BEFORE THE COLORADO WATER CONSERVATION BOARD

STATE OF COLORADO

IN THE MATTER OF AN INSTREAM FLOW APPROPRIATION ON MORRISON CREEK, WATER DIVISION 6; MORRISON CREEK (CONFLUENCE MUDDY CREEK TO CONFLUENCE SILVER CREEK) AND MORRISON CREEK (CONFLUENCE SILVER CREEK TO CONFLUENCE YAMPA RIVER

PREHEARING STATEMENT OF THE UPPER YAMPA WATER CONSERVANCY DISTRICT

Pursuant to the Notice of Prehearing Deadlines for Submissions and Prehearing Conference issued by the Hearing Officer in this matter on June 23, 2010 and Rule 5n(2) of the Rules Concerning the Colorado Instream Flow and Natural Lake Level Program, 2 CCR 408-2, the Upper Yampa Water Conservancy District presents this Prehearing Statement:

A. Statement of Factual and Legal Claims

1. The Upper Yampa Water Conservancy District ("District") was formed under the Water Conservancy Act of the State of Colorado by decree of the Routt County District Court in Civil Action 3815 on March 8, 1966. See generally C.R.S. § 37-45-101 through 153. The District's purpose was and 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 as well as plan for and assist 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.

2. The District has identified a need for additional water to be stored in the Upper Yampa River basin. The District as well as the Colorado Statewide Water Supply Initiative ("SWSI") study undertaken by the CWCB has determined that there will be an increased demand for water in the Yampa River Basin that surpasses existing supplies. The District is uniquely situated to meet this anticipated demand and has water rights and facilities necessary to serve the Upper Yampa Basin.

3. The District owns Stagecoach Reservoir that fills under a number of sources. Morrison Creek enters the Yampa River below Stagecoach Reservoir. The District has determined to pursue firming of Stagecoach Reservoir to increase that Reservoir's firm annual yield by diversion of water from Morrison Creek into Stagecoach Reservoir. The District has pursued several options to achieve this firming goal.

4. First, the District owns conditional surface water rights in the Morrison Creek Basin. These include the decreed water rights for the Little Morrison Diversion, Little Morrison Diversion Alternate Point, decreed in Case No. 94CW149, District Court, Water Division 6. This water right has an appropriation date of December 30, 1994 and may divert up to 50 cfs for municipal, industrial, irrigation and other uses including diversion and storage in Stagecoach Reservoir. It has also claimed a water right for the Morrison/Silver Creek/Stagecoach Pipeline to divert water into Stagecoach Reservoir. The fate of that water right is pending an appeal.

5. The District also owns a conditional water storage right in the Pleasant Valley Reservoir and Pleasant Valley Feeder Canal water rights that may be stored in the proposed Morrison Creek Reservoir as decreed in Case No. 07CW61, District Court, Water Division 6.

6. The District and the CWCB have worked cooperatively in the past with the CWCB assisting in the financing of Stagecoach Reservoir and also in providing a grant to finance a feasibility study for the proposed Morrison Creek Reservoir. The Morrison Creek Reservoir is identified in the SWSI study as a potential future option to meet anticipated need in the Yampa Basin into the future.

7. The District is concerned with the effect of an instream flow appropriation on the ability of the District to develop and permit its conditional water rights to serve this anticipated demand.

8. The Morrison Creek Reservoir dam will be located approximately 0.5 miles downstream from the confluence of Silver Creek and Morrison Creek. The instream flow appropriations will pass through, and will necessarily be inundated by the proposed reservoir. The District's proposed surface diversions are to be located above and below the confluence of Morrison Creek and Silver Creek

9. The District will be required to obtain a number of permits in order to develop these conditional water rights that will likely include terms and conditions

necessary to protect minimum stream flows. And in order to develop the proposed Morrison Creek Reservoir, the District is required to request and obtain approval from the CWCB to allow a partial inundation of the CWCB's instream flow appropriation on Silver Creek decreed in Case No. 77CW1328, District Court, Water Division 6, and as recognized in the District decree for Morrison Creek Reservoir in Case No. 07CW61. This inundation request is made pursuant to 2 CCR 408-2, Rule 7.

10. The District has submitted its request to inundate a portion of the CWCB's water right on Silver Creek pursuant to the Stipulation with the CWCB entered in Case No. 07CW61. The District is also seeking a coordinated approach to develop its water rights with the proposed instream flow appropriations now claimed on Morrison Creek.

11. Section 37-92-102(3), C.R.S., provides the CWCB with the authority to appropriate instream flow water rights to preserve the natural environment to a reasonable degree, while at the same time, recognize the need to correlate the activities of mankind with some reasonable preservation of the natural environment. The CWCB is also charged with the task of fostering and encouraging water conservancy districts in the conservation, development and utilization of the waters of Colorado. § 37-60-106(1)(a), C.R.S.

12. The District's efforts to serve its constituents and contractees by firming its water storage rights in an effort to develop the waters of the state for beneficial use can be harmonized with the CWCB's protection of the natural environment. This may be accomplished with the adoption of appropriate terms and conditions in any proposed instream flow appropriation that will allow the District to develop Morrison Creek Reservoir and at the same time providing for such minimum bypass flows to meet the requested appropriation.

B. Exhibits

1. *In re Application for Water Rights of Upper Yampa Water Conservancy District*, Findings of Fact, Conclusions of Law and Judgment and Decree of the Water Court, Case No. 94CW149, District Court, Water Division 6, March 18, 1998, as corrected by decree entered July 14, 2003.

2. *In re Application for Water Rights of Upper Yampa Water Conservancy District*, Findings of Fact, Conclusions of Law and Judgment and Decree of the Water Court, Case No. 04CW10, District Court, Water Division 6, February 14, 2009.

3. *In re Application for Water Rights of Upper Yampa Water Conservancy District*, Findings of Fact, Conclusions of Law and Judgment and Decree, Case No. 07CW61, District Court, Water Division 6, October 5, 2009.

4. *In re Application for Water Rights of Upper Yampa Water Conservancy District*, Stipulation and Agreement and Motion to Approve Stipulation Between the Applicant and Colorado Water Conservation Board, Cases No. 07CW61 and 07CW72 (Consolidated), District Court, Water Division 6, August 31, 2009.

5. *Morrison Creek Reservoir Feasibility Study Report, Consolidated Cases Nos. 07CW61 and 07CW72, Water Division No. 6*, February 23, 2009, prepared by Resource Engineering, Inc.

6. Letter from R. Scott Fifer, Resource Engineering, Inc. to Linda Bassi, Esq., *Re: Request for Permission to Inundate a Portion of Silver Creek, Water Division No. 6, CWCB Case No. 77CW1328*, dated July 7, 2010.

C. Witnesses. The following witnesses will be called by the District:

1. Mr. Kevin McBride, General Manager, Upper Yampa Water Conservancy District, P.O. Box 883990, Steamboat Springs, CO 80488, 970-879-2424. Mr. McBride will testify to the actions undertaken by the District to develop a source of supply from Morrison Creek to increase the firm annual yield of Stagecoach Reservoir.

2. Mr. R. Scott Fifer, Hydrologist, Resource Engineering Inc., 909 Colorado Avenue, Glenwood Springs, Colorado 81601, 970-945-6777. Mr. Fifer will testify to the District's need and demand for additional sources of supply, as well as proposed terms and conditions necessary to protect the District's water rights from material injury.

D. Alternative Proposal. The District proposes:

1. Any instream flow appropriation the CWCB recognize the District's water storage right decreed to the Morrison Creek Reservoir in Case No. 07CW61 is senior in priority to instream flow water rights now claimed for Morrison Creek. No further inundation requests would be required for the Morrison Creek Reservoir as decreed in Case No. 07CW61.

2. The CWCB will approve the District's inundation request for that portion of the Morrison Creek Reservoir that would inundate a portion of the CWCB's instream flow water right on Silver Creek.

3. As mitigation for the partial inundation, the District will work with CWCB staff and the Colorado Division of Wildlife to develop a reservoir management plan specific to Morrison Creek Reservoir. Such plan shall identify desirable fish species and set forth procedures to introduce and maintain populations in the reservoir.

4. The District will maintain minimum bypass flows on Morrison Creek below the planned Morrison Creek Reservoir. Presently, there are no ISF rights on Morrison Creek; however, the CWCB has declared its intent to appropriate new ISF rights on Morrison Creek in amounts of 13.2 cfs (April 1 – August 15) and 8.1 cfs (August 16 – March 31). If decreed, the CWCB ISF rights would be junior in priority to the Morrison Creek Reservoir. Under its mitigation proposal, the District would forego storage opportunities as necessary and in order to bypass to Morrison Creek the lesser of the recommended ISF water right or the natural inflow of Morrison and Silver Creeks to Morrison Creek Reservoir.

5. **Written Testimony.** The District does not anticipate providing any written testimony.

6. **Legal Memoranda.** The District's legal positions are set forth above.

Submitted this 8th day of July 2010.

BALCOMB & GREEN, P.C.
WEISS AND VAN SCOYK, LLP

By: _____
David C. Hallford, #10510
Scott A. Grosscup, #35871

Attorneys for Upper Yampa Water Conservancy District

IN THE MATTER OF PROPOSED INSTREAM FLOW APPROPRIATIONS DIVISION 6: MORRISON CREEK (CONFLUENCE MUDDY CREEK TO CONFLUENCE SILVER CREEK) AND MORRISON CREEK (CONFLUENCE SILVER CREEK TO CONFLUENCE YAMPA RIVER)

CERTIFICATE OF SERVICE

This is to certify that on this date of July 8, 2010 I served the foregoing PREHEARING STATEMENT OF THE UPPER YAMPA WATER CONSERVANCY DISTRICT by electronic mail upon the following parties:

Jeff Baessler
Colorado Water Conservation Board
Denver, CO 80203
Jeffrey.baessler@state.co.us

Linda J. Bassi
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Linda.bassi@state.co.us

Susan Schneider, Staff Attorney
Colorado Department of Law
Denver, CO 80203
Susan.schneider@state.co.us

Casey Shpall, Prehearing Office
Colorado Attorney General's Office
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Mark Uppendahl
Colorado Division of Wildlife
Denver, CO 80216
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Robert G. Weiss
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Drew Peternell
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/s/ Elaine L. Benson
Elaine L. Benson, Paralegal

DISTRICT COURT, WATER DIVISION 6, STATE OF COLORADO

Case No. 94-CW-149

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECREE

IN THE MATTER OF THE APPLICATION FOR CONDITIONAL WATER RIGHTS (SURFACE) OF THE UPPER YAMPA WATER CONSERVANCY DISTRICT, ON LITTLE MORRISON CREEK,

IN ROUTT COUNTY, COLORADO

THIS MATTER having come before the Court on the Motion of Applicant for the entry of a decree, and the Court being advised in the premises,

THE COURT MAKES THE FOLLOWING RECITATIONS AND FINDINGS, AND ENTERS A DECREE HEREIN AS FOLLOWS:

1. **Application.** The Application herein was filed on December 30, 1994 by Upper Yampa Water Conservancy District, seeking to divert water from the Morrison Creek to the Little Morrison Creek for storage in the Stagecoach Reservoir. The matter was referred by the Water Court to the Water Referee in accordance with C.R.S. §37-92-101, et seq. On April 30, 1995 the Water Referee referred this matter to the Water Judge. On April 18, 1995 the Division Engineer's Summary of Consultation was filed with the Court recommending that approval be granted.

2. **Publication.** The Application was published in the Division No. 6 Resume as well as The Steamboat Pilot. Statements of Opposition were filed by Marjorie E. Miles, Eugene M. Germain, Lou Dequine, and Julius Leonard Tillquist.

3. **Notice and Jurisdiction.** Timely and adequate notice of this Application has been given in the manner required by law. The time for filing Statements of Opposition and seeking leave to intervene has expired. The Court has jurisdiction over the subject matter of these proceedings and over all persons who have standing to appear, whether they appeared or not.

4. **Trial.** This matter was tried to the Court on December 8, 1997. The Applicant was represented by Robert Weiss of the firm of Weiss, Van Scoyk & Coe.

Opposers Eugene M. Germain and Lou Dequine appeared pro se. At the trial, the Court allowed James Noll to intervene and participate pro se in substitution for Marjorie E. Miles. Opposer, Julius Leonard Tillquist, did not appear personally or through counsel.

The Court finds that there has been an appropriation of water in that there was a co-existence of an intent to appropriate and an open physical act evidenced by resolution of the Board of the Applicant and posting of a Notice of Intention to Appropriate Water by the Applicant in the approximate location of the points of diversion.

The Court further finds that the project for which the water is being appropriated is feasible and that not less than 50 cfs is available in Morrison Creek for diversion.

The Court lastly finds that the environmental factors raised by the Opposers in their Statements of Opposition and by trial are not relevant factors for consideration by the Water Court in the Application for Water Right. In The Matter Of Board of County Commissioners, 891 P.2d 952 (1995).

During the trial, the parties advised the Court that they would attempt to submit a stipulated decree to the Court in the matter and the Court agreed to postpone entry of a decree to allow the parties time to attempt to agree on a stipulated decree. The parties have now submitted this stipulated decree which the Court finds to be appropriate and consistent with the evidence presented at trial.

5. The name and address of the Applicant are:

Upper Yampa Water Conservancy District
Steamboat Springs, CO 80488-0339

6. The names of the structures are the following:

Little Morrison Diversion, and
Little Morrison Diversion Alternate Point

7. The amount, appropriation date, source and uses of water conditionally decreed are:

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

(b) Appropriation Date: December 30, 1994

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

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

8. Legal description of each Point of Diversion:

LITTLE MORRISON DIVERSION - SE quarter of the SW quarter of Section 14, Township 3 North, Range 84 West of the 6th P.M. at a point 400 feet from the south line and 1500 feet from the west line of Section 14.

LITTLE MORRISON DIVERSION ALTERNATE POINT - N1/2NE1/4NW1/4 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 1950 feet east of the west section line of said Section 23.

9. The herein described water rights are conditionally decreed subject to the condition that the Upper Yampa Water Conservancy District shall not divert water from Morrison Creek at either decreed point of diversion if such diversion would reduce the steam flow immediately below the point of diversion below 15 c.f.s., provided that this limitation shall not apply to any alternate point of diversion where the headgate is located outside Township 3 North, Range 84 West of the 6th P.M. decreed by the Court in a change case.

WHEREFORE, it is ordered that the Application is granted and the conditional water right applied for is hereby approved. If the Applicant desires to maintain such conditional decree, an application for finding of reasonable diligence shall be made on or before the last day of March, 2004 and on and before the last day of March of every sixth calendar year thereafter so long as the Applicant desires to maintain this conditional water right or until such date as the conditional water right has become an absolute water right by reason of the completion of the appropriation.
Review set 3-24-98 is Vacated.

DATED this 18 day of March, 1998.

BY THE COURT:

Richard P. Doucette

Richard P. Doucette, Water Judge
Water District 6

APPROVED AS TO FORM:

Robert G. Weiss, #8521
Counsel for the Upper Yampa Water Conservancy District

Date: 3-13, 1998

Lou Dequine

Date: 3-11, 1998

Eugene M. Germain

Date: 3-11-98, 1998

James Noll

Date: 3-11-98, 1998

Weiss 7-7-03

DISTRICT COURT, WATER DIVISION NO. 6, COLORADO P.O. Box 773117 Steamboat Springs, Colorado 80477 970/879-5020	
IN THE MATTER OF THE APPLICATION FOR CONDITIONAL WATER RIGHTS (SURFACE) OF THE UPPER YAMPA WATER CONSERVANCY DISTRICT, ON MORRISON CREEK, IN ROUTT COUNTY, COLORADO	▲ COURT USE ONLY ▲
Robert G. Weiss, No. 8521 Weiss and Van Scoyk, LLP 600 So. Lincoln, Suite 202 Steamboat Springs, CO 80487 Telephone: 970/879-6053 Fax: 970/879-6058	Case No. 94-CW-149
CORRECTED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECREE	

THIS MATTER having come before the Court on the Petition of Applicant for the entry of a decree, and the Court being advised in the premises,

THE COURT MAKES THE FOLLOWING RECITATIONS AND FINDINGS AND ENTERS A DECREE HEREIN AS FOLLOWS:

1. **Application.** The Application herein was filed on December 30, 1994 by Upper Yampa Water Conservancy District, seeking to divert water from the Morrison Creek to the Little Morrison Creek for storage in the Stagecoach Reservoir. The matter was referred by the Water Court to the Water Referee in accordance with C.R.S. §37-92-101, et seq. On April 30, 1995 the Water Referee referred this matter to the Water Judge. On April 18, 1995, the Division Engineer's Summary of Consultation was filed with the Court recommending that approval be granted.

2. **Publication.** The Application was published in the Division No. 6 Resume as well as The Steamboat Pilot. Statements of Opposition were filed by Marjorie E. Miles, Eugene M. Germain, Lou Dequine and Julius Leonard Tillquist.

3. **Notice and Jurisdiction.** Timely and adequate notice of this Application has been given in the manner required by law. The time for filing Statements of Opposition and seeking leave to intervene has expired. The Court has jurisdiction over the subject matter of these proceedings and over all persons who have standing to appear, whether they appeared or not.

4. **Trial.** This matter was tried to the Court on December 8, 1997. The Applicant was represented by Robert Weiss of the firm of Weiss, Van Scoyk & Coe. Opposers Eugene M. Germain and Lou Dequine appeared pro se. At the trial, the Court allowed James Noll to intervene and participate pro se in substitution for Marjorie E. Miles. Opposer, Julius Leonard Tillquist, did not appear personally or through counsel.

The Court finds that there has been an appropriation of water in that there was a co-existence of an intent to appropriate and an open physical act evidenced by resolution of the Board of the Applicant and posting of a Notice of Intention to Appropriate Water by the Applicant in the approximate location of the points of diversion.

The Court further finds that the project for which the water is being appropriated is feasible and that not less than 50 cfs is available in Morrison Creek for diversion.

The Court lastly finds that the environmental factors raised by the Opposers in their Statements of Opposition and by trial are not relevant factors for consideration by the Water Court in the Application for Water Right. In the Matter of Board of County Commissioners, 891 P.2d 952 (1995).

During the trial, the parties advised the Court that they would attempt to submit a stipulated decree to the Court in the matter and the Court agreed to postpone entry of a decree to allow the parties time to attempt to agree on a stipulated decree. The parties have now submitted this stipulated decree which the Court finds to be appropriate and consistent with the evidence presented at trial.

5. The name and address of the Applicant are:

Upper Yampa Water Conservancy District
Steamboat Springs, CO 80488-0339

6. The names of the structures are the following:

Little Morrison Diversion and
Little Morrison Diversion Alternate Point

7. The amount, appropriation date, source and uses of water conditionally decreed are:

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

(b) Appropriation Date: December 30, 1994

(c) Source: Morrison Creek, Tributary of Yampa River

(d) 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.

8. Legal description of each Point of Diversion:

LITTLE MORRISON DIVERSION – SE quarter of the SW quarter of Section 14, Township 3 North, Range 84 West of the 6th P.M. at a point 400 feet from the south line and 1500 feet from the west line of Section 14.

LITTLE MORRISON DIVERSION ALTERNATE POINT – N1/2NE1/4NW1/4 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 1950 feet east of the west section line of said Section 23.

9. The herein described water rights are conditionally decreed subject to the condition that the Upper Yampa Water Conservancy District shall not divert water from Morrison Creek at either decreed point of diversion if such diversion would reduce the stream flow immediately below the point of diversion below 15 c.f.s., provided that this limitation shall not apply to any alternate point of diversion where the headgate is located outside Township 3 North, Range 84 West of the 6th P.M. decreed by the Court in a change case.

WHEREFORE, it is ordered that the Corrected Application is granted and the conditional water right applied for is hereby approved. If the Applicant desires to maintain such conditional decree, an application for finding of reasonable diligence shall be made on or before the last day of March 2004 and on or before the last day of March of every sixth calendar year thereafter so long as the Applicant desires to maintain this conditional water right or until such date as the conditional water right has become an absolute water right by reason of the completion of the appropriation.

Dated this 14th day of July, 2003.

BY THE COURT:

Water Judge, Water District No. 6

APPROVED AS TO FORM:

Date: July 7, 2003

Robert G. Weiss, #8521
Counsel for Applicant

The undersigned, having reviewed the Petition to Correct Decree and the proposed Decree to which this signature page is attached, agree that correction of the Decree as indicated.

Eugene M. Germain

Date: 6-10-, 2003

The undersigned, having reviewed the Petition to Correct Decree and the proposed Decree to which this signature page is attached, agree that correction of the Decree as indicated.

James Noll

Date: 16 April, 2003

DISTRICT COURT, WATER DIVISION 6, STATE OF COLORADO

Case No. 94-CW-149

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECREE

IN THE MATTER OF THE APPLICATION FOR CONDITIONAL WATER RIGHTS (SURFACE) OF THE UPPER YAMPA WATER CONSERVANCY DISTRICT, ON LITTLE MORRISON CREEK,

IN ROUTT COUNTY, COLORADO

THIS MATTER having come before the Court on the Motion of Applicant for the entry of a decree, and the Court being advised in the premises,

THE COURT MAKES THE FOLLOWING RECITATIONS AND FINDINGS, AND ENTERS A DECREE HEREIN AS FOLLOWS:

1. **Application.** The Application herein was filed on December 30, 1994 by Upper Yampa Water Conservancy District, seeking to divert water from the Morrison Creek to the Little Morrison Creek for storage in the Stagecoach Reservoir. The matter was referred by the Water Court to the Water Referee in accordance with C.R.S. §37-92-101, et seq. On April 30, 1995 the Water Referee referred this matter to the Water Judge. On April 18, 1995 the Division Engineer's Summary of Consultation was filed with the Court recommending that approval be granted.

2. **Publication.** The Application was published in the Division No. 6 Resume as well as The Steamboat Pilot. Statements of Opposition were filed by Marjorie E. Miles, Eugene M. Germain, Lou Dequine, and Julius Leonard Tillquist.

3. **Notice and Jurisdiction.** Timely and adequate notice of this Application has been given in the manner required by law. The time for filing Statements of Opposition and seeking leave to intervene has expired. The Court has jurisdiction over the subject matter of these proceedings and over all persons who have standing to appear, whether they appeared or not.

4. **Trial.** This matter was tried to the Court on December 8, 1997. The Applicant was represented by Robert Weiss of the firm of Weiss, Van Scoyk & Coe.

Opposers Eugene M. Germain and Lou Dequine appeared pro se. At the trial, the Court allowed James Noll to intervene and participate pro se in substitution for Marjorie E. Miles. Opposer, Julius Leonard Tillquist, did not appear personally or through counsel.

The Court finds that there has been an appropriation of water in that there was a co-existence of an intent to appropriate and an open physical act evidenced by resolution of the Board of the Applicant and posting of a Notice of Intention to Appropriate Water by the Applicant in the approximate location of the points of diversion.

The Court further finds that the project for which the water is being appropriated is feasible and that not less than 50 cfs is available in Morrison Creek for diversion.

The Court lastly finds that the environmental factors raised by the Opposers in their Statements of Opposition and by trial are not relevant factors for consideration by the Water Court in the Application for Water Right. In The Matter Of Board of County Commissioners, 891 P.2d 952 (1995).

During the trial, the parties advised the Court that they would attempt to submit a stipulated decree to the Court in the matter and the Court agreed to postpone entry of a decree to allow the parties time to attempt to agree on a stipulated decree. The parties have now submitted this stipulated decree which the Court finds to be appropriate and consistent with the evidence presented at trial.

5. The name and address of the Applicant are:

Upper Yampa Water Conservancy District
Steamboat Springs, CO 80488-0339

6. The names of the structures are the following:

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

(b) Appropriation Date: December 30, 1994

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

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

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LITTLE MORRISON DIVERSION ALTERNATE POINT - N1/2NE1/4NW1/4 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 1950 feet east of the west section line of said Section 23.

9. The herein described water rights are conditionally decreed subject to the condition that the Upper Yampa Water Conservancy District shall not divert water from Morrison Creek at either decreed point of diversion if such diversion would reduce the steam flow immediately below the point of diversion below 15 c.f.s., provided that this limitation shall not apply to any alternate point of diversion where the headgate is located outside Township 3 North, Range 84 West of the 6th P.M. decreed by the Court in a change case.

WHEREFORE, it is ordered that the Application is granted and the conditional water right applied for is hereby approved. If the Applicant desires to maintain such conditional decree, an application for finding of reasonable diligence shall be made on or before the last day of March, 2004 and on and before the last day of March of every sixth calendar year thereafter so long as the Applicant desires to maintain this conditional water right or until such date as the conditional water right has become an absolute water right by reason of the completion of the appropriation.
Review set 3-24-98 is Vacated.

DATED this 18 day of March, 1998.

BY THE COURT:

Richard P. Doucette

Richard P. Doucette, Water Judge
Water District 6

APPROVED AS TO FORM:

Robert G. Weiss, #8521
Counsel for the Upper Yampa Water Conservancy District

Date: 3-13, 1998

Lou Dequine

Date: 3-11, 1998

Eugene M. Germain

Date: 3-11-98, 1998

James Noll

Date: 3-11-98, 1998

District Court, Water Division No. 6 **State of Colorado** Routt County Courthouse P.O. Box 773117 Steamboat Springs, CO 80477 Phone Number: 970-879-5020	
CONCERNING THE APPLICATION FOR WATER RIGHTS OF UPPER YAMPA WATER CONSERVANCY DISTRICT IN ROUTT COUNTY, COLORADO	**COURT USE ONLY** **Case Number**: **2004 CW 10** **(1994 CW 149)**
FINDINGS OF FACT, CONCLUSIONS OF LAW AND JUDGMENT AND DECREE OF THE WATER COURT	

This matter came before the court upon the Upper Yampa Water Conservancy District's Application for Finding of Reasonable Diligence. The court having reviewed the Application and the other pleadings in this case, conducted trial in this case on January 27 – 30, 2009 and now being fully advised with respect to this matter, enters the following Findings of Fact, Conclusions of Law and Judgment and Decree:

FINDINGS OF FACT

The Applicant is Upper Yampa Water Conservancy District, c/o General Manager, whose address is P. O. Box 880339, Steamboat Springs, Colorado 80488. Applicant is represented in this matter by Weiss & Van Scoyk, LLP, 600 South Lincoln Avenue, Suite 202, Steamboat Springs, Colorado 80487, (970) 879-6053 and Balcomb & Green, P.C., P.O. Drawer 790, Glenwood Springs, Colorado 81602, (970) 945-6546.

A. The District was formed under the Water Conservancy Act of the State of Colorado by decree of the Routt County District Court in Civil Action 3815 on March 8, 1966. See generally § 37-45-101 through 153, C.R.S. (2008). The District's purpose was and 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 as well as plan for and assist 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 is divided into three (3) divisions with a total of nine (9) directors, three from each division, who constitute the District's Board of Directors.

B. 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. §§ 37-45-118 and 37-92-302(5), C.R.S. (2008).

A properly verified Application for Finding of Reasonable Diligence was filed on March 30, 2004 and was referred to the Water Referee in accordance with § 37-92-101, *et seq*. C.R.S. (2008). On October 6, 2004, the Water Referee referred this matter to the Water Judge.

The Application was properly published in the resume for Water Division No. 6. All notices required by law have been made, including as required under § 37-92-302(3), C.R.S. (2008).

Timely Statements of Opposition were filed by the Dequine Family L.L.C., Flying Diamond Resources, and Kim Singleton. The time for filing Statements of Opposition has expired. This court has jurisdiction over the subject matter of these proceedings and over all persons affected hereby, whether they have appeared or not. The court finds that the relief granted herein is consistent with the relief originally requested in the Application and for which public notice was provided.

On July 6, 2004, the Division Engineer's Summary of Consultation was filed with the court recommending that approval be granted to continue the conditional water rights as requested in the Application, subject to certain conditions.

This matter was tried to the court beginning on January 27, 2009. At that trial Applicant was represented by Balcomb & Green PC, David Hallford and Scott Grosscup. Objectors, Dequine Family L.L.C., Flying Diamond Resources, and Kim Singleton were represented by Petros and White LLC, Charles B. White, and Scott Steinbrecher.

Name of Structure: Little Morrison Diversion, Little Morrison Diversion Alternate Point.

A. Previous Decree: Case No. 94CW149, District Court, Water Div. No. 6, as modified in the Corrected Findings of Fact, Conclusions of Law and Decree, entered on July 14, 2003.

B. Date: March 18, 1998, as corrected on July 14, 2003

C. Legal Description of Points of Diversion:

(1) **Little Morrison Diversion**: SE1/4, SW1/4 of Section 14, Township 3 North, Range 84 West of the 6th P.M. at a point 400 feet from the south line and 1500 feet from the west line of Section 14.

(2) **Little Morrison Diversion Alternate Point**: N1/2, NE1/4, NW1/4 of Section 23, Township 3 North, Range 84 West of the 6th P.M., 300 feet south of the North section line and 1950 feet east of the west section line of Section 23.

D. Source: Morrison Creek, tributary to the Yampa River.

E. Appropriation Date: December 30, 1994.

F. Amount: 50 c.f.s., conditional.

G. 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, including later releases from storage for such uses.

H. Limitation: The Little Morrison Diversion, Little Morrison Diversion Alternate Point water right is conditionally decreed subject to the condition that the Upper Yampa Water Conservancy District shall not divert water from Morrison Creek at either decreed point of diversion if such diversion would reduce the stream flow immediately below the point of diversion below 15 c.f.s., provided that this limitation shall not apply to any alternate point of diversion where the headgate is located outside Township 3 North, Range 84 West of the 6th P.M. decreed by the Court in a change case.

Diligence Activities. During this first diligence period, preceding the filing of this Application, Applicant expended resources and conducted such activities that constitute a steady application of effort to complete the appropriation in a reasonably expedient and efficient manner under all the facts and circumstances. C.R.S. § 37-92-301(4)(b). These activities included:

A. Field work and mapping of water delivery system by District employees;

B. Engineering analyses and plans for augmenting flows into Stagecoach Reservoir and an enlargement thereof to store water diverted under this water right, including many analyses exploring alternate methods of accomplishing the stated purposes here; and

C. Participation in numerous water court proceedings to protect the conditional water rights as well as integrate this water right into the District's water supply program. In Case No. 2001 CW 41, this Court decreed that this water right is part of the District's integrated system of water rights, both absolute and conditional, decreed for storage in Stagecoach Reservoir, and that work done on any component of the portfolio and system will constitute due diligence work on the entire portfolio and system and each part thereof. The court finds that the activities conducted by Applicant during the diligence period were sufficiently site specific in that the project's intent was to divert water over Morrison Divide into Stagecoach Reservoir in some fashion.

D. Applicant has no intention to abandon the subject water rights.

District's Service Area. The District provides raw water for irrigation and livestock uses, power production, domestic, municipal and other uses as well as augmentation of such uses to its constituents and contractees within its service area. The District's service area covers nearly all of Routt County and a portion of Moffat County. It extends from the headwaters of the Yampa River and its tributaries downstream to an area just south and west of the City of Craig.

Future District Demands. The Court finds that water demand for domestic, irrigation, commercial and municipal uses in the upper Yampa Basin within Applicant's service area will increase in the future. Routt County's population growth is expected to grow at an average rate of between 2.0 and 2.5 per cent per year over the next 30 years based on reasonable growth projections. This population increase will require additional diversions to satisfy future demands above the District's current supply. Future industrial and commercial uses will add to this demand. The Court further finds that the District's planning period, population projections, and anticipated future demands are reasonable and are based upon substantiated projections. This court finds and concludes that Applicant has presented sufficient evidence to satisfy all requirements of the law set forth in *Pagosa Area Water and Sanitation District v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007).

