus located where the Bear River crosses the Medicine Bow-Routt National Forest Boundary which is a distance of approximately 21 miles. The boundaries of Area A-1 are depicted on the map that is attached hereto as **Exhibit A-1**. The total amount of

- augmentation water available for Area A-1 is 920 acre feet. Total diversions associated with this Area A-1 are limited to 12.8 c.f.s. The rate of exchange within Area A-1 is 3.5 c.f.s. for the entire area A-1 and not to exceed 1.0 c.f.s. within any one of the eleven major tributaries: (1) Middle Creek, (2) Raspberry Creek, (3) Whipple Creek, (4) Lawson Creek, (5), Bear River, (6) Watson Creek, (7) Meadowbrook Creek, (8) Little White Snake Creek, (9) Jack Creek, (10) Martin Creek, and (11) Little Morrison Creek (service within Little Morrison Creek currently is unavailable pending development of an additional augmentation source).
- ii. Area A-2: Includes all areas tributary to the Yampa River between Stagecoach Reservoir Dam and the downstream terminus at the “D-Hole” RICD Structure within the City of Steamboat Springs, which is immediately below the confluence of the Yampa River with Soda Creek. This area covers a distance along the river of approximately 23 miles. The boundaries of Area A-2 are depicted on the map that is attached hereto as **Exhibit A-2**. The total amount of augmentation water available for Area A-2 is 800 acre feet. Total diversions associated with this Area A-2 are limited to 11.1 c.f.s. The rate of exchange within Area A-2 is 3.0 c.f.s. for the entire area A-2, and not to exceed 0.75 c.f.s. within any one of the nine major tributaries listed below. This amount does not include the amount of exchange for Area A-1, which is upstream of and tributary to, Area A-2. The tributaries are: (1) Morrison Creek, (2) McKinnis Creek, (3) Walton Creek, (4) Butcherknife Creek, (5) Soda Creek, (6) Agate Creek, (7) Oak Creek, (9) Grouse Creek, and (10) Dry Creek.
- iii. Area A-3: Includes all areas tributary to the Yampa River between the “D-Hole” RICD Structure within the City of Steamboat Springs and the confluence of the Yampa River with Trout Creek, including Trout Creek, but excluding the Elk River watershed. This area covers a distance along the river of approximately 12 miles. The boundaries of Area A-3 are depicted on the map that is attached hereto as **Exhibit A-3**. The total amount of augmentation water available for Area A-3 is 120 acre feet. The rate of exchange within Area A-3 is 0.5 c.f.s. for the entire area A-3 and not to exceed 0.25 c.f.s. within any one of the three major tributaries listed below. The total diversions associated with Area A-3 are limited to 1.7 c.f.s. This amount does not include the amount of exchange for Area A-1 or A-2, both of which is upstream of and tributary to, Area A-3. The tributaries are: (1) Trout Creek, (2) Cow Creek, and (3) Slate Creek.
- iv. Area A-4: Includes all areas tributary to the Yampa River between the confluence of the Yampa River with Trout Creek and its confluence with Elkhead Creek, but excluding Elkhead Creek. This area covers a distance along the river of approximately 34 miles. The boundaries of Area A-4 are depicted on the map that is attached hereto as **Exhibit A-4**. The total amount of augmentation water available for Area A-4 is 160 acre feet. The rate of exchange within Area A-4 is 0.6 c.f.s. for the entire area A-4 and not to exceed 0.3 c.f.s. within any one of the twelve tributaries listed below. The total diversions associated with Area A-4 are limited to 2.4 c.f.s. This amount does not include the amount of exchange for

Area A-1, A-2, or A-3, all of which are upstream of and tributary to, Area A-4. The tributaries are: (1) Coal Bank Gulch, (2) Morgan Creek, (3) Goose Creek, (4) Wolf Creek, (5), Butcherknife Gulch, (6) Tow Creek, (7) Cheney Creek, (8) Coal View Gulch, (9) Grassy Creek, (10) Sage Creek, (11) Dry Creek, and (12) Smuin Gulch.

5. CONTRACTING PROCESS AND TERMS

a. Application Process

- i. **Written Application:** Prospective Applicants for Contracts shall make written application to the District on forms prepared by District staff and approved by the General Manager and General Counsel. Such completed application forms shall be accompanied by the Applicant's non-reimbursable payment to the District of the application fee for processing of the application for approval. Application fees for Contract applications that are denied by the District or the Division Engineer shall not be refunded.
- ii. **Served Property:** Applicant must use the water allotted pursuant to its Contract for beneficial purposes by diversion at Applicant's point of diversion under the District's direct flow water rights and/or for use by augmentation or exchange. Applicant must use the water allotted by the District within or through facilities or upon lands owned, operated, or served by Applicant which are described in the Application. Applicant shall provide proof of ownership of, or legal right to use, the property and facilities to be served by the Contract. All lands, facilities, and areas served by the Contracted Water shall be situated within the boundaries of the District. Unless otherwise agreed by the General Manager, the Application shall include both a legal description suitable for recordation in the real property records and accurate and legible map of the actual location of use.
- iii. **Verification of Need:** The application process shall include a description by the Applicant of the nature of its water service, its places of use, its available water rights and supplies, and need for Contracted Water. The need of the Applicant for program water in the quantity requested shall be verified by the General Manager, in consultation with the General Counsel as necessary. If the General Manager determines that all or any portion of a Water Contract request is not based upon legitimate need, the General Manager shall report that finding to the District Board, which shall make the final decision, and the Board will allow the Applicant to present written information in support of its claimed need. The Board's decision on such matters shall be final.
- iv. **Review by Division Engineer:** Any Large Application or Commercial Application as such terms are defined in the Augmentation Decree submitted to the District will be submitted to and may be reviewed by the Division Engineer. The Applicant for such applications shall be responsible for providing the information required in Paragraph 9(H)(3)(ii) of the Augmentation Decree to the extent applicable. These Applications will also be provided to the Opposers

listed in Paragraph 9(H)(8) of the Augmentation Decree for informational purposes only. The Opposers may communicate specific concerns to the District, the Division Engineer, or both. The Division Engineer shall review the Application to determine whether any existing water right will be injured, or whether the calculated amount of depletions is reasonable, or whether the site-specific conditions described in any lagged depletion analysis is reasonable. The Division Engineer has sixty (60) days to provide written specific objections to the District. If no objections are made within said 60-day period, the District may issue a Contract. If the Division Engineer, within the 60-day period, provides written objection to the approval of such application, the District must deny such application.

- v. Review of Applications within Catamount Metropolitan District: Pursuant to paragraph 9.H.(7) of the Augmentation Decree, applications for a water allotment contract for a structure located within the boundary of the Catamount Metropolitan District (Catamount) shall be provided to Catamount for review. Catamount has thirty (30) days to provide written specific objections to the District. If no objections are made within said 30-day period, the District may issue a Contract. If Catamount, within the 30-day period, provides written objection to the approval of such application, the District must deny such application.
- vi. Review of Small Applications on Oak Creek and Walton Creek: Pursuant to paragraph 9.H.(8)(ii) of the Augmentation Decree, applications for Small Applications on Oak Creek and Walton Creek are to be provided to the Sidney Peak Ranch owners Association and Steamboat Alpine Development, LLC, respectively, who shall have thirty (30) days to provide written and specific objections to the District. The District has no duty to accept, agree with, or act upon such objection from either party.
- vii. Contract Execution: The Applicant shall have sixty (60) days after mailing or electronically transmitting the final Contract documents to them in which to execute the final Contract and deliver the executed originals to the District's offices. If such execution and delivery are not accomplished in that time, the Applicant shall be deemed to have rejected the District's offer to contract.

b. Quantities

- i. Minimum: The minimum amounts of water that may be contracted pursuant to this Policy shall be 0.1-acre feet annually. Quantity will not be pro-rated based on non-use in any part of the project year.
- ii. Maximum: The maximum amount of water that may be contracted for the benefit of any single property on a case-by-case basis shall be 10-acre feet without prior Board approval.
- iii. Water Contracts shall be rounded off in one-tenth acre foot units.

- iv. Changes per Division Engineer review or retained jurisdiction: The District reserves the right to change quantities in a Contract per orders from the Division Engineer or Water Court as allowed under the Augmentation Decree.

c. Deliveries

- i. Project Year: The basis for calculating payment and delivery obligations shall be “Project Year” or multiples thereof, which shall be the period from April in one year through March in the succeeding year.

d. Charges and Fees

i. Application Fees:

(1) The Board shall determine application fees annually.

(2) The application fee for a Water Supply Contract shall be determined annually by the Board for each application type. An application will not be processed until the appropriate application fee has been received. See **Appendix A** for current application fees.

(3) Requests for contract amendments may require a new application process and payment of associated Application fees, except that General Manager may authorize amendments to correct errors and make other non-material revisions to a Contract which would not have the Application submitted for such Contract, as amended, subject to any notice provision of paragraph 5 above. See **Appendix A** for current amendment fee.

- ii. Rates for Classes of Users: The price for each type of water shall be reviewed and set annually by the Board of Directors. Any approved Contract is subject to change in price as annually determined by the District. The price is a “take or pay” price and is payable with respect to the maximum contract amount allotted to the Contractor, whether or not in any year such Contractor in fact takes and uses all of the Contracted Water. See **Appendix A** for current water supply pricing.

- iii. Minimum Charges: The minimum annual contract charge will be for 1.0-acre feet. See **Appendix A** for current water supply pricing.

- iv. O&M Assessments: Contractor shall pay any special assessment levied by the District on Contractor to recoup expenses from extraordinary maintenance incurred by the District.

- v. The current version of the Appendix A Stagecoach Water Pricing matrix shall be annually substituted for the prior year when adopted by the Board.

e. Required Meters

Contractor agrees to provide, at its own expense, a continuous flow recording device with remote readout, or other device as required by the Contract and to be in compliance with the Division of Water Resources (DWR) measurement standards, to continuously and accurately measure at all times all water diverted pursuant to the terms of Contractor's water right and the terms of the Contract. On or before November 5 of each year, or more frequently if required by the Division Engineer, Contractor will provide accurate readings from such continuous flow recording device (recorded on a monthly basis for the period November 1 through October 31 of each year) to the District. Contractor acknowledges that failure to comply with this paragraph could result in legal action to terminate Contractor's diversion of water by the State of Colorado Division of Water Resources.

f. Use Reporting

- i. Commencement of Service: Service will commence upon execution of the Contract, payment of applicable fees, and approval as may be required under the Augmentation Decree by the Division Engineer or Water Court. Contractor must record water use at commencement of service.
- ii. Periodic Reporting per District Requirements: Contractor shall maintain an accounting of its use of all water used or supplied by Contractor on forms acceptable to the District specifically for the purpose of enabling the District to prove the use of project water rights and to administer and operate the project and water right decrees and/or administrative approvals related to Contractor's use of Contracted Water. Contractor shall submit its accounting forms and records to the District promptly upon request and shall assist the District as it may reasonably request in presenting and/or verifying such evidence of use in court or before administrative agencies by testimony of Contractor or its authorized and informed officers or agents.
- iii. District Right to Enter and Verify: Contractor acknowledges that District representatives or agents have the right to enter upon property that Contractor represented in the Application for which the Contracted Water is to be used. The District may verify water use in conformance with the Contract and Policy, including, but not limited to amounts, locations used, types of use, and accuracy of flow meters.

g. Well Permit

If Contractor intends to divert through a well, then Contractor must provide to District a copy of Contractor's valid well permit before the District is obligated to deliver any water hereunder, and it is the Contractor's continuous duty to maintain a valid well permit. Contractor shall also comply with all restrictions and limitations set forth in the well permit obtained from the Colorado Division of Water Resources pursuant to C.R.S. §37-90-137. The

Contractor must comply with any other statutory or regulatory requirements for issuance of well permits to be augmented pursuant to this plan, including the 600-foot spacing requirement of C.R.S. § 37-90-137(2)(b), if applicable. Compliance with said statutory well-spacing criteria shall be an express condition of the extension of service hereunder, and the District shall in no way be liable for a Contractor's failure to comply. Contractor agrees to mark the well in a conspicuous place with the permit number.

h. Noncompliance

- i. Report to Division Engineer: Breach of the Contract by the Contractor will result in the District reporting the noncompliance to the Division Engineer.
- ii. Curtail releases: The District may withhold deliveries of Contracted Water in the event of Contractor's nonpayment for Contracted Water or any other breach of the Contract by Contractor. Such remedies shall not be the exclusive remedies in the event of such a breach.

i. Assignment

- i. The water allotted under any Contract shall be beneficially used for the purposes and in the manner specified in the Application and the Contract. The Contract is for the exclusive benefit of the Contractor's property as specified in the Contract and shall inure to the benefit of any successor in interest to the fee title to said property upon written assignment and notice thereof to the District, and subject to compliance with this Water Marketing Policy for the Yampa Basin Augmentation Plan and the Contract terms, said assignment to be made using the District's approved form as modified with the approval of the General Manager. The restrictions on assignment contained herein shall not preclude the District from holding the Contractor, or any successor of the Contractor, responsible for the performance of all or any part of the Contractor's covenants and agreements contained in the Contract. For purposes of this Contract, any change in the ownership of the property served by the Contracted Water as specified in the application and/or the Contract shall constitute an assignment requiring execution of an instrument of assignment on the District's approved form, as modified with the approval of the General Manager, notice to the District and payment of the assignment fee.
- ii. The Board shall determine assignment fees annually. See **Appendix A** for current assignment fee.

j. Limitation on Sale

Contractor may not assign, sublet, sell, donate, loan or otherwise dispose of any of its rights to a Contract or Contracted Water separate from the property that it serves as specified in the Contract without prior written notice to, and the written approval (except as otherwise provided in paragraph 5. i. i. above) of the District as provided

in the Contract. The District will approve such disposition in all instances where the transfer is made to an entity such as a homeowners' association or special district created to serve the property originally represented to the District to be served with the Contracted Water. Any disposition of a Contractor's rights to a Contract or Contracted Water must be by written instrument signed by the District. As provided above, a fee will be imposed for each contract assignment.

k. Form of Contract, Term and Renewal

- i. Contracts shall be made in the form approved by the Board, as the same may be revised from time to time in the discretion of the Board. The form of contract approved as of the date of this Policy is attached at **Exhibit B**. The term of such contracts entered in to after July 12, 2023 shall be for a term commencing on January 1st of the year in which such contract is executed and ending on December 31, 2062. The General Manager shall have the authority to extend contracts entered in to on or prior to July 12, 2023 for a term ending December 31, 2062 with the agreement of the Contractor.
- ii. For Contracts ending December 31, 2062, the Contractor shall have the right to renew this Contract for the same Contracted Water Amount for a secondary term of thirty-five (35) years, subject to the District's current Policies and, upon such terms, conditions and pricing as the District is offering at that time, provided that the District is offering up the full amount of Contracted Water. In the event that the District, on a nondiscriminatory basis, decides not to offer up the full amount of the Contracted Water, Contractor shall have the right to renew for a secondary term of thirty-five (35) years such lesser portion of the Contracted Water as may be offered by the District. If Contractor desire to so renew this Contract, it shall provide the District written notice of its intention to do so at least ninety (90) days prior to the expiration of the initial term of this Contract. Thereafter, and prior to the expiration of the initial term, the District and Contractor shall execute a new or supplemental agreement of renewal on the District's standard form. If Contractor fails to renew as set forth above, no renewal term shall commence, and the District shall be free to contract for or otherwise dispose of the Contracted Water in its discretion.

6. DELIVERY CONTINGENCIES AND SHORTAGE CRITERIA

a. Shortages

Delivery of water is subject to limitations of the hydrological assumptions in **Appendix B** for Contractor's use of water, availability of water under the Augmentation Decree including limitations on exchanges, and the provision for curtailment below. In the event that the District is unable, because of either legal or physical reasons (including but not limited to, hydrologic shortages, operational restrictions, or the unavailability for any reason of the water to be used for augmentation as described in the Augmentation Decree), to deliver any or all of the full amount of water contracted from the District, the District reserves the right to

apportion the available water among its several contractors or to entirely curtail such deliveries. If the District is to apportion the available water among its contractors as provided herein, the District shall notify the respective Contractors in writing of such fact by August 1st of that year. Water shortages among the District's Contractors shall be apportioned in the following sequence:

- i. Irrigation contracts are pro-rata shorted up to 100%.
- ii. Large and Small Commercial contracts and Industrial contracts are then pro-rata shorted up to 100%.
- iii. All remaining contracts then are shorted as necessary on a pro-rata basis.

Replacement of depletions using the decreed appropriative exchanges shall require that said exchange(s) be in priority and have water physically and legally available in the exchange reach(es) from the exchanged from point to the exchanged-to point(s) in the amount(s) to be exchanged. Out-of-priority diversions not meeting this requirement shall be subject to curtailment.

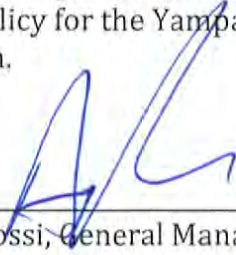
7. HYDROLOGY ASSUMPTIONS

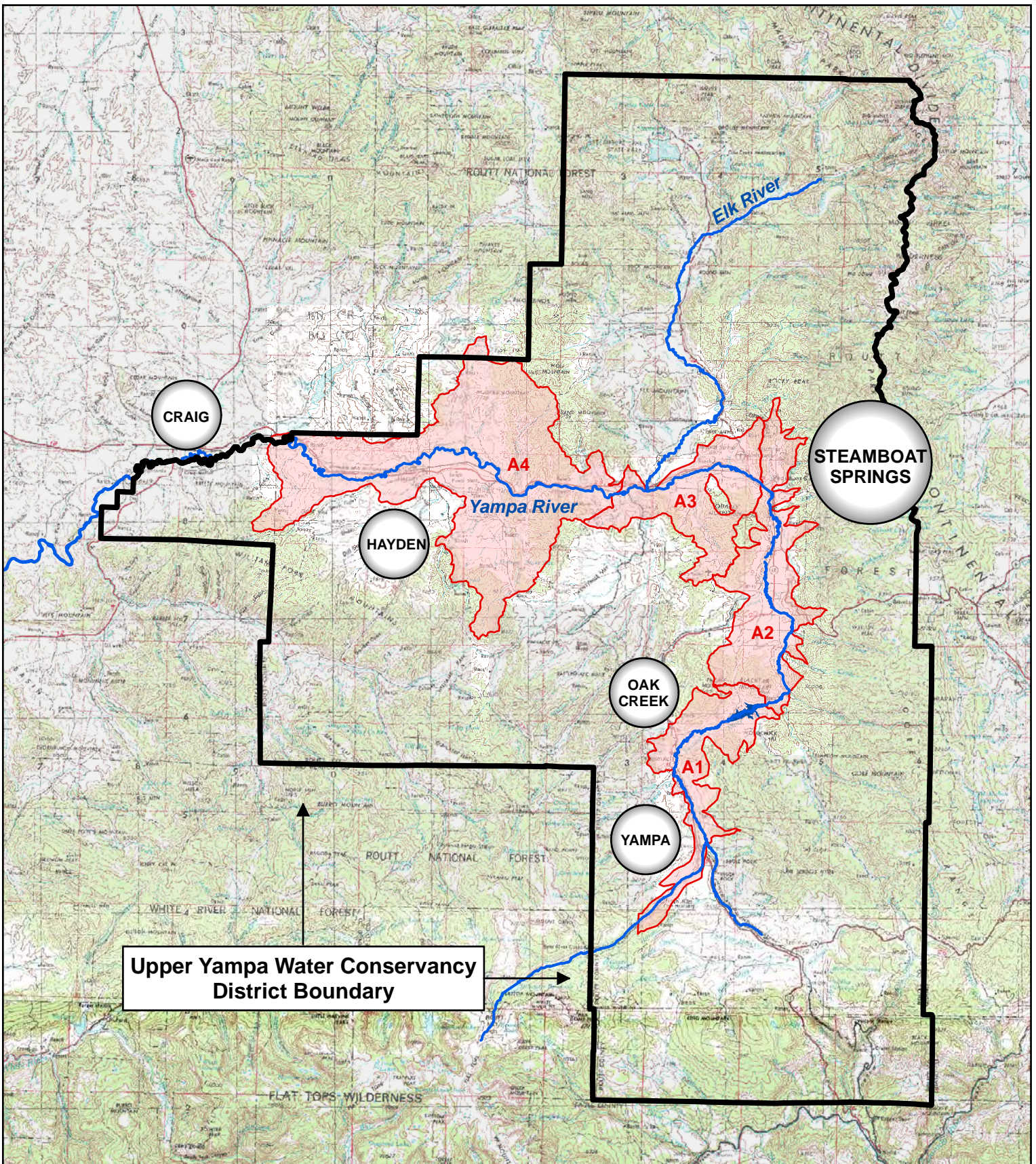
The District plans to utilize its direct flow and storage water rights appurtenant to Stagecoach and Yamcolo Reservoirs as the source of augmentation supply. The two reservoirs are located in the Upper Yampa River basin. The District has based its marketable yield for firm contracts on providing full delivery of 2000 acre feet per year on a model using data from 1988 to September 2005 Stagecoach operations, making some assumptions on how the reservoir will recover from drought conditions. Additional capacity is available in Yamcolo which provides operational flexibility to the District.

Resource Engineering Inc. completed a Report providing background information for this augmentation program including capacity of Stagecoach and Yamcolo Reservoirs to meet the 2000 acre foot augmentation demand. *Water Resources Report – Case No. 06CW049 – Upper Yampa Water Conservancy District* (February 29, 2008). The Report also included assumptions for calculating water requirements for the domestic in-house use, commercial use, irrigation use, surface evaporation, and livestock water use. The assumptions determined by this Report shall be used in any computation of water requirement by the Applicant or the District. The Report can be found in **Appendix B**.

CERTIFICATE OF SECRETARY

I hereby certify that the foregoing Water Marketing Policy for the Yampa Basin Augmentation Plan of the Upper Yampa Water Conservancy District for Augmentation Plan Service (Yampa Basin Augmentation Plan) dated July 12, 2023, was approved by the Board of Directors of the Upper Yampa Water Conservancy District effective as of July 12, 2023, and shall supersede and replace in their entirety all versions of this Water Marketing Policy for the Yampa River previously approved for the Yampa Basin Augmentation Plan.

By:  _____
Andy Rossi, General Manager and Secretary/Treasurer

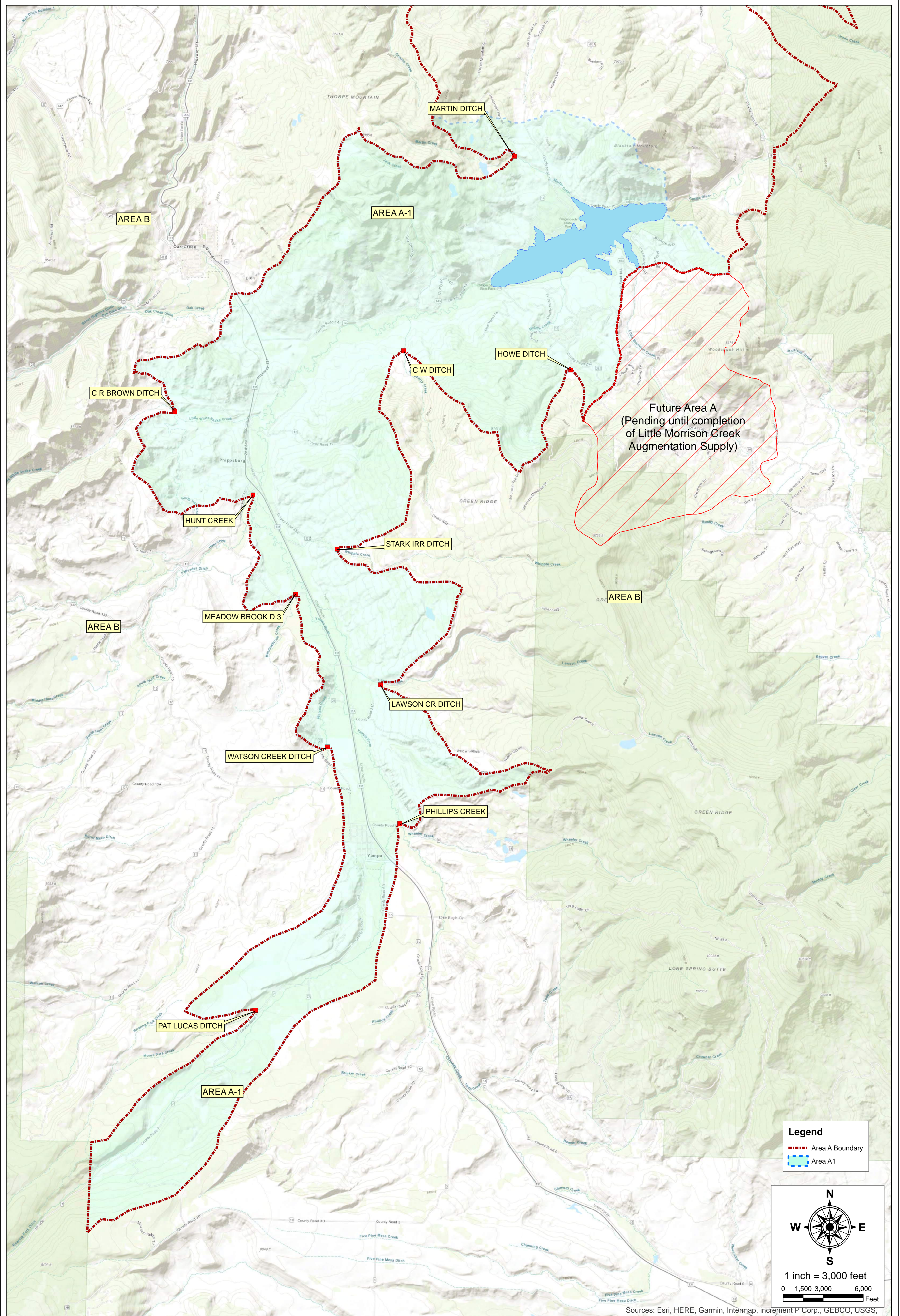


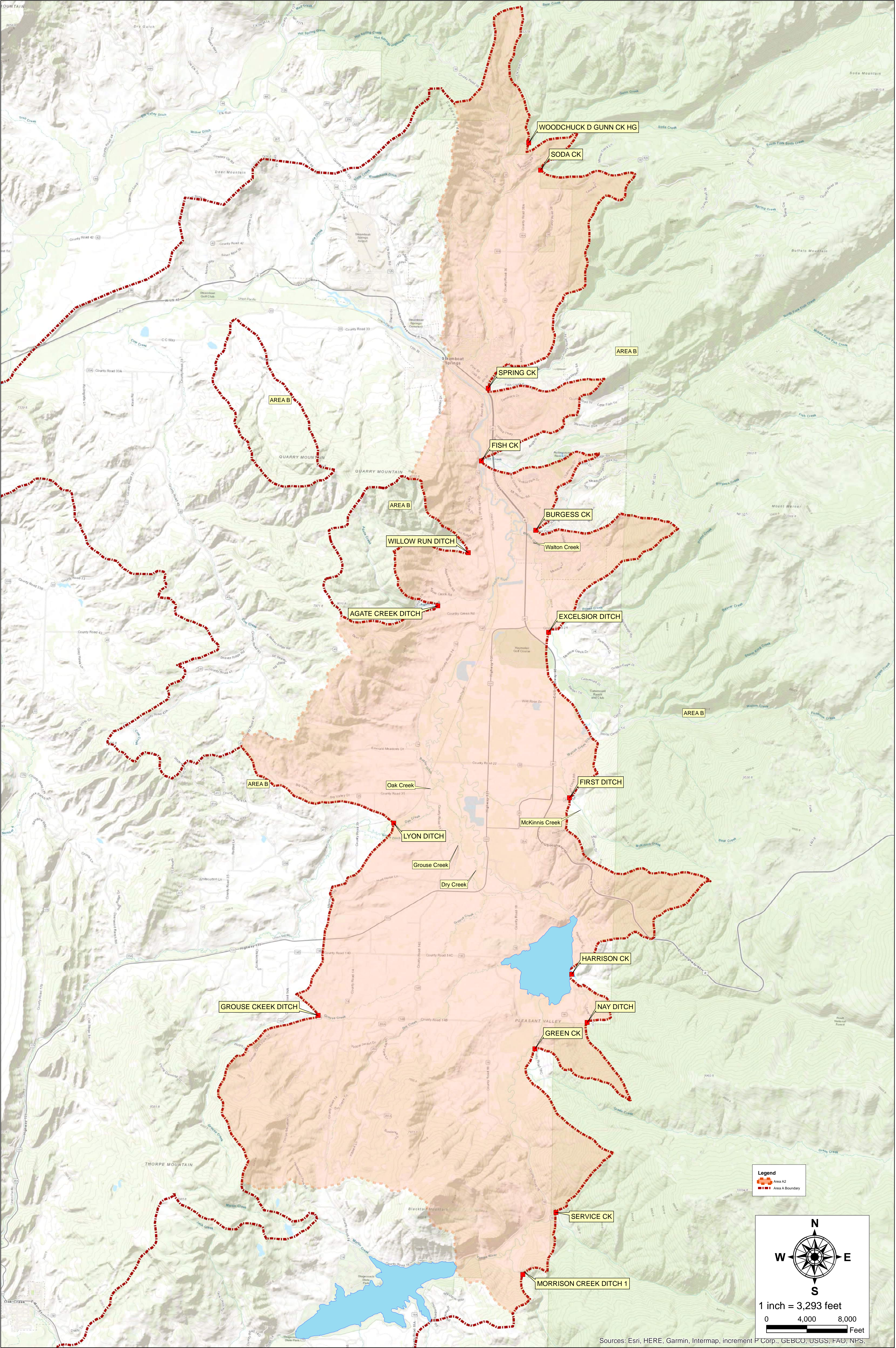
Source: USGS 250k Map

District Boundary

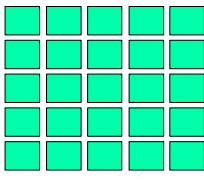
Upper Yampa Water Conservancy District

District Service Area A
Case No. 06CW49





Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS,

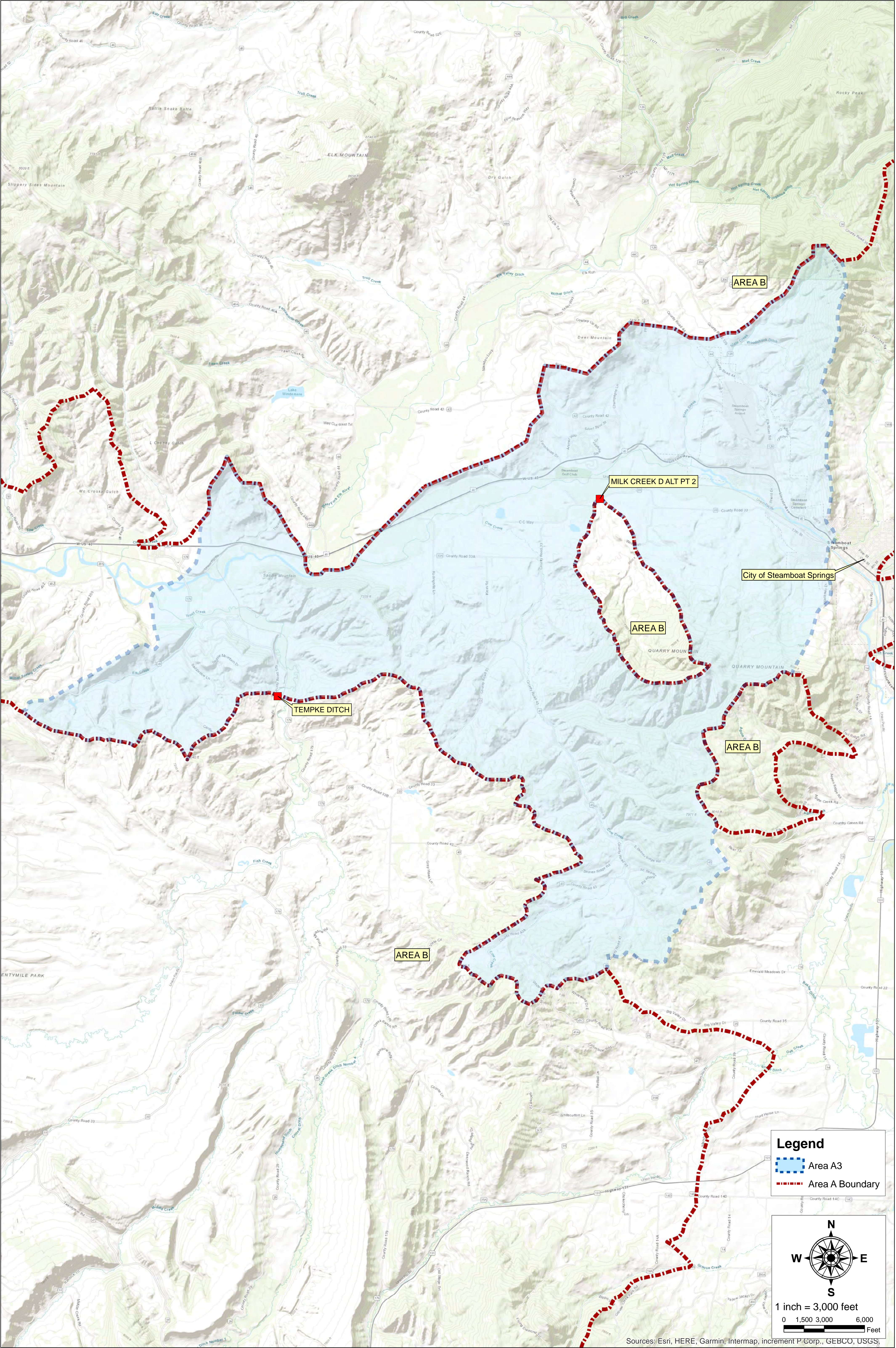


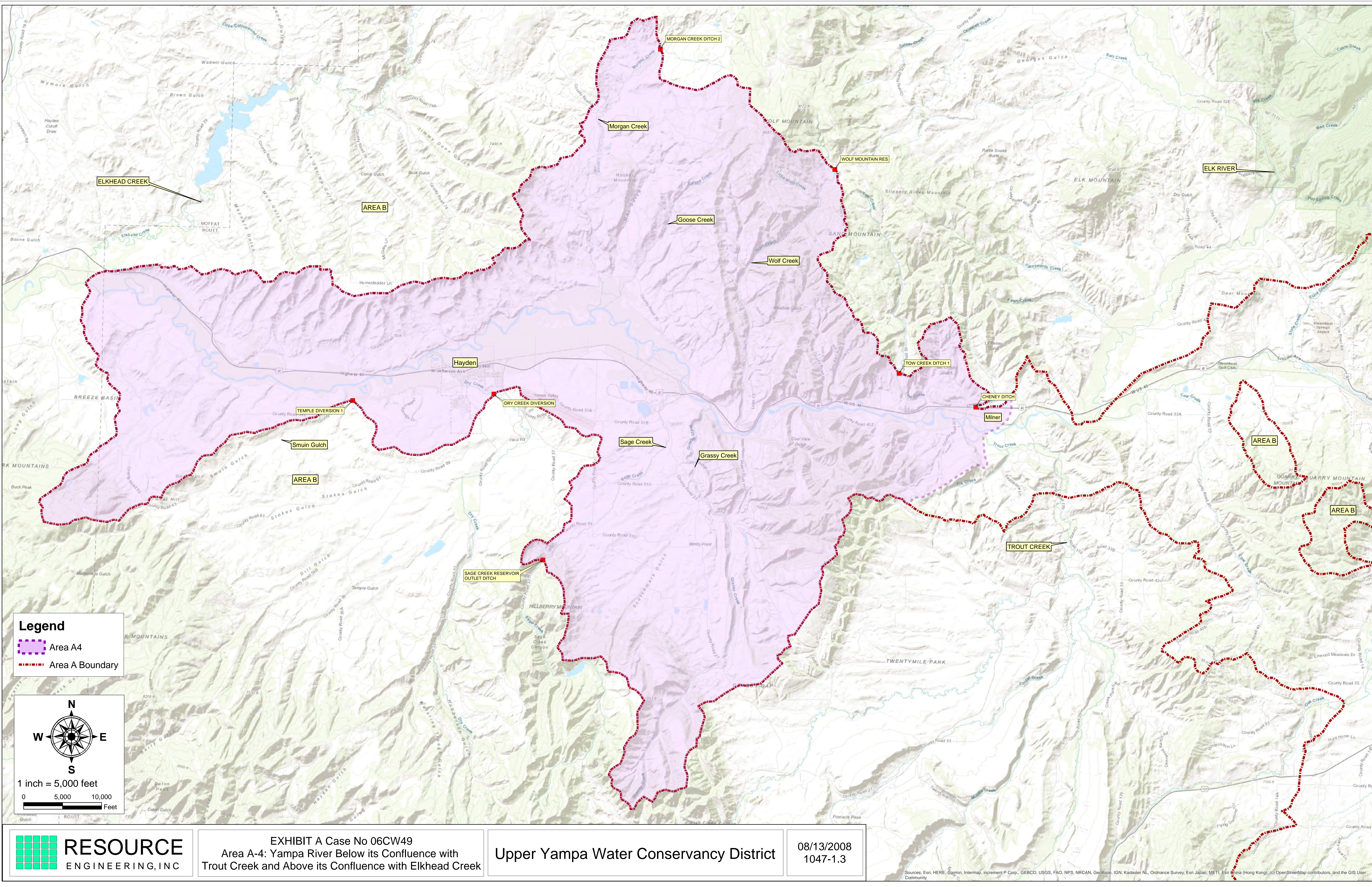
RESOURCE
ENGINEERING, INC

EXHIBIT A Case No 06CW49
Area A-2: Yampa River Below Stagecoach Reservoir
to the City of Steamboat Springs

Upper Yampa Water Conservancy District

10/10/2008
1047-1.3





Appendix A

Upper Yampa Water Augmentation Plan Water Pricing				
	Non-Commercial / Non-Industrial		Commercial / Industrial	
	Small Contract	Large Contract	Small Contract	Large Contract
Application Fee:	\$600	\$2,000	\$600	\$2,000
Price per acre foot:	\$251.99	\$251.99	\$295.23	\$295.23
Assignment Fee:	\$600	\$600	\$600	\$600
Amendment Fee:	\$600	\$600	\$600	\$600

Approved by BOD 01.18.2024

AUGMENTATION CONTRACT No. _____
UPPER YAMPA WATER CONSERVANCY DISTRICT
YAMPA RIVER SUPPLY

_____ (hereinafter "Contractor") has applied to the Upper Yampa Water Conservancy District (hereinafter the "District") a political subdivision of the State of Colorado, organized pursuant to and existing by virtue of Section 37-45-101, Colorado Revised Statutes, *et seq.*, for an augmentation contract for use of water supplies owned, leased, or hereafter acquired by the District. By execution of this Contract, Contractor and District agree to the following terms and conditions.

1. AUGMENTATION SUPPLY.

A. In consideration of the covenants and conditions herein contained, Contractor shall be entitled to the release of _____ acre feet per year of storage or other augmentation water owned or controlled by the District (the "Contracted Water") for use to augment depletions from Contractor's out-of-priority diversions pursuant to the District's Decree entered December 15, 2008 in Case No. 06CW049, Colorado Water Division No. 6 ("Augmentation Decree") and any amendments thereof obtained by the District in its sole discretion.

B. The Contracted Water amount is based on the water requirements table attached hereto as **Exhibit A**. Contractor shall restrict consumptive use under this Contract to that amount. Any increase or change in the water requirements to be supplied by the District may require application for and issuance of a replacement contract, and cancelation of this Contract.

C. Any quantity of the Contractor's Contracted Water that is not used by Contractor by the end of each water year shall not carry over for the Contractor's future use but shall revert to the water supplies of the District. Such reversion shall not entitle Contractor to any refund of payment made for such water supply.

D. Contracted Water will be derived from exercise of the District's water rights decreed for augmentation pursuant to the Augmentation Decree. The District shall have the right, but not the obligation, to designate the water right(s) from which the Contractor's Contracted Water shall be released and to change that designation at any time in its discretion.

E. Contractor's use of any of the Contracted Water shall be subject to any and all terms and conditions imposed by the Water Court on the use of the District's water rights.

F. The water service provided hereunder is expressly subject to the provisions of the District's Water Marketing Policy for the Yampa Basin Augmentation Plan, which provides, in part, for the possible curtailment of uses upon the occurrence of certain events and upon the District giving notice of such

curtailment, all as more fully set forth therein. The service is specifically dependent on the legal and physical availability of the Contracted Water for delivery, including the unavailability for any reason of the water to be used for augmentation as described in the Augmentation Decree, and the District shall have no liability to Contractor for its inability to deliver any or all of the Contracted Water for such reasons.