Anti-Speculation. The water right claimed herein is based upon a non-speculative intent and the court finds that Applicant has a specific plan and intent to divert, store, capture, possess, and control water for specific beneficial uses. § 37-92-103(3)(a)(II), C.R.S. (2008).

Unappropriated Water. The partie here stipulated that unappropriated water is available for beneficial use in the amounts claimed in the Application. The court finds that the amounts claimed are necessary to meet the District's anticipated future needs above its current water supply.

Feasibility. Based upon the totality of the facts and circumstances of this case, the Applicant has established that water can and will be diverted under the subject conditional water right and will be beneficially used, and that this water supply project can and will be completed with diligence and within a reasonable time. The court finds that the water rights claimed here are administrable under Colorado law.

Decreed Right to Store. Opposers filed a Motion for Determination for Questions of Law challenging *inter alia* the validity of the Corrected Decree of this Court entered in Case No. 1994 CW 149 dated July 14, 2003. The Court hereby denies that motion.

CONCLUSIONS OF LAW

To the extent they constitute legal conclusions, the foregoing Findings of Fact are incorporated herein.

Complete Application. The Application is complete, covering all applicable matters required pursuant to the Water Right Determination and Administration Act of 1969, §§37-92-101 through 602, C.R.S. (2008). The Court hereby concludes the Applicant has fulfilled all legal requirements for a decree for the requested finding of reasonable diligence.

Conditional Water Right. A governmental water entity must establish a reasonable water supply planning period, substantiated population projections based on a normal rate of growth, the amount of water necessary to satisfy projected demands, and that it can and will complete the

appropriation within a reasonable time. *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007).

Fully Integrated System. As decreed in Case No. 2001 CW 41, the conditional water rights decreed herein are individual components of Applicant's integrated water supply system. Consequently, in subsequent diligence proceedings, work on any one feature of Applicant's supply system shall be considered in finding that reasonable diligence has been shown in the development of water rights for all features of Applicant's water supply system. § 37-92-301(4)(b), C.R.S. (2008).

JUDGMENT AND DECREE

The foregoing Findings of Fact and Conclusions of Law are incorporated herein.

Right to Store. As indicated in the foregoing Findings of Fact, the Opposers challenged the validity of the Applicant's decreed right to store water diverted pursuant to the conditional water right involved in this case and raised other issues concerning administration of this right. The court denied the Opposers' Motion challenging the validity of the Corrected Decree entered in Case No. 1994 CW 149.

Diligence. The court hereby confirms and decrees that the Applicant has been reasonably diligent in the development of the conditional water rights of the Little Morrison Diversion and Little Morrison Diversion Alternate Point, in the amount of 50 c.f.s., for all of the reasons set forth above. The conditional water right for the Little Morrison Diversion and Little Morrison Diversion Alternate Point shall be in full force and effect until the last day of February, 2015. If the Applicant wishes to maintain the conditional water right thereafter, it shall file an application for a finding of reasonable diligence on or before that date, or make a showing on or before then that the conditional water right has become absolute by reason of the completion of the appropriation.

In subsequent diligence proceedings, work on any one feature of Applicant's supply system shall be considered in finding that reasonable diligence has been shown in the development of conditional water rights for all features of Applicant's water supply system. § 37-92-301(4)(b), C.R.S. (2008).

Water Matters. Review of determinations made by the Division Engineer or the State Engineer in administration of the subject water right is a water matter over which the Water Court has exclusive jurisdiction.

Transfer of Conditional Right. Pursuant to Rule 9 of the Uniform Local Rules for All States Water Court Divisions, upon the sale or other transfer of the conditional water rights of the Little Morrison Diversion and Little Morrison Diversion Alternate Point, the transferee shall file with the Division 6 Water Court a notice of transfer which shall state:

A. The title and case number of this Case No. 2004 CW 10;
B. The description of the conditional water right transferred;

C. The name of the transferor;
D. The name and mailing address of the transferee, and
E. A copy of the recorded deed.

The owner of the said conditional water right shall also notify the Clerk of the Division 6 Water Court of any change in mailing address. The Clerk shall place any notice of transfer of change of address in the case file of this Case No. 2004 CW 10 and in the case file (if any) in which the Court first made a finding of reasonable diligence.

It is accordingly ordered that this Decree shall be filed with the Water Clerk and shall become effective upon such filing, subject to judicial review pursuant to § 37-92-304, C.R.S. (2008) as amended.

It is further ordered that a copy of this Decree shall be filed with the State Engineer and the Division Engineer for Water Division No. 6.

Done this 14th day of February, 2009.

BY THE COURT:

Michael A. O'Hara, III
Water Judge

DISTRICT COURT, WATER DIVISION 6, COLORADO P.O. Box 773117 Steamboat Springs, Colorado 80477 Phone Number: (970) 879-5020 CONCERNING THE APPLICATION FOR WATER RIGHTS OF: **UPPER YAMPA WATER CONSERVANCY DISTRICT** IN THE YAMPA RIVER OR ITS TRIBUTARIES IN ROUTT COUNTY, COLORADO.	▲ COURT USE ONLY ▲ **Case No. 07CW61** WATER DIVISION 6

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND JUDGMENT AND DECREE

This matter came before the Court upon the Application for Change of Water Rights. The Court having reviewed the Application and other pleadings in this case, and now being fully advised with respect to this matter, enters the following Findings of Fact, Conclusions of Law and Judgment and Decree:

FINDINGS OF FACT

1. **Applicant.** The Applicant is the Upper Yampa Water Conservancy District, c/o Kevin McBride, General Manager, whose address is P. O. Box 880339, Steamboat Springs, Colorado 80488 (hereafter, the "Applicant" or "District"). Applicant is represented in this matter by Weiss & Van Scoyk, LLP, 600 South Lincoln Avenue, Suite 202, Steamboat Springs, Colorado 80487, (970) 879-6053, and Balcomb & Green, P.C., P.O. Drawer 790, Glenwood Springs, Colorado 81602, (970) 945-6546.

A. The District was formed under the Water Conservancy Act of the State of Colorado by decree of the Routt County District Court in Civil Action 3815 on March 8, 1966. See generally C.R.S. § 37-45-101 through 153. The District's purpose was and 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 as well as plan for and assist 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 is divided into three (3) divisions with a total of nine (9) directors, three from each division, who constitute the District's Board of Directors.

B. 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. C.R.S. §§37-45-118 and 37-92-302(5).

2. **Application**. The District filed an Application for Change of Water Rights on October 30, 2007. The Application requested to change a portion of the conditional water storage rights owned by the District and decreed to the Pleasant Valley Reservoir and Pleasant Valley Feeder Canal (the "Pleasant Valley Project Rights") upstream for storage in the Morrison Creek Reservoir from which it may be released to Morrison Creek for beneficial uses within Applicant's service area and/or delivered over the Morrison divide and down the Little Morrison Creek drainage for storage in Stagecoach Reservoir as it exists or may be enlarged for subsequent release and beneficial use within the District.

3. **Notice and Jurisdiction**. The Application was properly published in the resume for Water Division No. 6. All notices required by law have been properly made, including as required under C.R.S. § 37-92-302(3). The Court has jurisdiction over the Application and over all entities or persons who had standing to appear, even though they did not do so. The Court finds that the relief granted herein is consistent with the relief originally requested in the Application and for which public notice was provided.

4. **Opposition.** Statements of Opposition to the Application were timely filed by the following persons and entities: Dorothy J. Dickerson, Betty Jane Lay, and Hattie M. Miles (*pro se*), DeQuine Family, LLC, Flying Diamond Resources, and Kim Singleton (represented by Petros & White, LLC), James A. Larson (represented by Petros & White, LLC), the Colorado Water Conservation Board (represented by the Colorado Attorney General), the State and Division Engineer, Water Division 6 (represented by the Colorado Attorney General), the Catamount Metropolitan District (represented by Holland & Hart LLP), Catamount Development, Inc. (represented by Petros & White, LLC), the United States of America, through the United States Forest Service (represented by the United States Department of Justice), and the Robert and Elaine Gay Limited Partnership (*pro se*).

5. **Settlements.** The District has entered into stipulations approving the entry of a decree granting the Application in the form of this Decree with the following parties:

A. State Engineer and Division Engineer, Water Division 6, dated August 29, 2009.

B. Colorado Water Conservation Board, dated August 31, 2009.

C. Catamount Development Inc. and Catamount Metropolitan District, dated September 3, 2009.

D. Dorothy J. Dickerson, Betty Jane Lay, and Hattie M. Miles, dated September 5, 2009.

E. United States of America c/o U.S.D.A. Forest Service, dated September 21, 2009

F. DeQuine Family, LLC, Flying Diamond Resources, Kim Singleton, and James A. Larson withdrew their statements of opposition on May 22, 2009.

G. The Robert and Elaine Gay Limited Partnership withdrew its statement of opposition on October 1, 2009.

6. **District's Uses and Service Area.**

A. The District provides raw water for domestic, municipal, irrigation, commercial, industrial and other uses to its constituents and contractees within its service area. The District's service area covers nearly all of Routt County and a portion of Moffat County. It extends from the headwaters of the Yampa River and its tributaries downstream to an area just south and west of the City of Craig.

B. The District has existing contracts for delivery of water from Stagecoach Reservoir in the annual amount of 13,192 acre-feet for such uses. The District's contractees use and will use their contracted water supplies either by direct delivery and diversion for beneficial use or by augmentation under judicially approved plans that they have secured. The District also has adjudicated an area-wide augmentation plan, approved by this Court in Case No. 06CW49, to provide for additional contracts in the amount of up to 2,000 acre feet of annual releases for augmentation to additional District contractees. The District also operates a hydropower operation at Stagecoach Reservoir.

C. Water demand for domestic, irrigation, industrial, commercial and municipal uses in the upper Yampa Basin within Applicant's service area will increase in the future. The District has an identified planning period of 50 years. During that period, the demands for water under the District's existing contracts and anticipated future contracts are expected to increase because of changes in water rights administration requiring contractees to use more water directly or by exchange and growth within the individual service areas.

D. Applicant has an identified non-speculative use for the Pleasant Valley Project Rights as changed herein.

7. **Existing District Supplies and Need for Additional Supplies.** The District has existing water rights associated with Stagecoach Reservoir. The evidence demonstrates that the yield of Stagecoach Reservoir may not be adequate to provide for the full delivery of existing and anticipated contracts during a drought period. Therefore, in order to have a reliable supply, the District needs additional supplies, developed either by an enlargement of Stagecoach Reservoir and/or by the delivery of water from a basin such as Morrison Creek basin that is not tributary to Stagecoach Reservoir.

8. **Water Rights to be Changed**: The District owns and the following conditional water rights, collectively referred to as the "Pleasant Valley Project Rights" that are changed by this decree:

A. **Pleasant Valley Reservoir**:

(1) *Previous Decrees*: Case No. Civil Action 3926, as modified by decree entered in Case No. W-946-76, and Case No. 01CW41.

(2) *Court*: Routt County District Court, and District Court for Water Division No. 6, Colorado.

(3) *Decreed Places of Storage*: The left abutment is located at a point whence the SW corner of Section 33, Township 5 N., R. 84 W., bears South 38˚42' West at a distance of 11,076.6 feet. Pleasant Valley Reservoir also has the following three alternate storage locations as decreed in Case No. W-946-76:

(a) 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.

(b) 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.

(c) Alternate Storage Location No. 3: Stagecoach Reservoir, formerly known as 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.

(4) *Source*: Yampa River and water discharged into the reservoir from the Pleasant Valley Feeder Canal.

(5) *Appropriation Date*: June 29, 1959, Priority No. 39A, for irrigation, domestic, stock watering, municipal, industrial and power uses (the "1959 Pleasant Valley Reservoir Right"), and June 29, 2001 priority date for augmentation and exchange for replacement purposes and all other augmentation uses as decreed in Case No. 01CW41, District Court, Water Division 6 (the "2001 Pleasant Valley Reservoir Right").

(6) *Amount*: 10,620 acre-feet out of 43,220 acre-feet conditionally decreed.

(7) *Decreed Uses*: Irrigation, domestic, stock watering, municipal, industrial and power uses and appropriative rights of exchange and substitution, augmentation and exchange for replacement purposes and all other augmentation uses.

B. **Pleasant Valley Feeder Canal**:

(1) *Previous Decrees*: Case No. Civil Action 3926 as modified by decree entered in Case No. W-946-76 and Case No. 01CW41.

(2) *Court*: Routt County District Court and District Court for Water Division No. 6, Colorado.

(3) *Decreed Point of Diversion and Places of Storage*: The Canal takes its water from Walton Creek and McKinnis Creek: The first headgate and point of diversion is located on the left bank of Walton Creek at a point whence the SW Corner of Sec. 10, Township 5 N., Range 84 W. bears S. 55˚41' West a distance of 5112.6 feet. The second headgate is located on the left bank of McKinnis Creek at a point whence the SW Corner of Sec. 16, Township 5 N., Range 84 W. bears S. 73˚22' West a distance of 7,576.6 feet. The Canal also has the same three alternate storage locations as Pleasant Valley Reservoir described above, as decreed in Case No. W-946-76.

(4) *Source*: Walton Creek and McKinnis Creek, tributaries to the Yampa River.

(5) *Appropriation Date*: June 29, 1959, Priority No. 39, for irrigation, domestic, stock watering, municipal, industrial and power uses (the "1959 Pleasant Valley Feeder Canal Right"), and June 29, 2001 priority date for augmentation and exchange for replacement purposes and all other augmentation uses as decreed in Case No. 01CW41, District Court, Water Division 6 (the "2001 Pleasant Valley Feeder Canal Right").

(6) *Amount*: 300 c.f.s., conditional.

(7) *Decreed Uses*: Irrigation, domestic, stock watering, municipal, industrial and power uses and appropriative rights of exchange and substitution, augmentation and exchange for replacement purposes and all other augmentation uses.

9. **Changes of Water Rights**: This Decree changes a portion of the Pleasant Valley Reservoir right to allow for storage at Morrison Creek Reservoir and subsequent delivery to Stagecoach Reservoir and provides for an alternate point of diversion for the Pleasant Valley Feeder Canal right at Morrison Creek Reservoir. Stagecoach Reservoir is described above in paragraph 8.A(3)(c). Morrison Creek Reservoir is more specifically described as follows:

A. *Location*: The centerline of the proposed Morrison Creek Reservoir dam intersects Morrison Creek at a location within the SE1/4, NE1/4, Section 10, Township 3 North, Range 84 West of the 6th P.M. at a point located 244 feet west of the east section line and 1,539 feet south of the north section line of said Section 10.

B. *Amount*: The Application claimed a total annual storage by fill and refill of 10,620 AF. Of this amount, 4,965 AF will be accounted for under the first fill, 4,965 will be accounted for under the second fill, and an additional estimated 690 AF will be lost to evaporation. Under this practice, the Morrison Creek Reservoir will be allowed annually to store water available to the Pleasant Valley Project Rights with deliveries then made to Stagecoach Reservoir, described below, and account for evaporative loss from Morrison Creek Reservoir.

C. *Source*: The Morrison Creek Reservoir is an on-channel reservoir to be located on Morrison Creek.

D. *Surface Area*. 330.45 acres.

E. *Height of Dam*: 47 feet

F. *Length*: 336 feet

G. *Capacity*: 4,965 AF

(1) Active Capacity: 4,900 AF

(2) Dead Storage: 65 AF

10. **Uses of Water**.

A. Water diverted and stored in the Morrison Creek Reservoir under the Pleasant Valley Project Rights may be released from the Morrison Creek Reservoir for the decreed uses identified in paragraph 8 above within the District's service area, and/or may be subsequently delivered to Stagecoach Reservoir and any future enlargement of said Reservoir for subsequent use within the District's service area.

B. Delivery from Morrison Creek Reservoir to Stagecoach Reservoir may be made by pipeline and/or ditch across the Morrison Divide and further pipeline, ditch and/or use of the stream channel of Little Morrison Creek and/or any tributary of Little Morrison Creek.

11. **Contemplated Draft of Rights to be Changed**.

A. The Court received evidence concerning the contemplated draft of the water rights to be changed, specifically the amount that would be available for diversion and storage at the original dam site of the Pleasant Valley Reservoir and the headgate of the Pleasant Valley Feeder Canal. The District's experts utilized available and reliable stream flow records regarding the Yampa River and its tributaries and a study period of 1985 through the 2007 water year in order to simulate the available diversions for the Pleasant Valley Reservoir and its Feeder Canal as if they were constructed at their original points of diversion and storage. Appropriate adjustments were made in the data to reflect the development of major diversion facilities, specifically including the District's Stagecoach Reservoir.

B. The analysis revealed that, if operated pursuant to their originally decreed priorities, the Pleasant Valley Project Rights could have diverted on average 42,607 acre-feet per year of storage, assuming that all of the water stored in Pleasant Valley Reservoir had been released prior to the end of each modeled storage year (March through February). The analysis considered a demand of existing water rights on Walton Creek totalling 289 cfs. During the most extreme dry periods, at least 34,200 acre feet of water was available for storage. This amount of water is sufficient to account for the 23,354 acre feet already made absolute in Yamcolo and Stagecoach Reservoirs and the additional 10,620 acre feet proposed for the Morrison Creek Reservoir. Accordingly, junior rights located downstream from the original points of diversion and storage shall not be required to by-pass any of the amount determined to be legally and physically available. In addition, terms and conditions have been included at paragraph 12, below, to prevent an enlargement of the draft on Morrison Creek or Walton Creek.

C. The Court has recognized in Case No. 01CW41, District Court, Water Division 6, that the Pleasant Valley Project Rights may be stored under the 2001 priority and used for augmentation and exchange for replacement purposes and all other augmentation uses. Consequently, the water stored under the Pleasant Valley Project Water Rights at the Morrison Creek Reservoir under the 2001 priority may be fully consumed and issues of contemplated diversion and return flows are not relevant in the Court's analysis of the contemplated draft.

D. The evidence establishes that water was available in the amounts claimed at the original points of diversion and place of storage, which points of diversion and places of storage are moved upstream as decreed herein.

12. **Administrative Conditions**.

A. *Storage limitations.*

(1) Applicant will, in consultation with the Division Engineer, establish a reservoir accounting system for Morrison Creek Reservoir. The accounting year shall have a start date of April 1. Water stored in the Morrison Creek Reservoir under the Pleasant Valley Project Rights will be first accounted for under the first fill up to an amount being the lesser of 4,965 acre feet or the actual constructed capacity of the Reservoir. Subject to the provisions of this decree, this first fill will be accounted for and administered under the 1959 Rights. Some or all of this water may be subsequently delivered to Stagecoach Reservoir as above provided and/or may be released for delivery down Morrison Creek and the Yampa River for beneficial use.

(2) As reservoir storage space becomes available in the Morrison Creek Reservoir as a result of deliveries to Stagecoach Reservoir, the District will continue to fill the Morrison Creek Reservoir, when in priority under the Pleasant Valley Project Rights, under a second fill with the total yearly storage and diversions not to exceed the lesser of 10,620 AF or the sum of the first and second fills of the actual constructed capacity of the Reservoir, plus evaporation replacement calculated by multiplying the surface area of the Reservoir by 1.84 feet/year. Subject to the provisions of this decree, the second fill under the Pleasant Valley Project Rights will be accounted for and administered under the 2001 Rights. Some or all of this water may be subsequently delivered to Stagecoach Reservoir as above provided for such beneficial use, and/or may be released for delivery down Morrison Creek and the Yampa River for such beneficial use. The District shall develop and implement an accounting system that tracks the amount and priority of water stored in Morrison Creek Reservoir and water that has been stored and subsequently delivered to Stagecoach Reservoir. The accounting system will be developed in concert with the Division Engineer's Office.

(3) The District shall separately account for water diverted and stored in Stagecoach Reservoir under the Pleasant Valley Project Rights changed herein (the "Morrison Creek Pool"). At the start of each accounting year (April 1st), all water remaining in storage in Stagecoach Reservoir in the Morrison Creek Pool and in Morrison Creek Reservoir, pursuant to the Pleasant Valley Project Rights changed herein, shall be credited against the first fill of Morrison Creek Reservoir for that year and shall be accounted for and administered under the 1959 Rights, in an amount not to exceed 4,965 AF. Any amount in excess of the first fill will be credited against the second fill of Morrison Creek Reservoir and accounted for and administered under the 2001 Rights, and will be considered to be stored in Morrison Creek Reservoir unless prior to April 1 the District notifies the Division Engineer that some portion of the 2001 Rights are being stored in Stagecoach Reservoir.

(4) In establishing its annual release schedule from Stagecoach Reservoir, the District may elect to first release water from its Morrison Creek Pool before releasing water that is stored in Stagecoach Reservoir from Yampa River Sources. The District shall separately account for releases made from the Morrison Creek Pool stored in Stagecoach Reservoir. Prior to any release of water from the Morrison Creek Pool in Stagecoach Reservoir the District shall notify the Division Engineer's Office of the date and rate of such release. After providing such notice, and to account for fluctuations in releases from the Reservoir, all releases of water stored in Stagecoach Reservoir shall be attributed to the Morrison Creek Pool until such time when the Morrison Creek Pool is vacated or the District notifies the Division Engineer of any cessation in the rate of release of water from Morrison Creek Pool or combination of releases from the Morrison Creek Pool and other Yampa River Sources. Absent such notice that the District is releasing water from the Morison Creek Pool, storage releases from Stagecoach Reservoir will be accounted as a release of water stored in Stagecoach Reservoir from Yampa River Sources.

B. *Bypass and other requirements*:

(1) In the event of a call placed by the Colorado Water Conservation Board for its instream flow right on the Yampa River decreed in Case No. 01CW106, which call is recognized and administered by the Division Engineer, the District shall maintain a bypass flow through the Morrison Creek Reservoir as the lesser of 1) the natural inflows to the Reservoir, or 2) the amount necessary to bring the Yampa River flow just downstream of the confluence with Morrison Creek up to the decreed instream flow amount.

(2) During such times when the District is filling Morrison Creek Reservoir under the Pleasant Valley Project Rights as changed herein, bypasses will be made at the dam of the Morrison Creek Reservoir as necessary to satisfy a call recognized and administered by the Division Engineer from existing decreed water rights with priorities senior to October 30, 2007, but junior to the June 29, 1959 appropriation for the Pleasant Valley Project Rights, that are then diverting from points located on potentially affected reaches of Morrison Creek, and the Yampa River from its confluence with Morrison Creek down to its confluence with Walton Creek, but only as further described below:

(a) In the event of a call placed by any water right(s) located between the confluence of Morrison Creek and the Yampa River and the confluence of Walton Creek and the Yampa River, which call is recognized and administered by the Division Engineer, bypasses will be made in the amount necessary (in conjunction with other rights junior to October 30, 2007) to satisfy such a call by such water right(s).

(b) In addition, should the Division Engineer allow the District to store the water changed herein out-of-priority as allowed by section 37-80-120(1), C.R.S. (2008), the District shall release, in the same reservoir accounting year, such water stored out-of-priority on demand (made in the same reservoir accounting year) of a downstream senior water storage right with a priority date senior to October 30, 2007 and that is located on Morrison Creek or the Yampa River between Morrison Creek Reservoir and the confluence of the Yampa River and Walton Creek whenever needed by such senior for its decreed uses in the same reservoir accounting year.

(3) In order to recognize the draft on Morrison Creek of the Pleasant Valley Reservoir Water Right, and to avoid an enlarged draft on the Morrison Creek basin, during such times when the District is filling under the 2001 Pleasant Valley Reservoir Right, the District shall not place a call on any water rights with priority senior to October 30, 2007. Additionally, during such times when the District is filling Morrison Creek Reservoir under the Pleasant Valley Feeder Canal 1959 or 2001 Rights, the District shall not place a call on any water rights diverting from Morrison Creek with priorities senior to October 30, 2007.

(4) So as not to enlarge the draft on Walton Creek, the District will only divert the Pleasant Valley Feeder Canal 1959 or 2001 Rights at Morrison Creek Reservoir when the flows in Walton Creek exceed 289 cfs. During such times when the District is filling Morrison Creek Reservoir under the Pleasant Valley Feeder Canal 1959 or 2001 Rights, the District shall not place a call on any water rights diverting from Morrison Creek with priorities senior to October 30, 2007.

(5) Bypasses made by the District under Subparagraph B.(1) above for the benefit of the Colorado Water Conservation Board's instream flow right on the Yampa River as decreed in Case No. 01CW106 may also be accounted to meet the bypasses required under Subparagraph B.(2) above for calling water rights senior to October 30, 2007 then diverting between the inlet to Lake Catamount and the confluence of the Yampa River and Walton Creek, less transit losses, if any, between Morrison Creek Reservoir and the inlet to Lake Catamount.

C. *Contract releases*. Contract releases of the Pleasant Valley Project Rights as changed herein and stored in Morrison Creek Reservoir or in Stagecoach Reservoir after delivery from Morrison Creek Reservoir in the same water administration year shall be in addition to any minimum by-pass or release obligations that exist or may be imposed for the respective reservoir.

D. *Existing gage*. If the existing Division of Water Resource's gage on Morrison Creek at the reservoir site is inundated by the District's project, the District shall move the gage to a location on Morrison Creek downstream of the reservoir for which the Division of Water Resources or Colorado Water Conservation Board has obtained a legal right to permanently place and maintain such gage. The relocated gage shall maintain its current configuration with a satellite monitoring system.

E. *Access*. The District shall grant the CWCB reasonable access to any measuring devices on Morrison Creek or Morrison Creek Reservoir that are installed by the District and come within the District's possession or control.

F. *Inundation*.

(1) The CWCB holds an instream flow water right ("ISF") decreed, in Case No. 77CW1328, District Court, Water Division 6, which extends upstream from the confluence of Morrison Creek and Silver Creek. Storage in the Morrison Creek Reservoir may inundate a portion of the CWCB's instream flow right on Silver Creek. The extent of this possible inundation of the CWCB's instream flow right as it relates to the proposed Morrison Creek Reservoir is not known with precision at this time. During the permitting process and prior to commencing construction of the Morrison Creek Reservoir that would inundate any existing CWCB instream flow right on Silver Creekdecreed in Case No. 77CW1328, the District shall request and obtain approval from the CWCB for such storage pursuant to the provisions of 2 CCR 408-2, Section 7, or any successor regulation regarding inundation then in effect. The District shall provide the Court and Division Engineer, Water Division 6, with a copy of any resolution, order, or other relevant proof, authorizing the inundation of the CWCB's instream flow right. Inundation shall not be allowed absent such approval and notice to the Court and Division Engineer, so long as the CWCB instream flow right decreed in Case No. 77CW1328 remains in effect.

(2) Storage of 4,645 AF under conditions of a probable maximum flood in the Morrison Creek basin may inundate lands within the boundary of the Sarvis Creek Wilderness Area. The boundary of the Wilderness Area as it relates to the proposed Morrison Creek Reservoir is not known with precision at this time. During the planning for design of the reservoir dam, the District shall cause the boundary line of the Wilderness Area at the inlet of the proposed reservoir adjacent to the Wilderness Area to be surveyed to the satisfaction of the United States Forest Service. The dam and spillway shall then be designed to the satisfaction of the United States Forest Service so that under the calculated probable maximum flood condition in the Morrison Creek basin the reservoir will not inundate any lands within the Wilderness Area as it then exists. Such design may result in a decrease in the anticipated dam and spillway crest elevation and a decrease in the volume that can be stored. If that occurs, the decreed volume will be

decreased accordingly in future diligence or absolute conversion applications regarding the right decreed in this case.

G. *National Forest System Lands*. To the extent that any of the diversion or conveyance structures described herein are to be located on National Forest System lands within the Routt National Forest the following conditions apply:

(1) The Routt National Forest is managed by the Untied States Department of Agriculture ("USDA") Forest Service. Applicant acknowledges that entry of a decree in this matter does not create any right, title or interest in the use of federal lands in the Routt National Forest. Any use of federal lands is contingent on and subject to Applicant having or obtaining appropriate authorization issued by the USDA Forest Service pursuant to pertinent statutes, regulations and policies applicable to the occupancy and use of National Forest System Lands.

(2) Applicant acknowledges that, absent other appropriate authorization recognized by the Forest Service, it must apply for and obtain appropriate authorization and approval for use and operation on federal lands before it can construct, reconstruct alter or revise any diversion or conveyance facilities on National Forest System Lands. For those water rights diverting on, traversing or otherwise occupying federal lands, any decree making the conditional water rights decreed in this matter absolute shall be consistent with nay limitations contained in the special use permit, easement or other authorization applicable to the exercise of that right on or across federal lands.

(3) Applicant recognizes that the consideration of and action on requests for necessary federal permits and authorizations shall be carried out pursuant to all pertinent statutes, regulations and policies applicable to the occupancy and use of National Forest System Lands, including, but not limited to the National Forest Management Act, federal Land Policy and Management Act, National Environmental Policy Act, and the Endangered Species Act. Applicant agrees that the entry of the decree herein shall not in any way limit the Authority of the USDA Forest Service with respect to the agency's consideration of and action on such requests for permits, approvals, or authorizations. Applicant recognizes that the USDA Forest Service can impose terms and conditions, and/or deny such requested contracts, approvals, or authorizations, and is not in any way limited or affected by the entry of the requested conditional water rights decree.

13. **Anti-Speculation**. The change of water right claimed herein is based upon a non-speculative intent, and the Applicant has a specific plan and intent to divert, store, capture, posses, and control water for specific beneficial uses.

14. **Feasibility**. Based upon the totality of the facts and circumstances of this case, the Court hereby concludes the Applicant has established that water can and will be diverted under the

subject conditional water right and will be beneficially used, and that this water supply project can and will be completed with diligence and within a reasonable time.

15. **No Injury**. Subject to the terms and conditions decreed herein, the change of water rights described herein will not injuriously affect the owner of or persons entitled to use water under any vested water right or a decreed conditional water right.

CONCLUSIONS OF LAW

16. To the extent they constitute legal conclusions, the foregoing Findings of Fact are incorporated herein.

17. **Change of Rights.** A "change of water right" includes a change of conditional water rights to new points of diversion or places of storage. C.R.S. § 37-92-103(5). Such a change shall be approved if it will not injuriously affect the owners of or persons entitled to use water under any vested water right or decreed conditional water right. C.R.S. § 37-92-305(3)(a). An adjudicated water right is entitled to maintenance of stream conditions existing at the time of its appropriation. *Colorado Water Conservation Board v. City of Central*, 125 P.3d 424 (Colo. 2005).

18. **Contemplated Draft of Conditional Water Rights**. A change of a conditional water right is limited to the contemplated draft of the original appropriation. *Twin Lakes Reservoir & Canal Co. v. City of Aspen*, 568 P.2d 45 (Colo. 1977).

19. **Substantiated Demands.** A governmental water entity must establish a reasonable water supply planning period, substantiated population projections based on a normal rate of growth, the amount of water necessary to satisfy projected demands above its current supply, and that it can and will complete the appropriation within a reasonable time. *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007). "A governmental agency need not be certain of its future water needs; it may conditionally appropriate water to satisfy a projected normal increase in population within a reasonable planning period." *Id*. at 315; C.R.S. § 37-92-103(3)(a)(I) (2008).

JUDGMENT AND DECREE

20. The foregoing Findings of Fact and Conclusions of Law are incorporated herein.

21. **Change of Water Rights.** The change of water rights for the Pleasant Valley Project Rights is granted subject to the terms and conditions above stated, and the following additional conditions:

A. *Measurement*. The District shall install, maintain and operate such measuring devices as determined by the Division Engineer as necessary to administer the change of water rights approved herein.

B. *Accounting*. The District shall maintain and submit such accounting of the operation of the Pleasant Valley Project Rights as determined by the Division Engineer is necessary to administer the change of water rights approved herein.