G. Nothing herein gives the Contractor any equitable or legal title interest or ownership in or to any of the District's water or water rights or the facilities by which they are managed for use. Contractor is only entitled to benefit from the water supply allotted hereunder subject to the limitations, obligations and conditions of this Contract. Contractor shall not institute any legal proceedings for the approval of an augmentation plan and/or any change of the District's water rights.

H. The District's issuance of this Contract to the Contractor is based upon the Contractor's written application and the related information provided by the Contractor to the District in connection with that application. Contractor represents and warrants that the information provided in the contract application is accurate and complete.

2. PURPOSE AND LOCATION OF USE.

A. Contractor will use the Contracted Water to augment diversions at Contractor's point(s) of diversion. Contractor will use the Contracted Water within or through facilities or upon land owned, operated, or served by Contractor, which land is within the District's boundaries and is described on **Exhibit B** attached hereto; provided, that the location and purpose of Contractor's use of Contracted Water must be legally recognized and permitted by the applicable governmental authorities having jurisdiction over the property served. Any change in the location of use shall require application for and issuance of a replacement contract.

B. Contractor's contemplated use for the Contracted Water is for augmentation of the following use or uses as the same are defined in the District's Water Marketing Policy for the Yampa Basin Augmentation Plan: [Select] ☐ Domestic, ☐ Commercial, ☐ Industrial, ☐ Irrigation, ☐ Livestock, ☐ Recreation (pond and channel evaporation).

3. AUGMENTATION PLAN IMPLEMENTATION AND COMPLIANCE.

A. The District shall be responsible for the implementation of the Augmentation Decree including, without limitation, the review of water allotment contract applications with the Division Engineer and any other parties, making needed augmentation releases, and accounting for augmentation releases made for Contractor and other District allottees.

B. Contractor shall provide, at its own expense, a continuous flow recording device with remote readout, or other device as required by the

Augmentation Decree and to be in compliance with the Division of Water Resources (DWR) measurement standards, to continuously and accurately measure at all times all water diverted pursuant to the Augmentation Decree. On or before November 5 of each year, or more frequently if required by the Division Engineer, Contractor shall provide accurate readings from such continuous flow recording device (recorded on a monthly basis for the period November 1 through October 31 of each year) to the District. Contractor acknowledges that failure to comply with these provisions could result in legal action to terminate Contractor's diversion of water by the State of Colorado Division of Water Resources.

C. Contractor hereby specifically allows the District, through its authorized agents, to enter upon Contractor's property during ordinary business hours for the purposes of determining Contractor's measurement capabilities and actual use of water.

D. If Contractor intends to divert through a well, Contractor must provide to the District a copy of Contractor's valid well permit before the District is obligated to deliver any Contracted Water, and it is the Contractor's continuous duty to maintain a valid well permit. Contractor shall also comply with all restrictions and limitations set forth in the well permit obtained from the Colorado Division of Water Resources. Contractor must comply with the well-spacing requirements set forth in C.R.S. § 37-90-137, as amended, if applicable. Compliance with said statutory well-spacing criteria is an express condition of the extension of service hereunder, and the District shall in no way be liable for a Contractor's failure to comply. Contractor agrees to mark the well in a conspicuous place with the permit number.

4. PAYMENTS.

A. Contractor shall pay the District annually for the Contracted Water herein at a price to be fixed annually by the Board of Directors of the District for such service. Payment of the annual fee shall be made, in full, within fifteen (15) days after the date of a notice from the District that the payment is due. Said notice will advise the Contractor, among other things, of the water delivery year to which the payment shall apply and the price which is applicable to that year. If a payment is not made by the due date, a late fee of \$50 (or such other amount as the Board may set from time to time) will be assessed and final written notice of the delinquent account and late fee assessment will be sent by the District to the Contractor at Contractor's address set forth below. If payment is not made within thirty (30) days after said final written notice, the District may, at its option, elect to terminate all of the Contractor's right, title, or interest under this Contract, in which event the Contracted Water may be transferred, leased or otherwise disposed of by the District at the discretion of its Board of Directors. The price is a "take or pay" price and is payable with respect to the maximum contract amount allotted to the Contractor, whether or not in any year such Contractor in fact takes and uses all of the Contracted Water.

B. If water deliveries hereunder are made by or pursuant to agreement with some other person, corporation, quasi-municipal entity, or governmental entity, and in the event the Contractor fails to make payments as required hereunder, the

District may, at its sole option and request, authorize said person or entity to curtail the Contractor's water service pursuant to this Contract, and in such event neither the District nor such persons or entity shall be liable for such curtailment.

C. Contractor agrees that so long as this Contract is valid and in force, Contractor will budget and appropriate from such sources of revenues as may be legally available to the Contractor the funds necessary to make timely annual payments. Contractor will hold harmless the District and any person or entity involved in the delivery of water pursuant to this Contract for discontinuance in service due to the failure of Contractor to maintain the payments herein required on a current basis.

5. TERM AND RENEWAL.

The term of this contract shall commence on January 1st of the year in which it is executed and terminate on December 31, 2062. The Contractor shall have the right to renew this Contract for the same Contracted Water amount for a secondary term of thirty-five (35) years, subject to the District's current Policies and, upon such terms, conditions and pricing as the District is offering at the time, provided that the District is offering up the full amount of Contracted Water. In the event that the District, on a nondiscriminatory basis, decides not to offer up the full amount of the Contracted Water, Contractor shall have the right to renew for a secondary term of thirty-five (35) years such lesser portion of the Contracted Water as may be offered by the District. If Contractor desires to so renew this Contract, it shall provide the District written notice of its intention to do so at least ninety (90) days prior to the expiration of the initial term of this Contract. Thereafter, and prior to the expiration of the initial term, the District and Contractor shall execute a new or supplemental agreement of renewal on the District's standard form. If Contractor fails to renew as set forth above, no renewal terms shall commence, and the District shall be free to contract for or otherwise dispose of the Contracted Water in its discretion.

6. ASSIGNMENTS.

A. The Contracted Water shall be beneficially used for the purposes and in the manner specified herein, and this Contract is for the exclusive benefit of the Contractor's property and shall inure to the benefit of any successor in interest to the fee title to said property upon written assignment and notice thereof to the District, and subject to compliance with the District's Water Marketing Policy for the Yampa Basin Augmentation Plan and the terms of this Contract, said assignment to be made using the District's approved form.

B. Upon the sale of the real property to which this Contract pertains, Contractor has a duty to make the buyer aware of this Contract and of the need to assign the Contract to the buyer. Written notice of assignment to the District shall be necessary for the assignment to become effective. Payment of an assignment fee in an amount determined annually by the Board shall be required for the assignment to be effective. Any assignment of less than all of the Contracted Water to any person or

entity other than the person or entity simultaneously acquiring all of the Contractor's property shall not be effective unless approved by the District in its sole discretion.

C. If the Contracted Water will be used for the benefit of land that is now or will hereafter be subdivided or otherwise held or owned in separate ownership interests, Contractor may assign Contractor's rights hereunder only to a homeowners association, property owners association, water district, water and sanitation district or other special district, or other entity properly organized and existing under and by virtue of the laws of the State of Colorado, and then only if such entity establishes to the satisfaction and with the approval of the District that it has the ability and authority to assure its performance of the Contractor's obligations under this Contract. In no event shall the owner of a portion but less than all of the property served under this Contract have any rights hereunder, except as such rights may exist through an association or special district as above provided.

D. The restrictions on assignment contained herein shall not preclude the District from holding the Contractor, or any successor to the Contractor, responsible for the performance of all or any part of the Contractor's covenants and agreements herein contained.

7. MULTIPLE OWNERSHIP.

A. In the event of the division of the property served by this Contract into two or more parcels owned by different persons or entities, in addition to the obligations in Section 6.C. above, the Contractor shall give notice to purchasers of any part of the subject property of the obligations of this Contract and shall record such notice in the records of the Clerk and Recorder of the county in which such property is located.

B. If such divided property is to be served by a shared well, as a condition of service under this Contract, all of the owners of such property shall execute and record a well sharing agreement in a form acceptable to the District and provide evidence thereof to the District.

8. CONTRACTOR'S LEGAL COMPLIANCE.

A. Contractor's rights under this Contract shall be subject to the Water Marketing Policy for the Yampa Basin Augmentation Plan and to any Water Service Plan adopted by the District and amended from time to time; provided, that such Policy and Plan shall apply uniformly throughout the District among water users receiving the same service from the District. Contractor shall also be bound by all applicable laws and regulations, including, for example, the provisions of the Water Conservancy Act of the State of Colorado.

B. Contractor shall comply with all federal, state, and local governmental laws and regulations in the construction, maintenance, operation, replacement or

repair of the facilities required to divert and use water that is augmented pursuant to this Contract. Upon demand of the District, Contractor shall provide the District with documentary proof of such compliance.

C. Contractor shall only charge its water customers, if any, who are supplied based upon the Contracted Water such rates, charges, and fees as are permitted by Colorado law.

D. Contractor shall not discriminate in availability of or charges for any water service or water supply made available pursuant to or based upon the Contracted Water on account of race, color, religion, national origin, or any other criteria prohibited under state or federal law.

E. Contractor shall implement and use commonly accepted conservation practices with respect to use of water augmented by the supply allotted under this Contract and shall be bound by any conservation plan hereafter adopted by the District, as the same may be amended from time to time.

9. CONTRACT TERMINATION.

A. Termination by District:

1. The District may terminate this Contract for any violation or breach of the terms of this Contract by Contractor, including as provided in Section 4.A. above regarding delinquent payments.

2. The District may terminate this Contract if, in its discretion, any judicial or administrative proceeding initiated by Contractor threatens the District's authority to contract for delivery or use of the District's water rights, or threatens the District's permits, water rights, or other interests of the District.

3. The District may terminate this contract if Contractor opposes any of the District's Water Court applications regarding the District's water rights used for augmentation pursuant to the Augmentation Decree.

B. Termination by Contractor: Contractor may terminate this Contract in its entirety for any reason by notifying the District in writing of the termination on or before April 1. Notice by said date will prevent the Contractor's liability for the next annual contract charge.

C. Notice to Division Engineer: Upon termination of this Contract by either the District or Contractor, the District will provide notice of such termination to the Office of the Division Engineer, Colorado Division of Water Resources. The District shall have no liability to Contractor for any administrative or legal action taken by the Division Engineer or other representatives of the State of Colorado to curtail or limit Contractor's use of water previously augmented by the Contracted Water under this Contract.

10. FORCE MAJEURE.

The District shall not be responsible for any losses or damages incurred as a result of the District's inability to perform pursuant to this Agreement due to the following causes if beyond the District's control and when occurring through no direct or indirect fault of the District, including without limitation: Acts of God; natural disasters; actions or failure to act by governmental authorities; unavailability of supplies or equipment necessary to the District's ability to perform; major equipment or facility breakdown; and changes in Colorado or federal law, including, without limitation, changes in any permit requirements.

11. NOTICES.

All notices required or appropriate under or pursuant to this contract shall be given in writing mailed or delivered to the parties or sent by internet communication at the following addresses:

Notice to Contractor

Email: _____

Notice to District

Upper Yampa Water Conservancy District
Attention: General Manager
P.O. Box 775529
Steamboat Springs, CO 80477
UYWCD@upperyampawater.com

Either Party may by notice given in accordance with this provision change the addresses to which future notices shall be mailed or delivered.

12. BREACH AND REMEDIES.

A. In the event of any breach of this Contract by the Contractor, the District may, in addition to contract termination as provided herein, pursue any additional remedy available to the District against the Contractor in law or in equity. Contractor may do likewise in the event of breach by the District. The prevailing party in any litigation regarding such breach shall be entitled to recovery of its reasonable attorneys' fees.

B. Venue for any dispute regarding this Contract shall be in the District Court for Routt County, Colorado.

13. RECORDING OF MEMORANDUM.

In lieu of recording this Water Augmentation Contract, a Memorandum of Water Augmentation Contract will be recorded with the Routt County Clerk and Recorder's Office. The costs of recording the Memorandum shall be paid by Contractor.

CONTRACTOR:

Signature

Name

Contractor's Address:

Telephone No.: _____

Email Address: _____

STATE OF _____)
) ss.
COUNTY OF _____)

Subscribed and sworn to before me this _____ day of _____, 20____, by

WITNESS my hand and official seal.

My commission expires: _____

Notary Public

By: _____
_____, President

_____, General Manager and Secretary

Subscribed and sworn to before me this ____ day of _____, 20____, by _____, President, Upper Yampa Water Conservancy District.

Notary Public

Subscribed and sworn to before me this ____ day of _____, 20____, by _____, General Manager and Secretary, Upper Yampa Water Conservancy District.

Notary Public

WATER RESOURCES REPORT

Case No. 06CW49



Upper Yampa Water Conservancy District

February 29, 2008

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- Area A Vicinity Map
- Sub-Area A-1 Map
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- Sub-Area A-3 Map
- Sub-Area A-4 Map

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APPENDIX D: Delayed Well Pumping Impact Analysis Report

1.0 INTRODUCTION

1.1 Purpose

This report provides the background information and engineering data to support the Application for a Plan for Augmentation, Including Appropriative Rights of Exchange, filed in Case No. 06CW49 by the Upper Yampa Water Conservancy District (District). The Plan for Augmentation, referred to as the Umbrella Plan, seeks Court approval to establish a dependable legal water supply for participants who obtain a water service contract and become part of the District's Water Supply Program on or after January 1, 2007.

The District owns water rights in Yamcolo Reservoir and Stagecoach Reservoir that may be used for augmentation purposes. Currently, individual water users can purchase a contract for augmentation water from the District. These users must pursue an individual Plan for Augmentation in order to obtain a legal water supply. The demand for augmentation water from the District for use in individual Augmentation Plans is expected to increase in coming years due to recent water rights developments in Division 6. In particular, the City of Steamboat Springs' Recreational In Channel Diversion water right has made the portion of the Yampa River above Steamboat Springs over-appropriated during the April through October period. The purpose of the Umbrella Plan is to establish a framework within which new water users, who meet certain criteria, can be included directly into a decreed Plan for Augmentation that uses District water rights to replace out-of-priority stream depletions. The Umbrella augmentation approach has the following advantages relative to the existing, individual augmentation approach:

1. It describes in detail the specific areas that will be served by the Plan for Augmentation and Exchange utilizing the District's water rights and supplies.
2. It defines the quantity of water that will be diverted and depleted within specific sub-regions of the District. These provisions provide local and downstream water right owners with a description and understanding of the extent of the District's current and future water service obligations. This includes key stream segments that will be served through operation of an appropriative right of exchange.
3. The Umbrella Plan is, in the long run, more efficient and cost effective than filing individual Plans for Augmentation with the Water Court. By establishing a decreed framework that includes limits on stream depletions and exchange points, qualifying contractees can be integrated into the Augmentation Plan immediately. At the same time, vested water right owners have certainty that their rights will be protected and not injured by operation of the District's Water Supply Program.

4. The Umbrella Plan will streamline water rights administration of small, individual users that rely on a District contract for augmentation. Specifically, the District will document diversions, depletions, water rights allocations, and augmentation releases associated with all of the District's contracts in a sophisticated database. The database will be summarized in an Annual Operating Plan and Water Allotment Report that will be submitted to the Division 6 Engineer's Office each year. The Operating Plan will specify potential releases to be made from Stagecoach and Yamcolo Reservoirs the following year.

1.2 Background Information

The Upper Yampa Water Conservancy District was created for the purpose of conserving, developing, and stabilizing water supplies for the benefit of users within the Upper Yampa River Basin. Over the years, the District has sought to provide a dependable legal water supply to users by developing a portfolio of direct flow and storage water rights. The majority of the District's water rights are held in Stagecoach Reservoir, which was built between 1987 and 1988. Historically, the District has contracted its storage water in the reservoirs for municipal, irrigation, and industrial uses. The District's primary water allotment contracts are with Tri-State Generation and Transmission Association, Inc. (Tri-State) for industrial use and in-basin cities and towns for municipal use.

The District is interested in expanding its water service agreements to support new or expanded domestic, agricultural, commercial, and industrial uses in the Upper Yampa Basin. In many cases, new users who seek contract water from the District will obtain their physical water supply from ground water wells or springs located in the Yampa River basin. The diversion structures will be relatively new and consequently, will have junior water rights that are subject to administrative calls. To help protect these wells or springs from a water right call and calling water rights from injury, the District proposes to release storage water from Stagecoach and Yamcolo Reservoirs to provide augmentation water to downstream, senior water rights holders.

The potential for water supply development on the Yampa River changed drastically in 2003 when the City of Steamboat Springs filed Case No. 03CW86 to appropriate water for a Recreational In-Channel Diversion (RICD). The final decree in this case caused the Yampa River above Steamboat Springs to be considered over-appropriated for the first time. That is, all new, junior appropriators above Steamboat will be subject to a water rights call and, therefore, required to operate under exempt well permits or to develop a Plan for Augmentation. In addition, future water resources development in the basin, and

improvement of existing agricultural structures, could lead to administrative calls originating from lower basin sources (i.e. sources below the City of Steamboat Springs).

In order to determine potential water allotment contract demands, RESOURCE assessed the state of Yampa River water supplies. This review found several studies indicating that projected population growth and economic development in the Upper Yampa Basin will place heightened demand on water resources. For example, BBC Research and Consulting (BBC Consulting) prepared a 1998 report titled Yampa Valley Water Demand Study (1998 Water Demand Study) on behalf of the Recovery Program for Endangered Fishes of the Upper Colorado River.¹ The 1998 Water Demand Study predicted that Routt County's population would increase from 16,200 people in 1995 to between 40,200 and 49,500 people in 2045. Similarly, Moffat County population was calculated to increase from 11,900 people in 1995 to between 22,300 and 27,500 people in 2045. The annual water demand predicted to result from this population increase was estimated for Water District Numbers 44, 54, 55, 56, 57, and 58. These Districts generally correspond with the Routt and Moffat County boundaries. By the year 2045, water diversions were estimated to increase by an annual total of between 18,500 and 25,100 acre feet (Note: these values exclude agricultural demand). These predictions compared favorably with projections contained in the Water Needs Assessment of Phase I of the Statewide Water Supply Initiative (SWSI). SWSI estimates that annual water demand in Moffat and Routt Counties will increase by 21,700 acre feet by 2030.

BBC Consulting has been commissioned twice by the District to refine the estimates contained in the 1998 Water Demand Study. The first revised report was issued in 2004. More recently, in 2008, a second revised report was issued as part of the application process for Case No. 06CW49. The revised 2004 study, Potential Future Water Demands in the Upper Yampa Valley (Upper Yampa Valley Study), focused on an area within the Yampa watershed upstream (i.e. south) of the City of Steamboat Springs, Colorado.² The Upper Yampa Valley Study used 2000 Census data to sharpen predictions in the 1998 Water Demand Study and tailor them to the new, smaller study area. The study compared Census data from 1990 and 2000 in the Upper Yampa Valley and identified an annual population growth rate of 6%. Furthermore, the study found that approximately 28% of this growth occurred in incorporated communities, while 72% occurred in unincorporated areas (e.g. rural subdivisions and ranches). These unincorporated areas are not served by municipal water and sewer and are responsible for securing their own water rights and plans for augmentation. This growth rate and pattern is similar to comparably

¹ BBC Research and Consulting. 1998. Yampa Valley Water Demand Study. Denver, CO.

² Jeavons, Douglas L. April 23, 2004. Potential Future Water Demands in the Upper Yampa Valley. Letter to Robert Weiss. BBC Research and Consulting. Denver, CO.

situated areas in Colorado that are characterized by high altitude, limited developable land and close proximity to resort centers. For example, annual growth rates in Eagle and Summit County were reported as 4.3% and 6.6%, respectively. This data suggests that the annual population growth rate of approximately 2.2% reported in the 1998 Water Demand Study was conservative and the corresponding water demand projections may be low.

BBC Consulting issued a second, updated report titled “Future Population Growth in Routt County” on February 29, 2008.³ The report documents the continued population growth within Routt County and offers the following conclusion: “Based on post-2000 population estimates for Routt County and the [Colorado State Demography Office’s] SDO’s most recent population forecast for the county, it appears BBC’s forecasts from the late 1990s may underestimate future growth in Routt County.”⁴ Based upon these more recent assessments, it is predicted that the county will have a total population between 59,000 and 75,000 residents by 2055. Of this total, approximately 24,500 to 31,900 residents will live in unincorporated portions of Routt County. The growth in unincorporated areas will be concentrated in the area south of Steamboat Springs and to the west, between Steamboat Springs and Hayden. These identified areas fall within the District’s Area A boundary and many of these new residents could be eligible for participation in the District’s Umbrella Plan.