C. *Avoidance of Wilderness Area*. The District shall not inundate any lands located within the Sarvis Creek Wilderness Area with the construction and operation of the Morrison Creek Reservoir.

D. *Effect of changes*. Applicant's analysis of the Pleasant Valley Project Rights established that the water would be available for diversion every year. In addition, terms and conditions have been considered to avoid any enlargement to the contemplated draft of the Pleasant Valley Project Rights. Therefore, existing decreed junior rights located downstream from the original points of diversion and storage shall not be required to by-pass any of the amount determined to be legally and physically available as a result of this upstream change in place of storage.

E. *Physically and legally available*. Any water diverted at Morrison Creek Reservoir under the Pleasant Valley Project Rights must be physically and legally available at the original points of diversion.

22. **Retained Jurisdiction**. The Court shall retain jurisdiction for reconsideration of the change of water rights approved herein for a period of five years after Morrison Creek Reservoir has been constructed and water delivered to Stagecoach Reservoir. The District shall give notice to the Court, the Division Engineer, and all opposers of the initiation of such operation for any of such decreed uses.

23. **Fully Integrated System**. As decreed in Case No. 01CW41, the conditional water rights decreed herein are individual components of Applicant's integrated water supply system. Consequently, in subsequent diligence proceedings, work on any one feature of Applicant's supply system as described in such Case No. 01CW41 and as may be supplemented by court decree in the future shall be considered in finding that reasonable diligence has been shown in the development of water rights for all features of Applicant's water supply system, including the Pleasant Valley Project Rights changed by this case. C.R.S. § 37-92-301(4)(b).

24. **Water Matters**. Review of determinations made by the Division Engineer or the State Engineer in administration of the change of water rights is a water matter over which the Water Court has exclusive jurisdiction.

****

It is accordingly ordered that these Findings of Fact, Conclusions of Law, Judgment and Decree shall be filed with the State Engineer and the Division Engineer for Water Division No. 6.

Done at the City of Steamboat Springs, Colorado, this 5th day of October, 2009.

BY THE COURT:

Michael A. O'Hara, III, Water Judge
Water Division No. 6

This document constitutes a ruling of the court and should be treated as such.

Court: CO Routt County District Court 14th JD

Judge: Michael Andrew O'Hara

File & Serve Transaction ID: 27360013

Current Date: Oct 05, 2009

Case Number: 2007CW61

Case Name: In the interest of: UPPER YAMPA WATER CONSERVANCY DISTRICT

/s/ Judge Michael Andrew O'Hara III

DISTRICT COURT, WATER DIVISION 6, COLORADO
P.O. Box 773117
Steamboat Springs, Colorado 80477
Phone Number: (970) 879-5020

CONCERNING THE APPLICATION FOR WATER RIGHTS OF:
UPPER YAMPA WATER CONSERVANCY DISTRICT

IN ROUTT AND MOFFAT COUNTIES, COLORADO.

COURT USE ONLY

CASES NO. 07CW61 AND 07CW72 (CONSOLIDATED)

WATER DIVISION 6

ATTORNEYS FOR APPLICANT: UPPER YAMPA WATER CONSERVANCY DISTRICT

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STIPULATION AND AGREEMENT AND MOTION TO APPROVE STIPULATION BETWEEN THE APPLICANT AND COLORADO WATER CONSERVATION BOARD

Applicant, Upper Yampa Water Conservancy District, and Opposer Colorado Water Conservation Board ("CWCB") through their respective attorneys, hereby stipulate and agree to the following and move the Court to enter an Order approving said Stipulation:

1. The District filed an application in Case No. 07CW61 to change conditional water rights decreed to the Pleasant Valley Reservoir and Pleasant Valley Feeder Canal ("Pleasant Valley Rights") to the Morrison Creek Reservoir Site on October 30, 2007. The

District also filed an application in Case No. 07CW72 for new conditional water storage rights for the Morrison Creek Reservoir on November 29, 2007.

2. The CWCB filed timely statements of opposition to the Application in Case No. 07CW61 on November 21, 2007 and in Case No. 07CW72 on January 31, 2008. These cases have been consolidated for purposes of trial by Order of the Court dated, February 18, 2009.

3. The District has incorporated terms and conditions into its proposed decree as requested by the CWCB. The CWCB consents to and will not oppose entry of a decree in this case that is no less restrictive than the decree versions dated 8-31-2009 attached hereto as **Exhibits A and B**, so long as the decree contains the agreed upon language in paragraph 4 and 5 of this stipulation.

4. Any decree entered in either of the two pending cases shall contain the following provision:

a. The CWCB holds an instream flow water right ("ISF") decreed, in Case No. 77CW1328, District Court, Water Division 6, which extends upstream from the confluence of Morrison Creek and Silver Creek. Storage in the Morrison Creek Reservoir may inundate a portion of the CWCB's instream flow right on Silver Creek. The extent of this possible inundation of the CWCB's instream flow right as it relates to the proposed Morrison Creek Reservoir is not known with precision at this time. During the permitting process and prior to commencing construction of the Morrison Creek Reservoir that would inundate any existing CWCB instream flow right on Silver Creek decreed in Case No. 77CW1328, the District shall request and obtain approval from the CWCB for such storage pursuant to the provisions of 2 CCR 408-2, Section 7, or any successor regulation regarding inundation then in effect. The District shall provide the Court and Division Engineer, Water Division 6, with a copy of any resolution, order, or other relevant proof, authorizing the inundation of the CWCB's instream flow right. Inundation shall not be allowed absent such approval and notice to the Court and Division Engineer, so long as the CWCB instream flow right decreed in Case No. 77CW1328 remains in effect.

5. The CWCB holds an instream flow ("ISF") on the Yampa River decreed in Case No. 01CW106, District Court, Water Division 6, which extends downstream from the confluence of Morrison Creek to the inlet of Lake Catamount Reservoir. The

decreed instream flow amount is 72.5 cfs from April 1 through August 14, and 47.5 cfs from August 15 through March 31. In the 01CW106 decree, dated December 8, 2003, and stipulation between UYWCD, US DOI, Trout Unlimited, and CWCB, dated July 19, 2001, all parties agreed that the ISF on the Yampa River relies on flows from Morrison Creek as follows: "The Board has determined that water is available for the full amount decreed herein, taking into account the operation of Stagecoach Reservoir consistent with its existing federal permits and/or licenses, the inflows into Stagecoach Reservoir from the Yampa River, and the inflows from Morrison Creek and side tributaries below Morrison Creek." In light of the 01CW106 decree and stipulation, any decree entered in either of the two pending cases shall contain the following provisions:

a. In the event of a call placed by the Colorado Water Conservation Board for its instream flow right on the Yampa River decreed in Case No. 01CW106, which call is recognized and administered by the Division Engineer, the District shall maintain a bypass flow through the Morrison Creek Reservoir as the lesser of 1) the natural inflows to the Reservoir, or 2) the amount necessary to bring the Yampa River flow just downstream of the confluence with Morrison Creek up to the decreed instream flow amount, after taking into account the curtailment of any junior rights on Morrison Creek and the Yampa River as a result of such call.

b. If the existing DWR gage on Morrison Creek at the reservoir site is inundated by the applicant's project, applicant agrees to move the gage to a location on Morrison Creek downstream of the reservoir for which the Division of Water Resources or Colorado Water Conservation Board has obtained a legal right to permanently place and maintain such gage. The relocated gage shall maintain its current configuration with a satellite monitoring system.

c. Applicant agrees, for purposes of this Stipulation, to grant the CWCB reasonable access to any measuring devices on Morrison Creek or Morrison Creek Reservoir that are installed by Applicant and come within Applicant's possession or control.

6. This Stipulation is entered into by way of compromise and settlement of this litigation and any agreement by the CWCB not to oppose entry of this proposed decree shall not be construed as a commitment to include any specific finding of fact, conclusion of law or specific engineering methodologies or administrative practices in future stipulations or as binding on the CWCB other than in the current proceeding.

7. The CWCB shall continue to receive copies of all pleadings in this case so as to ensure compliance with the provisions of this Stipulation.

8. The Stipulation shall be binding on the parties, their successors and assigns.

9. Each Party shall bear its own costs and attorney's fees.

10. The District shall file this Stipulation with the Water Court and may request an Order from the Court approving that Stipulation. This Stipulation shall be enforceable as an agreement between the Parties and, upon Court approval, as an Order of the Court.

Dated this 31st day of August 2009.

JOHN W. SUTHERS, ATTORNEY GENERAL

By: */s/ John J. Cyran*
John J. Cyran, #
First Assistant Attorney General
1525 Sherman Street, 7th Floor
Denver, CO 80203

Attorneys for Opposer
Colorado Water Conservation Board

WEISS AND VAN SCOYK, LLP
BALCOMB & GREEN, P.C.

BY: */s/ Scott A. Grosscup*
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Glenwood Springs, CO 81602

Attorneys for Applicant
Upper Yampa Water Conservancy District

CERTIFICATE OF SERVICE

I hereby certify that I have this date of August 31, 2009 a copy of the above and foregoing STIPULATION AND AGREEMENT AND MOTION TO APPROVE STIPULATION BETWEEN THE APPLICANT AND COLORADO WATER CONSERVATION BOARD were electronically served and sent by U.S. Mail upon the following:

1-19 of 19 Case Parties				
Party Name	Party Type	Attorney	Attorney Type	Firm
CATAMOUNT DEVELOPMENT, INC.	Opposer	White, Charles B.	Privately Retained Attorney	Petros & White LLC
CATAMOUNT METROPOLITAN DISTRICT.	Opposer	Hamilton, Mark E	Privately Retained Attorney	Holland & Hart LLP-Denver
CATAMOUNT METROPOLITAN DISTRICT.	Opposer	Winokur, Meghan	Privately Retained Attorney	Holland & Hart LLP-Denver
COLORADO WATER CONSERVATION BOARD.	Opposer	Odell, Devin	Attorney General	CO Attorney General
DICKERSON, DOROTHY J	Opposer	Pro Se	N/A	Pro Se-
LAY, BETTY JANE	Opposer	Pro Se	N/A	Pro Se-
LIGHT, ERIN	Division Engineer	Div 6 Water Engineer	Privately Retained Attorney	Division 6 Engineer
MILES, HATTIE M	Opposer	Pro Se	N/A	Pro Se-
ROBERT AND ELAINE GAY LIMITED PARTNERSHI.	Opposer	Pro Se	N/A	Pro Se-
STATE AND DIVISION ENGINEERS.	Opposer	Odell, Devin	Attorney General	CO Attorney General
UPPER YAMPA WATER CONSERVANCY DISTRICT.	Applicant	Weiss, Robert Gary	Privately Retained Attorney	Weiss & Van Scoyk LLP
USDA FOREST SERVICE.	Opposer	Dubois, James J	Alternate Defense Counsel	US Department of Justice-Denver

/s/ Elaine L. Benson
Elaine L. Benson, Paralegal

This document was filed electronically. An original signature copy is available for inspection at the office of the originating attorney, pursuant to Colorado Rule of Civil Procedure 121, § 1-26.

DISTRICT COURT, WATER DIVISION 6, COLORADO
P.O. Box 773117
Steamboat Springs, Colorado 80477
Phone Number: (970) 879-5020

DRAFT 8-31-09

CONCERNING THE APPLICATION FOR WATER RIGHTS OF:

UPPER YAMPA WATER CONSERVANCY DISTRICT
IN THE YAMPA RIVER OR ITS TRIBUTARIES

IN ROUTT COUNTY, COLORADO.

▲ COURT USE ONLY ▲

Case No. 07CW61

WATER DIVISION 6

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND JUDGMENT AND DECREE

This matter came before the Court upon the Application for Change of Water Rights. The Court having reviewed the Application and other pleadings in this case, conducted trial in this case on October 7 – 9, and October 13 – 16, 2009, and now being fully advised with respect to this matter, enters the following Findings of Fact, Conclusions of Law and Judgment and Decree:

FINDINGS OF FACT

1. **Applicant.** The Applicant is the Upper Yampa Water Conservancy District, c/o Kevin McBride, General Manager, whose address is P. O. Box 880339, Steamboat Springs, Colorado 80488 (hereafter, the "Applicant" or "District"). Applicant is represented in this matter by Weiss & Van Scoyk, LLP, 600 South Lincoln Avenue, Suite 202, Steamboat Springs, Colorado 80487, (970) 879-6053, and Balcomb & Green, P.C., P.O. Drawer 790, Glenwood Springs, Colorado 81602, (970) 945-6546.

A. The District was formed under the Water Conservancy Act of the State of Colorado by decree of the Routt County District Court in Civil Action 3815 on March 8, 1966. See generally C.R.S. § 37-45-101 through 153. The District's purpose was and 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 as well as plan for and assist 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 is divided into three (3) divisions with a total of nine (9) directors, three from each division, who constitute the District's Board of Directors.

B. 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. C.R.S. §§37-45-118 and 37-92-302(5).

2. **Application**. The District filed an Application for Change of Water Rights on October 30, 2007. The Application requested to change a portion of the conditional water storage rights owned by the District and decreed to the Pleasant Valley Reservoir and Pleasant Valley Feeder Canal (the "Pleasant Valley Project Rights") upstream for storage in the Morrison Creek Reservoir from which it may be released to Morrison Creek for beneficial uses within Applicant's service area and/or delivered over the Morrison divide and down the Little Morrison Creek drainage for storage in Stagecoach Reservoir as it exists or may be enlarged for subsequent release and beneficial use within the District.

3. **Notice and Jurisdiction**. The Application was properly published in the resume for Water Division No. 6. All notices required by law have been properly made, including as required under C.R.S. § 37-92-302(3). The Court has jurisdiction over the Application and over all entities or persons who had standing to appear, even though they did not do so. The Court finds that the relief granted herein is consistent with the relief originally requested in the Application and for which public notice was provided.

4. **Opposition.** Statements of Opposition to the Application were timely filed by the following persons and entities: Dorothy J. Dickerson, Betty Jane Lay, and Hattie M. Miles (*pro se*), DeQuine Family, LLC, Flying Diamond Resources, and Kim Singleton (represented by Petros & White, LLC), James A. Larson (represented by Petros & White, LLC), the Colorado Water Conservation Board (represented by the Colorado Attorney General), the State and Division Engineer, Water Division 6 (represented by the Colorado Attorney General), the Catamount Metropolitan District (represented by Holland & Hart LLP), Catamount Development, Inc. (represented by Petros & White, LLC), the United States of America, through the United States Forest Service (represented by the United States Department of Justice), and the Robert and Elaine Gay Limited Partnership (*pro se*).

5. **Settlements.** The District has entered into stipulations approving the entry of a decree granting the Application in the form of this Decree with the following parties:

A. State and Division Engineer, Water Division 6, dated August 29, 2009.

B. Colorado Water Conservation Board, dated _____, 2009.

C. Catamount Development Inc., and Catamount Metropolitan District, dated _____, 2009.

D. DeQuine Family, LLC, Flying Diamond Resources, and Kim Singleton, James A. Larson, withdrew their statements of opposition on May 22, 2009.

6. **District's Uses and Service Area.**

A. The District provides raw water for domestic, municipal, irrigation, commercial, industrial and other uses to its constituents and contractees within its service area. The District's service area covers nearly all of Routt County and a portion of Moffat County. It extends from the headwaters of the Yampa River and its tributaries downstream to an area just south and west of the City of Craig.

B. The District has existing contracts for delivery of water from Stagecoach Reservoir in the annual amount of 13,192 acre-feet for such uses. The District's contractees use and will use their contracted water supplies either by direct delivery and diversion for beneficial use or by augmentation under judicially approved plans that they have secured. The District also has adjudicated an area-wide augmentation plan, approved by this Court in Case No. 06CW49, to provide for additional contracts in the amount of up to 2,000 acre feet of annual releases for augmentation to additional District contractees. The District also operates a hydropower operation at Stagecoach Reservoir.

C. Water demand for domestic, irrigation, industrial, commercial and municipal uses in the upper Yampa Basin within Applicant's service area will increase in the future. The District has an identified planning period of 50 years. During that period, the demands for water under the District's existing contracts and anticipated future contracts are expected to increase because of changes in water rights administration requiring contractees to use more water directly or by exchange and growth within the individual service areas.

D. Applicant has an identified non-speculative use for the Pleasant Valley Project Rights as changed herein.

7. **Existing District Supplies and Need for Additional Supplies.** The District has existing water rights associated with Stagecoach Reservoir. The evidence demonstrates that the yield of Stagecoach Reservoir may not be adequate to provide for the full delivery of existing and anticipated contracts during a drought period. Therefore, in order to have a reliable supply, the District needs additional supplies, developed either by an enlargement of Stagecoach Reservoir and/or by the delivery of water from a basin such as Morrison Creek basin that is not tributary to Stagecoach Reservoir.

8. **Water Rights to be Changed**: The District owns and will seek to change the following conditional water rights, collectively referred to as the "Pleasant Valley Project Rights:"

A. Pleasant Valley Reservoir

(1) *Previous Decrees*: Case No. Civil Action 3926, as modified by decree entered in Case No. W-946-76, and Case No. 01CW41.

(2) *Court*: Routt County District Court, and District Court for Water Division No. 6, Colorado.

(3) *Decreed Places of Storage*: The left abutment is located at a point whence the SW corner of Section 33, Township 5 N., R. 84 W., bears South 38˚42' West at a distance of 11,076.6 feet. Pleasant Valley Reservoir also has the following three alternate storage locations as decreed in Case No. W-946-76:

(a) 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.

(b) 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.

(c) Alternate Storage Location No. 3: Stagecoach Reservoir, formerly known as 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.

(4) *Source*: Yampa River and water discharged into the reservoir from the Pleasant Valley Feeder Canal.

(5) *Appropriation Date*: June 29, 1959, Priority No. 39A, for irrigation, domestic, stock watering, municipal, industrial and power uses (the "1959 Pleasant Valley Reservoir Right"), and June 29, 2001 priority date for augmentation and exchange for replacement purposes and all other augmentation uses as decreed in Case No. 01CW41, District Court, Water Division 6 (the "2001 Pleasant Valley Reservoir Right").

(6) *Amount*: 10,620 acre-feet out of 43,220 acre-feet conditionally decreed.

(7) *Decreed Uses*: Irrigation, domestic, stock watering, municipal, industrial and power uses and appropriative rights of exchange and substitution, augmentation and exchange for replacement purposes and all other augmentation uses.

B. Pleasant Valley Feeder Canal:

(1) *Previous Decrees*: Case No. Civil Action 3926 as modified by decree entered in Case No. W-946-76 and Case No. 01CW41.

(2) *Court*: Routt County District Court and District Court for Water Division No. 6, Colorado.

(3) *Decreed Point of Diversion and Places of Storage*: The Canal takes its water from Walton Creek and McKinnis Creek: The first headgate and point of diversion is located on the left bank of Walton Creek at a point whence the SW Corner of Sec. 10, Township 5 N., Range 84 W. bears S. 55˚41' West a distance of 5112.6 feet. The second headgate is located on the left bank of McKinnis Creek at a point whence the SW Corner of Sec. 16, Township 5 N., Range 84 W. bears S. 73˚22' West a distance of 7,576.6 feet. The Canal also has the same three alternate storage locations as Pleasant Valley Reservoir described above, as decreed in Case No. W-946-76.

(4) *Source*: Walton Creek and McKinnis Creek, tributaries to the Yampa River.

(5) *Appropriation Date*: June 29, 1959, Priority No. 39, for irrigation, domestic, stock watering, municipal, industrial and power uses (the "1959 Pleasant Valley Feeder Canal Right"), and June 29, 2001 priority date for augmentation and exchange for replacement purposes and all other augmentation uses as decreed in Case No. 01CW41, District Court, Water Division 6 (the "2001 Pleasant Valley Feeder Canal Right").

(6) *Amount*: 300 c.f.s., conditional.

C. *Decreed Uses*: Irrigation, domestic, stock watering, municipal, industrial and power uses and appropriative rights of exchange and substitution, augmentation and exchange for replacement purposes and all other augmentation uses.

9. **Changes of Water Rights**: The decree changes a portion of the Pleasant Valley Reservoir right to allow for storage at Morrison Creek Reservoir and subsequent delivery to Stagecoach Reservoir and provides for an alternate point of diversion for the Pleasant Valley Feeder Canal right at Morrison Creek Reservoir. Stagecoach Reservoir is described above. Morrison Creek Reservoir is more specifically described as follows:

A. *Location*: The centerline of the proposed Morrison Creek Reservoir dam intersects Morrison Creek at a location within the SE1/4, NE1/4, Section 10, Township 3 North, Range 84 West of the 6th P.M. at a point located 244 feet west of the east section line and 1,539 feet south of the north section line of said Section 10.

B. *Amount*: The Application claimed a total annual storage by fill and refill of 10,620 AF. Of this amount, 4,965 AF will be accounted for under the first fill, 4,965 will be accounted for under the second fill, and an additional estimated 690 AF will be lost to evaporation. Under this practice, the Morrison Creek Reservoir will be allowed annually to store water available to the Pleasant Valley Project Rights with deliveries then made to Stagecoach Reservoir, described below, and account for evaporative loss from Morrison Creek Reservoir.

C. *Source*: The Morrison Creek Reservoir is an on-channel reservoir that will be filled from Morrison Creek.

D. *Surface Area*. 330.45 acres.

E. *Height of Dam*: 47 feet

F. *Length*: 336 feet

G. *Capacity*: 4,965 AF

(1) Active Capacity: 4,900 AF

(2) Dead Storage: 65 AF

10. Uses of Water.

A. Water diverted and stored in the Morrison Creek Reservoir under the Pleasant Valley Project Rights may be released from the Morrison Creek Reservoir for the decreed uses identified in paragraph 8 above within the District's service area, and/or may be subsequently delivered to Stagecoach Reservoir and any future enlargement of said Reservoir for subsequent use within the District's service area.

B. Delivery to Stagecoach Reservoir may be made by pipeline and/or ditch across the Morrison Divide and further pipeline, ditch and/or use of the stream channel of Little Morrison Creek and/or any tributary of Little Morrison Creek.

11. Contemplated Draft of Rights to be Changed.

A. The Court received evidence concerning the contemplated draft of the water rights to be changed, specifically the amount that would be available for diversion and storage at the original dam site of the Pleasant Valley Reservoir and the headgate of the Pleasant Valley Feeder Canal. The District's experts utilized available and reliable stream flow records regarding the Yampa River and its tributaries and a study period of 1985 through the 2007 water year in order to simulate the available diversions for the

Pleasant Valley Reservoir and its Feeder Canal as if they were constructed at their original points of diversion and storage. Appropriate adjustments were made in the data to reflect the development of major diversion facilities, specifically including the District's Stagecoach Reservoir.

B. The analysis revealed that, if operated pursuant to their originally decreed priorities, the Pleasant Valley Project Rights could have diverted on average 42,607 acre-feet per year of storage, assuming that all of the water stored in Pleasant Valley Reservoir had been released prior to the end of each modeled storage year (March through February). The analysis considered a demand of existing water rights on Walton Creek totalling 289 cfs. During the most extreme dry periods, at least 34,200 acre feet of water was available for storage. This amount of water is sufficient to account for the 23,354 acre feet already made absolute in Yamcolo and Stagecoach Reservoirs and the additional 10,620 acre feet proposed for the Morrison Creek Reservoir. Accordingly, junior rights located downstream from the original points of diversion and storage shall not be required to by-pass any of the amount determined to be legally and physically available. In addition, terms and conditions have been included at paragraph 12, below, to prevent an enlargement of the draft on Morrison Creek or Walton Creek.

C. The Court has recognized in Case No. 01CW41, District Court, Water Division 6, that the Pleasant Valley Project Rights may be stored under the 2001 priority and used for augmentation and exchange for replacement purposes and all other augmentation uses. Consequently, the water stored under the Pleasant Valley Project Water Rights at the Morrison Creek Reservoir under the 2001 priority may be fully consumed and issues of contemplated diversion and return flows are not relevant in the Court's analysis of the contemplated draft.

D. The evidence establishes that water was available in the amounts claimed at the original points of diversion and place of storage, which points of diversion and places of storage are moved upstream as decreed herein.

12. Administrative Conditions.

A. Storage limitations.

(1) Applicant will, in consultation with the Division Engineer, establish a reservoir accounting system for Morrison Creek Reservoir. The accounting year shall have a start date of April 1. Water stored in the Morrison Creek Reservoir under the Pleasant Valley Project Rights will be first accounted for under the first fill up to an amount being the lesser of 4,965 acre feet or the actual constructed capacity of the Reservoir. Subject to the provisions of this decree, this first fill will be accounted for and administered under the 1959 Rights. Some or all of this water may be subsequently

delivered to Stagecoach Reservoir as above provided and/or may be released for delivery down Morrison Creek and the Yampa River for beneficial use.

(2) As reservoir storage space becomes available in the Morrison Creek Reservoir as a result of deliveries to Stagecoach Reservoir, the District will continue to fill the Morrison Creek Reservoir, when in priority under the Pleasant Valley Project Rights, under a second fill with the total yearly storage and diversions not to exceed the lesser of 10,620 AF or the sum of the first and second fills of the actual constructed capacity of the Reservoir, plus evaporation replacement calculated by multiplying the surface area of the Reservoir by 1.84 feet/year. Subject to the provisions of this decree, the second fill under the Pleasant Valley Project Rights will be accounted for and administered under the 2001 Rights. Some or all of this water may be subsequently delivered to Stagecoach Reservoir as above provided for such beneficial use, and/or may be released for delivery down Morrison Creek and the Yampa River for such beneficial use. The District shall develop and implement an accounting system that tracks the amount and priority of water stored in Morrison Creek Reservoir and water that has been stored and subsequently delivered to Stagecoach Reservoir. The accounting system will be developed in concert with the Division Engineer's Office.

(3) The District shall separately account for water diverted and stored in Stagecoach Reservoir under the Pleasant Valley Project Rights changed herein (the "Morrison Creek Pool"). At the start of each accounting year (April 1st), all water remaining in storage in Stagecoach Reservoir in the Morrison Creek Pool and in Morrison Creek Reservoir, pursuant to the Pleasant Valley Project Rights changed herein, shall be credited against the first fill of Morrison Creek Reservoir for that year and shall be accounted for and administered under the 1959 Rights, in an amount not to exceed 4,965 AF. Any amount in excess of the first fill will be credited against the second fill of Morrison Creek Reservoir and accounted for and administered under the 2001 Rights, and will be considered to be stored in Morrison Creek Reservoir unless prior to April 1 the District notifies the Division Engineer that some portion of the 2001 Rights are being stored in Stagecoach Reservoir.

(4) In establishing its annual release schedule from Stagecoach Reservoir, the District may elect to first release water from its Morrison Creek Pool before releasing water that is stored in Stagecoach Reservoir from Yampa River Sources. The District shall separately account for releases made from the Morrison Creek Pool stored in Stagecoach Reservoir. Prior to any release of water from the Morrison Creek Pool in Stagecoach Reservoir the District shall notify the Division Engineer's Office of the date and rate of such release. After providing such notice, and to account for fluctuations in releases from the Reservoir, all releases of water stored in Stagecoach Reservoir shall be attributed to the Morrison Creek Pool until such time that Morrison Creek Pool is vacated or the District notifies the Division Engineer of any cessation in the rate of release of

water from Morrison Creek Pool or combination of releases from the Morrison Creek Pool and other Yampa River Sources. Absent such notice that the District is releasing water from the Morison Creek Pool, storage releases From Stagecoach Reservoir will be accounted as a release of water stored in Stagecoach Reservoir from Yampa River Sources.

B. Bypass and other requirements:

(1) In the event of a call placed by the Colorado Water Conservation Board for its instream flow right on the Yampa River decreed in Case No. 01CW106, which call is recognized and administered by the Division Engineer, the District shall maintain a bypass flow through the Morrison Creek Reservoir as the lesser of 1) the natural inflows to the Reservoir, or 2) the amount necessary to bring the Yampa River flow just downstream of the confluence with Morrison Creek up to the decreed instream flow amount.

(2) During such times when the District is filling Morrison Creek Reservoir under the Pleasant Valley Project Rights as changed herein, bypasses will be made at the dam of the Morrison Creek Reservoir as necessary to satisfy a call recognized and administered by the Division Engineer from existing decreed water rights with priorities senior to October 30, 2007, but junior to the June 29, 1959 appropriation for the Pleasant Valley Project Rights, that are then diverting from points located on potentially affected reaches of Morrison Creek, and the Yampa River from its confluence with Morrison Creek down to its confluence with Walton Creek, but only as further described below:

(a) In the event of a call placed by any water right(s) located between the confluence of Morrison Creek and the Yampa River and the confluence of Walton Creek and the Yampa River, which call is recognized and administered by the Division Engineer, bypasses will be made in the amount necessary (in conjunction with other rights junior to October 30, 2007) to satisfy such a call by such water right(s).

(b) In addition, should the Division Engineer allow the District to store the water changed herein out-of-priority as allowed by section 37-80-120(1), C.R.S. (2008), the District shall release, in the same reservoir accounting year, such water stored out-of-priority on demand (made in the same reservoir accounting year) of a downstream senior water storage right with a priority date senior to October 30, 2007 and that is located on Morrison Creek or the Yampa River between Morrison Creek Reservoir and the confluence of the Yampa River and Walton Creek whenever needed by such senior for its decreed uses in the same reservoir accounting year.

(3) In order to recognize the draft on Morrison Creek of the Pleasant Valley Reservoir Water Right, and to avoid an enlarged draft on the Morrison Creek basin, during such times when the District is filling under the 2001 Pleasant Valley Reservoir Right, the District shall not place a call on any water rights with priority senior to October 30, 2007. Additionally, during such times when the District is filling Morrison Creek Reservoir under the Pleasant Valley Feeder Canal 1959 or 2001 Rights, the District shall not place a call on any water rights diverting from Morrison Creek with priority priorities senior to October 30, 2007.

(4) So as not to enlarge the draft on Walton Creek, the District will only divert the Pleasant Valley Feeder Canal 1959 or 2001 Rights at Morrison Creek Reservoir when the flows in Walton Creek exceed 289 cfs. During such times when the District is filling Morrison Creek Reservoir under the Pleasant Valley Feeder Canal 1959 or 2001 Rights, the District shall not place a call on any water rights diverting from Morrison Creek with priority priorities senior to October 30, 2007.

(5) Bypasses made by the District under Subparagraph B.(1) above for the benefit of the Colorado Water Conservation Board's instream flow right on the Yampa River as decreed in Case No. 01CW106 may also be accounted to meet the bypasses required under Subparagraph B.(2) above for calling water rights senior to October 30, 2007 then diverting between the inlet to Lake Catamount and the confluence of the Yampa River and Walton Creek, less transit losses, if any, between Morrison Creek Reservoir and the inlet to Lake Catamount.

C. Contract releases of the Pleasant Valley Project Rights as changed herein and stored in Morrison Creek Reservoir or in Stagecoach Reservoir after delivery from Morrison Creek Reservoir in the same water administration year shall be in addition to any minimum by-pass or release obligations that exist or may be imposed for the respective reservoir.

D. If the existing DWR gage on Morrison Creek at the reservoir site is inundated by the applicant's project, applicant agrees to move the gage to a location on Morrison Creek downstream of the reservoir for which the Division of Water Resources or Colorado Water Conservation Board has obtained a legal right to permanently place and maintain such gage. The relocated gage shall maintain its current configuration with a satellite monitoring system.

E. Applicant agrees to grant the CWCB reasonable access to any measuring devices on Morrison Creek or Morrison Creek Reservoir that are installed by Applicant and come within Applicant's possession or control.