As a final means of assessing water allotment contract demand associated with this plan for augmentation, RESOURCE reviewed a similar contract program operated by the Basalt Water Conservancy District (Basalt District). The Basalt District started providing water service contracts to users in the Roaring Fork River Valley (excluding the Crystal River) in 1983. The Roaring Fork Valley has many characteristics, like high altitude, limited developable land, and close proximity to resort centers, which are similar to the Upper Yampa River Valley. Over the 24 years of the program the Basalt District has issued contracts for 1,990 acre feet of augmentation water with each contract averaging from 3 to 5 acre feet of consumptive use annually.

As discussed above, there is a general consensus that population growth in the Upper Yampa Basin will place increased demand on water supplies. Moreover, a large proportion of new demand will be in unincorporated areas that do not receive municipal water service. Users in unincorporated areas will be responsible for securing their own water rights. These users will also have to develop a plan for augmentation to satisfy calls from the City of Steamboat Springs’ RICD and future calls from lower basin,

³ Jeavons, Douglas L. February 29, 2008. Future Population Growth in Routt County. Letter to Robert Weiss. BBC Research and Consulting. Denver, CO.

⁴ Id.

senior agricultural rights. Based on the convergence of increased demand and more frequent administration, the District is seeking to make 2,000 acre feet of water in Stagecoach and Yamcolo Reservoirs available to augment water allotment contractees. Based on growth projections and the experience of similar contract programs, the District anticipates that this pool could be fully contracted and utilized in approximately 25 years. In fact, the District has already received requests for contracts since announcing their intent to develop this program.

2.0 WATER RIGHTS

The District owns an extensive portfolio of direct flow and storage water rights appurtenant to Stagecoach and Yamcolo Reservoirs. These water rights will be used as the source of the District's augmentation supply. The two reservoirs are located in the Upper Yampa River Basin, above Steamboat Springs, as more fully described below.

2.1 Stagecoach Reservoir

Stagecoach Reservoir is located on the Yampa River approximately 17.5 miles south of Steamboat Springs, as illustrated in Appendix A-1. It currently has a capacity of 33,275 acre feet (AF); however, the District is finalizing plans to increase its capacity by an additional 3,185 AF. There are numerous conditional and absolute decreed water rights that are used to fill and refill the reservoir. Many of the water rights were purchased from Tri-State in the mid 1980's, while other supporting rights have been decreed by the District. These water rights are decreed for a number of uses, including municipal, domestic, recreational, industrial (including the generation of power), irrigation, piscatorial, and stock watering uses. These water rights were changed to include augmentation and exchange for replacement purposes as beneficial uses in Case No. 01CW41, District Court, Water Division 6. A detailed list of water rights appurtenant to Stagecoach Reservoir is provided in Appendix B.

2.2 Yamcolo Reservoir

Yamcolo Reservoir is located in the upper reaches of the Yampa River basin approximately 12 miles southwest of the Town of Yampa and 43 miles upstream of Steamboat Springs. It is also located upstream of Stagecoach Reservoir, as shown in Appendix A-1. Yamcolo Reservoir has a decreed capacity of approximately 9,010 AF. This water is decreed for a variety of beneficial uses, including municipal, domestic, recreational, industrial (including the generation of power), irrigation, piscatorial,

stock watering, exchange for replacement purposes, and augmentation of these uses. A detailed list of water rights appurtenant to Yamcolo Reservoir is provided in Appendix C.

3.0 WATER REQUIREMENTS

The total water requirements and consumptive use associated with future allotment contracts that will be included in the Umbrella Plan will be calculated using standard, Division of Water Resources-approved engineering assumptions. Water requirements for individual contract allottees will be calculated by the District, except in cases where separate engineering reports are submitted by the allottee's engineer. These calculations will be reviewed by the District's engineer to ensure their consistency with District-approved methodologies. The water requirements will generally be separated into the following five categories: 1) domestic in-house use, 2) commercial or other uses, 3) lawn, garden and crop irrigation 4) surface evaporation, and 5) livestock use. The assumptions used to calculate individual water requirements are outlined below.

3.1 Domestic In-House Use

Diversions associated with domestic in-house use will be calculated according to the following schedule:

- Single family home = 3.5 persons @ 100 GPCD (gallons/capita/day) = 350 gallons per day = 1 Equivalent Residential Unit (EQR).
- Apartments = 0.75/EQR unit
- Mobile Homes = 0.75/EQR unit

A substantial portion of in-house diversions will return to the stream system following wastewater treatment. The consumptive use, expressed as a percent of diversions, is assumed to be as follows:

- Central treatment system = 5.0 percent
- Septic tank/leachfield system = 10.0 percent
- Evaporative system = 100.0 percent

3.2 Commercial Use

Commercial uses will be calculated on a case-by-case basis using specific water use data, when available. If specific water use data is not available, EQR ratings based on the type and size of commercial facility will be used. Some examples of commercial EQR ratings are included below:

- Office = 0.60 EQR/1,000 S.F.

- Warehouse = 0.30 EQR/1,000 S.F.
- Retail Sales = 0.60 EQR/1,000 S.F.

3.3 Irrigation Water Use

The portion of the Upper Yampa River included in the Umbrella Plan covers approximately 1,800 square miles (hereinafter this area is referred to as the Augmentation Area). Within the Augmentation Area there are broad variations in elevation, precipitation and temperature. Elevation varies between approximately 6,000 feet and 12,000 feet. Average annual precipitation varies from a low of approximately 15 inches to a high of approximately 61 inches. The average annual temperature for the area varies between approximately 30° C and 42° C. Additionally, there are numerous crop types, with variable growth patterns, that may be planted within the Augmentation Area. As such, there is a correspondingly large variation in potential evapotranspiration from future irrigation. In order to address this variation, RESOURCE developed a Consumptive Use Model using Geographic Information Systems (GIS) software and Microsoft Excel that accounts for differing location and crop type within the Augmentation Area.

3.3.1 Evapotranspiration Calculation Inputs: Climatic Data

While methods for calculating evapotranspiration vary, each method requires that the user input site specific temperature and precipitation data. In order to provide a standardized methodology that will provide site specific data for the Augmentation Area, RESOURCE used the PRISM Model (Parameter-elevation Regressions on Independent Slopes Model) to calculate the average monthly temperature and precipitation values. The PRISM Model uses point data (i.e. weather station data), digital elevation data, and other spatial data to generate estimates of monthly climatic parameters like temperature and precipitation. The point data used by the Model includes data recorded at weather stations maintained by the National Weather Service, Natural Resources Conservation Service (including data collected at SNOTEL Stations) and other State and Federal agencies. In addition to interpolating between these stations, the PRISM Model adjusts its output based on spatial location, elevation and complex climatic phenomena (e.g. the orographic effect, the rainshadow effect or the lake effect). The PRISM Model provides the best available estimate of average monthly precipitation and temperature for individual locations throughout the Augmentation Area.

The data calculated by the PRISM Model for the Augmentation Area was incorporated into evapotranspiration calculations by dividing it into several smaller pieces. First, the data was split into several sub-watersheds that approximately correspond to the watersheds for Sub-Areas A-1 through A-4

(as described in detail in Section 5.0). The data was further divided into 1,000 foot bands of elevation within these sub-watersheds. Average precipitation and temperature were then calculated for the elevation bands within each watershed. Using this setup a user can input the sub-watershed location and elevation of a potential contractee in Microsoft Excel. The Consumptive Use Model will then calculate average monthly temperature and precipitation data for the proposed contract.

3.3.2 Evapotranspiration Calculation Methodology

The generally accepted methodology of calculating evapotranspiration varies by crop type. The State of Colorado, Division of Water Resources (DWR) recommends that, for bluegrass, consumptive use is most accurately calculated using the Blaney Criddle Method, as Modified by Pochop. As such, RESOURCE used the Modified Blaney Criddle Method as outlined by the Soil Conservation Service in Technical Release No. 21 to calculate bluegrass consumptive use. This calculation was modified with consumptive use coefficients and altitude correction factors taken from the Pochop, Borrelli and Burman Paper titled "Elevation – A Bias Error in SCS Blaney Criddle Estimates" (ASAE, 1984). This methodology requires the user to input data regarding the temperature, precipitation, and elevation of the irrigated land. Elevation will be determined on a per contract basis, using USGS topographic quads. The necessary climatic parameters for the land proposed for irrigation will be calculated using the Model described in Section 3.3.1, above. These temperature data will be used to identify the beginning and end of the growing season. For the purposes of calculating augmentation requirements, bluegrass will be assumed to start growing, and requiring irrigation, when mean daily temperatures exceed 45° Fahrenheit.

The DWR's recommended methodology for calculating consumptive use for pasture grass and alfalfa relies on procedures outlined in the Soil Conservation Service's Technical Release No. 21 (T.R. No. 21). The DWR also recommends modifying the T.R. No. 21 calculation based on a crop's elevation using methods described in ASCE Manual and Report No. 70 (1990). In order to calculate the augmentation requirement for pasture grass and alfalfa, the growing season will be assumed to start when mean daily temperatures exceed 45 degrees Fahrenheit. Consumptive use will be calculated using these methods in combination with local climatic data calculated by the Model discussed above.

The most common crop types that will be considered for potential contracts are bluegrass, pasture grass and alfalfa. If a non-traditional crop type is proposed, consumptive use will be calculated using a methodology that incorporates growth coefficients specific to that crop and is generally accepted by the DWR. The PRISM data will be used as the source of local climatic data for these calculations.

Once the crop and/or lawn consumptive use is determined, total diversion requirements will be calculated based upon expected application rates for different irrigation methods. The application rate for sprinkler irrigation is assumed to be 1.25 times the C.U. rate (80% efficient) and the application rate for flood irrigation is assumed to be 3.33 times the C.U. rate (30% efficient).

3.4 Surface Evaporation

As discussed in Section 3.3 of this report (Irrigation Water Use), the Augmentation Area covered by this Umbrella Augmentation Plan is extensive. Within the Augmentation Area, RESOURCE expects that there will be large variations in precipitation and temperature. These variations influence the rate of surface evaporation from existing and future ponds and reservoirs. In order to account for climatic variation, data from the Consumptive Use Model will be used in calculating surface evaporation. The methodology for calculating site specific climatic data with the Consumptive Use Model is discussed in Section 3.3.1, Evapotranspiration Calculation Inputs: Climatic Data.

Annual surface evaporation for proposed contracts will be calculated according to the following methodology. Gross annual evaporation will be calculated based on NOAA Technical Report NWS 33, Evaporation for the Contiguous 48 United States, using the isopleths of annual shallow lake evaporation for the State of Colorado. The gross annual evaporation will be distributed on a monthly basis according to the General Guidelines for Substitute Water Supply Plans for Sand and Gravel Pits Submitted to the State Engineer Pursuant to SB-120 & SB93-260. For the purposes of augmentation, evaporation is assumed to occur only when the average daily temperature is greater than 32 degrees Fahrenheit. Thus, monthly evaporation will be modified according to average monthly temperatures calculated by the Consumptive Use Model. The potential for adjusting gross evaporation for effective precipitation will be considered on a case-by-case basis. This is required by State Policy No. 2004-3 which states that no effective precipitation credit shall be allowed to offset evaporative losses occurring as a result of reservoirs and ponds constructed outside the streambed.

3.5 Livestock Water Use

Livestock requires approximately 11 gallons of water per day per head. This water use will be considered 100 percent consumptive.

4.0 STREAM DEPLETIONS

The depletions to surface streamflows resulting from diversions from ground water wells and near surface structures may be delayed from the actual time of diversion. For example, stream depletions from wells located some distance from area streams may be delayed significantly in time. Other wells, completed in the alluvial formations near the Yampa River and its tributaries, will have little or no delayed impact. Return flows from wastewater treatment systems will also be delayed. For these reasons an analysis of delayed stream depletions is included in calculations for future augmentation requirements.

4.1 Delayed Depletions Analysis

The District will account for delayed depletions with respect to any wells that will be authorized for diversion under this Plan for Augmentation. The stream depletions resulting from well pumping are both lagged and attenuated. The lag time and magnitude of attenuation is a function of a well's distance from the stream and the aquifer characteristics. The stream depletions from some wells are expected to be delayed significantly, but the depletions may be reasonably expected to reach a steady state. Other wells will be completed in alluvial formations close to the Yampa River and will have little or no delayed impact.

In order to replace out-of-priority depletions in time and amount, delayed depletion factors have been developed using the Glover well pumping depletion model. For wells located within 100 feet of a stream the depletions are assumed to occur with the same monthly distribution pattern as the pumping. To calculate delayed depletion factors for wells greater than 100 feet from a stream, a series of Glover analyses were conducted. Wells in both bedrock and alluvial aquifers were evaluated for locations 500, 1000 and 2500 feet from a stream. The resulting depletion factors were assumed to represent three geographic bands, based on distance from the stream, in both alluvial and bedrock aquifers. The three bands are described as follows:

- 1) Band #1: 100 to 750 feet from the stream,
- 2) Band #2: 751 to 1750 feet from the stream and,
- 3) Band #3: More than 1750 feet from the stream.

Table 1 summarizes the results of the Glover analyses.

Table 1
Monthly Lagged Stream Depletion Factors
For Alluvial and Bedrock Wells

Month	Depletion - Bedrock Wells S=.01, T=500 gpd/ft			Depletion - Alluvial Wells S=.1, T=10,000 gpd/ft		
	<u>d = 500'</u> use for: 100' - 750'	<u>d = 1000'</u> use for: 750'-1750'	<u>d = 2500'</u> use for: > 1750'	<u>d = 500'</u> use for: 100' - 750'	<u>d = 1000'</u> use for: 750'-1750'	<u>d = 2500'</u> use for: > 1750'
1	26.4%	7.5%	7.1%	39.9%	14.8%	5.7%
2	30.3%	20.2%	7.0%	28.6%	27.7%	8.0%
3	12.0%	16.1%	8.0%	9.1%	14.8%	11.2%
4	7.2%	11.5%	9.0%	5.3%	9.5%	11.4%
5	5.2%	8.9%	9.5%	3.7%	7.0%	10.6%
6	4.0%	7.3%	9.5%	2.9%	5.5%	9.6%
7	3.3%	6.2%	9.2%	2.4%	4.6%	8.7%
8	2.8%	5.4%	8.9%	2.0%	4.0%	8.0%
9	2.5%	4.8%	8.5%	1.8%	3.5%	7.4%
10	2.2%	4.3%	8.1%	1.6%	3.1%	6.8%
11	2.0%	4.0%	7.8%	1.4%	2.9%	6.4%
12	1.9%	3.7%	7.4%	1.3%	2.6%	6.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The depletion factors are assumed to apply to both well pumping diversions and to return flows. Thus, for determining the timing and amount of augmentation storage releases the depletion factors are applied to calculated depletions. A complete discussion of the methods and results of the delayed depletion analysis can be found in the Delayed Well Pumping Impact Analysis Report, Appendix D.

4.2 Non-Delayed Depletions Analysis

Diversions from springs or surface diversions from creeks or rivers are assumed to have no delayed depletion impact.

5.0 WATER SERVICE AREA

The Umbrella Plan will establish a framework to include points of diversion coincident with future contractee's ground water wells, surface water rights and storage reservoirs (with respect to evaporation replacement only) in a decree. The new points of diversion will be limited to those areas that are listed within the District's Area A Boundary. Area A includes all regions that are tributary to the Yampa River and its tributaries where use of the District's water rights for augmentation is sufficient to satisfy the requirements of senior, downstream water rights. That is, within the District's Area A, there is no history of a water rights call between potential future points of diversion and the Yampa River (i.e. where augmentation releases will be made). Alternatively, Area B represents all regions tributary to the Yampa River and its tributaries where the District's water rights are not sufficient to augment senior water rights. Generally, this occurs in situations where the District can't provide direct augmentation to senior water rights. The Area A boundary was defined in cooperation with the Division 6 Engineer's Office.

For the purposes of this Plan for Augmentation (as described in Section 6.0), the District has further divided its Area A boundary into four sub-areas, referred to as A-1, A-2, A-3, and A-4. Each area contains a portion of the Yampa River, and its designated tributaries, in which the District will provide service under the Umbrella Plan. A series of maps depicting the Area A boundary and the four sub-areas is provided with this report as Appendix A. The four sub-areas are listed as follows and described in detail below:

Area A-1: Upper Yampa River above Stagecoach Reservoir Dam

Area A-2: Yampa River Between Stagecoach Reservoir Dam and the RICD Structures within the City of Steamboat Springs

Area A-3: Yampa River Between its Confluence with Trout Creek and the RICD Structures Within the City of Steamboat Springs

Area A-4: Yampa River below its Confluence with Trout Creek and Above its Confluence with Elkhead Creek

5.1 Area A-1: Upper Yampa River above Stagecoach Reservoir Dam

Description: Area A-1 includes structures that will divert water from within that portion of Area A encompassing all areas tributary to the Yampa River and its tributaries in a stream reach extending from a downstream terminus at the outlet of Stagecoach Reservoir to an upstream terminus located where the Bear River crosses the Medicine Bow-Routt National Forest Boundary, a distance of approximately 21

miles. The downstream terminus at the outlet of Stagecoach Reservoir is located in Routt County on the Yampa River in the SW¼ SE¼, Section 29, Township 4 North, Range 84 West of the 6th P.M. The upstream terminus is located immediately above the confluence of the Yampa River and the Bear River in Routt County, in the SW¼ NW¼, Section 11, Township 2 North, Range 85 West of the 6th P.M. The boundary of Area A-1 is shown in detail in Appendix A-1. The following major tributaries to the Yampa River are included in Area A-1:

- (1) Middle Creek: from its confluence with Stagecoach Reservoir and the Yampa River in the SE¼ SE¼, Section 31, Township 4 North, Range 84 West of the 6th P.M., upstream to the headgate of the Howe Ditch located in the NE¼ NW¼, Section 7, Township 3 North, Range 84 West of the 6th P.M., including all areas tributary to Middle Creek and the Yampa River within this reach. That portion of Middle Creek and its tributaries above the headgate of the Howe Ditch are in Area B and not included within this Umbrella Plan.
- (2) Raspberry Creek: from its confluence with the Yampa River in the SW¼ NW¼, Section 2, Township 3 North, Range 85 West of the 6th P.M., upstream to the headgate of the C W Ditch located in the SW¼ SW¼, Section 2, Township 3 North, Range 85 West of the 6th P.M., including all areas tributary to Raspberry Creek and the Yampa River within this reach. That portion of Raspberry Creek and its tributaries above the headgate of the C W Ditch are in Area B and not included within this Umbrella Plan.
- (3) Whipple Creek: from its confluence with the Yampa River in the SW¼ SW¼, Section 16, Township 3 North, Range 85 West of the 6th P.M., upstream to the headgate of the Stark Irrigation Ditch located in the NW¼ SW¼, Section 22, Township 3 North, Range 85 West of the 6th P.M., including all areas tributary to Whipple Creek and the Yampa River within this reach. That portion of Whipple Creek and its tributaries above the headgate of the Stark Irrigation Ditch are in Area B and not included within this Umbrella Plan.
- (4) Lawson Creek: from its confluence with the Yampa River in the SE¼ NE¼, Section 28, Township 3 North, Range 85 West of the 6th P.M., upstream to the headgate of the Lawson Creek Ditch located in the NE¼ SE¼, Section 34, Township 3 North, Range 85 West of the 6th P.M., including all areas tributary to Lawson Creek and the Yampa River within this reach. That portion of Lawson Creek and its tributaries above the headgate of the Lawson Creek Ditch are in Area B and not included within this Umbrella Plan.

- (5) Bear River: from its confluence with the Yampa River in the SW¼ NW¼, Section 11, Township 2 North, Range 85 West of the 6th P.M., upstream to the point where the Bear River crosses the Medicine Bow-Routt National Forest Property Boundary in the NW¼ SW¼, Section 6, Township 10 North, Range 85 West of the 6th P.M., including all areas tributary to Bear River and the Yampa River within this reach, with the following exception:
- Moore Park Creek: from its confluence with Bear River in the NE¼ NW¼, Section 28, Township 2 North, Range 85 West of the 6th P.M., upstream to the headgate of Pat Lucas Ditch located in the NW¼ NW¼, Section 28, Township 2 North, Range 85 West of the 6th P.M., including all areas tributary to Moore Park Creek and Bear River within this reach are located within Area A. That portion of Moore Park Creek and its tributaries above the headgate of the Pat Lucas Ditch are in Area B and not included within this Umbrella Plan.