F. The CWCB holds an instream flow water right ("ISF") decreed, in Case No. 77CW1328, District Court, Water Division 6, which extends upstream from the

confluence of Morrison Creek and Silver Creek. Storage in the Morrison Creek Reservoir may inundate a portion of the CWCB's instream flow right on Silver Creek. The extent of this possible inundation of the CWCB's instream flow right as it relates to the proposed Morrison Creek Reservoir is not known with precision at this time. During the permitting process and prior to commencing construction of the Morrison Creek Reservoir that would inundate any existing CWCB instream flow right on Silver Creekdecreed in Case No. 77CW1328, the District shall request and obtain approval from the CWCB for such storage pursuant to the provisions of 2 CCR 408-2, Section 7, or any successor regulation regarding inundation then in effect. The District shall provide the Court and Division Engineer, Water Division 6, with a copy of any resolution, order, or other relevant proof, authorizing the inundation of the CWCB's instream flow right. Inundation shall not be allowed absent such approval and notice to the Court and Division Engineer, so long as the CWCB instream flow right decreed in Case No. 77CW1328 remains in effect.

13. **Anti-Speculation**. The change of water right claimed herein is based upon a non-speculative intent, and the Applicant has a specific plan and intent to divert, store, capture, posses, and control water for specific beneficial uses.

14. **Feasibility**. Based upon the totality of the facts and circumstances of this case, the Court hereby concludes the Applicant has established that water can and will be diverted under the subject conditional water right and will be beneficially used, and that this water supply project can and will be completed with diligence and within a reasonable time.

15. **No Injury**. Subject to the terms and conditions decreed herein, the change of water rights described herein will not injuriously affect the owner of or persons entitled to use water under any vested water right or a decreed conditional water right.

CONCLUSIONS OF LAW

16. To the extent they constitute legal conclusions, the foregoing Findings of Fact are incorporated herein.

17. **Change of Rights.** A "change of water right" includes a change of conditional water rights to new points of diversion or places of storage. C.R.S. § 37-92-103(5). Such a change shall be approved if it will not injuriously affect the owners of or persons entitled to use water under any vested water right or decreed conditional water right. C.R.S. § 37-92-305(3)(a). An adjudicated water right is entitled to maintenance of stream conditions existing at the time of its appropriation. *Colorado Water Conservation Board v. City of Central*, 125 P.3d 424 (Colo. 2005).

18. **Contemplated Draft of Conditional Water Rights**. A change of a conditional water right is limited to the contemplated draft of the original appropriation. *Twin Lakes Reservoir & Canal Co. v. City of Aspen*, 568 P.2d 45 (Colo. 1977).

19. **Substantiated Demands.** A governmental water entity must establish a reasonable water supply planning period, substantiated population projections based on a normal rate of growth, the amount of water necessary to satisfy projected demands above its current supply, and that it can and will complete the appropriation within a reasonable time. *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007). "A governmental agency need not be certain of its future water needs; it may conditionally appropriate water to satisfy a projected normal increase in population within a reasonable planning period." *Id*. at 315; C.R.S. § 37-92-103(3)(a)(I) (2008).

JUDGMENT AND DECREE

20. The foregoing Findings of Fact and Conclusions of Law are incorporated herein.

21. **Change of Water Rights.** The change of water rights for the Pleasant Valley Project Rights is granted subject to the terms and conditions above stated, and the following additional conditions:

A. Measurement. The District shall install, maintain and operate such measuring devices as determined by the Division Engineer as necessary to administer the change of water rights approved herein.

B. Accounting. The District shall maintain and submit such accounting of the operation of the Pleasant Valley Project Rights as determined by the Division Engineer is necessary to administer the change of water rights approved herein.

C. Effect of changes. Applicant's analysis of the Pleasant Valley Project Rights established that the water would be available for diversion every year. In addition, terms and conditions have been considered to avoid any enlargement to the contemplated draft of the Pleasant Valley Project Rights. Therefore, existing decreed junior rights located downstream from the original points of diversion and storage shall not be required to by-pass any of the amount determined to be legally and physically available as a result of this upstream change in place of storage.

D. Physically and legally available. Any water diverted at Morrison Creek Reservoir under the Pleasant Valley Project Rights must be physically and legally available at the original points of diversion.

22. **Retained Jurisdiction**. The Court shall retain jurisdiction for reconsideration of the change of water rights approved herein for a period of five years after Morrison Creek Reservoir has been constructed and water delivered to Stagecoach Reservoir. The District shall give notice to the Court, the Division Engineer, and all opposers of the initiation of such operation for any of such decreed uses.

23. **Fully Integrated System**. As decreed in Case No. 01CW41, the conditional water rights decreed herein are individual components of Applicant's integrated water supply system. Consequently, in subsequent diligence proceedings, work on any one feature of Applicant's supply system as described in such Case No. 01CW41 and as may be supplemented by court decree in the future shall be considered in finding that reasonable diligence has been shown in the development of water rights for all features of Applicant's water supply system, including the Pleasant Valley Project Rights changed by this case. C.R.S. § 37-92-301(4)(b).

24. **Water Matters**. Review of determinations made by the Division Engineer or the State Engineer in administration of the change of water rights is a water matter over which the Water Court has exclusive jurisdiction.

****

It is accordingly ordered that these Findings of Fact, Conclusions of Law, Judgment and Decree shall be filed with the State Engineer and the Division Engineer for Water Division No. 6.

Done at the City of Steamboat Springs, Colorado, this ____ day of _____ 2009.

BY THE COURT:

_____
Michael A. O'Hara, III, Water Judge
Water Division No. 6

DISTRICT COURT, WATER DIVISION 6, COLORADO
P.O. Box 773117
Steamboat Springs, Colorado 80477
Phone Number: (970) 879-5020

CONCERNING THE APPLICATION FOR WATER RIGHTS OF:

UPPER YAMPA WATER CONSERVANCY DISTRICT
IN THE YAMPA RIVER OR ITS TRIBUTARIES

IN ROUTT COUNTY, COLORADO.

8-31-09

▲ COURT USE ONLY ▲

CASE NO. 07CW72

WATER DIVISION 6

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND JUDGMENT AND DECREE

This matter came before the Court upon the Application for Conditional Water Storage Right. The Court having reviewed the Application and other pleadings in this case, conducted trial in this case on October 7 – 9, and October 13 – 16, 2009, and now being fully advised with respect to this matter, enters the following Findings of Fact, Conclusions of Law and Judgment and Decree:

FINDINGS OF FACT

1. **Applicant.** The Applicant is Upper Yampa Water Conservancy District, c/o Kevin McBride, General Manager, whose address is P. O. Box 880339, Steamboat Springs, Colorado 80488. Applicant is represented in this matter by Weiss & Van Scoyk, LLP, 600 South Lincoln Avenue, Suite 202, Steamboat Springs, Colorado 80487, (970) 879-6053 and Balcomb & Green, P.C., P.O. Drawer 790, Glenwood Springs, Colorado 81602, (970) 945-6546.

A. The District was formed under the Water Conservancy Act of the State of Colorado by decree of the Routt County District Court in Civil Action 3815 on March 8, 1966. See generally C.R.S. § 37-45-101 through 153. The District's purpose was and 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 as well as plan for and assist 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 is divided into three (3) divisions with a total of nine (9) directors, three from each division, who constitute the District's Board of Directors.

B. 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. C.R.S. §§ 37-45-118 and 37-92-302(5).

2. **Application.** The District filed an Application for Conditional Water Storage Right on November 29, 2007. The Application requested a storage right for the Morrison Creek Reservoir from which water may be released to Morrison Creek for beneficial uses within Applicant's service area and/or delivered over the Morrison divide and down the Little Morrison Creek drainage for storage into Stagecoach Reservoir as it exists or may be enlarged for subsequent release and beneficial use within the District.

3. **Notice and Jurisdiction.** The Application was properly published in the resume for Water Division No. 6. All notices required by law have been properly made, including as required under C.R.S. § 37-92-302(3). The Court has jurisdiction over the Application and over all persons or entities who had standing to appear, even though they did not do so. The Court finds that the relief granted herein is consistent with the relief originally requested in the Application and for which public notice was provided**.**

4. **Opposition**. DeQuine Family, LLC, Flying Diamond Resources, and Kim Singleton (represented by Petros & White, LLC), James A. Larson (represented by Petros & White, LLC), the Colorado Water Conservation Board (represented by the Colorado Attorney General), the State and Division Engineer, Water Division 6 (represented by the Colorado Attorney General), the Catamount Metropolitan District (represented by Holland & Hart LLP), Catamount Development, Inc. (represented by Petros & White, LLC), the Robert and Elaine Gay Limited Partnership (*pro se*), and James G. Heckbert (represented by Margaret O'Donnell, P.C.) filed timely Statements of Opposition to the Application.

5. **Settlements.** The District has entered into stipulations approving the entry of a decree granting the Application in the form of this Decree with the following parties:

A. State and Division Engineer, Water Division 6, dated August 29, 2009.

B. Colorado Water Conservation Board, dated _____, 2009.

C. Catamount Development Inc., and Catamount Metropolitan District, dated _____, 2009.

D. DeQuine Family, LLC, Flying Diamond Resources, and Kim Singleton, James A. Larson, withdrew their statements of opposition on May 22, 2009.

E. James G. Heckbert withdrew his statement of opposition on _____, 2009.

6. **District's Uses and Service Area.**

A. The District provides raw water for domestic, municipal, irrigation and other uses to its constituents and contractees within its service area. The District's service area covers nearly all of Routt County and a portion of Moffat County. It extends from the headwaters of the Yampa River and its tributaries downstream to an area just south and west of the City of Craig.

B. The District has existing contracts for delivery of water in the annual amount of 13,192 acre-feet for such uses. The District's contractees use and will use their contracted water supplies either by direct delivery and diversion for beneficial use or by augmentation under judicially approved plans that they have secured. The District also has adjudicated an area-wide augmentation plan, approved by this Court in Case No. 06CW49, to provide for additional contracts in the amount of up to 2,000 acre feet of annual releases for augmentation to additional District contractees. The District also operates a hydropower operation at Stagecoach Reservoir.

C. Water demand for domestic, irrigation, commercial and municipal uses in the upper Yampa Basin within Applicant's service area will increase in the future. The District has an identified planning period of 50 years. During that period, the demands for water under the District's existing contracts and anticipated future contracts are expected to increase because of changes in water rights administration requiring contractees to use more water directly or by exchange and growth within the individual service areas.

D. Applicant has an identified non-speculative use for the Morrison Creek Reservoir Right claimed herein.

7. **Existing District Supplies and Need for Additional Supplies.** The District has existing water rights associated with Stagecoach Reservoir. The evidence demonstrates that the yield of Stagecoach Reservoir may not be adequate to provide for the full delivery of existing and anticipated contracts during a drought period. Therefore, in order to have a reliable supply, the District needs additional supplies, developed either by an enlargement of Stagecoach Reservoir and/or by the delivery of water from a basin such as Morrison Creek basin that is not tributary to Stagecoach Reservoir.

CLAIM FOR CONDITIONAL WATER STORAGE RIGHT

8. Name of Structure: Morrison Creek Reservoir

A. *Legal Description*: The centerline of the proposed Morrison Creek Reservoir dam intersects Morrison Creek at a location within the SE1/4, NE1/4, Section 10, Township 3

North, Range 84 West of the 6th P.M. at a point located 244 feet west of the east section line and 1,539 feet south of the north section line of said Section 10. A map showing the proximate location is attached as Exhibit A.

B. *Source*: The Morrison Creek Reservoir is an on-channel reservoir that will be filled from Morrison Creek and Silver Creek.

C. *Appropriation Date*: September 14, 2006

D. *How Appropriation was Initiated*: Formation of intent by Board of Directors of the Upper Yampa Water Conservancy District to appropriate new water storage right, mapping and engineering analysis of proposed storage site.

E. *Amount*: 10,620 acre feet, less the amount changed in Case No. 07CW61, by fill and re-fill, conditional.

F. *Decreed Uses*: Irrigation, domestic, stock watering, municipal, industrial, recreational, and hydropower uses and augmentation of such uses either directly or by exchange.

G. Surface area. 330.45 acres

H. Height of Dam: 47 feet; Length: 336 feet

I. Capacity: 4,965 AF

(1) Active Capacity: 4,900 AF

(2) Dead Storage: 65 AF

J. Remarks:

(1) Water diverted into and stored in the Morrison Creek Reservoir under this Morrison Creek Reservoir right may be released from the Morrison Creek Reservoir for its decreed uses within Applicant's service area, and/or may be subsequently delivered to Stagecoach Reservoir and any future enlargement of said Reservoir as an additional alternate place of storage for subsequent use within the Applicant's service area. The intersection of the centerline axis of Stagecoach Reservoir dam and the right abutment thereof being located at a point whence the W1/4 corner of Section 32, Township 4 North, Range 84 West, 6th P.M., bears South 47°35' West a distance of 4633 feet.

(2) Such delivery to Stagecoach Reservoir may be made by pipeline and/or ditch across the Morrison divide and further pipeline, ditch and/or use of the stream channel of Little Morrison Creek and or any tributary of Little Morrison Creek. Water stored in the Morrison Creek Reservoir under the Morrison Creek Reservoir right will be first accounted for under the first fill up to an amount of 4,965 AF. Some or all of this water may be subsequently delivered to Stagecoach Reservoir as above provided and/or may be released for delivery down Morrison Creek and the Yampa River for beneficial use directly and/or by exchange. As reservoir storage space thereafter becomes available in the Morrison Creek Reservoir as a result of these operations, the Applicant will continue to fill the Morrison Creek Reservoir, when in priority under the Morrison Creek Reservoir right described above, under a second fill with the total yearly storage and diversions not to exceed 10,620 AF. Stagecoach Reservoir is located as described above.

9. **Uses of Water**.

A. Water diverted and stored in the Morrison Creek Reservoir may be released from the Morrison Creek Reservoir for the decreed uses identified in paragraph 8 above within the District's service area, and/or may be subsequently delivered to Stagecoach Reservoir and any future enlargement of said Reservoir as an additional alternate place of storage for subsequent use within the District's service area.

B. Delivery to Stagecoach Reservoir may be made by pipeline and/or ditch across the Morrison Divide and further pipeline, ditch and/or use of the stream channel of Little Morrison Creek and/or any tributary of Little Morrison Creek.

10. **Administrative Conditions**.

A. Applicant shall install and maintain such measuring devices as are reasonably required by the Division Engineer to administer the water right awarded herein. At a minimum applicant shall install a measuring device on the pipeline and/or ditch used to convey water to Stagecoach Reservoir. In the event any of the conveyance mechanism is open channel, applicant shall also install a measuring device at the point of delivery to Stagecoach Reservoir.

B. The District shall have the right to store, by fill and refill, up to 10,620 AF. Of this amount, up to 4,965 AF will be accounted for under the first fill, up to 4,965 will be accounted for under the second fill, and an additional estimated 690 AF will be lost to evaporationwith the total annual storage between the two reservoirs not to exceed 10,620 AF.

C. Applicant will, in consultation with the Division Engineer, establish a reservoir accounting system for Morrison Creek Reservoir. The accounting year shall have a start date of April 1. Water stored in the Morrison Creek Reservoir will be first accounted for under the first fill up to an amount being the lesser of 4,965 acre feet or the actual constructed capacity of the Reservoir. Some or all of this water may be subsequently delivered to Stagecoach Reservoir as above provided and/or may be released for delivery down Morrison Creek and the Yampa River for beneficial use.

D. As reservoir storage space becomes available in the Morrison Creek Reservoir as a result of deliveries to Stagecoach Reservoir, the District will continue to fill the Morrison Creek Reservoir under a second fill with the total yearly storage and diversions not to exceed the lesser of 10,620 AF or the sum of the first and second fills of the actual constructed capacity of the Reservoir, plus evaporation replacement calculated by multiplying the surface area of the Reservoir by 1.84 feet/year. Some or all of this water may be subsequently delivered to Stagecoach Reservoir as above provided for such beneficial use, and/or may be released for delivery down Morrison Creek and the Yampa River for such beneficial use. The District shall develop and implement an accounting system that tracks the amount of water stored in Morrison Creek Reservoir and water that has been stored and subsequently delivered to Stagecoach Reservoir. The accounting system will be developed in concert with the Division Engineer's Office.

E. The District shall separately account for Morrison Creek Reservoir water stored in Stagecoach Reservoir (the "Morrison Creek Pool"). At the start of each accounting year (April 1st), all water remaining in storage in Stagecoach Reservoir in the Morrison Creek Pool and in Morrison Creek Reservoir shall be credited against the first fill of Morrison Creek Reservoir for that year in an amount not to exceed 4,965 AF. Any amount in excess of the first fill will be credited against the second fill of Morrison Creek Reservoir.

F. In establishing its annual release schedule from Stagecoach Reservoir, the District may elect to first release water from its Morrison Creek Pool before releasing water that is stored in Stagecoach Reservoir from Yampa River Sources. The District shall separately account for releases made from the Morrison Creek Pool stored in Stagecoach Reservoir. Prior to any release of water from the Morrison Creek Pool in Stagecoach Reservoir the District shall notify the Division Engineer's Office of the date and rate of such release. The District shall also notify the Division Engineer of any change or cessation in the rate of release of water from Morrison Creek Pool. Absent such notice, such release will be accounted as a release of water stored in Stagecoach Reservoir from Yampa River Sources.

G. If the existing DWR gage on Morrison Creek at the reservoir site is inundated by the applicant's project, applicant agrees to move the gage to a location on Morrison Creek downstream of the reservoir for which the Division of Water Resources or

Colorado Water Conservation Board has obtained a legal right to permanently place and maintain such gage. The relocated gage shall maintain its current configuration with a satellite monitoring system.

H. Applicant agrees to grant the CWCB reasonable access to any measuring devices on Morrison Creek or Morrison Creek Reservoir that are installed by Applicant and come within Applicant's possession or control.

I. The CWCB holds an instream flow water right ("ISF") decreed, in Case No. 77CW1328, District Court, Water Division 6, which extends upstream from the confluence of Morrison Creek and Silver Creek. Storage in the Morrison Creek Reservoir may inundate a portion of the CWCB's instream flow right on Silver Creek. The extent of this possible inundation of the CWCB's instream flow right as it relates to the proposed Morrison Creek Reservoir is not known with precision at this time. During the permitting process and prior to commencing construction of the Morrison Creek Reservoir that would inundate any existing CWCB instream flow right on Silver Creek decreed in Case No. 77CW1328, the District shall request and obtain approval from the CWCB for such storage pursuant to the provisions of 2 CCR 408-2, Section 7, or any successor regulation regarding inundation then in effect. The District shall provide the Court and Division Engineer, Water Division 6, with a copy of any resolution, order, or other relevant proof, authorizing the inundation of the CWCB's instream flow right. Inundation shall not be allowed absent such approval and notice to the Court and Division Engineer, so long as the CWCB instream flow right decreed in Case No. 77CW1328 remains in effect.

11. **Anti-Speculation**. The water right claimed herein is based upon a non-speculative intent and the Applicant has a specific plan and intent to divert, store, capture, posses, and control water for specific beneficial uses.

12. **Unappropriated Water**. The Court finds that there is unappropriated water available for beneficial use in the amounts claimed in the Application and is necessary to meet the District's anticipated future needs above its current water supply.

13. **Feasibility**. Based upon the totality of the facts and circumstances of this case, the Court hereby concludes the Applicant has established that water can and will be diverted under the subject conditional water right and will be beneficially used, and that this water supply project can and will be completed with diligence and within a reasonable time

CONCLUSIONS OF LAW

14. To the extent they constitute legal conclusions, the foregoing Findings of Fact are incorporated herein.

15. **Complete Application**. The Application is complete, covering all applicable matters required pursuant to the Water Right Determination and Administration Act of 1969, C.R.S. §§ 37-92-101 through –602. Applicant has fulfilled all legal requirements for a decree for the requested water right including C.R.S. §§ 37-92-302 and 37-92-305.

16. **Conditional Water Right.** A governmental water entity must establish a reasonable water supply planning period, substantiated population projections based on a normal rate of growth, the amount of water necessary to satisfy projected demands, and that it can and will complete the appropriation within a reasonable time. *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307 (Colo. 2007).

17. **Fully Integrated System**. The conditional water rights decreed herein are individual components of Applicant's integrated water supply system, which system includes those rights decreed in Case No. 01CW41. Consequently, in subsequent diligence proceedings, work on any one feature of Applicant's supply system shall be considered in finding that reasonable diligence has been shown in the development of water rights for all features of Applicant's water supply system. C.R.S. § 37-92-301(4)(b).

JUDGMENT AND DECREE

18. The foregoing Findings of Fact and Conclusions of Law are incorporated herein.

19. **Conditional Water Storage Right**. The Court hereby confirms and decrees a conditional water right for the Morrison Creek Reservoir in the amount of 10,620 acre feet, less the amount changed in Case No. 07CW61, by fill and re-fill for irrigation, domestic, stock watering, municipal, industrial, recreation and hydropower uses and augmentation of such uses either directly or by exchange as described herein.

20. **Future Diligence.** The conditional water right for the Morrison Creek Reservoir shall be in full force and effect until _____, 2015. If the Applicant wishes to maintain the conditional water right thereafter, it shall file an application for a finding of reasonable diligence on or before that date, or make a showing on or before then that the conditional water right has become an absolute water right by reason of the completion of the appropriation.

21. **Water Matters**. Review of determinations made by the Division Engineer or the State Engineer in administration of the Morrison Creek Reservoir is a water matter over which the Water Court has exclusive jurisdiction.

22. **Transfer of Conditional Right**. Pursuant to Rule 9 of the Uniform Local Rules for All State Water Court Divisions, upon the sale or other transfer of the conditional water storage right for the Morrison Creek Reservoir, the transferee shall file with the Division 6 Water Court a notice of transfer which shall state:

A. The title and case number of this Case No. 07CW72;
B. The description of the conditional water right transferred;
C. The name of the transferor;
D. The name and mailing address of the transferee;
E. A copy of the recorded deed.

The owner of said conditional water right shall also notify the Clerk of the Division 6 Water Court of any change in mailing address. The Clerk shall place any notice of transfer or change of address in the case file of Case No. 07CW72 and in the case file in which the Court first made a finding of reasonable diligence.

****

It is accordingly ordered that these Findings of Fact, Conclusions of Law, Judgment and Decree shall be filed with the State Engineer and the Division Engineer for Water Division No. 6.

Done this _____ day of _____ 2009.

BY THE COURT:

_____
Michael A. O'Hara, III, Water Judge
Water Division No. 6

DISTRICT COURT, WATER DIVISION 6, COLORADO P.O. Box 773117 Steamboat Springs, Colorado 80477 Phone Number: (970) 879-5020 _____ CONCERNING THE APPLICATION FOR WATER RIGHTS OF: **UPPER YAMPA WATER CONSERVANCY DISTRICT** IN ROUTT AND MOFFAT COUNTIES, COLORADO.	COURT USE ONLY _____ **CASE NO. 07CW61 AND 07CW72 (CONSOLIDATED)** WATER DIVISION 6

ORDER

THIS MATTER having come before the Court on the Stipulation and Agreement between the Applicant, the Upper Yampa Water Conservancy District, and Opposer, Colorado Water Conservation Board, the Court being advised of the premises hereby ORDERS that the Stipulation and Agreement reached in this case between Applicant and Opposer, Colorado Water Conservation Board filed on August 31, 2009, is approved as an order of the Court.

SO ORDERED this _____ day of _____ 2009.

BY THE COURT:

_____
Michael A. O'Hara, III
Water Judge

	STIPULATION APPROVED	**The moving party is hereby ORDERED to provide a copy of this Order to any pro se parties who have entered an appearance in this action within 10 days from the date of this order.**	**Michael A. O'Hara, III** **District Court Judge** DATE OF ORDER INDICATED ON ATTACHMENT

DISTRICT COURT, WATER DIVISION 6, COLORADO
P.O. Box 773117
Steamboat Springs, Colorado 80477
Phone Number: (970) 879-5020

CONCERNING THE APPLICATION FOR WATER RIGHTS OF:
UPPER YAMPA WATER CONSERVANCY DISTRICT

IN ROUTT AND MOFFAT COUNTIES, COLORADO.

COURT USE ONLY

CASE NO. 07CW61 AND 07CW72 (CONSOLIDATED)

WATER DIVISION 6

ORDER

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SO ORDERED this _____ day of _____ 2009.

BY THE COURT:

_____
Michael A. O'Hara, III
Water Judge

This document constitutes a ruling of the court and should be treated as such.

Court: CO Routt County District Court 14th JD

Judge: Michael Andrew O'Hara

File & Serve Transaction ID: 26864320

Current Date: Sep 02, 2009

Case Number: 2007CW61

Case Name: In the interest of: UPPER YAMPA WATER CONSERVANCY DISTRICT

/s/ Judge Michael Andrew O'Hara III

MORRISON CREEK RESERVOIR
FEASIBILITY STUDY REPORT

CONSOLIDATED CASES Nos. 07CW61 and 07CW72
WATER DIVISION No. 6

Prepared for:
Upper Yampa Water
Conservancy District

Prepared By:
Resource Engineering, Inc.
909 Colorado Avenue
Glenwood Springs, CO 81601
(970) 945-6777

February 23, 2009

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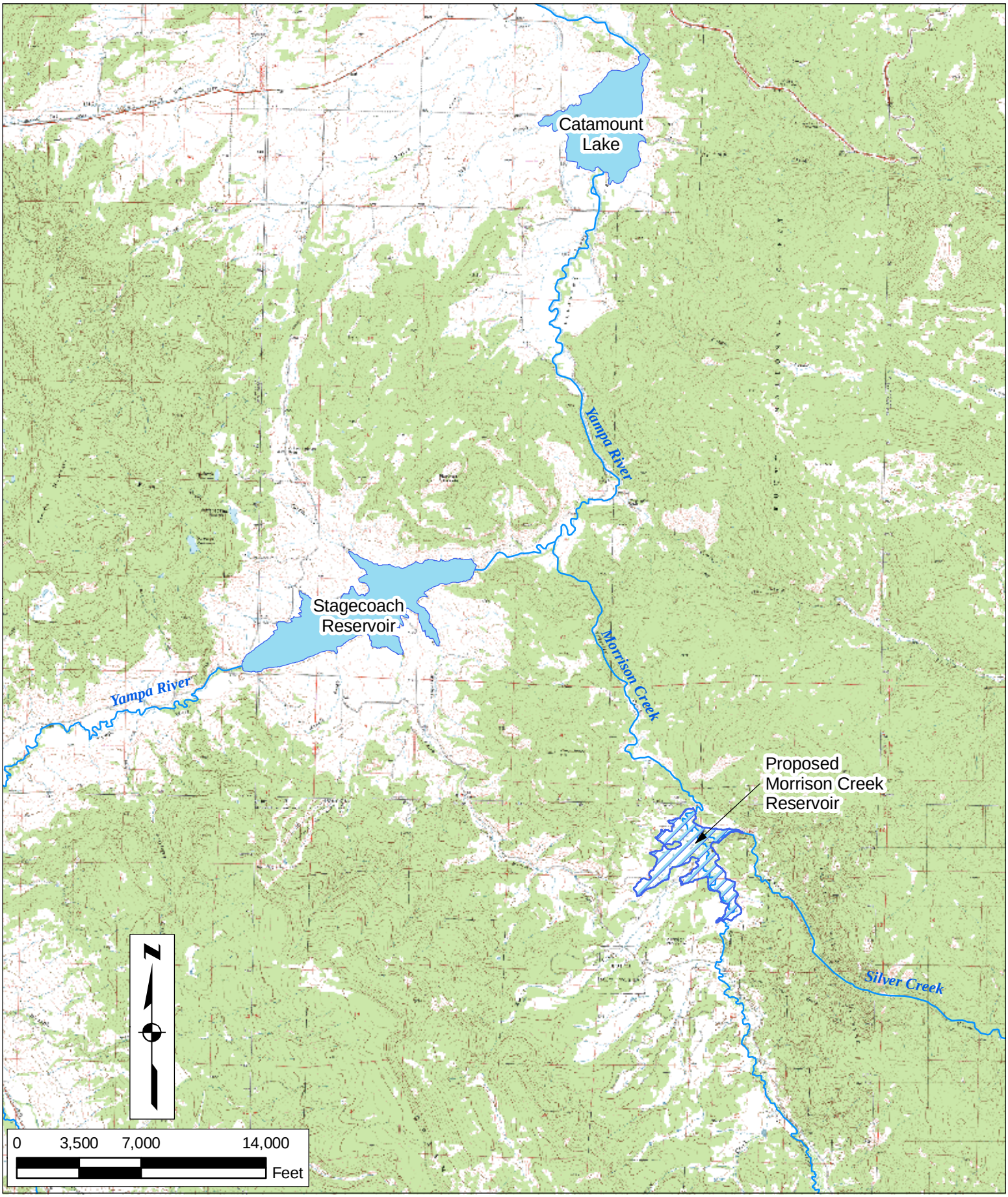
1.0 INTRODUCTION

The Upper Yampa Water Conservancy District (District) proposes to construct a reservoir on Morrison Creek, a tributary to the Yampa River at a location within Routt County approximately 20 miles south of Steamboat Springs, Colorado. The purpose of the Morrison Creek Reservoir is to provide additional water storage and water supply for multiple uses within the District's boundary, and to help firm the storage supply in Stagecoach Reservoir. The capacity of the proposed Reservoir will vary in size from 4,010 acre feet (AF) to 4,965 AF depending upon final technical and environmental studies of the site. The reservoir will be impounded by a dam located across Morrison Creek approximately 3,000 feet downstream of the confluence of Morrison Creek and Silver Creek. A vicinity map showing the location of the proposed reservoir is included in Figure 1.

In October and November, 2007, the District filed for water storage rights to fill the Morrison Creek Reservoir. On October 30, 2007, in Case No. 07CW61, the District requested the right to alternatively store a portion of its existing Pleasant Valley Reservoir water right located downstream on the Yampa River at its upstream proposed Morrison Creek Reservoir site. The Pleasant Valley Reservoir was originally decreed conditional for a total of 43,220 acre feet (AF) at the downstream location on the Yampa River coincident with the present Lake Catamount site (Figure 1). On November 29, 2007,in Case No. 07CW72, the District subsequently applied for a new junior water storage right at the same Morrison Creek location. The purpose of the second filing was to provide a back-up to Case No. 07CW61 should the District be limited in storing Morrison Creek water under its more senior Pleasant Valley Decree. The Water Court has recently consolidated the two cases for purposes of its review.

1.1 STUDY PURPOSE

The District has retained Resource Engineering, Inc. (RESOURCE) to examine the feasibility of constructing and operating the Morrison Creek Reservoir. The feasibility analysis examined several aspects of the proposed reservoir including: the site's geologic and hydrologic characteristics, preliminary design and cost estimates of alternative project designs, quantification of physical and legal water supplies available for storage, identification of expected population growth and associated water demands within the District's service area and finally, review and discussion of environmental permit requirements of the Project. The results of the feasibility review are summarized below.



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UPPER YAMPA WATER CONSERVANCY DISTRICT

MORRISON CREEK RESERVOIR FEASIBILITY STUDY

FIGURE 1
Proposed Reservoir Vicinity Map

Date: 01/27/2009
File: 1047-1.4
Drawn by: RP
Approved by: RSF

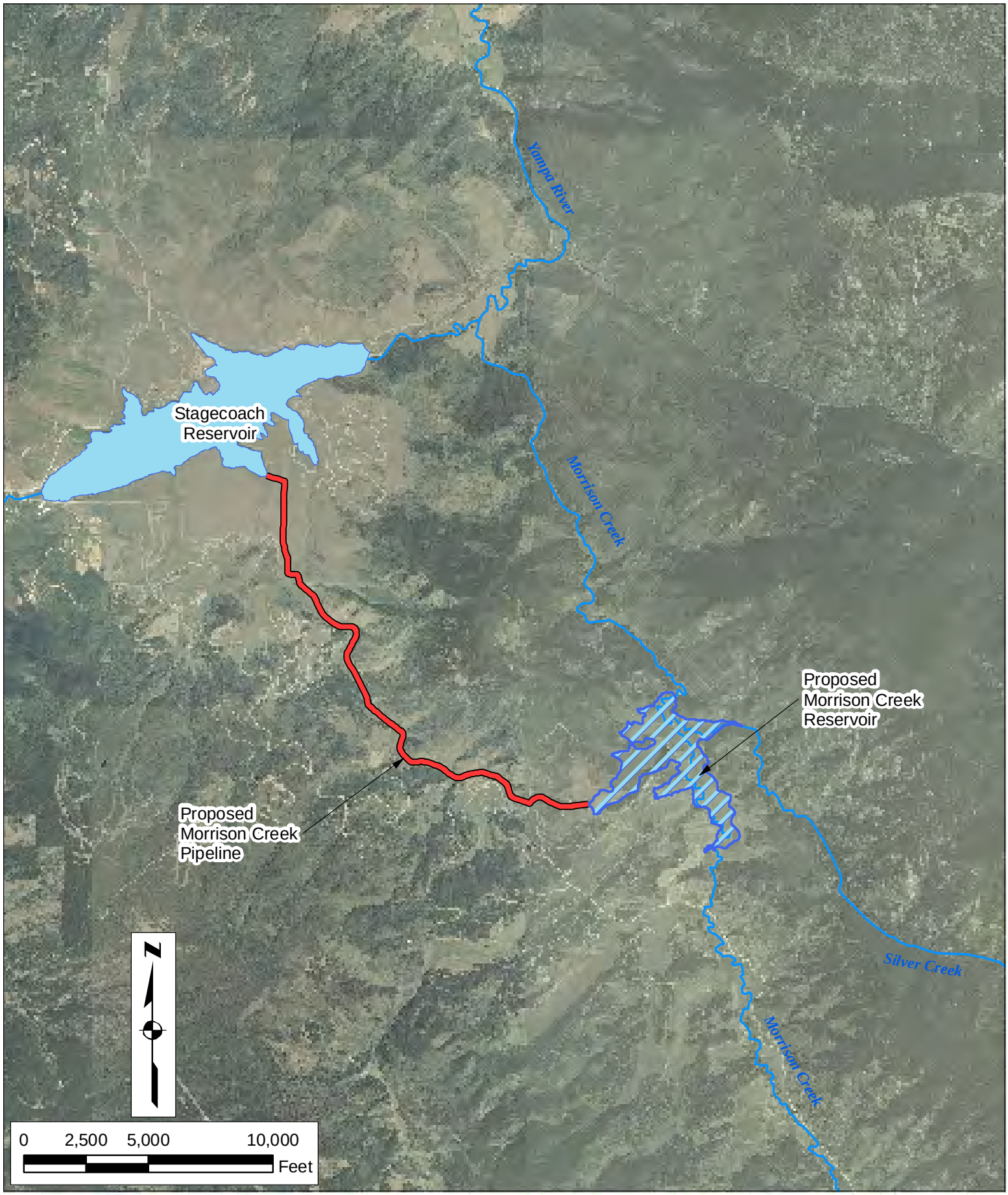
UYWCD Exhibit 5

2.0 PROJECT DESCRIPTION AND OPERATION

The applications for storage rights filed in Case Nos. 07CW61 and 07CW72, total 10,620 AF annually. This amount will be sufficient to fill and refill the proposed reservoir including ability to replace evaporative losses from the water surface when the reservoir is in priority. Under this plan, the reservoir will be filled under a first fill right generally during the early April runoff period up to an amount of 4,965 AF. During the late April through June period and any other months that the reservoir remains in priority, the evaporative losses will be replaced up to a total potential annual volume of approximately 690 AF. These replacements will be made under the requested refill rights. Once the reservoir has achieved its first fill and capacity exists in the District's nearby Stagecoach Reservoir, storage water will be delivered via a pipeline and/or open channel down the adjacent Little Morrison Creek drainage for delivery to Stagecoach Reservoir. The capacity of the delivery pipeline for purposes of this study has been established at 50 cubic feet per second (cfs). Figure 2 displays the proposed reservoir foot print and Morrison Creek Pipeline. The water delivered to Stagecoach is for the purpose of firming its existing and anticipated contract pool demand. The water will be used directly or by exchange for beneficial uses within the District's service area including augmentation of Little Morrison Creek. This operation is discussed in further detail later in this report.

As water stored under the Morrison Creek Reservoir's first fill is delivered to Stagecoach Reservoir or is otherwise beneficially used by the District, the vacant space will be filled by the requested refill when the rights are in priority and water is physically available. The maximum amount of water stored under the fill and refill operation would not exceed 10,620 AF in any one year.

An additional planned use of the Morrison Creek Reservoir storage is to provide a reliable, firm supply of water to the Morrison Creek Water and Sanitation District (MCW&SD). The water could either be treated and used directly in the MCW&SD's domestic system or delivered to Little Morrison Creek and used by augmentation or exchange for benefit of water users within the MCW&SD. For purposes of this study and the determination of water availability to the reservoir, RESOURCE assumed that the District would provide the MCW&SD with a continuous year round delivery of 1.0 cfs (723 AF annually) for purposes of direct supply and/or augmentation. The actual demand for water by the MCW&SD could be more or less than the 1.0 cfs continuous supply assumed in this study.



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UPPER YAMPA WATER CONSERVANCY DISTRICT

MORRISON CREEK RESERVOIR FEASIBILITY STUDY

FIGURE 2
Proposed Reservoir and Pipeline

Date: 01/27/2009
File: 1047-1.4
Drawn by: RP
Approved by: RSF

UYWCD Exhibit 5

3.0 ENGINEERING FEASIBILITY ANALYSIS

The District retained the services of the URS Corporation (URS) to complete an Engineering Feasibility and Preliminary Cost Analysis of constructing the proposed dam. The URS study included an assessment of site topography, hydrology, geology and alternative dam configurations. A summary of the URS findings appear below. A complete copy of the URS report is provided in Attachment 1 to this report.

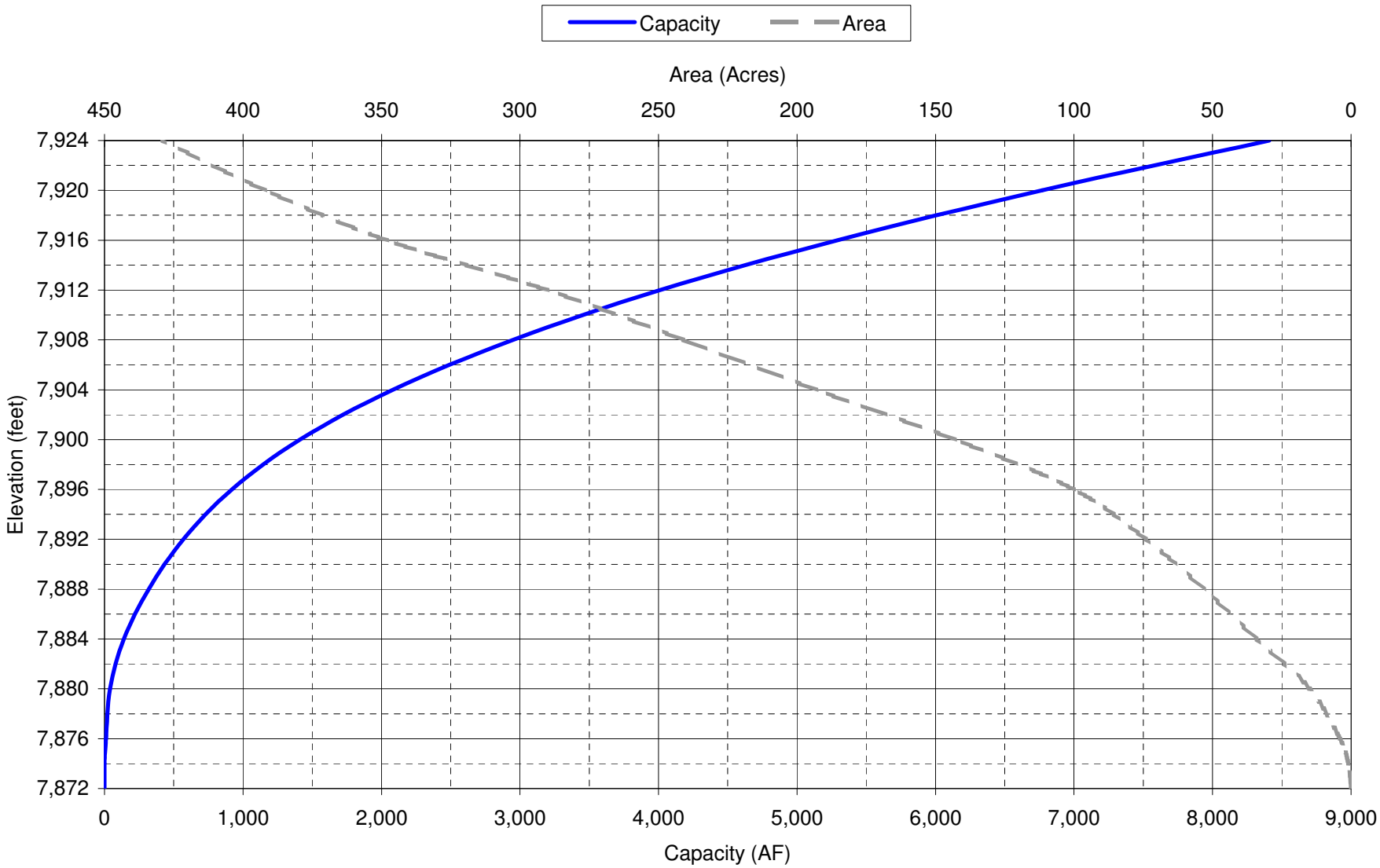
3.1 SITE TOPOGRAPHY

Topographic information used in the engineering feasibility analysis was obtained from two sources. The District provided two foot contour interval topographic information of the damsite and reservoir area. Additional topographic information for the watershed area contributing to the proposed dam and reservoir was developed from digital elevation models (DEMs) obtained from the U.S. Geologic Survey (USGS). Based upon this topographic information, URS developed a detailed description of the reservoir's potential storage characteristics including reservoir surface area and capacity calculations. This information is summarized in Table 1 and Figure 3. The spillway crest for the dam has been initially set at Elevation 7915 to provide approximately 5,000 ac-ft of storage within the reservoir. This elevation would provide a storage pool consistent with the District's water right applications filed in the consolidated cases. Subsequent analyses, as described below, indicates that the dam crest elevation may alternatively be established at Elevation 7912. The reservoir pool at this elevation is approximately 4,010 AF.

Table 1. Morrison Creek Reservoir Area-Capacity Information.

Elevation (feet)	Area (acres)	Volume (ac-ft)	Elevation (feet)	Area (acres)	Volume (ac-ft)
7872	0	0	7900	143	1,410
7874	1	0	7904	193	2,080
7876	4	10	7908	241	2,950
7880	15	40	7912	290	4,010
7884	34	140	7916	348	5,290
7888	53	320	7920	392	6,770
7892	74	570	7924	429	8,410
7896	100	920			

Figure 3. Morrison Creek Reservoir Area-Capacity Curve



3.2 HYDROLOGY

To assist with the development of alternative dam and spillway crest designs for the Morrison Creek Reservoir, URS completed various hydrologic analyses to define the volume of water that could be required to pass through the structure. The hydrologic analyses were completed for the Probable Maximum Flood (PMF). The PMF was estimated using the general storm Probable Figure 3

Maximum Precipitation (PMP) for Stagecoach Dam. The PMP for Stagecoach Dam was developed using Hydrometeorological Report No. 49 (HMR 49). This estimate is a little lower than what a detailed analysis with HMR 49 of Morrison Creek would show due to the difference size in the contributing watersheds. A summary of the general storm PMP is shown in Table 2.

Table 2. General Storm Probable Maximum Precipitation for Stagecoach Dam.

Duration	Precipitation Depth (in)
1-hr	1.07
6-hr	3.62
12-hr	5.82
24-hr	8.84
48-hr	12.77

The "Rules and Regulations for Dam Safety and Dam Construction" dated January 1, 2007 issued by the State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer (SEO) allow for a reduction to the PMP estimates that were developed from HMRs. These reductions are based on the elevation of the watershed and the dam's hazard classification. The PMP used for developing the Inflow Design Flood (IDF) was reduced by 30%, to 70% of the PMP, since the watershed is above 8,000 ft MSL.

The unit hydrograph development and infiltration estimates were completed using the procedures presented in the "Flood Hydrology Manual" (Cudworth, 1989). The watershed parameters used to develop the unit hydrograph are shown in Table 3.

Hydrologic modeling and reservoir routing for the IDF were completed using the HEC-HMS watershed hydrology software developed by the U.S. Army Corps of Engineers, Hydrologic Engineering Center. The peak inflow for the IDF, 70% of the General Storm PMP, was estimated to be approximately 16,400 cfs with a total storm volume of approximately 25,000 ac-ft. The peak reservoir discharge was estimated to be approximately 14,000 cfs assuming a spillway width of 180-feet and a discharge coefficient of 3.0. The resulting maximum water surface elevation was

7923.7 or approximately 8.7 feet above the spillway crest. The inflow and outflow hydrographs for 70% of the PMP are contained in the attached URS report (Attachment 1).

Table 3. Summary of watershed parameters.

Parameters	Watershed
Drainage area (mi^2)	71
Length of longest watercourse (mi)	12.5
Distance to basin centroid (mi)	5.5
Basin slope (ft/mi)	160
Average Weighted Manning's "n" (K_n) - General Storm	0.085
Lag Time (hr) - General Storm	3.9
Constant Loss Rate (in/hr)	0.05

3.3 DAMSITE GEOLOGY

The damsite and reservoir are located near the margin between the western flank of the Park Range and the southeastern flank of the Washakie Sedimentary Basin. The damsite is located at a relatively narrow and about 40 foot deep canyon on Morrison Creek that was eroded into relatively strong and hard Precambrian gneiss and schist. Test holes drilled in the flat bottom of the canyon suggest alluvial sands and gravels deposited in the canyon are about 10 feet thick, over the underlying gneiss. The location of the test holes and copies of the boring logs are included the URS report (Attachment 1). The reservoir area is also underlain by alluvium and has a reservoir rim composed of sandstone and siltstone of the Tertiary age Brown's Park Formation.

Precambrian rock that outcrops out at the proposed dam site consists mostly of dark grey to black, medium grained, gneiss with some thin zones of biotite schist. The gneiss has been weathered and has chlorite and clay weathering products along joints and within mica bands of the rock. The gneiss is typically widely jointed, with two steeply dipping and nearly vertical joint sets and numerous randomly oriented joints. The rock mass has a joint set oriented parallel to the nearly vertical foliation. The rock mass exhibits rock cleavage, or a tendency to break along the foliation. The rock mass also contains a few steeply dipping shear zones, typically less than one foot wide, consisting of intensely fractured rock and some thin clayey gouge zones. The rock mass at the dam site can be characterized as strong and hard, capable of forming a suitable foundation for a concrete or earth fill dam.

3.4 FEASIBILTIY DESIGN AND ALTERNATIVE CONSIDERATIONS

Preliminary layouts for the dam are shown in the attached URS report. The following list provides preliminary design criteria for the dam and reservoir:

- Spillway Crest Elevation of 7915 to provide the original desired 5,000 ac-ft of storage.
- Dam Crest Elevation of 7925 to pass the PMF without overtopping the dam.
- Dam Foundation of 7860 assumed based on geologic and geotechnical field investigations.
- Slope of downstream dam face at 1H to 1V to provide overall structural stability based on a 2-dimensional (gravity) analysis with no foundation drains. (The dam cross-section will be optimized during later stages of design.)
- Spillway walls and still basin dimension developed based on preliminary hydraulic analyses and engineering judgment.

The feasibility design for the dam also included two access roads. One road provides access to the dam crest, crosses the dam and continues to an existing residence southeast of the proposed damsite. The second road provides access around the southern extents of the proposed reservoir. The preliminary alignments for the access roads are shown in the attached URS report.

3.4.1 Alternative Normal Pool Considerations

The feasibility level design outlined above would cause back water during a PMF event to encroach on Forest Service lands designated as Wilderness Area. Although the back water effects would be limited in scope and extremely rare, it is anticipated that federal approval could be difficult to obtain. Therefore, three alternative spillway configurations were evaluated to estimate the change in the normal pool elevation necessary to limit the maximum WSEL during the PMF to less than elevation 7914 (elevation at the wilderness boundary). Table 4 provides a summary of the estimated normal pool elevations and corresponding storage. The fixed crest spillway option assumes the effective spillway crest length has been extended and the crest has been configured to yield a discharge coefficient of approximately 3.9. The labyrinth weir alternative has been developed using wall heights of approximately 9 feet. The overflow spillway gate alternative would require an approximately 7-foot high gate.

Table 4 Normal Pool Elevations with a Maximum WSEL of 7914.

Spillway Control Structure	Normal Pool Elevation	Normal Pool Storage
Fixed Ogee Crest Structure	7907	2,730
Labyrinth Weir	7909	3,215
Overflow Gates	7912	4,010

3.5 COST ESTIMATE

A probable construction cost estimate to build the dam was prepared by URS in accordance with the guidelines of the AACE International (the Association for the Advancement of Cost Engineering). According to the definitions of AACE International, the "Class 4 Estimate" is defined as:

> A CLASS 4 ESTIMATE is generally prepared for strategic planning purposes, such as initial viability, evaluation of alternative schemes, project screening, project location studies, and long-range capital planning. Typically engineering is from 1% to 15% complete, and would comprise conceptual diagrams, preliminary piping runs for major processes, facility layout drawings, and preliminary equipment lists. The typical expected accuracy range for this class estimate is –15% to –30% on the low side and +20% to +50% on the high side.

Based upon the above outlined guidelines, URS's Opinion of Probable Construction Costs is summarized in Table 5.

Table 5. Engineer's Opinion of Probable Construction Costs.

Estimate Type	Cost ($)
Reasonable Low End Estimate	$6,700,000
Best Estimate	$10,000,000
Reasonable High End Estimate	$12,400,000

In addition to the costs necessary to construct the dam, additional engineering, geotechnical review, environmental permitting and construction oversight costs will be realized. For planning purposes, RESOURCE recommends an additional 30% contingency be added to the URS estimates to account for these additional items. Moreover, there will be additional costs associated with construction of a pipeline system to transport up to 50 cfs of water to the Morrison/Little Morrison Creek divide. Additional costs will be realized for construction of the

Morrison Creek Pipeline extending from the watershed divide down County Road 16 to Stagecoach Reservoir. These additional costs were evaluated previously under the District's water right application filed in Case No. 03CW53 and an engineer's opinion of probable construction costs was developed. These previous estimates remain valid for this study. The probable costs for these two components of the project totaled $2.71 M and $4.6 M respectively. A more detailed description of these probable costs are shown in Attachment 2. The probable Project costs combined are outlined in Table 6 below.

Table 6. Engineer's Opinion of Probable Costs – Entire Project*

Estimate Type	(1) Dam Construction	(2) Engineering, Permitting, Geotechnical Review	(3) Pump & PL or Gravity to Divide	(4) PL From Divide to Stagecoach Reservoir	(5) Total
Reasonable Low End	$6.7 M	$8.7 M	$2.7 M	$4.6 M	$16.0 M
Best	$10.0 M	$13.0 M	$2.7 M	$4.6 M	$20.3 M
Reasonable High End	$12.4 M	$16.1 M	$2.7 M	$4.6 M	$23.4 M

* Opinion of Probable Costs do not include land and/or right of way acquisitions.
(1) Costs projected by URS
(2) Costs in Col. (1) increased by 30%. RESOURCE assumption
(3) Costs projected by RESOURCE
(4) Costs projected by RESOURCE
(5) Sum of Cols. (2), (3) and (4).

4.0 WATER AVAILABILITY ASSESSMENT

A hydrologic analysis of the Morrison Creek Watershed was undertaken to evaluate the availability of water to the proposed Morrison Creek Reservoir and Pipeline. The reliability of water supply for this Project depends upon the amount of water physically available at the location of the reservoir and the relative water right priority under which the system operates. Each of these aspects is equally important in determining the reliability of the Project water supply. For example, a diversion with an extremely senior water right is only valuable if sufficient physical water supplies are available for diversion. Similarly, a relatively junior water right with an abundant source of water supply may be unreliable if it is placed on "call" by downstream senior rights. In order to determine the reliability of the District's water rights, an analysis of the available physical and legal water supplies was completed.

4.1 PHYSICAL WATER SUPPLY

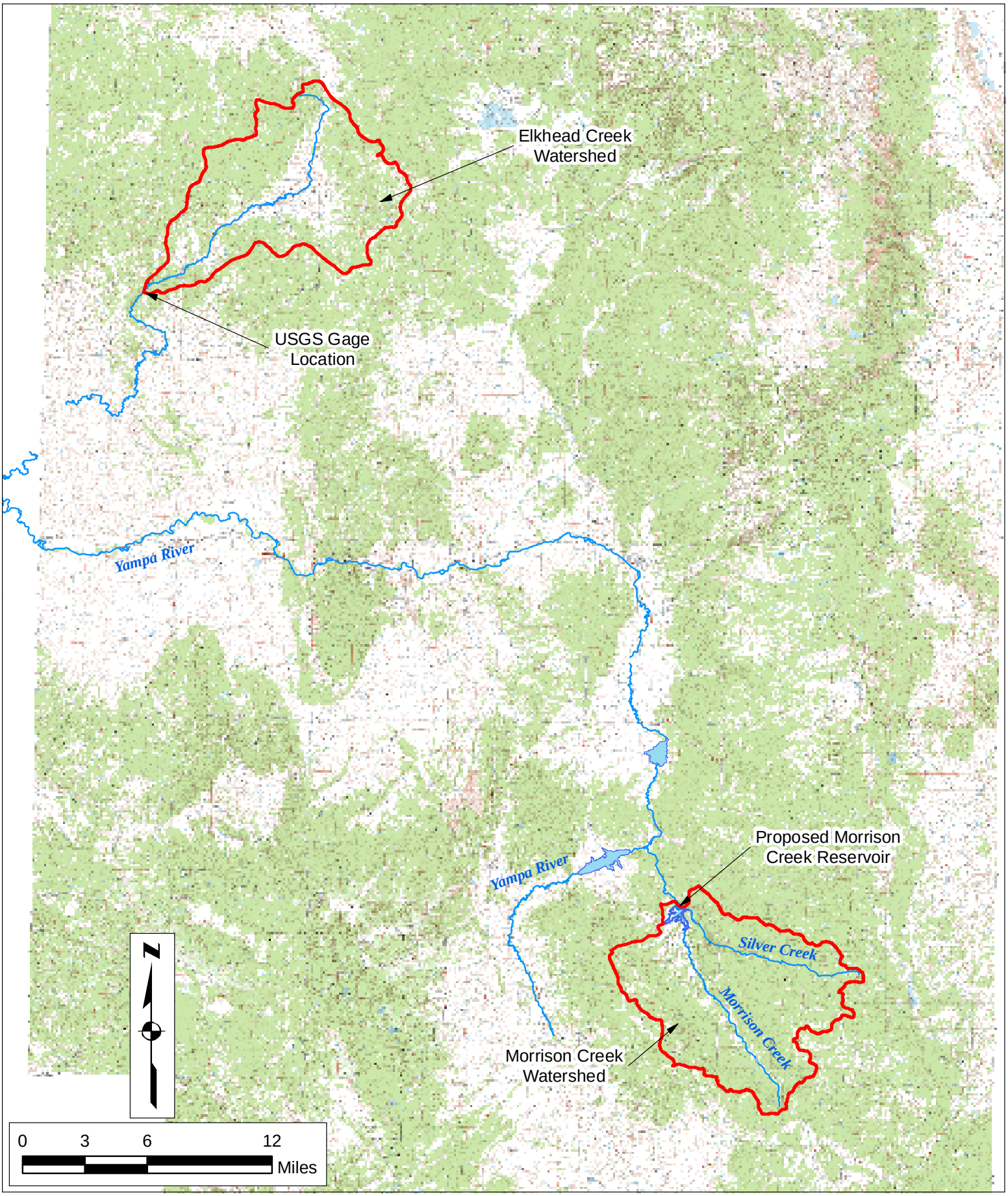
The proposed embankment of the Morrison Creek Reservoir dam is located on Morrison Creek just downstream of its confluence with Silver Creek. There are no long term streamflow records available for Morrison Creek. Limited available data was collected by the State of Colorado,

Division of Water Resources (DWR) during the 1991 water year at a site named Morrison Creek Above Miles Ranch, Colorado (State Gage Identifier: MORCRECO). Due to this data limitation, RESOURCE chose to develop streamflow estimates for Morrison Creek based on a correlation with a nearby stream gage. Regional stream gage sites were reviewed to assess their suitability for correlation with Morrison Creek. After the initial review, the following two local stream gages were selected for detailed analysis: Fish Creek at Upper Station (USGS Gage No. 09238900) (Fish Creek Gage) and Elkhead Creek near Elkhead, Colorado (USGS Gage No. 09245000) (Elkhead Gage). Each of these sites was evaluated based on a correlation with the limited data available at the Morrison Creek above Miles Ranch stream gage (Miles Ranch Gage). The correlation with the Elkhead Gage was strong (R^2 = 0.90), while correlation with the Fish Creek Gage was weak (R^2 = 0.52). The weak correlation with the Fish Creek Gage was a result of significantly different runoff timing between Fish Creek and Morrison Creek. Alternatively, the runoff timing and watershed characteristics of Morrison Creek and the gaged area of Elkhead Creek were very similar, which resulted in the strong correlation. Specifically, the two watersheds have comparable precipitation regimes, elevations, and watershed areas (see Table 7 and Figure 4). Based on the similarities between these two watersheds, RESOURCE was able to predict daily streamflow in Morrison Creek. Predictions were tailored to Morrison Creek by adjusting daily values measured at the Elkhead Gage for slight differences in the watershed area and precipitation regime in Morrison Creek.

Table 7. Comparison of Elkhead Creek and Morrison Creek Watersheds

Parameter	Elkhead Creek Watershed above USGS Gage	Morrison Creek Watershed above Proposed Reservoir
Minimum Elevation (feet)	6,981	7,183
Maximum Elevation (feet)	10,870	10,680
Mean Elevation (feet)	8,445	9,125
Drainage Area (square miles)	68.6	72.2
Mean Annual Precipitation (inches)	32.6	32.3

Correlation with the Elkhead Gage allows for estimation of Morrison Creek streamflows during a 42 year period of record between October of 1953 and September of 1996. This period of record includes several wet and dry climatic cycles. A review of flow predictions for Morrison Creek reveals that annual discharge patterns are dominated by spring snowmelt and are typical of high elevation, montane climates. The peak runoff typically shows a significant increase in discharge in March and April, a peak in discharge in May or June, and a steady reduction in June or July. Discharge during the remainder of the year remains relatively constant. For example, in an average year, discharge in Morrison Creek at the site of the proposed reservoir is expected to ascend to a peak of approximately 750 CFS in May and recede to a baseflow of 6 to 8 CFS by August. Predicted hydrographs for typical dry, average, and wet years are displayed in Figure 5.



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UPPER YAMPA WATER CONSERVANCY DISTRICT

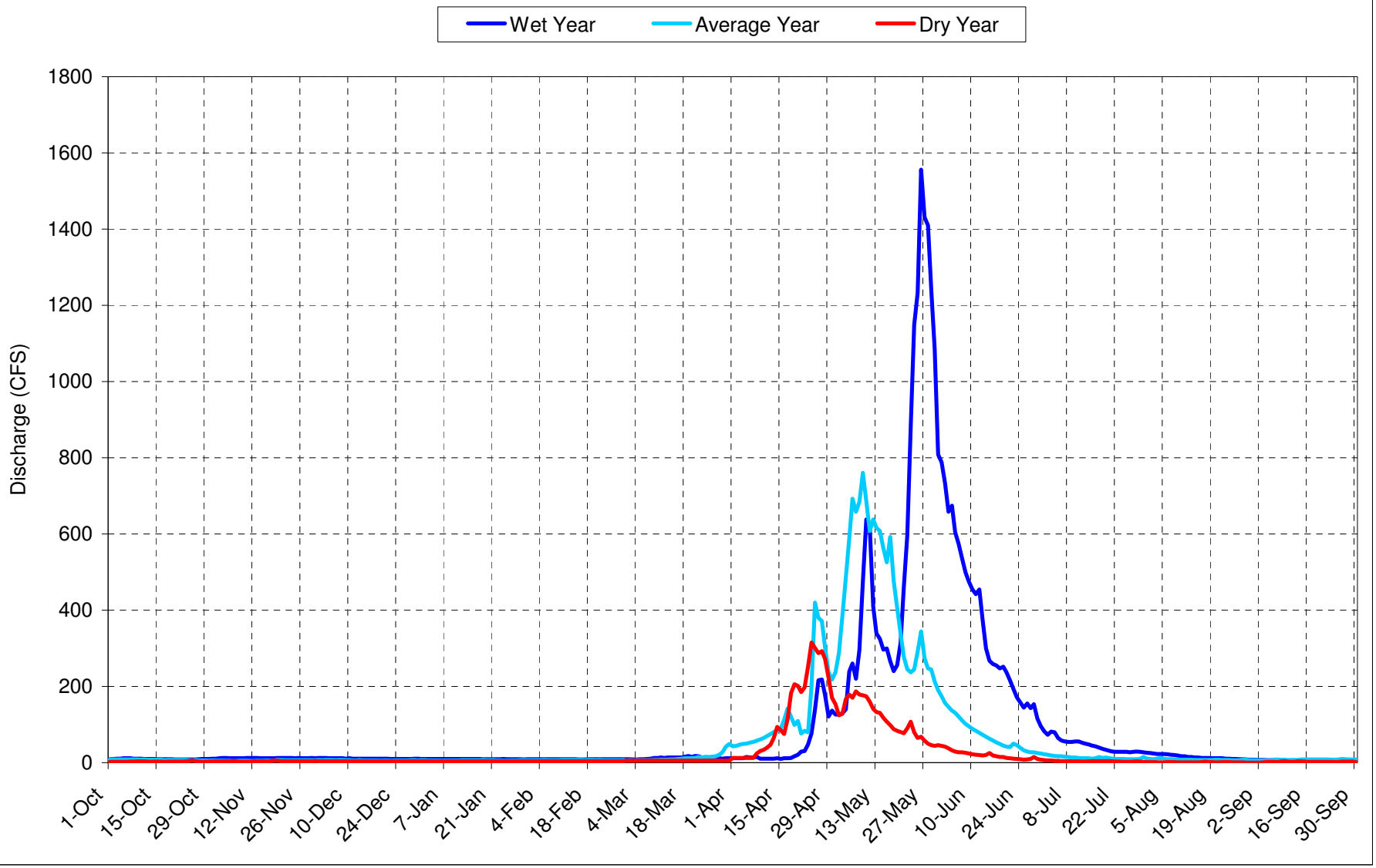
MORRISON CREEK RESERVOIR FEASIBILITY STUDY

FIGURE 4. Morrison Creek and Elkhead Creek Watersheds

Date: 01/27/2009
File: 1047-1.4
Drawn by: RP
Approved by: RSF

UYWCD Exhibit 5

Figure 5. Morrison Creek Synthetic Hydrographs at the Location of the Proposed Reservoir



Based upon its analysis of Morrison Creek streamflows, RESOURCE could quantify the amount of water physically available for storage at the reservoir site over the 42 year study period. During the April through June snowmelt period it is estimated that Morrison Creek at the site of the Morrison Creek Reservoir provides 24,393 AF, 39,073 AF and 47,712 AF during dry, average and wet years respectively. Accordingly, the site has sufficient physical supply available in all years to supply at least 10,620 AF of storage as applied for in the consolidated cases.