That portion of Bear River and its tributaries above the Medicine Bow-Routt National Forest property boundary are in Area B and not included within this Plan for Augmentation.

- (6) Watson Creek: from its confluence with the Yampa River in the NW¼ SW¼, Section 34, Township 3 North, Range 85 West of the 6th P.M., upstream to the headgate of the Watson Creek Ditch located in the SW¼ NW¼, Section 3, Township 2 North, Range 85 West of the 6th P.M., including all areas tributary to Watson Creek and the Yampa River within this reach. That portion of Watson Creek and its tributaries above the headgate of the Watson Creek Ditch are in Area B and not included within this Umbrella Plan.
- (7) Meadowbrook Creek: from its confluence with the Yampa River in the NW¼ NE¼, Section 28, Township 3 North, Range 85 West of the 6th P.M., upstream to the headgate of the Meadowbrook D 3 Ditch located in the SW¼ NE¼, Section 28, Township 3 North, Range 85 West of the 6th P.M., including all areas tributary to Meadowbrook Creek and the Yampa River within this reach. That portion of Meadowbrook Creek and its tributaries above the headgate of the Meadowbrook D 3 Ditch are in Area B and not included within this Umbrella Plan.
- (8) Little White Snake Creek: from its confluence with the Yampa River in the SW¼ SW¼, Section 9, Township 3 North, Range 85 West of the 6th P.M., upstream to the headgate of the C R Brown Ditch located in the SE¼ SE¼, Section 7, Township 3 North, Range 85 West of the 6th P.M., including all areas tributary to Little White Snake Creek and the Yampa River within this reach. That portion of Little White Snake Creek and its tributaries above the headgate of the C R Brown Ditch are in Area B and not included within this Umbrella Plan.

- (9) Jack Creek: from its confluence with the Yampa River in the SW¼ NW¼, Section 2, Township 3 North, Range 85 West of the 6th P.M., upstream to its headwaters, including all areas tributary to Jack Creek and the Yampa River.
- (10) Martin Creek: from its confluence with Stagecoach Reservoir and the Yampa River in the NE¼ SW¼, Section 30, Township 4 North, Range 84 West of the 6th P.M., upstream to the headgate of the Martin Ditch located in the NW¼ NE¼, Section 25, Township 4 North, Range 85 West of the 6th P.M., including all areas tributary to Martin Creek and the Yampa River within this reach. That portion of Martin Creek and its tributaries above the headgate of the Martin Ditch are in Area B and not included within this Umbrella Plan.
- (11) Little Morrison Creek: from its confluence with Stagecoach Reservoir and the Yampa River in the NW¼ SW¼, Section 32, Township 4 North, Range 84 West of the 6th P.M., upstream to its headwaters, including all areas tributary to Little Morrison Creek, the Yampa River, and all areas encompassed by the Morrison Creek Metropolitan Water and Sanitation District (MCMWSD). The MCMWSD is further described in Appendix A-1 (portions of MCMWSD are tributary to the Morrison Creek Watershed).

Amount: The total volume of augmentation water available for Area A-1 is 920 acre feet. The rate of exchange is 3.5 CFS, conditional, for the entire Area A-1 and not to exceed 1.0 CFS within any one of the eleven (11) tributaries located within Area A-1

5.2 Area A-2: Yampa River between Stagecoach Reservoir Dam and the RICD Structures within the City of Steamboat Springs

Description: Area A-2 includes structures that will divert water from within that portion of Area A encompassing all areas tributary to the Yampa River and its tributaries in a stream reach extending from a downstream terminus on the Yampa River at the RICD Structures within the City of Steamboat Springs to an upstream terminus located at the outlet of Stagecoach Reservoir, a distance of approximately 23 miles. The downstream terminus, the RICD Structures within the City of Steamboat Springs, is located in Routt County, Colorado, in the NW¼ SW¼, Section 8, Township 6 North, Range 84 West of the 6th P.M. The upstream terminus, the outlet of Stagecoach Reservoir, is located in Routt County on the Yampa River in the SW¼ SE¼, Section 29, Township 4 North, Range 84 West of the 6th P.M. The boundary of Area A-2 is shown in more detail in Appendix A-2. The following major tributaries to the Yampa River within Area A-2 include:

- (1) Morrison Creek: from its confluence with the Yampa River in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 28, Township 4 North, Range 84 West of the 6th P.M., upstream to the headgate of the Morrison Creek Ditch 1 located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 28, Township 4 North, Range 84 West of the 6th P.M., including all areas tributary to Morrison Creek and the Yampa River within this reach. That portion of Morrison Creek and its tributaries above the headgate of the Morrison Creek Ditch 1 are in Area B and not included within this Umbrella Plan.
- (2) McKinnis Creek: from its confluence with the Yampa River in the NW $\frac{1}{4}$ NE $\frac{1}{4}$, Section 17, Township 5 North, Range 84 West of the 6th P.M., upstream to the headgate of the First Ditch located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 15, Township 5 North, Range 84 West of the 6th P.M., including all areas tributary to McKinnis Creek and the Yampa River within this reach. That portion of McKinnis Creek and its tributaries above the headgate of the First Ditch are in Area B and not included within this Umbrella Plan.
- (3) Walton Creek: from its confluence with the Yampa River in the SE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 28, Township 6 North, Range 84 West of the 6th P.M., upstream to the headgate of the Excelsior Ditch located in the SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 33, Township 6 North, Range 84 West of the 6th P.M., including all areas tributary to Walton Creek and the Yampa River within this reach. That portion of Walton Creek and its tributaries above the headgate of the Excelsior Ditch are in Area B and not included within this Umbrella Plan.
- (4) Butcherknife Creek: Butcherknife Creek from its confluence with the Yampa River in the NW $\frac{1}{4}$ NE $\frac{1}{4}$, Section 17, Township 6 North, Range 84 West of the 6th P.M., upstream to its headwaters, including all areas tributary to Butcherknife Creek and the Yampa River.
- (5) Soda Creek: from its confluence with the Yampa River in the SW $\frac{1}{4}$ SW $\frac{1}{4}$, Section 8, Township 6 North, Range 84 West of the 6th P.M., upstream to the National Forest boundary in Section 28, Township 7 North, Range 84 West of the 6th P.M., including all areas tributary to the Yampa River and Soda Creek within this reach, with the exception specified below.
 - Gunn Creek: from its confluence with Soda Creek in the NE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 32, Township 7 North, Range 84 West of the 6th P.M., upstream to the headgate of Woodchuck Ditch located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 28, Township 7 North, Range 84 West of the 6th P.M., including all areas tributary to Gunn Creek and Soda Creek within this reach are located within Area A. That portion of Gunn Creek and its tributaries above the headgate of the Woodchuck Ditch are in Area B and not included within this Umbrella Plan.

That portion of Soda Creek and its tributaries above the National Forest boundary are also in Area B and not included within this Umbrella Plan.

- (6) Agate Creek: from its confluence with the Yampa River in the SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 32, Township 6 North, Range 84 West of the 6th P.M., upstream to the headgate of the Agate Creek Ditch in the NW $\frac{1}{4}$ SW $\frac{1}{4}$, Section 32, Township 6 North, Range 84 West of the 6th P.M., including all areas tributary to Agate Creek and the Yampa River within this reach. That portion of Agate Creek and its tributaries above the headgate of the Agate Creek Ditch are in Area B and not included within this Umbrella Plan.
- (7) Oak Creek: from its confluence with the Yampa River in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 5, Township 5 North, Range 84 West of the 6th P.M., upstream to the headgate of the Lyon Ditch in the SW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 18, Township 5 North, Range 84 West of the 6th P.M., including all areas tributary to Oak Creek and the Yampa River within this reach. That portion of Oak Creek and its tributaries above the headgate of the Lyon Ditch are in Area B and not included within this Umbrella Plan.
- (8) Grouse Creek: from its confluence with the Yampa River in the SW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 17, Township 5 North, Range 84 West of the 6th P.M., upstream to the headgate of the Grouse Creek Ditch in the SE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 36, Township 5 North, Range 85 West of the 6th P.M., including all areas tributary to Grouse Creek and the Yampa River within this reach. That portion of Grouse Creek and its tributaries above the headgate of the Grouse Creek Ditch are in Area B and not included within this Umbrella Plan.
- (9) Dry Creek: from its confluence with Catamount Lake and the Yampa River in the NE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 33, Township 5 North, Range 84 West of the 6th P.M., upstream to its headwaters, including all areas tributary to Dry Creek and the Yampa River.

Amount: The total volume of augmentation water available for Area A-2 totals 800 acre feet. The rate of exchange is 3.0 CFS, conditional, for the entire Area A-2 and not to exceed 0.75 CFS within any one of the nine (9) tributaries located within Area A-2. This amount does not include the amount of exchange for Area A-1, which is upstream of and tributary to, Area A-2.

5.3 Area A-3: Yampa River Between its Confluence with Trout Creek and the RICD Structures within the City of Steamboat Springs

Description: Area A-3 includes structures that will divert water from within that portion of Area A encompassing all areas tributary to the Yampa River and its tributaries, excluding the Elk River watershed, in a stream reach of approximately 12 miles extending from a downstream terminus at the confluence of the Yampa River with Trout Creek to an upstream terminus located on the Yampa River at the RICD Structures within the City of Steamboat Springs. The downstream terminus, the confluence of the Yampa River and Trout Creek, is located in Routt County in the NW¼ SE¼, Section 15, Township 6 North, Range 86 West of the 6th P.M. The upstream terminus, the RICD Structures within the City of Steamboat Springs, is located in Routt County, Colorado, in the NW¼ SW¼, Section 8, Township 6 North, Range 84 West of the 6th P.M. The boundary of Area A-3 is displayed in Appendix A-3. The following major tributaries to the Yampa River are included within Area A-3:

- (1) Trout Creek: from its confluence with the Yampa River in the NW¼ SE¼, Section 15, Township 6 North, Range 86 West of the 6th P.M., upstream to the headgate of the Tempke Ditch located in the NE¼ NW¼, Section 25, Township 6 North, Range 86 West of the 6th P.M., including all areas tributary to Trout Creek and the Yampa River within this reach. That portion of Trout Creek and its tributaries above the headgate of the Tempke Ditch are in Area B and not included within this Umbrella Plan.
- (2) Cow Creek: from its confluence with the Yampa River in the SW¼ NW¼, Section 9, Township 6 North, Range 85 West of the 6th P.M., upstream to its headwaters, including all areas tributary to Cow Creek and the Yampa River.
- (3) Slate Creek: from its confluence with the Yampa River in the NW¼ SW¼, Section 1, Township 6 North, Range 85 West of the 6th P.M., upstream to its headwaters, including all areas tributary to Slate Creek and the Yampa River.

Amount: The total volume of augmentation water available for Area A-3 totals 120 acre feet. The rate of exchange is 0.5 CFS, conditional, for the entire Area A-3 and not to exceed 0.25 CFS within any one of the three (3) tributaries located within Area A-3. This amount does not include the amount of exchange for Area A-1 or Area A-2, both of which are upstream of and tributary to, Area A-3.

5.4 Area A-4: Yampa River Below its Confluence with Trout Creek and Above its Confluence with Elkhead Creek

Description: Area A-4 includes structures that will divert water from within that portion of Area A encompassing all areas tributary to the Yampa River and its tributaries in a stream reach extending from a downstream terminus at the confluence of Elkhead Creek with the Yampa River to an upstream terminus located at the confluence of the Yampa River with Trout Creek, a distance of approximately 34 miles. The downstream terminus, the confluence of Elkhead Creek and the Yampa River is located in Moffat County in the SW¼ NE¼, Section 36, Township 7 North, Range 90 West of the 6th P.M. The upstream terminus, the confluence of the Yampa Rivers and Trout Creek is located in Routt County in the NW¼ SE¼, Section 15, Township 6 North, Range 86 West of the 6th P.M. The boundary of Area A-4 is illustrated in Appendix A-4. Major tributaries to the Yampa River that are included within Area A-4 include:

- (1) Coal Bank Gulch: from its confluence with the Yampa River in the SW¼ SE¼, Section 4, Township 6 North, Range 88 West of the 6th P.M. upstream to its headwaters, including all areas tributary to Coal Bank Gulch and the Yampa River.
- (2) Morgan Creek: from its confluence with the Yampa River in the SE¼ SE¼, Section 36, Township 7 North, Range 88 West of the 6th P.M. upstream to the headgate of the Morgan Creek Ditch 2 located in the SE¼ NW¼, Section 32, Township 8 North, Range 87 West of the 6th P.M., including all areas tributary to Morgan Creek and the Yampa River within this reach. That portion of Morgan Creek and its tributaries above the headgate of the Morgan Creek Ditch 2 are in Area B and not included within this Umbrella Plan.
- (3) Goose Creek: from its confluence with the Yampa River in the SW¼ SW¼, Section 31, Township 7 North, Range 87 West of the 6th P.M. upstream to its headwaters, including all areas tributary to Goose Creek and the Yampa River.
- (4) Wolf Creek: from its confluence with the Yampa River in the NE¼ SW¼, Section 15, Township 6 North, Range 87 West of the 6th P.M. upstream to the outlet of Wolf Mountain Reservoir located in the NW¼ NE¼, Section 13, Township 7 North, Range 87 West of the 6th P.M., including all areas tributary to Wolf Creek and the Yampa River within this reach. That portion of Wolf Creek and its tributaries above the outlet of Wolf Mountain Reservoir are in Area B and not included within this Umbrella Plan.

- (5) Butcherknife Gulch: from its confluence with the Yampa River in the NW¼ NE¼, Section 13, Township 6 North, Range 87 West of the 6th P.M. upstream to its headwaters, including all areas tributary to Butcherknife Gulch and the Yampa River.
- (6) Tow Creek: from its confluence with the Yampa River in the SE¼ NE¼, Section 17, Township 6 North, Range 86 West of the 6th P.M. upstream to the headgate of the Tow Creek Ditch 1 located in the NE¼ NW¼, Section 8, Township 6 North, Range 86 West of the 6th P.M., including all areas tributary to Tow Creek and the Yampa River within this reach. That portion of Tow Creek and its tributaries above the headgate of the Tow Creek Ditch 1 are in Area B and not included within this Umbrella Plan.
- (7) Cheney Creek: from its confluence with the Yampa River in the SE¼ NE¼, Section 16, Township 6 North, Range 86 West of the 6th P.M. upstream to the headgate of the Cheney Ditch located in the SE¼ SW¼, Section 10, Township 6 North, Range 86 West of the 6th P.M., including all areas tributary to Cheney Creek and the Yampa River within this reach. That portion of Cheney Creek and its tributaries above the headgate of the Cheney Ditch are in Area B and not included within this Umbrella Plan.
- (8) Coal View Gulch: from its confluence with the Yampa River in the NE¼ NE¼, Section 14, Township 6 North, Range 87 West of the 6th P.M. upstream to its headwaters, including all areas tributary to Coal View Gulch and the Yampa River.
- (9) Grassy Creek: from its confluence with the Yampa River in the NE¼ NE¼, Section 16, Township 6 North, Range 87 West of the 6th P.M. upstream to its headwaters, including all areas tributary to Grassy Creek and the Yampa River.
- (10) Sage Creek: from its confluence with the Yampa River in the NW¼ SW¼, Section 9, Township 6 North, Range 87 West of the 6th P.M. upstream to the outlet of the Sage Creek Reservoir located in the SE¼ SE¼, Section 35, Township 6 North, Range 88 West of the 6th P.M., including all areas tributary to Sage Creek and the Yampa River within this reach. That portion of Sage Creek and its tributaries above the outlet of Sage Creek Reservoir are in Area B and not included within this Umbrella Plan.
- (11) Dry Creek: from its confluence with the Yampa River in the NE¼ NE¼, Section 8, Township 6 North, Range 88 West of the 6th P.M. upstream to the headgate of the Dry Creek Diversion located in the SW¼ SE¼, Section 10, Township 6 North, Range 88 West of the 6th P.M., including all areas tributary to Dry Creek and the Yampa River within this reach. That portion of

Dry Creek and its tributaries above the headgate of the Dry Creek Diversion are in Area B and not included within this Umbrella Plan.

- (12) Smuin Gulch: from its confluence with the Yampa River in the SW¼ SW¼, Section 7, Township 6 North, Range 88 West of the 6th P.M. upstream to the headgate of the Temple Diversion 1 located in the NW¼ NW¼, Section 18, Township 6 North, Range 88 West of the 6th P.M., including all areas tributary to Smuin Gulch and the Yampa River within this reach. That portion of Smuin Gulch and its tributaries above the headgate of the Temple Diversion 1 are in Area B and not included within this Umbrella Plan.

Amount: The total volume of augmentation water available for Area A-4 totals 160 acre feet. The rate of exchange is 0.6 CFS, conditional, for the entire Area A-4 and not to exceed 0.3 CFS within any one of the twelve (12) tributaries located within Area A-4. This amount does not include the amount of exchange for Area A-1, Area A-2 or Area A-3, all three of which are upstream of and tributary to, Area A-4.

6.0 PLAN FOR AUGMENTATION, INCLUDING APPROPRIATIVE RIGHT OF EXCHANGE

District contractees will divert water from individual wells, springs and surface water rights sufficient to meet their identified needs. These diversions will take place under relatively junior water right priorities. Historically, there have been no water right calls originating from the mainstem of the Yampa River to place a call on these junior water rights. However, with the City of Steamboat Spring's new Recreational In-Channel Diversion (RICD) water right, administrative calls in the Upper Yampa River will occur frequently. Moreover, as development continues to occur in the basin and existing agricultural structures are improved, calls could originate from Lower Basin sources. In response to these call scenarios, the District proposes to implement a basin-wide Plan for Augmentation designed to replace out-of-priority depletions associated with future water allotment contractees. During periods that these junior rights are placed on call by downstream senior water rights on the Yampa River, the District will release water from storage in one of its reservoirs sufficient to offset the depletions attributed to the various participants in the Umbrella Plan.

6.1 Water Rights to be Used for Augmentation

The District plans to utilize its direct flow and storage water rights appurtenant to Stagecoach and Yamcolo Reservoirs as the source of augmentation supply. The two reservoirs are located in the Upper Yampa River basin, above Steamboat Springs as more fully described below.

6.1.1 Stagecoach Reservoir

Stagecoach Reservoir is located on the Yampa River upstream of Steamboat Springs, as shown in Appendix A. It currently has a capacity of 33,275 acre feet (AF); however, the UYWCD is finalizing plans to increase its capacity by an additional 3,185 AF. There are numerous conditional and absolute decreed water rights that are used to fill and refill the reservoir. These water rights are described in more detail in Section 2.1. Additionally, a detailed list of the water rights appurtenant to the reservoir is provided in Appendix B.

6.1.1.1 Stagecoach Reservoir – Water Availability

As discussed in Section 7.2 of this report, the calculated demand associated with this plan for augmentation is approximately 2,000 acre feet. This water will serve new domestic, municipal, and commercial demands in the Yampa River Basin. In order to verify that this water can be reliably delivered, even in dry years, to future water allotment contractees, RESOURCE completed a water availability study of Stagecoach Reservoir. In completing the study, RESOURCE reviewed existing Stagecoach Reservoir water rights, contracts, and operations.

Stagecoach Reservoir is filled with a variety of direct flow and storage water rights (See Section 2.1 and Appendix B for additional detail). At its current spillway elevation, the reservoir has a capacity of 33,275 acre feet. The District presently maintains several agreements that allocate reservoir storage to municipal, domestic, industrial, and hydroelectric water uses. Existing commitments total 13,000 acre feet, of which 2,000 acre feet is dedicated to municipal/domestic contracts and 11,000 acre feet is dedicated to industrial contracts. The 2,000 acre feet of additional domestic allocation proposed with the District's Umbrella Augmentation Plan would increase total release obligations from Stagecoach Reservoir to 15,000 acre feet. The remaining 18,275 acre feet of reservoir storage is unallocated; however, it is committed to help firm existing contract pools. As noted above, the District has plans to increase the capacity of the reservoir by 3,185 acre feet, to a total storage capacity of 36,460 acre feet, in the immediate future. This expansion will allow for additional allocation to the various reservoir pools.