4.2 LEGAL WATER AVAILABILITY

The District's application in Case No. 07CW61 requests an alternate place of storage for a portion of its Pleasant Valley Reservoir originally decreed in Civil Action No. 3926 in amount of 43,220 AF. The reservoir was assigned Priority 39A with an appropriation date of June 29, 1959. The decreed uses associated with the Pleasant Valley Reservoir include irrigation, domestic, stock watering, municipal, industrial and power. A key component of the reservoir's planned water supply originates from the Pleasant Valley Feeder Canal: a canal with capacity of 300 cfs capable of delivering water to the reservoir by gravity flow from two downstream tributaries. The canal was assigned priority No. 39 with an appropriation date of June 29, 1959. The decreed uses were identical to those decreed to the Pleasant Valley Reservoir. The two watersheds contributing to the Feeder Canal include Walton Creek and McKennis Creek. The location of the Reservoir and Feeder Canal are shown in Figure 6.

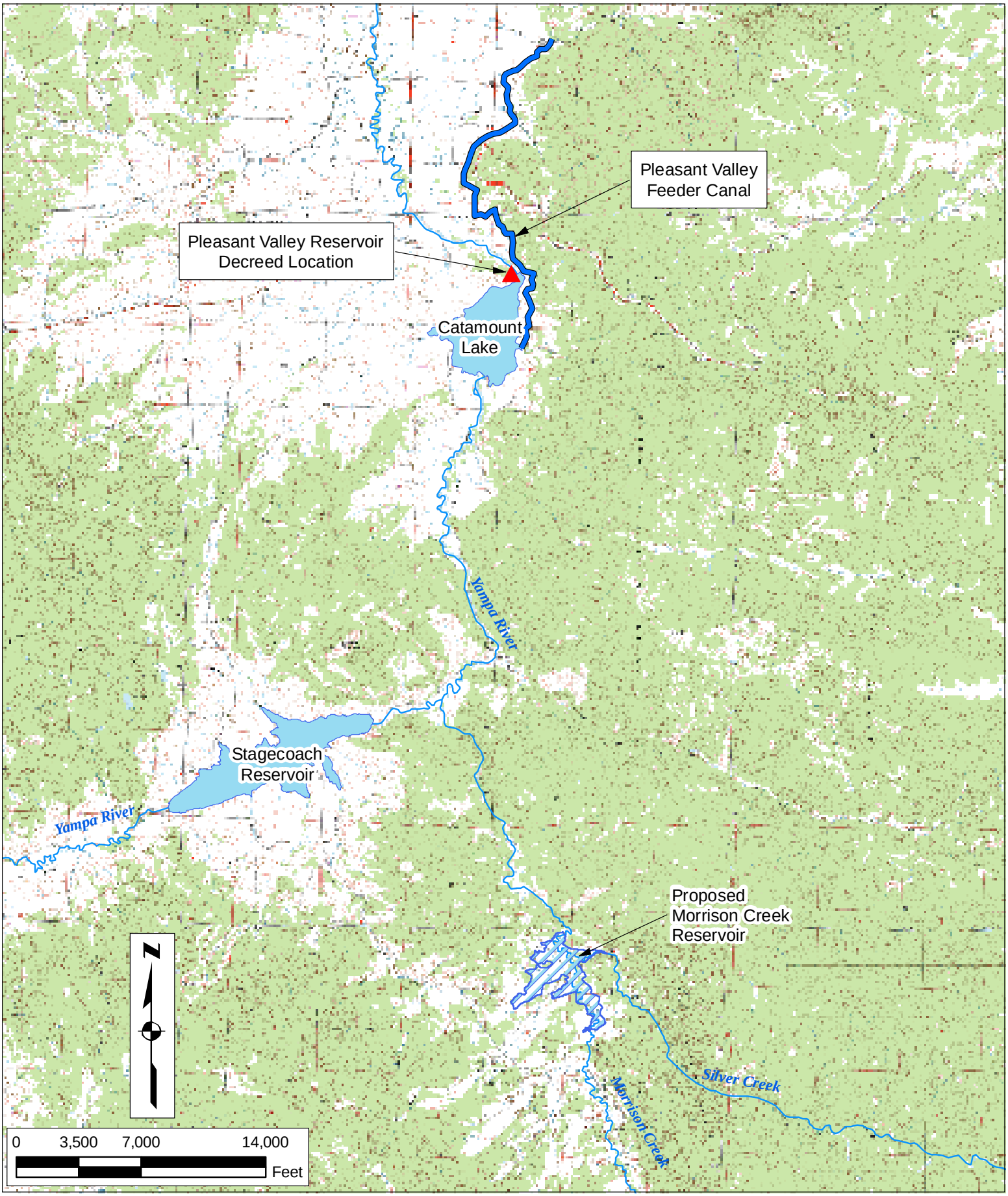
In order for the District to store water in the Morrison Creek Reservoir under the more senior Pleasant Valley Reservoir water rights, it must demonstrate that:

1. Water is physically and legally available in time and amount at the original reservoir site sufficient to support the proposed storage at the alternate upstream location.
2. Basin water rights including the intervening water rights (junior and senior) located within the reach between the Pleasant Valley Reservoir and Morrison Creek Reservoir are not injured as a result of the upstream alternate place of storage.

Both of these river conditions were examined as part of this study.

4.2.1 Water Available at the Original Pleasant Valley Reservoir Site

In analyzing water availability at the original Pleasant Valley Reservoir site, three previous water court decrees were important to consider. In Case No. W-946-76 the Colorado River Water Conservation District (CRWCD), the original owner of the Pleasant Valley Reservoir rights, successfully obtained a decree to allow storage of water decreed to the Pleasant Valley Reservoir



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UPPER YAMPA WATER CONSERVANCY DISTRICT

UYWCD Exhibit 5

MORRISON CREEK RESERVOIR FEASIBILITY STUDY

FIGURE 6. Pleasant Valley Reservoir and Feeder Canal

Date: 01/27/2009
File: 1047-1.4
Drawn by: RP
Approved by: RSF

and Pleasant Valley Feeder Canal at three alternate upstream sites including the District's Yamcolo Reservoir and Bear Reservoir (aka Stagecoach Reservoir). Under stipulations entered in the case, the amount of water stored in Yamcolo Reservoir under the Pleasant Valley rights could not exceed 2,500 AF annually and such yield was limited to the reservoir component only (i.e. no water from the feeder canal). Further, the decree limited the total amount of water allowed to be stored at Stagecoach Reservoir as an alternate place of storage under the Pleasant Valley Reservoir and Feeder Canal rights to 40,720 AF annually.

Later in Case No. 82CW210, the Water Court made absolute the 2,500 AF of Pleasant Valley Reservoir right that was allowed to be stored in Yamcolo Reservoir as a result of the decree entered in W-946-76. More recently in Case No. 92CW26, the Water Court found that the District had stored and beneficially used 20,854 AF of the possible 40,720 AF allowed at Stagecoach Reservoir under the conditional decrees awarded to the Pleasant Valley Reservoir and Feeder Canal water rights. This case also allowed the water to be used by the District for augmentation and exchange purposes under a 2001 priority.

The significance of the above referenced decrees is that of the 43,220 AF of storage decreed to the Pleasant Valley Reservoir and Feeder Canal, 2,500 AF is already committed to storage at Yamcolo and an additional 20,854 AF is committed to storage in Stagecoach Reservoir (total committed storage = 23,354 AF). Thus, in this analysis, it was assumed that the first 23,554 AF of water available at the original Pleasant Valley Reservoir site would be dedicated to these existing uses.

To determine the amount of water physically and legally available at the original Pleasant Valley Reservoir site, RESOURCE developed a water availability computer model to predict storable inflow under a variety of river conditions and water right constraints. A detailed description of the streamflow model and results is contained in Attachment No. 3. Several key assumptions were imbedded in the streamflow model including;

1. The first 23,354 AF of yield at the original site were assigned to upstream storage in Yamcolo and Stagecoach Reservoirs as permitted by previous water court decrees.
2. Pleasant Valley Reservoir, although relatively senior in priority will be subject to future downstream calls from senior agricultural rights. Accordingly, the model assumes that the Pleasant Valley Reservoir and Feeder Canal could have diverted and stored water

only during the period March through June of dry and average years and March through July of wet years.

3. In predicting water available to the Pleasant Valley Feeder Canal and reservoir site, the model allocated the first 289 cfs of water available from Walton Creek and the first 50 cfs of water available from Harrison Creek for use by pre existing absolute water rights. The Walton Creek deductions were necessary to acknowledge the existing diversions by the Walton Creek Ditch, Enterprise Ditch and others along lower Walton Creek as well as those portions of the District's Four Counties Ditch No. 3 Enlargement and Extension Rights that have been decreed Absolute for storage in Stagecoach Reservoir.[1]

4. The Pleasant Valley Reservoir would have had to bypass the first 50 cfs of inflow for assumed environmental bypass flows. This water was not available for storage.

Utilizing the above assumptions and other criteria as described more fully in Attachment 3, the RESOURCE flow model predicts that with exception of extremely dry years, the full 43,200 AF of decreed volume is available for storage annually. Even during the most extreme dry periods, at least 34,200 AF of water was available for storage. This amount of water is sufficient to account for the 23,354 AF of volume already committed to Yamcolo and Stagecoach Reservoirs and the additional 10,620 AF proposed for the Morrison Creek Reservoir in these consolidated cases.

An examination of the timing of water available at the downstream Pleasant Valley Reservoir site was also completed. The purpose of the review was to ensure that the projected yield was sufficient month by month coincident with the timing of storage at the Morrison Creek Reservoir under the proposed fill and refill rights. The study findings demonstrate that sufficient water was always available for storage at the Pleasant Valley Reservoir site during the same time period that water could be stored under the fill and refill rights at the Morrison Creek Reservoir. Thus, the study finds that water was always available at the Pleasant Valley Reservoir site in time and amount sufficient to allow storage at the alternate upstream Morrison Creek site.

4.2.2 Protection of Existing Water Rights

The storage of the more senior Pleasant Valley Reservoir water rights at the upstream Morrison Creek site cannot result in injury to other water rights in the basin including those within the

[1] In Case Nos. 92CW26 and 95CW116 approximately 130 cfs of water tributary to Walton Creek was made absolute for storage in Stagecoach Reservoir. An additional 59 cfs has been claimed as absolute (total = 189 cfs) by the District in Case No. 06CW43, pending.

intervening reach between the two reservoir sites. In determining the quantity of water that may be stored there are several local and regional water rights to consider. Locally, there are a variety of agricultural water rights on Morrison Creek. Due to the pattern of historic development in the Morrison Creek basin, only two of these rights are downstream of the Project. These structures, the Morrison Creek Ditch No. 1 and No. 2, are the most senior rights on Morrison Creek and are decreed for a diversion rate of 1.17 cfs and 1.22 cfs respectively (i.e. a total diversion rate of 2.5 cfs). Historically, these rights have not placed a call on Morrison Creek.[2] However, in operating the Morrison Creek Reservoir, the District will have to ensure that sufficient water is bypassed to satisfy these rights.

There are several significant regional water rights to consider when evaluating legal water availability for the Morrison Creek Reservoir. First, the Colorado Water Conservation Board (CWCB) holds an instream flow water right with an upper terminus at the confluence of the Yampa River and Morrison Creek and a lower terminus at the inlet to Lake Catamount. This right was decreed in Case No. 01CW106 and is senior to the Morrison Creek Reservoir. The District will also have to ensure that sufficient bypasses are made below the reservoir to prevent injury to this right.

The second regional water right to consider is the City of Steamboat Springs Recreational In-channel Diversion (RICD) decreed in Case No. 03CW86. The RICD water right effectively made the Upper Yampa River basin over-appropriated. This water right has an adjudication date of December 31, 2003 and an appropriation date of December 16, 2003 and has potential to place a call on upstream water rights junior to 2003. Both the decreed storage site and feeder canal diversions are located upstream and are senior in priority to the RICD rights. In addition, the allowed augmentation and exchange uses decreed in Case No. 01CW41 are senior in priority to the RICD. Therefore, assuming that the District will be successful in storing water under the Pleasant Valley Reservoir decrees, it will not be subject to a call from this right.

Finally, there are several downstream agricultural water rights near Maybell, Colorado (the Maybell Rights) that could place an administrative call on the Upper Yampa River and Morrison Creek in the future. To date, these rights have never placed a call. A call from the Maybell Rights would be most likely to occur during the late irrigation season after runoff flows have receded. Typically, a call from an irrigation water right might occur from early July through October. The likelihood of such a call increases in dry years. However, a call is not expected to

[2] Water Commissioner Elvis Ickavetto, Personal Communication, 02/05/2008.

impact storage at the Morrison Reservoir site. As discussed in detail below, the physical water availability in Morrison Creek will restrict storage in the reservoir to the peak flow period during "free river" conditions. Morrison Creek flows will have receded and the reservoir filled before a downstream, agricultural water right would place a call on the basin.

The various water right considerations outlined above were considered in RESOURCE's estimates of water availability at the Morrison Creek Reservoir site. That is, in calculation of storable water RESOURCE always assumed that sufficient water was first bypassed at the dam for the senior downstream Morrison Creek water rights and the CWCB minimum flow on the Yampa River below Morrison Creek. Moreover, storage was not permitted during periods of possible call by downstream agricultural water rights. These assumptions and study findings are discussed in Chapter 5.0, Section 5.2.

5.0 DEMAND FOR WATER

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 reservoir 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 with various in-basin cities and towns for municipal use. In the future, the reservoir will also be used by the District as a source of direct flow and augmentation water for contract users under its "Umbrella Plan" decreed in Case No. 06CW49. One of the primary purposes of the Morrison Creek Reservoir is to store and transport additional water to Stagecoach Reservoir to help firm the reservoir's yield and to provide reliable water supply to meet increasing demand in the Yampa River Basin.

5.1 WATER DEMAND, YAMPA RIVER BASIN

Several recent studies prepared by BBC Research and Consulting (BBC Consulting) have analyzed future water demand in the Yampa River Basin. Generally, the studies indicate that projected population growth and economic development in the Upper Yampa Basin will place heightened demand on water resources. BBC Consulting was commissioned by the District to update its estimates of expected population growth and associated water demand in the Upper Yampa basin as part of this investigation. By letter report dated February 20, 2009, BBC

Consulting presented a summary of its findings. A copy of the BBC Consulting report is contained in Attachment 4; a brief summary of the report is presented below.

5.1.1 Routt County Population Growth Experience and Trends

Over the past 37 years, Routt County has experienced considerable development and population growth. From a population of less than 6,600 residents in 1970, the County has grown to over 23,000 residents as of 2007.[3] From 1970 through 1990, the County's population grew by an average of 3.9 percent per year, though some periods saw faster growth than others during that 20 year period. Since 1990, the County population has grown by an average of 2.9 percent per year.

5.1.2 Distribution of Population Growth Within Routt County

Routt County includes four incorporated cities and towns, Hayden, Oak Creek, Steamboat Springs and Yampa. Historically, the fastest growing areas of Routt County have been the City of Steamboat Springs and the unincorporated portions of the County. The population of Steamboat Springs grew at an average annual rate of 5.4 percent per year from 1970 to 1990 and an average annual rate of 3.2 percent from 1990 to 2007. The population living in unincorporated Routt County increased at an average annual rate of 3.1 percent from 1970 to 1990 and grew at an average annual rate of 3.0 percent from 1990 to 2007.

While Steamboat Springs has historically captured the majority of the population growth in Routt County, the City's share of county population growth appears to be gradually declining. From 1970 through 1990, the City captured 58 percent of the total population growth in the County. From 1990 through 2007, the City's share declined to 54 percent (from 2000 through 2007, the City captured 50 percent of the Country's overall growth).

Conversely, the share of Routt County population growth taking place in unincorporated areas has been increasing. From 1970 to 1990, 30 percent of Routt County population growth occurred in unincorporated areas. From 1990 to 2007, 36 percent of county population growth took place outside of municipal areas (from 2000 through 2007, 37 percent of the County's overall growth was in unincorporated areas).

[3] Table 5. Population for Colorado Counties and Municipalities. Colorado Division of Local Government, State Demography Office, November 2008.

Between 1990 and 2000, the population of Routt County living in unincorporated areas increased by 1,990 residents. Based on comparison of 1990 and 2000 population by census tracts and census block groups, most of the growth in the unincorporated portions of Routt County occurred south of Steamboat Springs. The population living in unincorporated portions of southern Routt County increased by 1,729 residents during the 1990's, accounting for almost 87 percent of total population growth in the County's unincorporated areas.

5.1.3 Future Growth Projections

Based upon a recent assessment of future growth in Routt County by the Colorado State Demography Office (SDO), BBC Consulting anticipates that Routt County's population will grow at an average rate of between 2.0 and 2.5 percent per year over the long term. These growth rates would lead to a total county population of between 60,000 and 75,000 residents by 2055. In the next few years, the City of Steamboat Springs is likely to capture a relatively large share of Routt County population growth due to both the redevelopment of the base area near the ski mountain and plans to promote urban-style development at West Steamboat. Over the longer term, the development trends discussed earlier suggest that no more than 50 percent of future county population growth will occur within Steamboat Springs, about 10 percent will occur in the other incorporated municipalities in the County (Hayden, Oak Creek and Yampa) and at least 40 percent will take place in unincorporated areas. Applying these capture rates to the revised projections of future Routt County population indicates that between 23,000 and 29,000 residents will live in unincorporated portions of Routt County by 2055.

5.1.4 Projected Future Municipal and Domestic Water Demand in Routt County

To estimate the water needs of future Routt County residents, BBC Consulting multiplied the number of new residents projected to move into the area between 2007 and 2045 by the water use factors developed in previous studies. This produces a conservative (potentially low) estimate of future water needs compared to estimates based on historical water use data from the United States Geologic Survey (USGS) or the recent Statewide Water Supply Initiative (SWSI) commissioned by the Colorado Water Conservation Board in 2004. RESOURCE has reviewed the methodology by which BBC Consulting calculated future water demand and is in agreement with its study findings and conclusions, including the observation that it provides a conservatively low estimate of future demands.

In summary, under average year conditions, new residents of Routt County's unincorporated areas are projected to need between 2,800 and 4,000 acre-feet of additional supply for municipal

and domestic purposes. Under dry year conditions, these new residents could require approximately 3,400 to 5,000 acre feet of additional water supply. The District's reservoirs are well positioned to provide all, or a portion, of the increased water demands. Portions of the water could be provided by Stagecoach's 2,000 AF domestic pool dedicated to the "umbrella plan" as recently decreed in Case No. 06CW49. The proposed Morrison Creek Reservoir could also provide water to future users within the unincorporated areas.

5.2 WATER DEMAND, STAGECOACH RESERVOIR

Section 5.1 establishes a growing demand in the Yampa River basin for District water stored in Stagecoach and Morrison Creek Reservoirs. This section examines need for additional water in Stagecoach Reservoir as might be provided by the delivery of water from the Morrison Creek Reservoir. It is important to verify that Stagecoach has the capacity to reliably accept and utilize the Morrison Creek Project yield.

As outlined earlier, one of the specific goals of the Project is to increase the firm yield of Stagecoach Reservoir by diverting Morrison Creek Reservoir water into Stagecoach Reservoir (via the Morrison Creek Pipeline). RESOURCE combined its water availability model of Morrison Creek (described in Section 4.0) with model operations of Stagecoach Reservoir into a single computer model (Model) to quantify the amount of water that could be reliably delivered to Stagecoach from Morrison Creek.

5.2.1 Stagecoach Reservoir Model

Stagecoach Reservoir is owned and operated by the District and provides water storage for municipal, agricultural, recreation, and hydroelectric power generation purposes. Stagecoach Reservoir has a water surface area of 771 acres and a storage capacity of 33,272 acre feet.

The District uses conditional and absolute water rights 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 were changed to include augmentation and exchange for replacement purposes as beneficial uses in Case No. 01CW41, District Court, Water Division 6.

Historically, Stagecoach Reservoir has been operated to support existing contract commitments for municipal, industrial and irrigation users and to provide flows to protect the downstream fishery. Water released from the facility also generates hydroelectricity at the power plant located below and adjacent to the dam. The facility is licensed by the Federal Energy Regulatory Commission (FERC) as FERC No. 9202-CO.

In order to quantify how future, increased demand for releases by contractees may affect the ability of Stagecoach Reservoir to fill, RESOURCE developed an operations model for the reservoir (Stagecoach Model). The initial purpose of the Stagecoach model was to define the reservoir's firm yield and its ability to meet the District's existing contract commitments. A reservoir's firm yield is defined as that amount of storage that can be released from the reservoir each year, including during drought periods and the driest years of record. The District's existing contract pools in the reservoir total 15,000 AF of which 13,000 AF are committed to various domestic and industrial users. A finding that the firm yield of Stagecoach Reservoir is something less than 15,000 AF would support the District's goal of improving its yield through import of Morrison Creek water.

The Stagecoach Reservoir Model operates on a monthly time step and utilizes historic streamflow data from the Yampa River above Stagecoach gage for the period of October of 1988 through September of 2008. The model uses an Excel spreadsheet to track numerous hydrologic variables and operating assumptions. The operational assumptions were developed by RESOURCE in concert with District staff and District's Board of Directors. Some of the key operating assumptions are described below.

- The operation of Stagecoach Reservoir provides environmental bypasses and instream minimum flows. That is, a portion of available inflow is passed through the reservoir sufficient to meet federal bypass requirements at the facility and to satisfy senior water rights that existed prior to the reservoir's construction.
- The Stagecoach Model assumes that a call is placed on the Yampa River by downstream senior water rights during July through October of dry and average years. When Yampa River gaged data for July corresponds to a wet period (i.e. monthly streamflows is over 120% of the average for July), the aforementioned call does not come on until August 1st.
- In addition, the Stagecoach Model allows storage during the winter of average and wet years if water is available over and above the required environmental bypass flows.

Storage does not occur during the winter if the previous spring runoff (March through July) was below 75% of the average.

- The Stagecoach Model assumes that contractees will require the full amount of contract releases only during dry years. The amount of required contract releases is reduced by 50% for average years and by 90% for wet years.
- Evaporation is debited from the reservoir's recreational storage pool on a monthly basis. Evaporation losses are calculated based on the surface area corresponding to the elevation content at the beginning of each month.
- The reservoir content in Stagecoach Reservoir remained above 15,000 AF through the duration of the study period.

The Stagecoach's model utilizes historic gaged inflow to the reservoir over a study period of 1988 through September 2008 combined with the above operating assumptions to model storable inflow. Releases of water from the various contract pools are simulated annually over the July through March period. The amount of water released is varied under different model runs. Increasing amounts of water from the contract pools are made until such time that reservoir volumes during dry periods are unable to recover in ensuing years. The maximum amount of reservoir release that can be made annually and still facilitate recovery of the reservoir over time is defined as the reservoir's firm yield. In this study, the Stagecoach Reservoir's firm yield calculated by the Stagecoach Model is 9,247 AF. This means that the Stagecoach Reservoir is able to release 9,247 AF to its downstream contractees, year in and year out even under the extremely dry cycle contained in the study period. The limiting dry year conditions occurred during the period 2002 through 2005.

The Stagecoach Reservoir operational study indicates that water available to the reservoir from its Yampa River sources are inadequate to provide a firm yield of 15,000 AF. Rather, the reliable yield is estimated to be 9,247 AF; 5,753 AF short of the District's existing contract pool totals. This finding supports the District's efforts to provide additional water to the site as might be provided by Morrison Creek storage under the consolidated cases.

5.2.2 Morrison Creek Reservoir and Pipeline Model

In order to determine the amount of water potentially available from Morrison Creek to help improve the firm yield of Stagecoach Reservoir, RESOURCE combined its Stagecoach Model with its Morrison Creek Water Availability Model that was previously discussed in Chapter 4.0. In

assessing the amount of water available for storage in Morrison Creek, the District took into consideration the key downstream water rights described in Section 4.2.2. Specifically a 2.5 cfs bypass was allocated during the April through October irrigation season to the Morrison Creek Ditch Nos. 1 and 2. An additional bypass flow as allocated to satisfy the CWCB instream flow water right that extends from the confluence of the Yampa River and Morrison Creek to the inlet of Lake Catamount. This instreamflow right receives inflow from both the Yampa River below Stagecoach Reservoir and Morrison Creek. By reviewing records from the Yampa River below Stagecoach Reservoir gage, RESOURCE estimated which portion of the instream flow right was satisfied by the Yampa River on a monthly basis during different types of years (i.e. dry, average and wet). The remainder (i.e. Instream Flow Right – Yampa River below Stagecoach Reservoir Gaged Flow = Remainder to be Satisfied by Morrison Creek) was added to the bypass flow requirement at the proposed Reservoir site. The calculated CWCB bypass requirement totaled as much as 30 cfs depending upon the month and type of year. Finally, RESOURCE budgeted an additional 4.5 cfs as a conveyance flow to ensure that senior bypasses reach the Morrison Creek Ditch Nos. 1 and 2 and the CWCB instream flow right. The assumptions built into RESOURCE'S Model were intended to be conservative. They guarantee that ample water is delivered to the Morrison Creek Ditch Nos. 1 and 2 and the CWCB instream flow water right before the proposed reservoir is allowed to operate.

After bypassing water for the agricultural water rights and CWCB instream flow right, the Model uses the remaining Morrison Creek water to fill the proposed reservoir. As the reservoir fills, the model debits evaporative losses based on the surface area for the corresponding reservoir content[4].

The two models, now combined, calculated the duration and amount of Morrison Creek storage that could be delivered to Stagecoach Reservoir to help improve its firm yield. During many years no water was delivered to Stagecoach as Yampa River sources were sufficient to fill the reservoir. During dry years and under certain operating conditions, water is sent from the Morrison Creek Reservoir to Stagecoach. Based on modeling results, the conditions under which additional water was transported and beneficially used in Stagecoach Reservoir generally occurred during years when Stagecoach Reservoir's April 1st content was less than 20,000 AF or when reservoir inflow was at or below 70% of average. The modeling results are provided below.

[4] An elevation-area-capacity table for the proposed Reservoir was computed using Geographic Information Systems (GIS) tools and 2 foot contours surveyed with Lidar technology and provided to RESOURCE by the TSR Group.

5.2.3 Summary of Project Yield

The RESOURCE model as described above indicates that water would potentially be delivered to Stagecoach Reservoir from the Morrison Creek Reservoir during 7 of the 20 years within the study period. During these years the amount of water delivered to Stagecoach varied from 3,744 AF in 2006 to 5,585 AF in 2003. This yield combined with deliveries made in 1990, 1994 and 2002 through 2006 helped increase the firm yield of Stagecoach Reservoir by 3,590 AF annually, an increase of yield of just over 38%[5]. Table 8 and Figure 7 below summarize the potential deliveries of Morrison Creek water to Stagecoach Reservoir.

The modeling also disclosed that an additional 1,000 AF of water remaining in the Morrison Creek Reservoir (after deliveries to Stagecoach Reservoir) could be used to further firm the Stagecoach Reservoir contract pools if desired. The water would be released down Morrison Creek during critical periods as needed. Combined, the Morrison Creek Reservoir Project could improve the firm yield of Stagecoach Reservoir by at least 4,590 AF. This would provide reliable contract supplies in amount of 13,837 AF.

5.2.4 Project Yield Under Case No. 07CW72

The water available for storage in Morrison Creek Reservoir and its beneficial uses as described in detail in Section 5.2 above, assume that the District will store water under its more senior Pleasant Valley Reservoir decrees (Case No. 07CW61). A second water availability analysis was completed assuming that storage in Morrison Creek would occur under a junior, 2007 water right as applied for in Case No. 07CW72. Under this alternative, the District's storage right would be junior to the City of Steamboat Springs 2003 RICD right.

In order to define the approximate period under which it is probable that the City could place a call under its RICD rights, RESOURCE examined daily streamflow records available at the upstream USGS gaging station on the Yampa River for the period 1989 through 2007. This flow data was compared to the weekly RICD decreed amounts in order to identify deficiencies, if any. This comparison indicates that during the April through June period that coincides with potential storage at the proposed Morrison Creek Reservoir, the RICD right could potentially place a call on upstream rights during dry and extremely dry years. For example, during the extreme dry year of 2002, the RICD right was potentially short of its decreed amounts for a total of 59 days. During

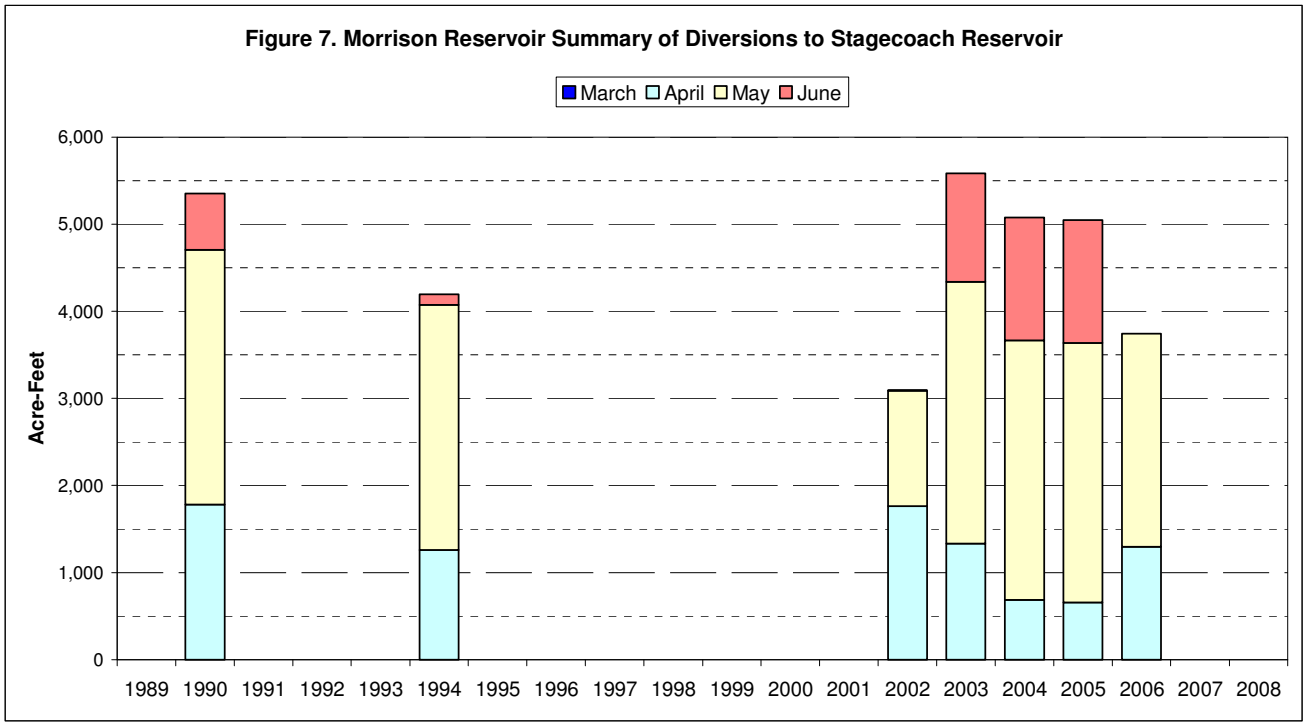
[5] RESOURCE previously reported a firm yield in Stagecoach Reservoir of approximately 8,825 AF. The increase in yield reported in this study is attributed to the extension of the study period through 2008 and to slight operational changes resulting from the merger of Stagecoach and Morrison Creek Models.

other dry years, the RICD right was potentially short of water from 11 days in 2003 to 42 days in 2004.

Table 8. Potential Diversions of Morrison Creek Water to Stagecoach Reservoir

Year	Year-Type	March	April	May	June	July	Aug	Sep	Annual Total
1989	Dry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	Dry	0.0	1,782.4	2,923.9	645.3	0.0	0.0	0.0	5,351.6
1991	Dry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992	Dry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	Wet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1994	Dry	0.0	1,261.3	2,814.5	118.0	0.0	0.0	0.0	4,193.8
1995	Wet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1996	Avg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	Ext Wet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1998	Ext Wet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1999	Wet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	Ave	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2001	Ave	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2002	Ext Dry	0.0	1,763.0	1,328.9	1.1	0.0	0.0	0.0	3,093.0
2003	Ave	0.0	1,333.4	3,007.6	1,244.8	0.0	0.0	0.0	5,585.9
2004	Dry	0.0	686.1	2,978.9	1,412.0	0.0	0.0	0.0	5,076.9
2005	Dry	0.0	659.1	2,978.9	1,412.0	0.0	0.0	0.0	5,049.9
2006	Ave	0.0	1,296.0	2,447.7	0.0	0.0	0.0	0.0	3,743.7
2007	Dry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2008	Ave	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average		0.00	439.06	924.02	241.65	0.00	0.00	0.00	1,604.74

Figure 7. Morrison Reservoir Summary of Diversions to Stagecoach Reservoir



Once the specific days of potential shortage to the RICD right were identified, a corresponding reduction in flow volume available to the Morrison Creek Reservoir was made in the RESOURCE Morrison Creek flow model. However, in the analysis RESOURCE assumed that only one half of the daily water volume was unavailable. This assumption was made in recognition that under the RICD decree the City can only implement a call for a 12 hour duration each day. Thus it was assumed that some portion (1/2) of the flow would be available for storage during part of the day.

The study indicated that even with the flow reduction model in Morrison Creek the effect of the RICD call on the Morrison Creek Reservoir and increased firm yield to Stagecoach was minor. For example during the critical 2002 dry year the calculated reduction in storage was only 27 AF. The impact of the RICD call is limited in this particular case because during the height of the spring snowmelt, Morrison Creek streamflows far exceed the calculated storage requirements in the Reservoir. Accordingly, during the balance of days that RICD calls are not forecast, the reservoir quickly fills. Moreover, even during days of potential call, the calculated volume still available for storage (up to ½ of the flow) is substantial. As a result, RESOURCE concludes that sufficient water will be available for storage under the junior 2007 priority sought by the District in Case NO. 07CW72. The dry year storage volumes and projected increase in firm yield to Stagecoach Reservoir and the MCW&SD remain unchanged.

5.3 WATER DEMAND – MORRISON CREEK WATER AND SANITATION DISTRICT

The amount of Morrison Creek Reservoir water potentially required by the MCW&SD was beyond the scope of this study. For purposes of this study RESOURCE assumed a constant delivery of 1.0 cfs (723 AF) annually. The water availability study concludes that the Project can provide this amount of water year in and year out over and above the predicted increase in firm yield to Stagecoach Reservoir of 4,590 AF. Thus the total Project benefit in terms of firm yield is at least 5,313 AF (4,590 AF + 723 AF). Should the MCW&SD ultimately decide not to use a portion of the Project yield, the District could use the 723 AF to further improve Stagecoach firm yield or for other District purposes.

As part of its reservoir feasibility analysis completed for the District, URS examined the water quality of Morrison Creek to assess its treatability for drinking water purposes. It also completed a particulate size analysis of suspended sediment loads on Morrison and Silver Creeks in order to assess the potential impact on reservoir sedimentation. Numerous parameters were reviewed including the following specific parameters of interest: color, aluminum, iron, total coliform, radionuclides and uranium. In summary, the URS review did not identify any parameters that

could not be adequately treated to bring them below acceptable drinking water standards. Thus the Morrison Creek water supply could provide an acceptable source of domestic water to the MCW&SD if desired. A more complete summary of the URS study is contained in Attachment 5. RESOURCE has reviewed the study methods and assumptions used by URS in its water quality investigation and is in agreement with its findings and conclusions.

6.0 ENVIRONMENTAL CONSIDERATIONS AND PERMIT REQUIREMENTS

The diversion and storage of water into the Morrison Creek Reservoir will require a number of permits and approvals at the federal, state and local levels prior to construction. This section identifies the major permits that will be required and examines various issues specific to this Project. Its content is not intended to comprehensively address all permit requirements, but rather, focus on significant permit and regulatory issues that must be addressed by the District. Sections 6.1 through 6.3 discuss various environmental considerations and permit requirements that must be addressed by this Project. Section 6.4 addresses the likelihood that such permits can be acquired by the District.

6.1 CLEAN WATER ACT SECTION 404 PERMIT

The Clean Water Act (CWA) of 1977 established a series of laws intended to restore and maintain the chemical, physical and biological integrity of the Nation's waters. Section 404 of the CWA requires that a permit be obtained from the U.S. Army Corps of Engineers (Corps) for any activity that requires the placement of fill material within wetlands or waters of the United States. Projects with minor impact to wetland resources are permitted under various "nationwide" permits. These permits are generally issued for repetitive type activities that can be easily mitigated. As a result, these types of 404 permits are straight forward and easy to obtain. For larger, more complicated Projects that have potential to adversely effect wetlands and waters of the United States, the Corps review is much more rigorous and takes place under what is referred to as an "individual" Section 404 permit application. In this instance, the construction of a dam, inundation of Morrison Creek and the conveyance of water to Little Morrison Creek and Stagecoach Reservoir are significant enough to require an "individual" Section 404 Permit from the Corps.

As part of the Section 404 process, the Corps will complete a NEPA review of the Project merits, including consideration of various alternatives. Under Section 404 guidelines, the Corps requires consideration of alternatives that avoid and minimize wetland impacts to the extent possible. Furthermore, as part of 404 process, the Corps requires the Applicant to obtain Section 401

Water Quality Certification from the State of Colorado. Section 401 Certification is described further in Section 6.1.1. below.

6.1.1 Section 401 – Water Quality Certification

In order to ensure that the physical, chemical and biological integrity of the Nation's water is maintained as directed by the CWA, the Corps coordinates with State water quality agencies prior to granting Project approval. The State reviews the proposed action and, if satisfied that the State's water quality will be protected, issues "certification" to the Project under Section 401 of the CWA. To receive 401 Certification for this Project, the District must demonstrate to the Colorado Department of Public Health and Environment (CDPHE) that sufficient Best Management Practices (BMP's) and other mitigation measures have been incorporated into the Project plans such that it will comply with the CWA.

6.1.2 Endangered Species Act – Section 7 Consultation

The Endangered Species Act of 1973 requires that all Federal agencies protect threatened and endangered species and their habitat and aid in the species recovery. The effect of this Act is that the Corps, as part of NEPA process, will review each alternative to determine if the proposed action will affect any species which are listed under the Endangered Species Act. Additionally, the Corps must review a list maintained by the Colorado Division of Wildlife (CDOW) that includes species of special concern, which are not legally protected, but are considered when assessing impacts. During the evaluation of threatened, endangered and other species of concern, the Corps will undergo formal consultation with the United States Fish and Wildlife Service (USFWS) as required by Section 7 of the Act.

The USFWS has previously determined that existing water depletions are adversely impacting four endangered fish species in the Yampa River basin. The four endangered species include: Colorado Pike Minnow, Razorback Sucker, Humpback Chub and Bonytail Chub. Due to poor conditions that currently exist, the USFWS has determined that depletions associated with future water development projects may jeopardize the continued existence of the four fish species.

In 2005, the USFWS, in cooperation with the State of Colorado, prepared a Programmatic Biological Opinion (PBO) regarding the four endangered fish species in the Yampa River.[6] The PBO sets forth specific recovery actions designed to aid in the recovery of the four fish species

[6] U.S. Fish and Wildlife Service (USFWS), 2005. Final Programmatic Biological Opinion on the Management Plan for Endangered Fishes in the Yampa River Basin. USFWS Mountain-Prairie Region (6), Lakewood, Colorado.

while allowing water users in the Yampa River to develop new depletions estimated to be up to 53,000 acre feet per year. Under the PBO, new water projects involving depletions of more than 100 acre feet per year require signing of a Recovery Agreement and payment of a one time fee to fund recovery efforts under the USFWS's "Management Plan for Endangered Fishes in the Yampa River Basin and Environmental Assessment".[7] By signing the Recovery Agreement, the water users simply agree not to interfere with implementation of recovery actions under the management plan.

6.2 STATE PERMITS – WATER QUALITY AND CULTURAL RESOURCES

6.2.1 Water Quality

Except for Section 401 Water Quality Certification as discussed previously, the District will not have to obtain any additional permits from CDPHE for the actual discharge of water into Stagecoach Reservoir. The Colorado Water Quality Control Act, at section 25-8-104 C.R.S., states that no provision of this article shall be interpreted so as to supersede, abrogate, or impair rights to divert water and apply water to beneficial uses with respect to the determination and administration of water rights. However, once the Project has been approved and prior to construction, the District will be required to obtain a Storm Water Discharge Permit from the Colorado Department of Public Health and Environment (CDPHE). This permit is required for all construction activity in the State which disturbs more than 1.0 acre of land. The permit requires the Applicant to outline in detail all proposed construction activities and actions taken, including implementation of BMP's, to control erosion and stream sedimentation. The BMP's outlined in the Storm Water Discharge Permit are similar to those required by the State as part of the Section 401 Certification; however, the level of detail is generally greater because the project design and planning have been advanced.

6.2.2 Cultural Resources

When a federal agency permits an activity that may affect cultural resources, the agency must consult with Colorado's State Historic Preservation Officer. State Agencies also become involved when the activity involves a nominated or listed State Registered property. The process involves the following three steps:

1. Evaluating the eligibility of the cultural resources.

[7] Roehm, G.W., 2004. Management Plan for the Endangered Fishes in the Yampa River Basin and Environmental Assessment. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Lakewood, Colorado, 214 pages.

2. Determining effects of proposed work on eligible or listed properties.
3. Seeking alternatives to avoid, minimize, or mitigate effects to such.

In order to complete the three steps identified above, the Corps, working in concert with the District, will complete an archaeological survey of the Project areas. Similar surveys were completed for the District in 1984 prior to the construction of Stagecoach Reservoir. During the 1984 investigation, no sites were located that were considered eligible for listing in the National Register of Historic Places and therefore, no further action was necessary before proceeding with construction. In 2004, URS Corporation performed a literature search of the Colorado Historical Society Office's of Archaeology and Historic Preservation during its review of the planned Stagecoach Reservoir enlargement. No new sites had been recommended in the Stagecoach Reservoir area since the original 1984 survey.

A 1993 study assessing a potential reservoir site on Morrison Creek downstream of the proposed Project did locate a number of isolated archaeological sites in the basin.[8] No determinations were made as to their eligibility to the National Register. These sites, as well as other potential sites in the study area will be examined as part of a new archaeological survey.

6.2.3 CWCB Instream Flow Inundation

The construction of the Morrison Creek Reservoir will cause a portion of the CWCB's instream flow (ISF) right on Silver Creek to be inundated. Accordingly, the District must request approval from the CWCB Board to inundate this reach of the creek. In its request for approval, the District must submit detailed information concerning the magnitude of the inundation, analyses of probable impacts to the creek, and description of any mitigation proposals. Upon review of the submitted information and consultation with its staff, the Board will either approve the request, approve the request with certain conditions, or deny the request.

6.3 LOCAL PERMITS – ROUTT COUNTY

6.3.1 HB 1041 Permit

In October, 2007 the Board of County Commissioners of Routt County adopted "1041 Regulations". Under House Bill 74-1041 (HB 1041), Colorado Counties are authorized to designate "matters of state interest" and to adopt guidelines and regulations for administration of

[8] Hydrosphere Resource Consultants, 1993. Yampa River Basin Alternatives Feasibility Study Final Report. Colorado River Water Conservation District, Colorado Water Conservation Board, U.S. Bureau of Reclamation, Boulder, Colorado.

such areas of interest. One of the areas of interest identified by Routt County includes, site selection and construction of major new domestic water supply system and sewer treatment systems. The County defines Water Supply System as:

> A system of wells, diversions, pipes, structures, and facilities, including impoundments and their associated structures, through which a water supply is obtained, stored, and sold or distributed for domestic uses; or the system of wells, diversions, pipes, structures, and facilities, including impoundments, through which a water supply is obtained which will be used directly or by trade, substitution, augmentation or exchange, for water which will be used for human consumption or household use. In determining whether a project is a domestic water supply system the Board will consider water right decrees, pending water rights applications, intergovernmental agreements, water supply contracts, and other evidence of the ultimate use of the water.

Based upon the County's definitions of Water Supply System, it is probable that the County Commissioners will require the District to complete the 1041 permit application and review process. The level of review can be detailed depending upon the County staff's determination as to whether or not the Project might have a significant adverse impact. Such a finding will trigger an environmental review of the proposal, require coordination with State agencies and include a public review and hearing process.

It has been our experience with the 1041 process in other Colorado counties that the local governments generally accept the environmental review process undertaken by federal agencies as adequate to meet the intent of the 1041 environmental review process. In this instance, the Corps' NEPA review and Environmental Assessment will be utilized by the County staff to assess probable Project impacts and to ensure that adequate mitigation is proposed to protect the county and state resources.

6.3.2 Grading, Excavating and Storm Water Management Plan

In addition to a HB1041 permit, the Routt County Road and Bridge Department will require a Grading and Excavating Permit for the Project. This permit is required when a project will disturb more than one acre of land and have in excess of 300 cubic yards of material moved. As part of this process, the County requires submission of a proposed Storm Water Management Plan (County SWMP). The County SWMP, similar to the plan required at the State level, requires the applicant to outline in some detail the proposed erosion and sediment control practices and procedures (BMPs) to stabilize the site both during construction and on an on-going, permanent basis.

6.4 PERMIT ACQUISITION

Based upon our recent studies completed by the District and upon familiarity with the proposed Project and the permit review process at the federal, state and local levels, it is probable that the District can secure the necessary permits to construct and operate the Project. Our opinion is based on the considerations detailed below.

To help determine the probability of whether or not a Section 404 Permit could be obtained for the Project, the District completed a wetlands investigation of the reservoir site. The District retained the services of IME, a company specializing in wetland evaluation and permitting. During a 15 day period between April 14, 2008 and November 6, 2008 IME identified and mapped wetland species within the study area. The level of investigation, although detailed, is considered preliminary and additional studies will be necessary in the future.

The field delineation methods used in the IME wetland delineation are those described in Vegetation Sections of the 1987 ***Corps of Engineers Wetlands Delineation Manual*****,** specifically Step 7 – Characterize Each Plan Community Type; *Step 9 – Determine Whether Hydrophytic Vegetation Is Present* and *Step 18 – Establish a Baseline* as defined in the *Routine – Onsite Inspection Necessary* Methodology. No formal wetland sample plots or field data sheets were evaluated in this initial evaluation. The primary emphasis in the initial wetland delineation was to identify dominant plant species along the wetland boundary as outlined in Step 7 of the Corps Manual.

Once the wetlands were identified, IME surveyed their location using GPS units capable of sub-meter accuracy. The data files were downloaded and inserted into 2 foot contour interval topographic mapping and the potential acres of impacts calculated. Based upon this study process the following findings were made.

1. Three wetland community types were identified within a 637.6 acre study area including:
   a. Tall Shrub Wetland Plants,
   b. Mid-height Herbaceous Wetland Plant and
   c. Short Herbaceous Wetland Plants.
2. Within the study area, 50.3 acres of jurisdictional wetlands could be impacted by the Project. A detailed map and description of the effected wetlands is contained in Attachment 6.
3. No fens or organic soils were found anywhere within the study area.

4. The investigation found no potential threatened, endangered or sensitive plant species that could occur on this site.

5. IME determined that there was no specific fatal flaws relative to this site.

Based upon the IME study findings, together with RESOURCE's Section 404 permitting experience, we believe it probable that a Section 404 permit can be obtained for this particular project. An Environmental Assessment (EA) or Environmental Impact Statement (EIS) will be necessary to evaluate the Project merits. However, this Project has a strong purpose and need and other alternatives have been studied and rejected for various reasons. We believe that these elements will help further the permit process culminating in issuance of a permit.

6.4.2 Water Quality Protection

The topography associated with the proposed Project facilities is relatively gentle and presents no unusual conditions that would prevent the District from protecting the water quality of Morrison Creek and its tributaries. The development of a storm water management plan and implementation of BMPs throughout the construction process will prevent erosion, sedimentation and degradation of Morrison Creek water quality.

The water quality of Little Morrison Creek will also have to be protected. If Project water causes bed and bank scour, sediment could be deposited downstream and/or be carried into Stagecoach Reservoir. During the alternatives review, the adequacy of the potential channel improvements will have to be assessed to insure protection of Little Morrison Creek's water quality. Should this task prove difficult, the District can consider avoidance through implementation of the County Road 16 pipeline alternative.

6.4.3 CWCB Instream Flow Inundation

Although the Morrison Creek Reservoir will inundate the lower portion of the CWCB's ISF right on Silver Creek, it creates opportunity to enhance other aspects of the local environment. Most notable, the reservoir under its proposed operation will be maintained near capacity during most water years. This provides opportunity to create a sustainable fishery within the reservoir pool, if desired. The reservoir would also provide recreational opportunity for local residents although broad public recreational benefit may be limited due to private land ownership around the reservoir.

Furthermore, the reservoir storage would provide local economic benefits as it would help support continued residential and industrial development within Routt County and the MCW&SD. The development of additional water for these purposes would facilitate further development of Colorado's allotment of interstate waters. On balance, it appears that the Project has several positive attributes and there exists reasonable probability that the CWCB will approve the District's request to construct the reservoir.

6.4.4 Threatened and Endangered Species

The potential stream depletions associated with the Project fall under the umbrella of the Programmatic Biological Opinion prepared by the USFWS in 2005. Because the depletions will exceed 100 acre feet per year, the District will have to formally recognize and sign the Recovery Agreement and pay a one-time fee to fund various recovery actions. As of 2006, the required fee was $16.67 per acre foot. Thus, for example, if the total stream depletions associated with the Project were estimated to be 1,000 acre feet, a one-time payment of $16,670 would be required. The exact amount of Project depletions are not known at this time. Only a fraction of the Project diversions will actually be depleted as much of the water will eventually return to the Yampa River basin as treated effluent or irrigation return flows. The actual depletions will depend upon the end use and will be assessed during the District's continuing review of the Project.

6.4.5 Permit Summary

The District must obtain a variety of federal, state and local permits prior to construction of the Morrison Creek Pipeline. Based upon our experience with the permit process and knowledge of mitigation measures available to this Project, we do not believe any conditions exist that would preclude the District from successfully obtaining the necessary permits. The basis for this opinion can be summarized as follows: 1. the District can demonstrate a strong purpose and need for the Project; 2. alternative configurations are available, if necessary, that will allow avoidance of sensitive resources.

7.0 SUMMARY OF FINDINGS

The Morrison Creek Reservoir Project has potential to increase the firm yield of Stagecoach Reservoir by 4,590 AF and provide an additional 723 AF of water annually to the MCW&SD or other District users. Combined, the Project is capable of providing a reliable water yield in amount of 5,313 AF. The cost to construct the project is estimated to vary between $16M and $23.4M (Table 6). This equates to a cost per acre foot of reliable yield of between $3,011 and $4,404. These unit costs are reasonable compared to new reservoir construction costs with which RESOURCE is familiar. Generally, new reservoir construction costs vary from $5,000 to

$35,000 per acre foot of yield. The relatively low unit cost of this Project is attributed to the fact that Stagecoach Reservoir is already constructed. The existing storage facility, which receives much of the Morrison Creek storage, helps leverage the yield of the smaller Morrison Creek Reservoir.

The construction of the dam and reservoir will cause various environmental impacts to the creek and adjacent wetlands. Accordingly, the District must obtain a variety of federal, state and local permits prior to construction of the facility. A detailed EA or EIS will be required as part of the federal permit process. However, based upon our experience with the permit process and knowledge of mitigation measures available to this Project, we do not foresee any "fatal flaws" that would preclude the District from successfully obtaining the necessary permits. The basis for this opinion can be summarized as follows: 1. The District can demonstrate a strong purpose and need for the Project and; 2. Alternative configurations are available, if necessary, that will allow avoidance of sensitive resources.

Based upon the above outlined findings, it is RESOURCE's opinion that the District could permit and construct the Project described in this report at a cost that is favorable compared to alternative sources of storage supply.

Respectfully submitted,

RESOURCE ENGINEERING, INC.

R. Scott Fifer
Hydrologist

John M. Currier
Water Resources Engineer
Colorado PE #24752

1047-1.4
1.4 Morrison Creek Reservoir\Reservoir Yield Study\Feasibility

REFERENCES

- Population for Colorado Counties and Municipalities. Colorado Division of Local Government, State Demography Office, November 2008.
- U.S. Fish and Wildlife Service (USFWS), 2005. Final Programmatic Biological Opinion on the Management Plan for Endangered Fishes in the Yampa River Basin. USFWS Mountain-Prairie Region (6), Lakewood, Colorado.
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ATTACHMENT 1

URS ENGINEERING FEASIBILITY REPORT

Morrison Creek Reservoir

URS

February 20, 2009

Mr. Kevin McBride
Upper Yampa Water Conservancy District
3310 Cleanwater Trail
Steamboat Springs, CO 80488-0339

Re: Morrison Creek Dam – Engineering Feasibility

Dear Mr. McBride:

The following letter provides a summary of the feasibility level geotechnical investigations and engineering analyses related to the construction of a Roller Compacted Concrete (RCC) Dam on Morrison Creek in Routt County, Colorado. The scope of investigations and analyses were outlined in Task 1 of the proposal letter dated January 5, 2008.

INTRODUCTION

Upper Yampa Water Conservancy District (UYWCD) is evaluating the potential to construct up to a 5,000 ac-ft reservoir on Morrison Creek. The damsite to be evaluated is located just downstream of the confluence of Morrison and Silver Creeks. The reservoir is proposed to provide additional water storage in the basin as well as serve as surface water storage for the Morrison Creek Water and Sanitation District (MCW&SD). The proposed damsite is approximately 3 miles southeast of Stagecoach Dam.

TOPOGRAPHY

Topographic information used in this feasibility was obtained from two sources. The UYWCD provided two foot contour interval topographic information for the damsite and reservoir area. The topographic information for the watershed area contributing to the proposed dam and reservoir was developed from digital elevation models (DEMs) from the U.S. Geologic Survey (USGS). **Table 1** and **Figure 1** summarize the reservoir area and capacity information developed for the reservoir based on the 2-foot topographic information. The spillway crest for the dam was set at Elevation 7915 to provide approximately 5,000 ac-ft of storage within the reservoir.

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Table 1. Morrison Creek Reservoir Area-Capacity Information.

Elevation (feet)	Area (acres)	Volume (ac-ft)	Elevation (feet)	Area (acres)	Volume (ac-ft)
7872	0	0	7900	143	1,410
7874	1	0	7904	193	2,080
7876	4	10	7908	241	2,950
7880	15	40	7912	290	4,010
7884	34	140	7916	348	5,290
7888	53	320	7920	392	6,770
7892	74	570	7924	429	8,410
7896	100	920			

HYDORLOGY

The hydrologic analyses were completed for the Probable Maximum Flood (PMF). The PMF was estimated using the general storm Probable Maximum Precipitation (PMP) for Stagecoach Dam. The PMP for Stagecoach Dam was developed using HMR 49. This estimate is a little lower than what a detailed analysis with HMR 49 would show due to the difference size in the contributing watersheds. A more detailed PMP evaluation should be considered as part of future studies to optimize the spillway and dam geometries. A summary of the general storm PMP is shown in **Table 2.**

Table 2. General Storm Probable Maximum Precipitation for Stagecoach Dam.

Duration	Precipitation Depth (in)
1-hr	1.07
6-hr	3.62
12-hr	5.82
24-hr	8.84
48-hr	12.77

The "Rules and Regulations for Dam Safety and Dam Construction" dated January 1, 2007 by the State of Colorado, Department of Natural Resources, Division of Water Resources, Office of the State Engineer (SEO) allow for the reductions to the PMP estimates from HMRs. These reductions are based on the elevation of the watershed and the dam's hazard classification. The PMP used for developing the Inflow Design Flood (IDF) was reduced by 30%, to 70% of the PMP, since the watershed is above 8,000 ft MSL.

The unit hydrograph development and infiltration estimates were completed using the procedures presented in the "Flood Hydrology Manual" (Cudworth, 1989). The watershed parameters used to develop the unit hydrograph are shown in **Table 3**.

Table 3. Summary of watershed parameters.

Parameters	Watershed
Drainage area (mi^2)	71
Length of longest watercourse (mi)	12.5
Distance to basin centroid (mi)	5.5
Basin slope (ft/mi)	160
Average Weighted Manning's "n" (K_n) - General Storm	0.085
Lag Time (hr) - General Storm	3.9
Constant Loss Rate (in/hr)	0.05

Hydrologic modeling and reservoir routing for the IDF were completed using the HEC-HMS watershed hydrology software developed by the U.S. Army Corps of Engineers, Hydrologic Engineering Center. The peak inflow for the IDF, 70% of the General Storm PMP, was estimated to be approximately 16,400 cfs with a total storm volume of approximately 25,000 ac-ft. The peak reservoir discharge was estimated to be approximately 14,000 cfs assuming a spillway width of 180-feet and a discharge coefficient of 3.0. The resulting maximum water surface elevation was 7923.7 or approximately 8.7 feet above the spillway crest. **Figure 2** shows the inflow and outflow hydrographs for 70% of the PMP.

DAMSITE GEOLOGY

The damsite and reservoir are located near the margin between the western flank of the Park Range and the southeastern flank of the Washakie Sedimentary Basin. The damsite is located at a relatively narrow and about 40 –foot deep canyon on Morrison Creek that was eroded into relatively strong and hard Precambrian gneiss and schist. Test holes drilled in the flat bottom of the canyon suggest alluvial sands and gravels deposited in the canyon are about 10 feet thick, over the underlying gneiss. The location of the test holes is shown in **Figure 3** and copies of the boring logs are attached to this letter. The reservoir area is also underlain by alluvium and has a reservoir rim composed of sandstone and siltstone of the Tertiary age Brown's Park Formation.

Precambrian rock that crops out at the proposed dam site consists mostly of dark grey to black, medium grained, gneiss with some thin zones of biotite schist. The gneiss has been weathered and has chlorite and clay weathering products along joints and within mica bands of the rock. The gneiss is typically widely jointed, with two steeply dipping and nearly vertical joint sets and numerous randomly oriented joints. The rock mass has a joint set oriented parallel to the nearly vertical foliation. The rock mass exhibits rock cleavage, or a tendency to break along the foliation. The rock mass also contains a few steeply dipping shear zones, typically less than one foot wide, consisting of intensely fractured rock and

some thin clayey gouge zones. The rock mass at the dam site can be characterized as strong and hard, capable of forming a suitable foundation for a concrete or earth fill dam.

FEASIBILTIY DESIGN

Preliminary layouts for the dam are shown in **Figure 3**, **Figure 4** and **Figure 5**. The following list provides preliminary design criteria for the dam and reservoir:

- Spillway Crest Elevation of 7915 to provide the desired 5,000 ac-ft of storage.
- Dam Crest Elevation of 7925 to pass the PMF without overtopping the dam.
- Dam Foundation of 7860 assumed based on geologic and geotechnical field investigations.
- Slope of downstream dam face at 1H to 1V to provide overall structural stability based on a 2-dimensional (gravity) analysis with no foundation drains. (The dam cross-section will be optimized during later stages of design.)
- Spillway walls and still basin dimension developed based on preliminary hydraulic analyses and engineering judgment.

The feasibility design for the dam also included two access roads. One road provides access to the dam crest, crosses the dam and continues to an existing residence southeast of the proposed damsite. The second road provides access around the southern extents of the proposed reservoir. The preliminary alignments for the access roads are shown in **Figure 6**.

COST ESTIMATE

The probable construction cost estimate was prepared in accordance with the guidelines of the AACE International, (the Association for the Advancement of Cost Engineering). According to the definitions of AACE International, the "Class 4 Estimate" is defined as:

> A CLASS 4 ESTIMATE is generally prepared for strategic planning purposes, such as initial viability, evaluation of alternative schemes, project screening, project location studies, and long-range capital planning. Typically engineering is from 1% to 15% complete, and would comprise conceptual diagrams, preliminary piping runs for major processes, facility layout drawings, and preliminary equipment lists. The typical expected accuracy range for this class estimate is –15% to –30% on the low side and +20% to +50% on the high side.

Due to the limited engineering and the variation in construction costs a range of reasonable costs were prepared. A summary of the Engineer's Opinion of Probable Construction Costs is shown in **Table 4**. The costs do not include engineering, geotechnical investigations, construction inspection and testing, or construction management services.

Table 4. Engineer's Opinion of Probable Construction Costs.

Estimate Type	Cost ($)
Reasonable Low End Estimate	$6,700,000
Best Estimate	$10,000,000
Reasonable High End Estimate	$12,400,000

ALTERNATIVE NORMAL POOL CONSIDERATIONS

The feasibility level design presented previously in this letter report assumes that either a special use permit or land swap can be negotiated with the US Forest Service. If no special use permit or land swap can be negotiated, the maximum water surface elevation (WSEL) during the PMF will need to be maintained at or below elevation 7914. Three alternative spillway configurations were evaluated to estimate the change in the normal pool elevation necessary to limit the maximum WSEL during the PMF to less than elevation 7914. **Table 5** provides a summary of the estimated normal pool elevations and corresponding storage. The fixed crest spillway option assumes the effective spillway crest length has been extended and the crest has been configured to yield a discharge coefficient of approximately 3.9. The labyrinth weir alternative has been developed using wall heights of approximately 9 feet. The overflow spillway gate alternative would require an approximately 7-foot high gate.

Table 5. Normal Pool Elevations with a Maximum WSEL of 7914.

Spillway Control Structure	Normal Pool Elevation	Normal Pool Storage
Fixed Ogee Crest Structure	7907	2,730
Labyrinth Weir	7909	3,215
Overflow Gates	7912	4,010

SUMMARY

The feasibility level geotechnical investigation and engineering analyses found the proposed Morrison Creek damsite to be adequate for the construction of an RCC dam capable of storing 5,000 ac-ft. Additional geotechnical investigations and engineering analyses will be required in the future to refine the construction cost estimates. Additionally, work should be conducted to evaluate potential water quality and environmental impacts related to the construction and operation of the reservoir.

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GENERAL INFORMATION

The Professional judgments are presented in this letter report. These are based on evaluation of technical information gathered, and on our general experience with similar projects.