To facilitate assessment of the reliability of the Umbrella Plan's 2,000 acre foot allotment, RESOURCE developed a deterministic computer model to evaluate water availability in Stagecoach Reservoir. The model simulated the release of water from various reservoir contract pools. The first priority was assigned to certain industrial demands and the balance of water was allocated to other industrial and municipal users. This allocation is consistent with the operational flexibility exhibited by the District's

historical operations. The Model relies on the Yampa River Above Stagecoach Reservoir stream gage for inflow data. The period of record used in the model is October 1988 through September 2005. The Model includes an extremely dry period between 2000 and 2005. In September 2005, inflow to the reservoir was still below average. As such, the ability of the Model to evaluate how the reservoir recovers from extreme drought conditions was limited. In order to address this limitation and watch the reservoir recover from a drought, inflow data from the Yampa River above Stagecoach Reservoir stream gage from the period 1995 through 2000 was appended to the original period of record (i.e. 1988 – 2005). The appended data follows the 2000-2005 period of drought with 1995, an average year, ascends through a period of wet years and ends in 2000, another average year. During the selected period of record, the Model operates on a monthly time step. That is, the Model evaluates key reservoir operations each month (e.g. storage, releases, evaporation, etc.).

Reservoir operations in the Model rely on several key assumptions. These assumptions were developed based on a review of historic reports about the reservoir and with assistance from UYWCD Staff. The assumptions include a requirement that a portion of available inflow be used to satisfy minimum flow obligations and senior water rights that existed prior to the reservoir's construction. Additionally, the Model debits reservoir storage based on monthly evaporative losses. After accounting for operational obligations and the allocation of water among the reservoir's storage pools, RESOURCE was able to evaluate the reservoir's reliable yield. Operation of Stagecoach Reservoir over the twenty three year modeling period indicated that Yampa River inflows are sufficient to meet the identified minimum flow obligations and various storage allocations. In particular, RESOURCE ascertained that Stagecoach Reservoir can reliably deliver 2,000 acre feet of water from the Umbrella Augmentation Plan pool, to water allotment contractees, even during dry years.

6.1.2 Yamcolo Reservoir

Yamcolo Reservoir is owned and operated by the District and provides water for municipal, industrial and agricultural uses within its boundaries. The dam and reservoir are located on the Bear River upstream from the Town of Yampa, generally within Sections 16 and 17, Township 1 North, Range 86 West of the 6th P.M. The total storage capacity of the reservoir is approximately 9,010 acre feet with a permanent conservation pool of approximately 1,000 acre feet. The reservoir was constructed in the late 1970's and filling of the reservoir commenced in 1981.

The 8,010 acre foot contract pool has historically been allocated to various municipal, industrial and agricultural users. Releases from Yamcolo Reservoir are made in conjunction with the District's downstream Stagecoach Reservoir. Under existing operating agreements between the District and Tri-

State Generation and Transmission Association, Inc. (Tri-State), the District can release up to 4,000 acre feet of water committed to industrial use in Yamcolo from either of its two reservoirs. This operational flexibility creates opportunity to dedicate capacity in Yamcolo Reservoir to support a portion of the augmentation releases contemplated in the Umbrella Plan.

6.2 Appropriative Right of Exchange

Certain stream reaches within Area A are upstream of potential points of delivery from the District's two augmentation reservoirs. That is, the flow in tributaries to the Yampa River may not be directly augmented by releases from either Yamcolo or Stagecoach Reservoirs. However, the District will make augmentation releases to the Yampa River in quantities sufficient to offset the upstream depletions. As such, depletions associated with some contractees in Area A will be augmented by exchange of water from the point of delivery, upstream to the point of depletion. RESOURCE worked in cooperation with the Division 6 Engineer's Office to ensure that all stream reaches within Area A that cannot be directly augmented have sufficient capacity to be augmented by exchange. In other words, in each of these reaches there is sufficient streamflow in excess of existing, senior water rights to exchange water upstream from the point of delivery to the point of depletion. Furthermore, as described earlier in this report, there is no history of water rights calls within the District's Service Area A.

The four sub-areas of Area A, as defined more fully in Section 5.0, will each have unique exchange reaches and amounts. The amount of each exchange, as described below, is representative of consumptive use amounts, not diversion amounts.

6.2.1 Area A-1: Upper Yampa River Above Stagecoach Reservoir Dam

The exchanges requested herein are to serve the consumptive use amounts associated with diversions by District contractees within Area A-1. The rate of exchange is 3.5 CFS, conditional, for the entire Area A-1 and not to exceed 1.0 CFS within any one of the eleven (11) tributaries located within Area A-1 (as described in detail in Section 5.1). The date of appropriation for the exchange is May 21, 2004, the date that the District's Board of Directors declared their intent to decree the Umbrella Plan. The adjudication date claimed for these appropriative exchanges is December 31, 2006, per CRS §37-92-306.

The exchange reach associated with Area A-1 extends from the outlet of Stagecoach Reservoir upstream to the uppermost boundaries of Area A-1, as more fully described in Section 5.1 and shown on the enclosed map (Appendix A-1).

6.2.2 Area A-2: Yampa River Between Stagecoach Reservoir Dam and the RICD Structures within the City of Steamboat Springs

The exchanges requested herein are to serve the consumptive use amounts associated with diversions by District contractees within Area A-2. The rate of exchange is 3.0 CFS, conditional, for the entire Area A-2 and not to exceed 0.75 CFS within any one of the nine (9) tributaries located within Area A-2 (as described in detail in Section 5.2). This amount does not include the amount of exchange for Area A-1, which is upstream of and tributary to, Area A-2. The date of appropriation for the exchange is May 21, 2004, the date that the District's Board of Directors declared their intent to decree the Umbrella Plan. The adjudication date claimed for these appropriative exchanges is December 31, 2006, per CRS §37-92-306.

The exchange reach associated with Area A-2 extends from the RICD Structures within the City of Steamboat Springs upstream to the outlet of Stagecoach Reservoir. Furthermore, Area A-2 includes all tributaries to the Yampa River in this reach extending to the uppermost boundaries of Area A. The area served by the exchange is fully described in Section 5.2 and shown on the enclosed map (Appendix A-2).

6.2.3 Area A-3: Yampa River Between its Confluence with Trout Creek and the RICD Structures within the City of Steamboat Springs

The exchanges requested herein are to serve the consumptive use amounts associated with diversions by District contractees within Area A-3. The rate of exchange is 0.5 CFS, conditional, for the entire Area A-3 and not to exceed 0.25 CFS within any one of the three (3) tributaries located within Area A-3 (as described in detail in Section 5.3). This amount does not include the amount of exchange for Area A-1 or Area A-2, both of which are upstream of and tributary to, Area A-3. The date of appropriation for the exchange is May 21, 2004, the date that the District's Board of Directors declared their intent to decree the Umbrella Plan. The adjudication date claimed for these appropriative exchanges is December 31, 2006, per CRS §37-92-306.

The exchange reach associated with Area A-3 extends from the confluence of Trout Creek and the Yampa River at the RICD Structures within the City of Steamboat Springs, excluding the Elk River and all of its tributaries. Area A-3 includes all remaining tributaries to the Yampa River in this reach extending to the uppermost boundaries of Area A-3. The area served by the exchange is fully described in Section 5.3 and shown on the enclosed map (Appendix A-3).

6.2.4 Area A-4: Yampa River Below its Confluence with Trout Creek and Above its Confluence with Elkhead Creek

The exchanges requested herein are to serve the consumptive use amounts associated with diversions by District contractees within Area A-4. The rate of exchange is 0.6 CFS, conditional, for the entire Area A-4 and not to exceed 0.3 CFS within any one of the twelve (12) tributaries located within Area A-4 (as described in detail in Section 5.4). This amount does not include the amount of exchange for Area A-1, Area A-2 or Area A-3, all of which are upstream of and tributary to, Area A-4. The date of appropriation for the exchange is May 21, 2004, the date that the District's Board of Directors declared their intent to decree the Umbrella Plan. The adjudication date claimed for these appropriative exchanges is December 31, 2006, per CRS §37-92-306.

The exchange reach associated with Area A-4 includes the Yampa River from a point immediately above its confluence with Elkhead Creek upstream to a point immediately downstream from its confluence with Trout Creek. Furthermore, Area A-4 includes all tributaries to the Yampa River in this reach extending to the uppermost boundaries of Area A-4. The area served by the exchange is fully described in Section 5.4 and shown on the enclosed map (Appendix A-4).

7.0 DIVERSIONS, DEPLETIONS AND EXCHANGE AMOUNTS

This section describes the basis for estimating the contract water requirements associated with the District's proposed Umbrella Plan. It addresses both the diversion requirements and the smaller consumptive use requirement that will be augmented under the Plan for Augmentation and Appropriative Right of Exchange.

The Umbrella Plan is similar to a water allotment program successfully implemented in the Roaring Fork Valley by the Basalt Water Conservancy District (Basalt District). The Basalt District program provides Roaring Fork Valley residents with a legal water supply, including water storage releases from the Bureau of Reclamation's Ruedi Reservoir. The program was first approved by the State Engineer in 1982 and has grown steadily over the years. Today, the Basalt District water allotment program supports 460 individual contracts providing legal water supply to thousands of valley residents who reside outside of incorporated municipalities.

The historic growth in population and water demand over the last 25 years in the Roaring Fork valley is similar to projected growth in the Upper Yampa River basin. This rate of growth in population and water demand was documented in the 2004 Potential Future Water Demand in the Upper Yampa Valley Study

that was described in Section 1.2. The report projects a long term population increase of 50,000 people with an associated residential and commercial demand for 9,500 acre feet of new diversions within the Yampa River Basin south of Steamboat Springs. Moreover, it estimates that 72% of the demand will occur within unincorporated areas. The water service area described in this plan will facilitate development of water rights and plans for augmentation in many of these unincorporated areas.

Based upon the population growth and water demand patterns projected to occur in the upper Yampa River Basin, together with the past experience of the Basalt District program, this plan for augmentation was structured to accommodate a total of 500 contract participants. These contracts will become active over the next 25 year planning horizon.

7.1 Diversion Amounts

The average amount of water diverted and consumed by plan participants was estimated based upon the experience of the Basalt District's program. A review of the Basalt District's 2006/2007 Operating Plan indicates that on average, the 422 participants under contract at that time diverted 25 gpm during the summer peak use period. Assuming that similar water use patterns will occur within the Yampa Basin, the peak water demand associated with 500 contracts could total 27.8 cfs (500 contracts X 25 gpm = 12,500 gpm or 27.8 cfs).

The District's diversions are expected to be widely distributed throughout the Yampa River Valley. However, based on existing development patterns most water demand is expected to occur within the region south of the City of Steamboat Springs (i.e. Area A-1 and A-2). A lesser amount of development is expected in other regions, as generally shown in Table 2 below.

Table 2
UYWCD's Umbrella Plan for Augmentation - Projected Water Diversions

Area	Location	Contract Participants	Estimated Demand (cfs)*
Area A-1	Yampa River above Stagecoach Reservoir	46.0%	12.8
Area A-2	Yampa below Stagecoach to RICD Structures Within Steamboat Springs	40.0%	11.1
Area A-3	Yampa from RICD Structures within Steamboat Springs down to the confluence with Trout Creek	6.0%	1.7
Area A-4	Yampa River Below its Confluence with Trout Creek and Above its Confluence with Elkhead Creek	8.0%	2.2
Total		100.0%	27.8 cfs

* Estimated Peak Month Diversion (June/July)

7.2 Stream Depletions and Augmentation Requirements

Most of the diversion amounts outlined in Section 7.1 will return to the stream system as treated effluent and irrigation return flow. Based upon the diversion and consumptive use patterns outlined in the Basalt District's 2006/2007 Operating Plan, it is estimated that the average contract will have a consumptive use of 4.0 AF of water annually. This results in a total annual consumptive water use under the District's program equal to 2,000 AF (500 participants X 4.0 AF each = 2,000 AF). The District is prepared to release sufficient augmentation water from its storage pools in Stagecoach and Yamcolo Reservoirs to fully augment the depletions of the program contractees.

7.3 Exchange Amounts

As described in Section 5.0, many of the depletions associated with District contractees will be augmented by exchange through the release of water from one of its two reservoirs. The exchange occurs because many of the participants will be located on tributaries of the Yampa River at locations upstream of the point of delivery of augmentation releases. The exchange amounts requested in the District's Umbrella Plan are based upon peak month consumptive use amounts. The consumptive use will occur throughout the District's Service Area similar to the water use patterns described in Section 7.1. In recognition of this, the exchange amounts requested in the Umbrella Plan are described for each sub-watershed (Areas A-1 through A-4) and their various tributaries.

The amount of the exchange within each sub-watershed was projected based upon water use patterns experienced by the Basalt Water Conservancy District in their on-going Water Supply Program. The Basalt District's consumptive water use has averaged 27.3% of the amount of water diverted by the program participants. Exchange amounts for the Umbrella Plan were identified by calculating 27.3% of water diversions projected in Table 2. For example, the estimated demand of 12.8 cfs in Area A-1 has a corresponding exchange amount of 3.5 cfs ($12.8 \text{ cfs} \times 27.3\% = 3.5 \text{ cfs}$). The exchange amounts requested for the various sub-areas in the Umbrella Plan vary from 0.5 cfs (Area A-3) to 3.5 cfs (Area A-1). The exchange amounts are summarized in Table 3 below.

Table 3
UYWCD's Umbrella Plan for Augmentation - Projected Exchange Amounts

Area	Location	Contract Participants	Exchange Amount (cfs)*
Area A-1	Yampa River above Stagecoach Reservoir	46.0%	3.5 cfs
Area A-2	Yampa below Stagecoach to RICD Structures within Steamboat Springs	40.0%	3.0 cfs
Area A-3	Yampa from RICD Structures within Steamboat Springs down to the confluence with Trout Creek	6.0%	0.5 cfs
Area A-4	Yampa River Below its Confluence with Trout Creek and Above its Confluence with Elkhead Creek	8.0%	0.6 cfs
Total		100.0%	7.6 cfs

* Estimated Peak Month Consumptive Use (June/July)

The amount of exchange shown in Table 3 will be distributed throughout the tributaries within each sub-region. In recognition of this, the exchange amounts requested in the Umbrella Plan will be further limited within each individual tributary, as previously described. For instance, although the total amount of exchange described in Area A-1 is 3.5 cfs, the amount of exchange allowed within any individual tributary in Area A-1 is limited to 1.0 cfs. Tributaries within Area A-2 will be limited to 0.75 cfs while individual tributaries located within Area A-3 will be limited to 0.25 cfs and those within A-4 will be limited to 0.3 cfs. The purpose of this allocation is to more accurately quantify future depletions that could occur within individual tributaries and sub-watersheds within the District. This helps provide full and adequate notice to other vested water rights in the basin of the District's program.

8.0 PLAN ADMINISTRATION

In order to facilitate administration of the plan for augmentation described above, the District will develop a sophisticated accounting database. The District's database will include detailed information about augmentation water supplies and water allotment contracts. It will be modeled after augmentation plan accounting databases that have been successfully implemented by Summit County and the Basalt Water Conservancy District (Basalt District). Each year, the District will generate an Annual Operating Plan and Water Allotment Report from the database. The Operating Plan will be submitted to the Division 6 Engineer's Office and will provide the Division Engineer and Water Commissioners with a tool for administering the District's Umbrella Plan for Augmentation.

The Umbrella Plan database will provide comprehensive, quantitative accounting of the District's water supplies and allotment contracts. When new contracts are incorporated in the Umbrella Plan, their diversions and depletions will be calculated according to the methods outlined in the Water Requirements (Section 3) and Stream Depletions (Section 4) portions of this report. The District's engineer will then

allocate, as appropriate, augmentation water supplies from Stagecoach and Yamcolo Reservoirs, the District's augmentation sources (these sources are described in detail in Section 2.0). Finally, information regarding diversions, depletions, water right allocations, and augmentation releases for each contract will then be entered and maintained in the database. This will include accounting of the exchange rate required for each contract and the remaining exchange amount available in individual tributaries and the sub-units of Area A (the exchange amounts are described in detail in Section 7.3).

All contractees will be required, per the terms of their contract, to submit a monthly accounting form to the District each year. This data will show actual water use under the contract, as opposed to the engineered water use calculations. The District will periodically compare monthly accounting submittals with engineered calculations of water demand. Similar verification exercises have been conducted by the Basalt District. These calculations consistently found that engineering calculations are conservative and overestimate the water demand of contractees. In effect, this means that the District will be over-releasing augmentation water to contract holders, which guarantees that local water rights will not be injured. If, in the course of verifying water use, it is discovered that actual use exceeds use estimated by engineering calculations, the District will take the following steps. First, the District will ensure that the contract holder isn't using water for purposes beyond what is permitted in their contract. Next, if a contractee is within the terms of their contract and their water demand still exceeds the engineered estimate, the District will allocate additional water to the contract from one of its augmentation sources.

Every year the District will prepare an Annual Operating Plan and Water Allotment Report based on the information contained in the database. The Annual Operating Plan will include information regarding the District's water supplies and allotment contracts. Specifically, it will include data regarding diversions, depletions (including exchange amounts), and allocation of augmenting water rights and augmentation releases made under the plan for augmentation. The Operating Plan is of sufficient detail that, on any given day that a water right call is placed, the amount of required augmentation water can be identified and dedicated to the Yampa River. Furthermore, each point of diversion included in the Operating Plan will be displayed on a comprehensive map maintained by the District. After completion, the Operating Plan will be submitted to the Division Engineer's Office for use by the Division Engineer and Water Commissioners. The combination of water use reports and maps will facilitate efficient and full administration of the Plan for Augmentation proposed herein.

APPENDIX A

DISTRICT AREA A MAPS INCLUDING SUB-AREAS A-1 THROUGH A-4

The maps for Appendix A (Area A Vicinity Map, Sub-Area A-1 Map, Sub-Area A-2 Map, Sub-Area A-3 Map, and Sub-Area A-4 Map) are in the PDF format on a CD that is located on the inside of the back cover of this report.

APPENDIX B

WATER RIGHTS APPURTENANT TO STAGECOACH

A. Water Rights Appurtenant to Stagecoach Reservoir

1. The water rights set forth below are decreed for diversion and/or storage in Stagecoach Reservoir and were changed to add and include as beneficial uses, appropriative rights of exchange and substitution, augmentation and exchange for replacement purposes, and other augmentation uses in Case No. 01CW41, District Court, Water Division No. 6. These water rights are described in detail below:

2. From Previous Decree:

a. Four Counties Ditch No. 1 and No. 3: Priority Nos. 40 through 40-0, Water District No. 58, Civil Action No. 3538, Routt County District Court, Decree: March 30, 1964 amended September 8, 1970.

(1) Decreed Uses: Domestic, municipal irrigation, industrial, generation of electric power and energy, mining, recreation and all other beneficial uses.

(2) Legal Description:

(a) Four Counties Ditch No. 1, Headgate No. 6 (Priority No. 40A): 11 cfs out of Granite Creek at a point S 14°04' East 24,498 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.

(b) Four Counties Ditch No. 1, Headgate No. 5 (Priority No. 40B): 10 cfs out of a Branch of Granite Creek at a point S 15°26' East 22,560 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.

(c) Four Counties Ditch No. 1, Headgate No. 4 (Priority No. 40C): 50 cfs out of Fish Creek at a point S 21°22' East 17,665 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.

(d) Four Counties Ditch No. 3, Headgate No. 9 (Priority No. 40D): 35 cfs out of Hogan Creek at a point S 65°22' East 15,450 feet to the NW corner of Sec. 7, T5N, R82W, 6th P.M.

(e) Four Counties Ditch No. 3, Headgate No. 8 (Priority No. 40E): 210 cfs of 260 cfs out of Long Park Creek at a point S 42°48' East 9,195 feet to the NW corner of Sec. 7, T5N, R82W, 6th P.M.

(f) Four Counties Ditch No. 3, Headgate No. 7 (Priority No. 40F): 130 cfs out of Fishhook Creek at a point S 39°16' East 8,555 feet to the NW corner of Sec. 7, T5N, R82W, 6th P.M.

(g) Four Counties Ditch No. 3, Headgate No. 6 (Priority No. 40G): 25 cfs out of Unnamed Creek No. 5 tributary to Fishhook Creek at a point S 83°38' East 6,955 feet to the NW corner of Sec. 7, T5N, R82W, 6th P.M.

(h) Four Counties Ditch No. 3, Headgate No. 5 (Priority No. 40H): 20 cfs out of Unnamed Creek No. 4, tributary to Fishhook Creek, at a point N 86°30' East 5,625 feet to the NW corner of Sec. 7, T5N, R82W, 6th P.M.

(i) Four Counties Ditch No. 3, Headgate No. 4 (Priority No. 40I): 15 cfs out of Unnamed Creek No. 3, tributary to Walton Creek, at a point N 87°30' East 8,245 feet to the SW corner of Sec. 7, T5N, R82W, 6th P.M.

- (j) Four Counties Ditch No. 3, Headgate No. 3 (Priority No. 40J): 20 cfs out of Unnamed Creek No. 2, tributary to Walton Creek, at a point N 23°04' West 2,165 feet to the SW corner of Sec. 7, T5N, R82W, 6th P.M.
 - (k) Branch of Four Counties Ditch No. 3, Headgate No. 12 (Priority No. 40K): 35 cfs out of Unnamed Creek No. 7, tributary to Walton Creek, at a point N 84°30' East 4,565 feet to the SW corner of Sec. 19, T5N, R82W, 6th P.M.
 - (l) Branch of Four Counties Ditch No. 3, Headgate No. 11 (Priority No. 40L): 25 cfs out of Unnamed Creek No. 6, tributary to Walton Creek, at a point S 47°12' East 4,995 feet to the SW corner of Sec. 19, T5N, R82W, 6th P.M.
 - (m) Branch of Four Counties Ditch No. 3, Headgate No. 10 (Priority No. 40M): 15 cfs out of Walton Creek, at a point N 78°28' East 2,155 feet to the NE corner of Sec. 19, T5N, R82W, 6th P.M.
 - (n) Four Counties Ditch No. 1 (Priority No. 40N): 30 cfs from surface and ground flows along Four Counties Ditch No. 1 in Water District 58, other than at points of diversion described in Priority Nos. 40 through 40C above, at or above 9,567 feet above sea level.
 - (o) Four Counties Ditch No. 3 and its Branch (Priority No. 40O): 125 cfs from surface and ground flows along Four Counties Ditch No. 3 in Water District 58, other than at points of diversion described in Priority Nos. 40D through 40M above, at or above 9,567 feet above sea level.
- b. Four Counties Ditch No. 3, Enlargement and Extension: Priority Nos. 45 through 45M, Water District 58, Civil Action 3926, Routt County District Court, Decree: May 30, 1972.
- (1) Decreed Uses: Domestic, municipal and power.
 - (2) Legal Descriptions:
 - (a) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 9 (Priority No. 45): 6 cfs out of Hogan Creek at a point N 82°00'E 14,160 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (b) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 13 (Priority No. 45A): 6 cfs out of an unnamed tributary of Walton Creek at a point N 82°58'E 17,850 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (c) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 14 (Priority No. 45B): 49 cfs out of Storm King Creek at a point S 83°25'E 22,850 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (d) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 15 (Priority No. 45C): 14 cfs out of Beaver Creek at a point S 86°32'E 26,510 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (e) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 16 (Priority No. 45D): 70 cfs out of an unnamed tributary of Walton

Creek at a point S 61°02'W 589 feet to the NE corner of Sec. 26, T5N, R82W, 6th P.M.

- (f) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 17 (Priority No. 45E): 52 cfs out of an unnamed tributary of Fish Creek at a point S 68°26'E 24,640 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (g) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 18 (Priority No. 45F): 30 cfs out of an unnamed tributary of Fish Creek at a point S 59°00'E 20,570 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (h) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 19 (Priority No. 45G): 70 cfs out of Fish Creek at a point S 37°03'E 18,800 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (i) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 20 (Priority No. 45H): 130 cfs out of the Middle Fork of Fish Creek at a point N 36°02'E 27,260 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (j) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 21 (Priority No. 45I): 12 cfs out of an unnamed tributary of the Middle Fork of Fish Creek at a point S 33°25'E 26,910 feet to the NW corner of Sec. 6, T5N, R82W, 6th P.M.
 - (k) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 22 (Priority No. 45J): 75 cfs out of Harrison Creek at a point S 65°25'E 4,610 feet to the SW corner of Sec. 31, T5N, R82W, 6th P.M.
 - (l) Four Counties Ditch No. 3, Enlargement and Extension, Headgate No. 23 (Priority No. 45K): 50 cfs out of an unnamed tributary of Harrison Creek at a point N 65°25'E 6,045 feet to the SW corner of Sec. 31, T5N, R82W, 6th P.M.
 - (m) Four Counties Ditch No. 3, Enlargement and Extension (Priority No. 45L): 138 cfs from surface and ground flows along Four Counties Ditch No. 3, Enlargement and Extension, from Headgate No. 9 to Headgate No. 21 in Water District 58, other than at points of diversion described in decrees for Headgates No. 9 through 21 at or above 9,567 feet above sea level.
 - (n) Four Counties Ditch No. 3, Enlargement and Extension (Priority No. 45M): 162 cfs from surface and ground flows along Four Counties Ditch No. 3, Enlargement and Extension, in Water District 58, between Rabbit Ears Reservoir and Headgate No. 23, other than at points of diversion described in decrees for Headgates No. 22 through 23 at or above 9,500 feet above sea level.
- c. Bear Reservoir: 11,614.2 acre feet, Priority Date September 30, 1961, Priority No. 52A in Water District No. 58, Civil Action No. 3538, Routt County District Court, Decree: March 30, 1964, amended November 4, 1968.
- (1) Source: Yampa River and tributaries.

- (2) Use: Irrigation, stock, domestic, municipal, industrial, piscatorial and recreational.
 - (3) Point of Diversion: At a point on the right abutment of dam from said reservoir whence the W1/4 corner Sec. 32, T4N, R84W 6th P.M. bears S 47°35' W at a distance of 4,633 feet.
 - (4) Location: SE1/4 Section 29, T4N, R84W, 6th P.M.
- d. Bear Reservoir Enlargement: 22,105.8 acre feet, Priority Date October 21, 1971, Decree entered in Case No. W-414-72, Water Division No. 6 on October 29, 1973.
- (1) Source: Yampa River and tributaries.
 - (2) Use: Water storage.
 - (3) Legal Description: The dam is located in the SW1/4SE1/4, Sec. 29, T4N, R84W, 6th P.M. The reservoir will inundate portions of Sections 29, 30, 31, T4N, R84W, portions of Sec. 36 T4N, R85W, and portions of Sec. 1, T3N, R85W, 6th P.M. The southern terminus of the dam embankment at the right abutment is located 269.15 feet N 77°57' E of the S1/4 corner of Section 29. The centerline of the dam bears N 18°30' E from said southern terminus at the right abutment a distance of 800 feet. All bearings are referenced to the S line of Sec. 29 which bears N 87°14'59" W.
- e. Pleasant Valley Reservoir: 40,720 acre feet out of 43,220 acre feet conditionally decreed, Priority Date: June 29, 1959, Priority No. 39A, Water District No. 58, Civil Action 3926, Routt County District Court, as modified by decree and entered in Case No. W0-946-76, Water Division No. 6 granting alternate places of storage.
- (1) Source: Yampa River tributaries.
 - (2) Use: Irrigation, domestic, stock watering, municipal, industrial and power.
 - (3) Location: Alternate points of diversion are located as follows:
 - (4) Alternate Storage Location No. 1: Woodchuck Reservoir: The intersection of the centerline axis of said dam and the left abutment thereof being located at a point whence the SW corner of Sec. 30, T4N, R84W, 6th P.M., bears S 66°30' W a distance of 16.660 feet.
 - (5) Alternate Storage Location No. 2: Yamcolo Reservoir: The intersection of the centerline axis of said dam and the right abutment thereof being located at a point whence the E1/4 corner of Sec. 16, T1N, R86W, 6th P.M., bears N 41°53' E a distance of 873 feet.
 - (6) Alternate Storage Location No. 3: Bear Reservoir: The intersection of the centerline axis of said dam and the right abutment thereof being located at a point whence the W1/4 corner of Sec. 32, T4N, R84W, 6th P.M., bears S 47°35' W a distance of 4633 feet.
- f. Pleasant Valley Feeder Canal: 300 cfs, Priority Date: June 29, 1959, Priority No. 39, Water District No. 58, Civil Action 3926, Routt County District Court, as

modified by decree and entered in Case No. W-946-76, Water Division No. 6 granting alternate places of storage.

- (1) Source: Walton Creek and McKinnis Creek.
- (2) Use: Not specified.
- (3) Location: Alternate points of diversion are located as follows:
- (4) Alternate Storage Location No. 1: Woodchuck Reservoir: The intersection of the centerline axis of said dam and the left abutment thereof being located at a point whence the SW corner of Sec. 30, T4N, R84W, 6th P.M., bears S 66°30' W a distance of 16,600 feet.
- (5) Alternate Storage Location No. 2: Yamcolo Reservoir: The intersection of the centerline axis of said dam and the right abutment thereof being located at a point whence the E1/4 corner of Sec. 16, T1N, R86W, 6th P.M., bears N 41°53' E a distance of 873 feet.
- (6) Alternate Storage Location No. 3: Bear Reservoir: The intersection of the centerline axis of said dam and the right abutment thereof being located at a point whence the W1/4 corner of Sec. 32, T4N, R84W, 6th P.M., bears S 47°35' W a distance of 4633.0 feet.

g. Yellow Jacket Ditch

- (1) Decree:
 - (a) Date Entered: 09/22/1892
 - i. Court No.: (60) 64
 - ii. Admin. No.: 14175.00000
 - iii. Court: Water Court, Water Division 6
 - (b) Date Entered: 09/14/1946
 - i. Court No.: 321B
 - ii. Admin. No.: 33782.25353
 - iii. Court: Water Court, Water Division 6
- (2) Decreed Point of Diversion: Yampa River at Stream Mile 220.32; NE NW, Section 31, T4N. R84W, of the 6th P.M., Routt County, Colorado.
- (3) Source: Yampa River
- (4) Appropriation Date and Amount:
 - (a) Appropriation Date: 10/22/1888
 - i. Amount: 2.0 c.f.s.
 - (b) Appropriate Date: 06/01/1919
 - i. Amount: 4.0 c.f.s.
- (5) Historic Use: Irrigation of 90 acres.

h. Union Ditch

- (1) Decree:

- (a) Date Entered: 09/22/1892
 - i. Court No.: (77) 86
 - ii. Admin. No.: 14563.00000
 - iii. Court: Water Court, Water Division 6
- (b) Date Entered: 09/14/1946
 - i. Court No.: 317F
 - ii. Admin. No.: 33782.24988
 - iii. Court: Water Court, Water Division 6
- (2) Decreed Point of Diversion: Yampa River at Stream Mile 223.85; SW NE, Section 2, T3N. R85W, of the 6th P.M., Routt County, Colorado.
- (3) Source: Yampa River
- (4) Appropriation Date and Amount:
 - (a) Appropriation Date: 11/14/1889
 - i. Amount: 7.0 c.f.s.
 - (b) Appropriate Date: 06/01/1918
 - i. Amount: 2.0 c.f.s.
- (5) Historic Use: Irrigation of 254 acres. Change of use to include irrigation for wetland development and maintenance, water supply for water fowl ponds and recreation and change of place of use – Water Division 6, Case No. 89CW16.

i. Little Chief Ditch

- (1) Decree:
 - (a) Date Entered: 09/20/1906
 - i. Court No.: 175
 - ii. Admin. No.: 20450.19968
 - iii. Court: Water Court, Water Division 6
 - (b) Date Entered: 09/14/1946
 - i. Court No.: 318B
 - ii. Admin. No.: 33782.25353
 - iii. Court: Water Court, Water Division 6
- (2) Decreed Point of Diversion: Little Morrison Creek at Stream Mile 219.90; NE NE, Section 31, T4N, R84W, of the 6th P.M., Routt County, Colorado.
- (3) Source: Little Morrison Creek, a tributary of the Yampa River
- (4) Appropriation Date and Amount:
 - (a) Appropriation Date: 09/02/1904
 - i. Amount: 6700 c.f.s.
 - (b) Appropriate Date: 06/01/1919
 - i. Amount: 1.3300 c.f.s.
- (5) Historic Use: Irrigation of 24 acres.

j. Little Morrison Diversion and Little Morrison Diversion Alternate Point

(1) Decreed Point of Diversion:

- (a) Little Morrison Diversion - SE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 14, Township 3 North, Range 84 West of the 6th P.M. at a point 400 feet from the South line and 1,500 feet from the West line of Section 14.
- (b) Little Morrison Diversion, Alternate Point - N $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 23, Township 3 North, Range 84 West of the 6th P.M., 300 feet south of the North section line of said Section 23 and 1,950 feet east of the West section line of said Section 23.

(2) Source: Morrison Creek, Tributary of Yampa River.

(3) Appropriation Date: December 30, 1994

(4) Amount Claimed: 50 c.f.s. conditional, at either point of diversion, or combined at both points of diversion.

(5) Use: Municipal, industrial, domestic, irrigation, stock watering, power production, recreational, fishery and aesthetic purposes, and for use by exchange or for augmentation purposes, including diversion into Little Morrison Creek for such uses and for storage in Stagecoach Reservoir for such uses, including later releases from storage for such uses.

k. Stagecoach Reservoir, Second Filling

(1) Decreed Place of Storage: Stagecoach Reservoir; the right abutment of the dam for said Reservoir, whence the West $\frac{1}{4}$ corner of Section 32, T4N. R84W of the 6th P.M. bears South 47°35' West a distance of 4,633 feet.

(2) Source: Yampa River

(3) Date of Initiation of Appropriation: March 1, 1996; Applicant first diverted and stored water to refill Stagecoach Reservoir in 1996.

(4) How Appropriation was Initiated: Applicant diverted and stored refill water in Stagecoach Reservoir.

(5) Amount Claimed: Applicant diverted and stored 6,670 acre feet in 1996 of refill water in Stagecoach Reservoir for the beneficial uses described below.

(6) Use: Municipal, industrial, domestic, irrigation, stock watering, power production, recreational, fishery and aesthetic purposes, and for use by exchange or for augmentation purposes.

l. Morrison/Silver Creek/Stagecoach Pipeline

(1) Decreed Point of Diversion: Located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 10, Township 3 North, Range 84 West of the 6th P.M. at a point 2,667.1 feet from the South section line and 128.0 feet from the East section line.

(2) Source: Silver Creek and Morrison Creek, tributaries to the Yampa River.

(3) Date of Appropriation: April 3, 2003

- (4) Amount: 50 cfs Conditional
- (5) Decreed Uses: Legal description of acreage: All lands currently irrigated in the Colorado and Yampa River basins under diversions out of Yamcolo Reservoir through the Stillwater Ditch. Diversions under the water right sought in this application may firm up the existing yield in Stagecoach Reservoir, and may also be used to fill an expansion of Stagecoach Reservoir, and in either case such water may therefore be or become used by exchange to Yamcolo Reservoir and released for such irrigation and stockwater uses. Such water may also be used by augmentation plans for irrigation of lawns and landscaping in residential and commercial development downstream from Stagecoach Reservoir that obtain water allotment contracts from the Applicant.
 - (a) All uses associated with operation of Stagecoach Reservoir and for which water may be stored and used from Stagecoach Reservoir, including uses for irrigation and stock watering by exchange to Yamcolo Reservoir.

APPENDIX C

WATER RIGHTS APPURTENANT TO YAMCOLO RESERVOIR

A. Water Rights Appurtenant to Yamcolo Reservoir

1. The water rights set forth below are decreed for diversion and/or storage in Yamcolo Reservoir.
2. Yamcolo Reservoir
 - a. Decreed Amount: 6,531.9 acre feet
 - b. Adjudication Date: March 30, 1964, amended November 4, 1968.
 - c. Case No.: Civil Action No. 3538
 - d. Priority Date: February 26, 1963
 - e. Source: Yampa River and Coal Creek.
 - f. Use: Storage, irrigation, domestic and manufacturing.
 - g. Point of Diversion: Yamcolo Reservoir. The centerline axis of the dam intersects the left abutment at a point whence the E1/4 corner of Section 16, T1N, R86W, 6th P.M., bears S 63°47'20" E at a distance of 2355.2 feet.
3. Pleasant Valley Reservoir
 - a. Decreed Amount: 2,500 acre-feet, absolute
 - b. Adjudication Date: May 26, 1983
 - c. Case No.: 82-CW-210
 - d. Priority Date: June 29, 1959
 - e. Use: Irrigation, domestic, stock watering, municipal, industrial and power.
 - f. Point of Diversion: Yamcolo Reservoir. The centerline axis of the dam intersects the left abutment at a point whence the E1/4 corner of Section 16, T1N, R86W, 6th P.M., bears S 63°47'20" E at a distance of 2355.2 feet.
4. Yamcolo Reservoir, First Enlargement
 - a. Decreed Amount: 1,000 acre feet
 - b. Adjudication Date: March 6, 1981
 - c. Case No.: Case No. 80CW175
 - d. Priority Date: September 4, 1951
 - e. Source: Yampa River and Coal Creek.
 - f. Use: Water storage, irrigation, domestic, industrial, and all other beneficial uses.

- g. Point of Diversion: Yamcolo Reservoir. The centerline axis of the dam intersects the left abutment at a point whence the E1/4 corner of Section 16, T1N, R86W, 6th P.M., bears S 63°47'20" E at a distance of 2355.2 feet.

5. Yamcolo Reservoir, Second Enlargement

- a. Decreed Amount: 525 acre feet
- b. Adjudication Date: December 31, 1989
- c. Case No.: 89CW139
- d. Priority Date: September 6, 1988
- e. Source: Bear River and Coal Creek.
- f. Use: Municipal, domestic, industrial, fish propagation, recreation, irrigation and the right to the use, reuse and successive use of the water.
- g. Point of Diversion: Yamcolo Reservoir. The centerline axis of the dam intersects the left abutment at a point whence the E1/4 corner of Section 16, T1N, R86W, 6th P.M., bears S 63°47'20" E at a distance of 2355.2 feet.

6. Yamcolo Reservoir, Second Filling

- a. Decreed Amount: 8,000 acre feet
- b. Adjudication Date: February 28, 1983
- c. Case No.: 81CW263
- d. Priority Date: February 27, 1981
- e. Source: Bear River and Coal Creek.
- f. Use: Irrigation, stock watering and domestic.
- g. Point of Diversion: Yamcolo Reservoir. The centerline axis of the dam intersects the left abutment at a point whence the E1/4 corner of Section 16, T1N, R86W, 6th P.M., bears S 63°47'20" E at a distance of 2355.2 feet.

7. Coal Creek Diversion

- a. Decreed Amount: 100 cfs
- b. Adjudication Date: July 12, 2004
- c. Case No.: 03CW58
- d. Priority Date: August 6, 2003
- e. Source: Coal Creek
- f. Use: Municipal, industrial, domestic, irrigation, stock watering, power production, recreational, fishery, reservoir evaporation, and aesthetic purposes, and for use by exchange, for appropriative rights of exchange and

substitution, and for augmentation and exchange for replacement purposes, including diversion from Coal Creek for such uses and for storage in Yamcolo Reservoir for such uses, including later releases from storage for such uses.

- g. Point of Diversion: 2200 feet West of the East line and 400 feet South of the North line of Section 16, T1N, R86W of the 6th P.M.

APPENDIX D

DELAYED WELL PUMPING IMPACT ANALYSIS REPORT

**UPPER YAMPA WATER CONSERVANCY DISTRICT
UMBRELLA AUGMENTATION PLAN
DELAYED WELL PUMPING REPORT**

Prepared by:
Resource Engineering, Inc.
909 Colorado Avenue
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February 9, 2007

Introduction

The Upper Yampa Water Conservancy District (District) has proposed an Umbrella Augmentation Plan in Case No. 06CW049. The purpose of the Umbrella Augmentation Plan is to establish a framework within which new water users can be included directly into a decreed Plan for Augmentation that uses District water rights to replace out-of-priority stream depletions. In order to be incorporated into the Umbrella Plan new users within the District's Service Area A¹ must purchase a District Water Allotment Contract. It is anticipated that the source of physical water supply for many of these new users will be ground water wells. The depletions to surface streamflows resulting from diversions from ground water wells and near surface structures may be delayed from the actual time of diversion. For example, stream depletions from wells located some distance from area streams are expected to be delayed significantly in time. Other wells, completed in the alluvial formations near the Yampa River and its tributaries, will have little or no delayed impact. Return flows from wastewater treatment systems will also be delayed. Based on these reasons Resource Engineering, Inc. (RESOURCE) prepared an analysis of delayed stream depletions to facilitate calculations of future augmentation requirements associated with Water Allotment Contracts issued pursuant to the Umbrella Plan.

Delayed Well Pumping Impact Analysis

Stream depletions resulting from well pumping are both lagged and attenuated. The lag time and magnitude of attenuation is a function of a well's distance from the stream and the aquifer characteristics. In order to replace out-of-priority depletions in time and amount, delayed depletion factors have been developed using the Glover well pumping depletion model. For wells located within 100 feet of a stream the depletions are assumed to occur with the same monthly distribution pattern as the pumping. To calculate delayed depletion factors for wells greater than 100 feet from a stream, a series of Glover analyses were conducted. The resulting depletion factors were assumed to represent three geographic bands, based on distance from the stream, in both alluvial and bedrock aquifers. The three bands are described as follows:

- 1) Band #1: 100 to 750 feet from the stream,
- 2) Band #2: 751 to 1750 feet from the stream and,
- 3) Band #3: More than 1750 feet from the stream.

Table 1 summarizes the results of the Glover analyses.

¹ Service Area A is a boundary within the Upper Yampa River Basin where the District may augment Junior depletions directly, or by exchange, without injuring existing, Senior water rights. Service Area A is discussed in detail in a report by Resource Engineering, Inc. titled "Water Resources Report, Upper Yampa Water Conservancy District, Plan for Augmentation, Case No. 06CW049 – Division 6".

To determine appropriate stream depletion factors for each of the three bands wells in both bedrock aquifers and alluvial aquifers were evaluated for locations 500, 1000 and 2500 feet from a stream using a series of Glover analyses. Table 1 summarizes the results of the analyses. Furthermore, the results are shown graphically in Figures 1 and 2.

Table 1
Monthly Lagged Stream Depletion Factors
For Alluvial and Bedrock Wells

Month	Depletion - Bedrock Wells S=.01, T=500 gpd/ft			Depletion - Alluvial Wells S=.1, T=10,000 gpd/ft		
	<u>d = 500'</u> use for: 0' - 750'	<u>d = 1000'</u> use for: 750'-1750'	<u>d = 2500'</u> use for: > 1750'	<u>d = 500'</u> use for: 0' - 750'	<u>D = 1000'</u> use for: 750'-1750'	<u>d = 2500'</u> use for: > 1750'
1	26.4%	7.5%	7.1%	39.9%	14.8%	5.7%
2	30.3%	20.2%	7.0%	28.6%	27.7%	8.0%
3	12.0%	16.1%	8.0%	9.1%	14.8%	11.2%
4	7.2%	11.5%	9.0%	5.3%	9.5%	11.4%
5	5.2%	8.9%	9.5%	3.7%	7.0%	10.6%
6	4.0%	7.3%	9.5%	2.9%	5.5%	9.6%
7	3.3%	6.2%	9.2%	2.4%	4.6%	8.7%
8	2.8%	5.4%	8.9%	2.0%	4.0%	8.0%
9	2.5%	4.8%	8.5%	1.8%	3.5%	7.4%
10	2.2%	4.3%	8.1%	1.6%	3.1%	6.8%
11	2.0%	4.0%	7.8%	1.4%	2.9%	6.4%
12	1.9%	3.7%	7.4%	1.3%	2.6%	6.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 1:
Alluvial Aquifer Lagged Depletion Factors
S=0.1, T=10,000 gpd/ft

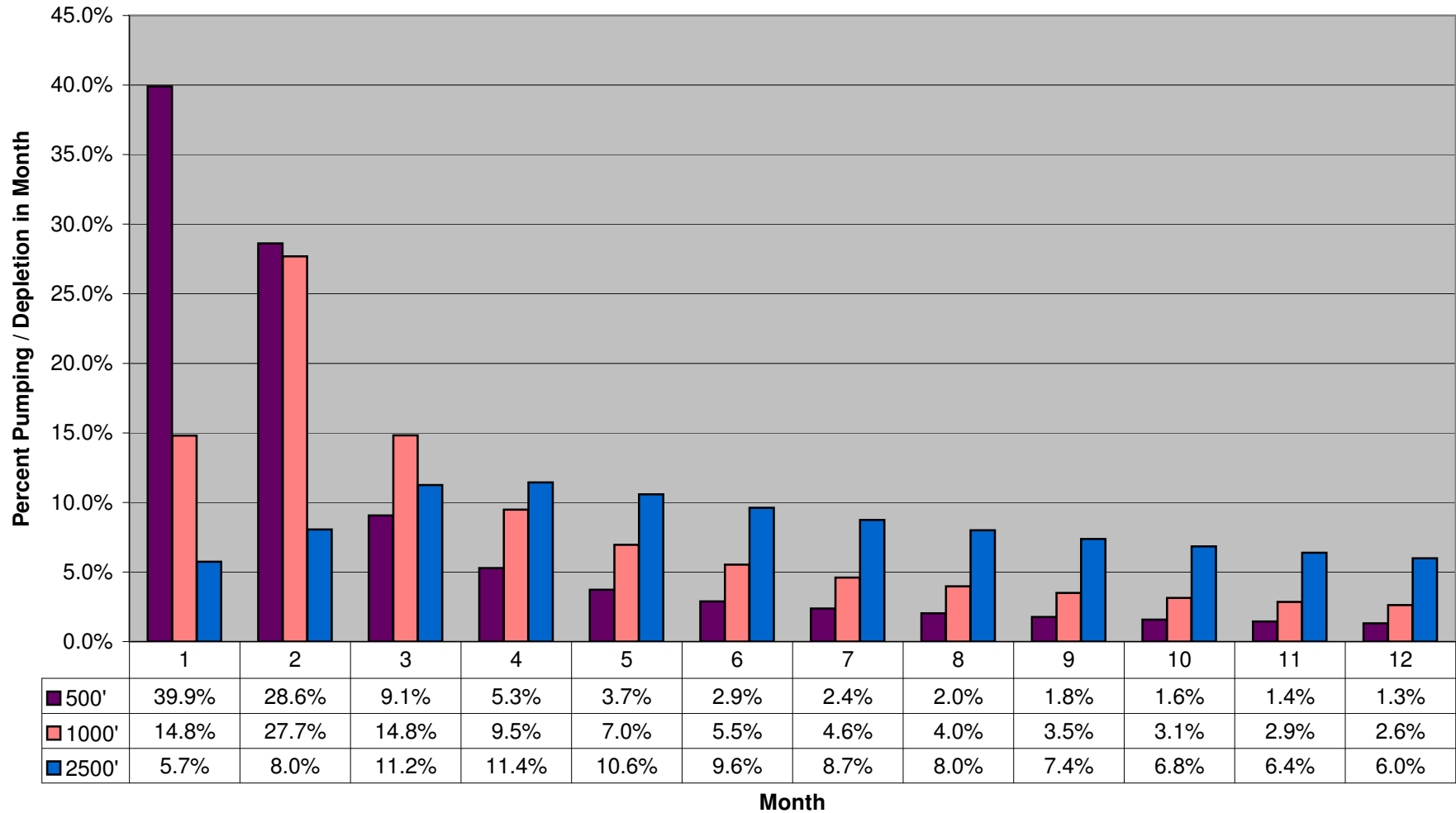
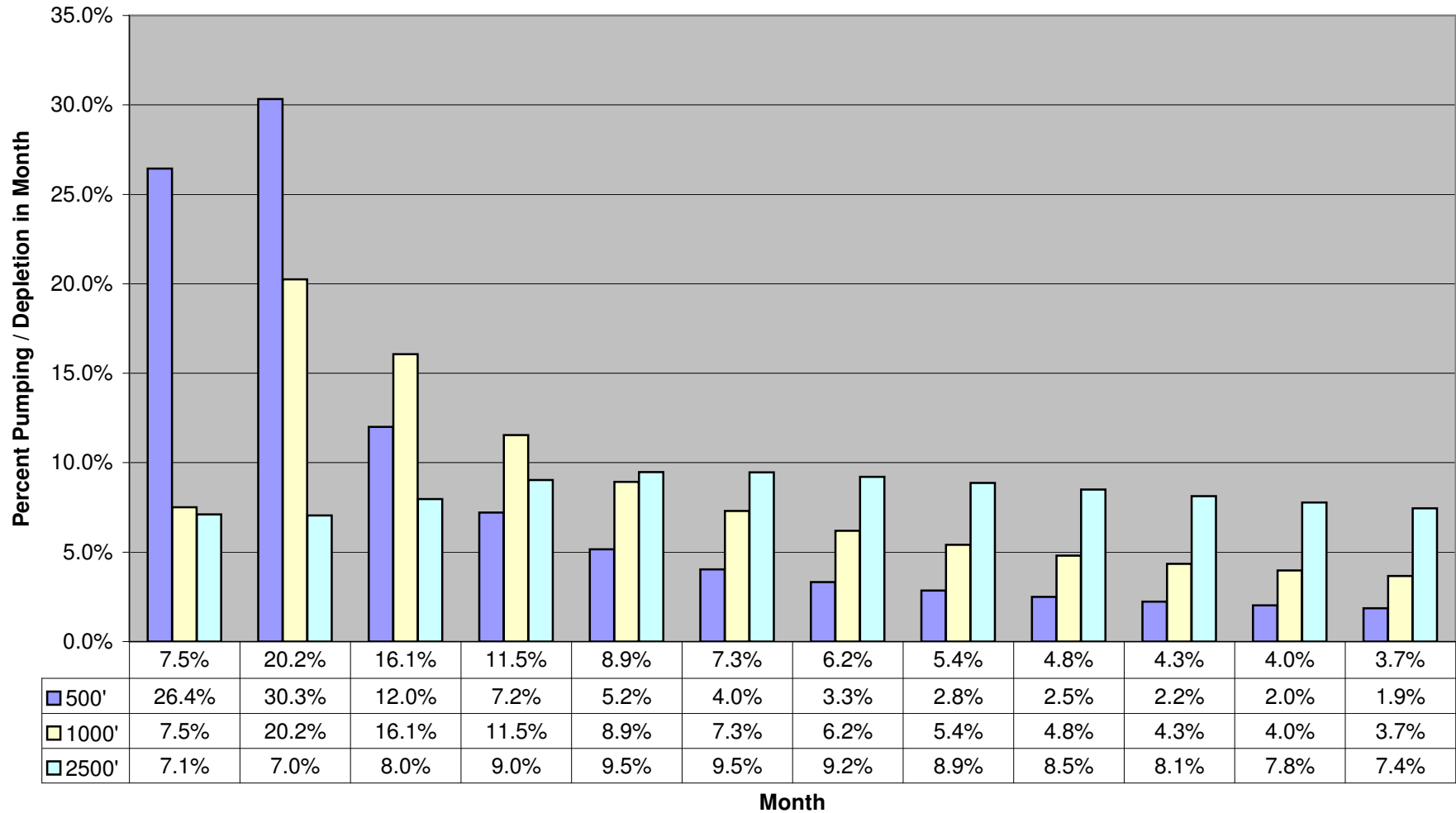


Figure 2:
Bedrock Aquifer Lagged Depletion Factors
S=0.01, T=500 gpd/ft



The depletion factors are assumed to apply to both well pumping diversions and to return flows. Thus, for determining the timing and amount of augmentation storage releases to the depletion factors are applied to calculated depletions. The method of applying the depletion factors to determine stream depletions is described as follows:

1. Calculate consumptive use on a monthly basis.
2. Determine if the well is constructed in an alluvial or bedrock aquifer and determine the distance of the well from the stream. This will establish the correct stream depletion factors to use.
3. Determine the lagged stream depletion resulting from the consumptive use in a given month. Consumptive use for each month will be lagged and attenuated over a 12 month period using the appropriate factors, as shown in Table 1.
4. Determine the total stream depletion for each month by summing the 12 individual monthly stream depletions.

Sensitivity Analysis

The depletion factors are based on average aquifer characteristics and a limited number of distance bands to avoid excessive complexity in operating and administering the Umbrella Plan. As a result the calculated stream depletions are approximate. The assumed aquifer characteristics are general values suitable for application over broad spatial extent. The values assumed were based on literature review² together with RESOURCE's ground water development experience in the Yampa River basin and in other mountainous river basins of Western Colorado. As such, there will be locations within the District's service area where the aquifer characteristics differ significantly. To evaluate if this generalized methodology is appropriate and acceptable, sensitivity analyses were conducted to determine how calculated stream depletions change when aquifer characteristics change. For example, stream depletions were calculated for wells located 500 feet from the stream first using bedrock aquifer lagging factors and then using alluvial aquifer lagging factors. In the analysis the approximate monthly depletion (pumping – return flow = depletion) associated with 100 homes, each with 2,500 square feet of landscaping was used to reflect the conditions that might exist after the District's Umbrella Plan is well established. The results are summarized in Table 2 and depicted graphically in Figure 3.

² Reviewed documents include *Geohydrologic Evaluation of the Upper Part of the Mesaverde Group, Northwestern Colorado*, U.S. Geologic Survey Water Resources Investigations Report 90-4020 and *Ground Water Atlas of Colorado, Special Publication 53, 2003*, Colorado Geological Survey.

Table 2
Depletion Factor Sensitivity Analysis

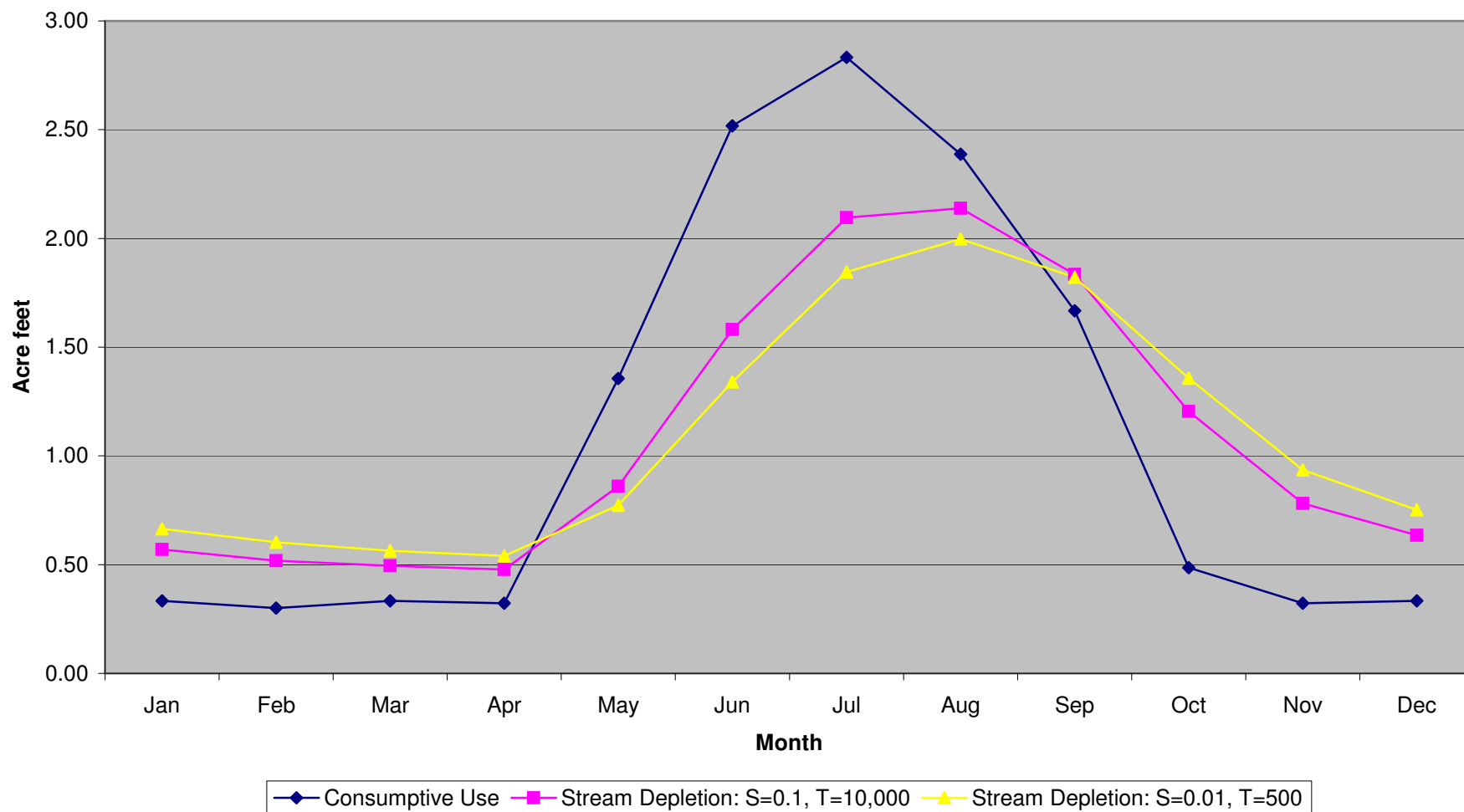
	1	2	3	4	5	6	7	8
Month	Consumptive Use This Period (AF)	Consumptive Use this Period (% of Annual	Stream Depletion Factors for D=500', S=0.1, T=10,000	Stream Depletion This period (AF)	Stream Depletion Factors for D=500', S=0.01, T=500	Stream Depletion This period (AF)	Difference in Calculated Stream Depletion for the Two Aquifer Conditions (AF)	Difference in Calculated Stream Depletion for the Two Aquifer Conditions (GPM)
January	0.33	2.5%	39.9%	0.57	26.4%	0.66	-0.09	-0.71
February	0.30	2.3%	28.6%	0.52	30.3%	0.60	-0.08	-0.64
March	0.33	2.5%	9.1%	0.49	12.0%	0.56	-0.07	-0.52
April	0.32	2.4%	5.3%	0.48	7.2%	0.54	-0.06	-0.47
May	1.36	10.3%	3.7%	0.86	5.2%	0.77	0.09	0.66
June	2.52	19.1%	2.9%	1.58	4.0%	1.34	0.24	1.82
July	2.83	21.5%	2.4%	2.10	3.3%	1.85	0.25	1.88
August	2.39	18.1%	2.0%	2.14	2.8%	2.00	0.14	1.07
September	1.67	12.6%	1.8%	1.83	2.5%	1.82	0.01	0.10
October	0.49	3.7%	1.6%	1.20	2.2%	1.36	-0.15	-1.16
November	0.32	2.4%	1.4%	0.78	2.0%	0.94	-0.15	-1.16
December	0.33	2.5%	1.3%	0.63	1.9%	0.75	-0.12	-0.88
Total	13.19	100%	100%	13.19	100%	13.19		

Column Explanations:

- 1) Approximate consumptive use and seasonal distribution for 100 residences each with 2,500 square feet of landscaping (approximate CU associated with 100 District contracts).
- 2) The monthly pumping volume as a percentage of the annual total volume.
- 3) Monthly stream depletion factors for an alluvial aquifer with the well located 500' from the stream.
- 4) Equilibrium condition monthly stream depletion based on Col. (1) pumping and Col. (3) stream depletion factors.
- 5) Monthly stream depletion factors for a bedrock aquifer with the well located 500' from the stream.
- 6) Equilibrium condition monthly stream depletion based on Col. (1) pumping and Col. (5) stream depletion factors.
- 7) Col. (4) - Col. (6)
- 8) Col. (7) converted to gallons per minute.

In this comparison the maximum difference in stream depletions for any given month is 1.88 gallons per minute (gpm) for 100 homes. As distance from the stream increases the difference decreases as depletions become more uniformly attenuated. For example, using the same conditions as above, but at a distance 2,500 feet from the stream, the maximum difference in depletions for any given month is 1.25 gpm. Based on these analyses RESOURCE concluded that the limited number of depletion factor sets is appropriate. While regional variations in aquifer conditions will result in actual stream depletions different than those calculated, the differences will be slight according to the sensitivity analyses.

Figure 3:
Depletion Factor Sensitivity Analysis
Comparing Bedrock Aquifer Characteristics to Alluvial Aquifer Characteristics
Where Distance from the Stream = 500'



Conclusion

Well pumping results in delayed depletions to a stream. These depletions are lagged and attenuated based on a well's distance from a stream and an aquifer's characteristics. In order to quantify these depletions throughout the District's Service Area A, a series of Glover analyses were conducted. The Glover analyses resulted in a series of delayed depletion factors for alluvial and bedrock aquifers in 3 geographic bands (based on distance from the stream). Given the broad area covered by Service Area A and the potentially high variability in aquifer characteristics, RESOURCE conducted a sensitivity analysis to validate the delayed depletion factors. The sensitivity analysis found that delayed depletion factors for different aquifer characteristics resulted in a maximum monthly depletion difference of less than 2 GPM. Since this difference is minimal, RESOURCE concluded that the depletion factor set identified in this Report is appropriate for assessing augmentation requirements within the District's Service Area A.