URS represents that our services are performed within the limits prescribed by the client, in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation to the client, expressed or implied, and no warranty or guarantee is included or intended

Sincerely,

URS Corporation

Gregory G. Glunz
Project Manager

Sal Todaro
Senior Consulting Professional

Enclosures

cc: File

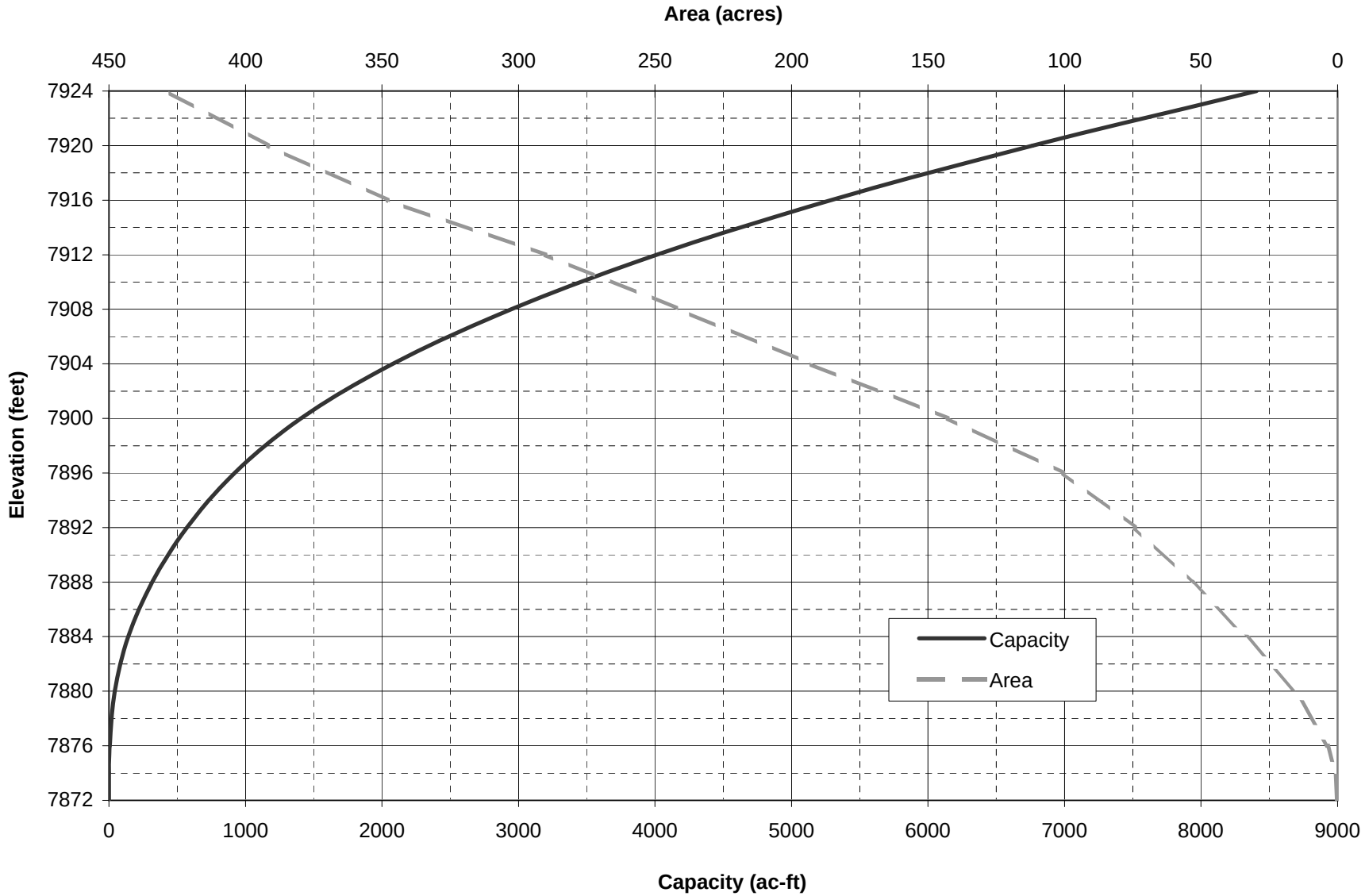

Figure 1. Morrison Creek Reservoir Area-Capacity

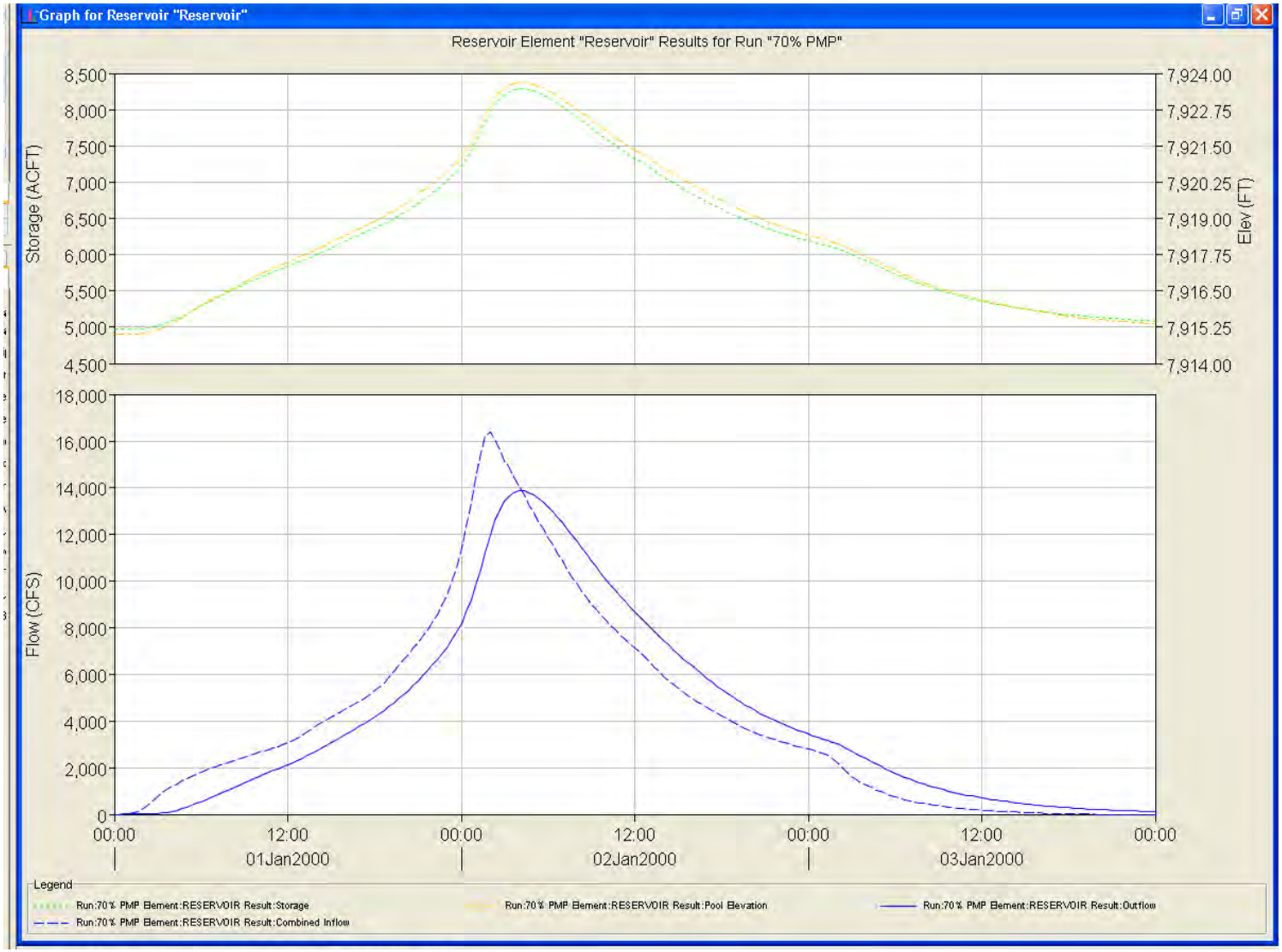

Figure 2. Reservoir Routing Summary for 70% PMP

URS

N

7872
7910
7890
7880
7930
7900
7920
7950

A
FIG. 4

STILLING BASIN

45.0'

OUTLET WORKS
DISCHARGE VALVE

30.0'

60.0'
60.0'
60.0'

15.0'
10.0'
10.0'
390.0'

B
FIG. 5

TH-2
TH-1

BRIDGE PIER (BRIDGE NOT SHOWN FOR CLARITY)

DAM AXIS

OUTLET WORKS
INTAKE STRUCTURE

7910
7890
7920
7900
7880
7872

PLAN

0 25 50 75 100
SCALE IN FEET

LEGEND

TEST HOLE LOCATION

Job No. : 22239964	MORRISON CREEK DAM PLAN VIEW
Prepared By : WDH	
Date : 2/2009	ROUTT COUNTY, COLORADO

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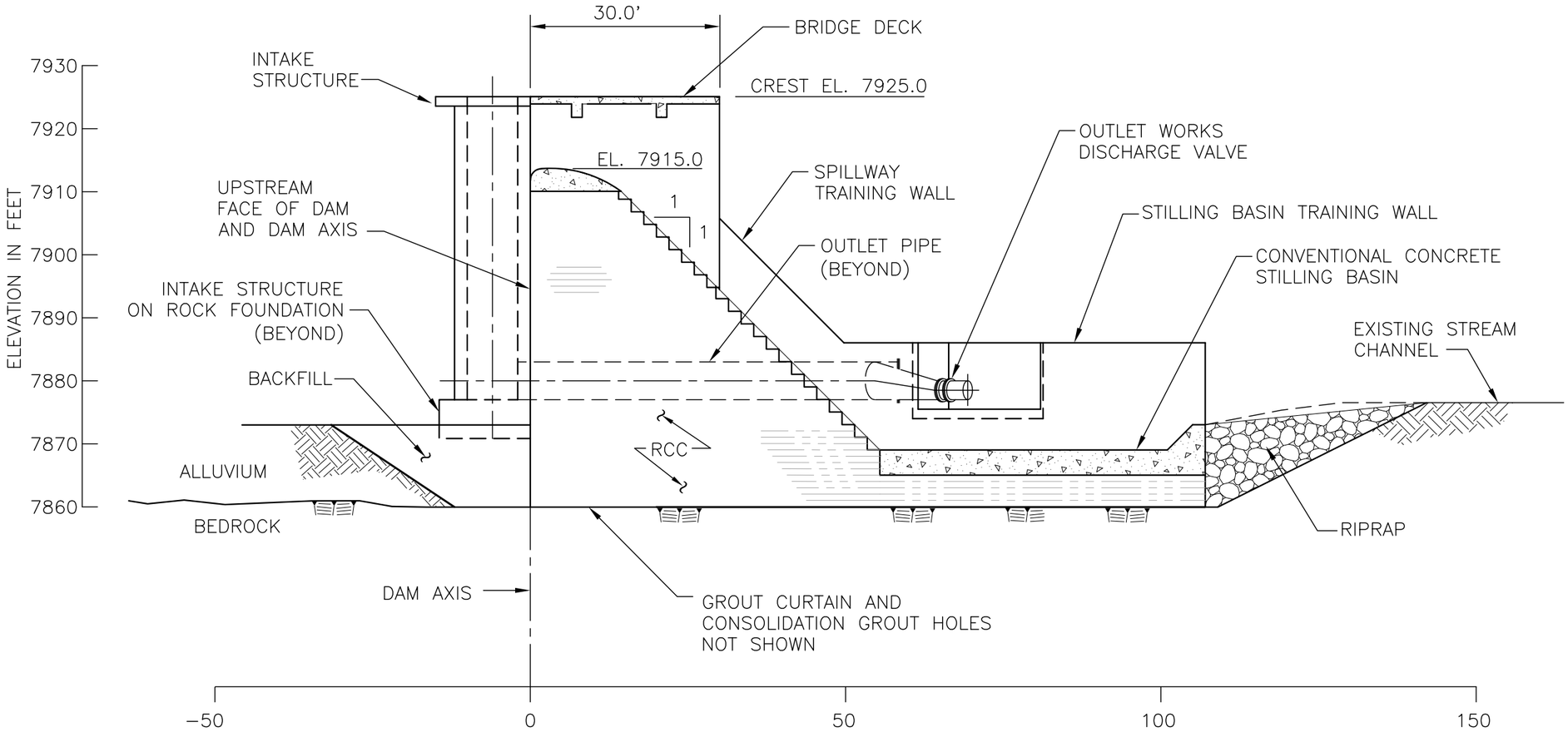
UYWCD Exhibit 5

FIG. 3



SECTION A

0 10 20 30 40

SCALE IN FEET

Job No. : 22239964	MORRISON CREEK DAM SECTION
Prepared By : WDH	
Date : 2/2009	ROUTT COUNTY, COLORADO

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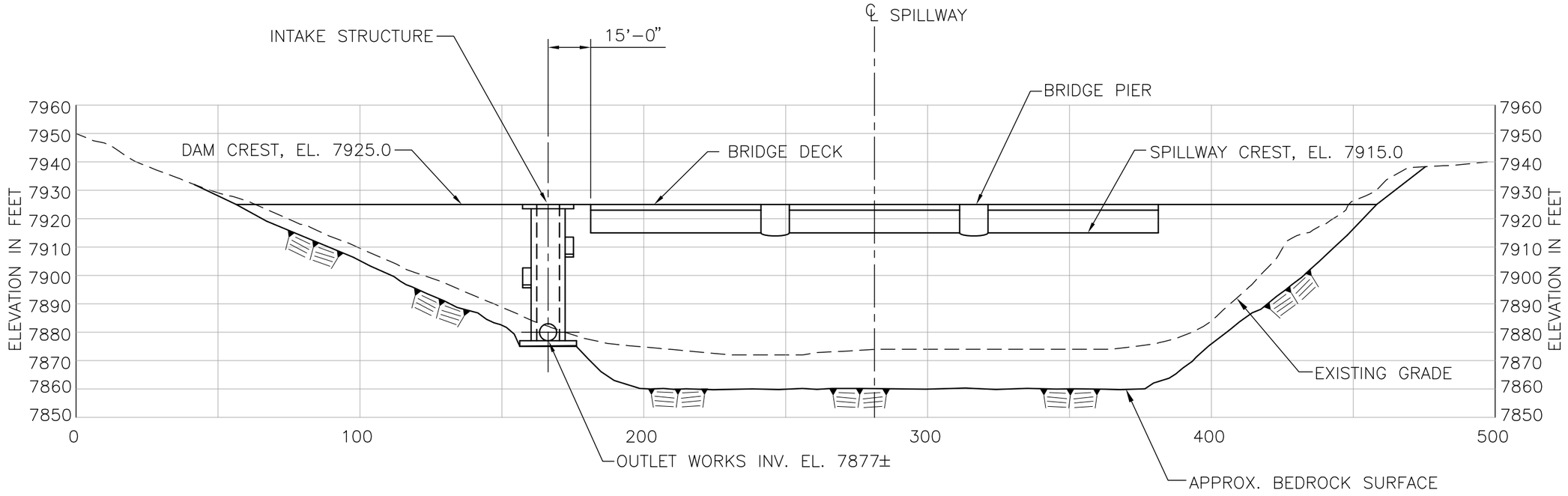

SECTION B

0 20 40 60 80

SCALE IN FEET

Job No. : 22239964	MORRISON CREEK DAM SECTION
Prepared By : DWG	
Date : 2/2009	ROUTT COUNTY, COLORADO

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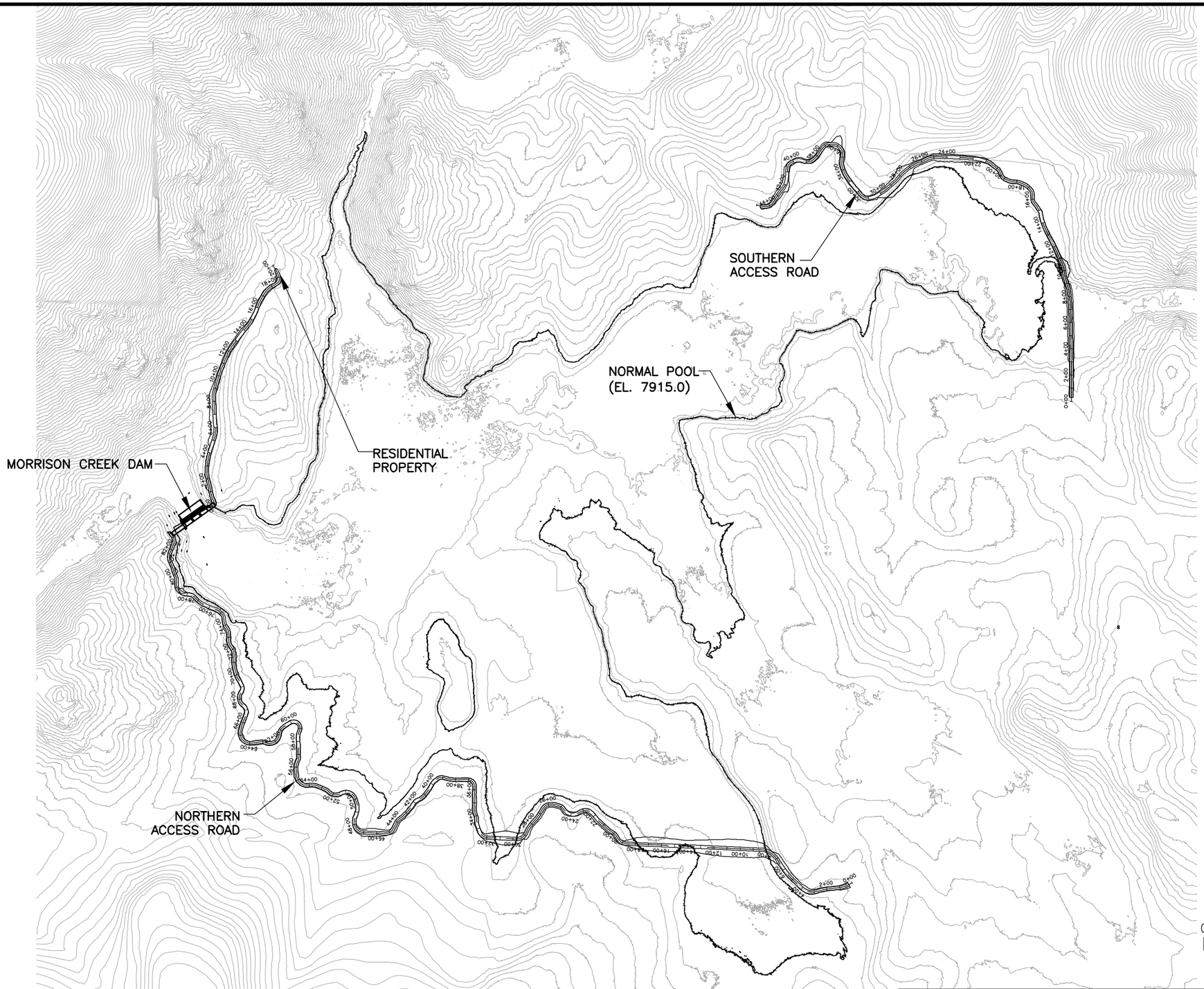
URS



Job No. : 22239964	MORRISON CREEK DAM ACCESS ROADS
Prepared By : WDH	
Date : 2/2009	ROUTT COUNTY, COLORADO

N:\Projects\22239964_Morrison_Creek_Fea\Sub_00\9.0_CAD\Working Files\Morisson Creek Dam Figure 6 (Access Roads).dwg

FIG. 6

Project: MORRISON CREEK DAM
Project Location: ROUTT COUNTY, CO
Project Number: 22239964

Key to Log of Soil/Core Boring

Elevation, feet	Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES: Type	Number	Blows / 6 in.	Recovery, %	Drill Time [Rate, ft/hr]	FIELD NOTES AND LAB TESTS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

COLUMN DESCRIPTIONS

1 **Elevation:** Elevation (in feet) referenced to mean sea level (MSL).

2 **Depth:** Distance (in feet) below the collar of the borehole.

3 **Run No.:** Number of the individual coring interval.

4 **Box No.:** Number of the core box which contains core from the corresponding run.

5 **Recovery:** Amount (in percent) of core recovered from the coring interval; calculated as length of core recovered divided by length of run.

6 **Fractures per Foot:** (Fracture Frequency) The number of naturally occurring fractures in each foot of core; does not include mechanical breaks (induced by drilling) or healed fractures. "NA" indicates not applicable due to lack of core recovery.

7 **R Q D:** (Rock Quality Designation) Amount (in percent) of intact core (pieces of sound core greater than 4 inches in length) in each coring interval; calculated as the sum of lengths of intact core divided by length of core run. RQD of moderately weathered/altered rock does not meet soundness requirements, but provides some indication of rock quality with respect to the degree of fracturing.

8 **Fracture Drawing:** Sketch of the naturally occurring fractures and mechanical breaks, showing the angle of the fractures relative to the cross-sectional axis of the core. "NR" indicates no recovery.

9 **Fracture Number:** Location of each naturally occurring fracture (numbered) and mechanical break (labeled "M"). Naturally occurring fractures are described in Column 11 (keyed by number) using descriptive terms defined on Sheet 2 (Items a through g).

10 **Lithology:** A graphic log of material encountered using symbols to represent differing soil and types; graphic symbols are explained below.

11 **Description:** Lithologic description in this order: rock type, color, texture, grain size, weathering, strength, and other features; descriptive terms are defined on Sheet 2. A detailed description of overburden material is not necessarily provided. Also, abbreviated description of fractures numbered in Column 9 using terms defined on Sheet 2.

12 **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.

13 **Sample Number:** Sample identification number.

14 **Blows / 6 in.:** Number of blows to advance driven sampler each 6-inch drive interval, or distance noted, using a 140-lb hammer with a 30-inch drop (unless otherwise noted).

15 **Recovery:** Actual soil recovery in driven sampler as a percentage of the sampler penetration.

16 **Drill Time [Rate]:** Time (in 24-hour clock) marking start and finish of each run; drill rate (in feet per hour) is reported in brackets.

17 **Field Notes and Lab Tests:** Comments and observations regarding drilling or sampling made by driller or field personnel. Lab tests are indicated using abbreviations explained below.

TYPICAL MATERIAL GRAPHIC SYMBOLS


SAND


Silty SAND


Silty GRAVEL


PHYLLITE


Lean CLAY


Fat CLAY


Clayey GRAVEL


GRANITIC ROCK


SILT


Elastic SILT


APLITE


QUARTZ

TYPICAL SAMPLER GRAPHIC SYMBOLS


2-inch-OD split spoon sampler (SPT)


3-inch-OD split spoon sampler (California)

OTHER GRAPHIC SYMBOLS


First water encountered at time of drilling (ATD)

Static water level measured after drilling

LABORATORY TEST ABBREVIATIONS

AL	Atterberg Limits
LL	Liquid Limit [%]
PL	Plastic Limit [%]
PI	Plasticity Index [LL - PL, %]
MC	Natural Moisture Content [%]
SA	Sieve Analysis [% finer than #200 sieve]
UC	Unconfined Compressive Strength [psi]

Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.

Project: MORRISON CREEK DAM Project Location: ROUTT COUNTY, CO Project Number: 22239964	**Key to Log of Soil/Core Boring** Sheet 2 of 2

KEY TO DESCRIPTIVE TERMS USED ON CORE LOGS

DISCONTINUITY DESCRIPTORS

a Dip of discontinuity, measured relative to a plane normal to the core axis.

b **Discontinuity Type:**

- F - Fault
- J - Joint
- Sh - Shear
- Fo - Foliation
- V - Vein
- B - Bedding

c **Aperture (inches):**

- W - Wide (0.5-2.0)
- MW - Moderately Wide (0.1-0.5)
- N - Narrow (0.05-0.1)
- VN - Very Narrow (<0.05)
- T - Tight (0)

d **Type of Infilling:**

- Cl - Clay
- Ca - Calcite
- Ch - Chlorite
- Fe - Iron Oxide
- Gy - Gypsum
- H - Healed
- Mn - Manganese Oxide
- No - None
- Py - Pyrite
- Qz - Quartz
- Sd - Sand

e **Amount of Infilling:**

- Su - Surface Stain
- Sp - Spotty
- Pa - Partially Filled
- Fi - Filled
- No - None

f **Surface Shape of Joint:**

- Pl - Planar
- Wa - Wavy
- St - Stepped
- Ir - Irregular

g **Roughness of Surface:**

- Slk - Slickensided [surface has smooth, glassy finish with visual evidence of striations]
- S - Smooth [surface appears smooth and feels so to the touch]
- SR - Slightly Rough [asperities on the discontinuity surfaces are distinguishable and can be felt]
- R - Rough [some ridges and side-angle steps are evident; asperities are clearly visible, and discontinuity surface feels very abrasive]
- VR - Very Rough [near-vertical steps and ridges occur on the discontinuity surface]

ROCK WEATHERING / ALTERATION

Description	Recognition
Residual Soil	Original minerals of rock have been entirely decomposed to secondary minerals, and original rock fabric is not apparent; material can be easily broken by hand
Completely Weathered/Altered	Original minerals of rock have been almost entirely decomposed to secondary minerals, although original fabric may be intact; material can be granulated by hand
Highly Weathered/Altered	More than half of the rock is decomposed; rock is weakened so that a minimum 2-inch-diameter sample can be broken readily by hand across rock fabric
Moderately Weathered/Altered	Rock is discolored and noticeably weakened, but less than half is decomposed; a minimum 2-inch-diameter sample cannot be broken readily by hand across rock fabric
Slightly Weathered/Altered	Rock is slightly discolored, but not noticeably lower in strength than fresh rock
Fresh/Unweathered	Rock shows no discoloration, loss of strength, or other effect of weathering/alteration

ROCK STRENGTH

Description	Recognition
Extremely Weak Rock	Can be indented by thumbnail
Very Weak Rock	Can be peeled by pocket knife
Weak Rock	Can be peeled with difficulty by pocket knife
Moderately Strong Rock	Can be indented 5 mm with sharp end of pick
Strong Rock	Requires one hammer blow to fracture
Very Strong Rock	Requires many hammer blows to fracture
Extremely Strong Rock	Can only be chipped with hammer blows

Project: MORRISON CREEK DAM
Project Location: ROUTT COUNTY, CO
Project Number: 22239964

Log of Core Boring TH-1

Sheet 1 of 2

Date(s) Drilled	12-1-07	Logged By	DMB	Checked By (Date)	
Drilling Method	6" ODEX	Drill Bit Size/Type	6" ODEX	Total Depth Drilled (feet)	25
Drill Rig Type	CME-55	Drilling Contractor	AGER DRILLING	Approximate Surface Elevation	
Groundwater Level	2'	Location	UPSTREAM OF DAM ℄	Inclination from Horizontal/Bearing	90°
Borehole Completion	BACKFILL WITH CUTTINGS			Hammer Data	NA

Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	MATERIAL DESCRIPTION	SOIL SAMPLES: Type	Number	Blows / 6 in.	Drill Time [Rate, ft/hr]	FIELD NOTES AND LAB TESTS
0							SAND (SM-SW), silty, brown, with organics, moist to wet					
1												
2												▽
3							SAND AND GRAVEL (SM, SP, GP) silty, brown, trace cobbles and boulders, wet, alluvium					
4												
5												
6												
7							GNEISS, gray to tan, medium grained, moderately strong and moderately hard, foliated, weathered to slightly weathered					
8												
9												
10												
11												
12												
13												

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Report: GEO_CORE+SOIL 17; File: WCCORP2A.GPJ; 9/26/00

URS

Project: MORRISON CREEK DAM
Project Location: ROUTT COUNTY, CO
Project Number: 22239964

Log of Core Boring TH-1

Sheet 2 of 2

Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	MATERIAL DESCRIPTION	SOIL SAMPLES: Type	Number	Blows / 6 in.	Drill Time [Rate, ft/hr]	FIELD NOTES AND LAB TESTS
13							GNEISS – SAME AS ABOVE					
							GNEISS, gray, medium grained, strong, hard, foliated, slightly weathered					
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25							BOTTOM OF HOLE – 25'					
26												
27												
28												
29												

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Report: GEO_CORE+SOIL_17; File: WCCORP2A.GPJ; 9/26/00

URS

UTWCD Exhibit 5

Project: MORRISON CREEK DAM
Project Location: ROUTT COUNTY, CO
Project Number: 22239964

Log of Core Boring TH-2

Sheet 1 of 2

Date(s) Drilled: 12-1-07	Logged By: DMB	Checked By (Date):
Drilling Method: 6" ODEX	Drill Bit Size/Type: 6" ODEX, NQ CORE	Total Depth Drilled (feet): 20
Drill Rig Type: CME-55	Drilling Contractor: AGER DRILLING	Approximate Surface Elevation:
Groundwater Level: 2'	Location:	Inclination from Horizontal/Bearing: 90°
Borehole Completion: BACKFILL WITH CUTTINGS		Hammer Data: 140 LB/30" DROP

Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	MATERIAL DESCRIPTION	SOIL SAMPLES: Type	Number	Blows / 6 in.	REC.	FIELD NOTES AND LAB TESTS
0							SAND (SM), silty, brown, some gravel, organics, moist to wet					
1												
2												▽
3							SAND AND GRAVEL (SP, GP) silty, brown, some cobbles and boulders, wet, ALLUVIUM					
4												
5								SPT	1	6	0.7'	
6										10		
7										12		N=22
8												
9							GNEISS, gray, medium grained, strong, hard, slightly weathered					
10				2								CORE STRING
11	1	1	100	2	65							
12				3			1:60°, Fo, VN-T, Ca, Pa, Wa, SR					
13												

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Report: GEO_CORE+SOIL 17; File: WCCORP2A.GPJ; 9/26/00

URS

Project: MORRISON CREEK DAM
Project Location: ROUTT COUNTY, CO
Project Number: 22239964

Log of Core Boring TH-2

Sheet 2 of 2

Depth, feet	ROCK CORE: Run No.	Box No.	Recovery, %	Fractures per Foot	R Q D, %	Fracture Drawing Number	MATERIAL DESCRIPTION	SOIL SAMPLES: Type	Number	Blows / 6 in.	REC.	FIELD NOTES AND LAB TESTS
13				1			GRANITE, gray, medium grained, strong, hard, medium grained					
14	1	1	100	6	65	1						
15				1								
16				1		1						
17	1	1	100	1	100							
18				2		1 1	1:60-65°, Fo, VN-T, Ca, Pa, Wa, SR					
19				2								
20						1	BOTTOM OF HOLE - 20'					
21												
22												
23												
24												
25												
26												
27												
28												
29												

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Report: GEO_CORE+SOIL_17; File: WCCORP2A.GPJ; 9/26/00

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ATTACHMENT 2

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

Morrison Creek Pipeline

Prepared by:
Resource Engineering, Inc.
909 Colorado Avenue
Glenwood Springs CO 81601
(970) 945-6777
www.resource-eng.com

February 23, 2009

TABLE 1
ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST
MORRISON PIPELINE DIVERSION – ALTERNATIVE 1 (PUMP & PIPELINE)

Item	Amount	Unit	Unit Cost	Total
Mobilization/Demobilization	1	LS	$ 15,000.00	**$ 15,000**
Site Clearing	23,644	SY	$ 1.50	**$ 35,470**
36" HDPE Pipeline				
36" HDPE Pipe	5,320	LF	$ 140.00	$ 744,800
Excavation (Trenching)	8,926	CY	$ 4.00	$ 35,703
Compacted Granular Backfill (1.5" minus)	3,990	CY	$ 16.50	$ 65,835
Road Crossings	3	EA	$ 2,500.00	$ 7,500
Backfill and Compact Trench	4,936	CY	$ 6.00	$ 29,610
Haul Excess Material	3,192	CY	$ 6.00	$ 19,150
Air Vents	1.0	EA	$ 7,500.00	$ 7,500
Subtotal =				**$ 910,100**
Morrison Creek Diversion & Pump Station				
Diversion Structure / Wet Well	1	LS	$ 200,000.00	$ 200,000
Building (20'x40')	800	SF	$ 75.00	$ 60,000
50 CFS Pump Skid / Controls / Appurtenances	1	LS	$ 750,000.00	$ 750,000
Electric to Site (400 kva 3 ph service)				
Transformer (incl. connections & metering)	1	LS	$ 15,500.00	$ 15,500
Wire (Buried along pipe route)	7,370	LF	$ 30.00	$ 221,100
Subtotal =				**$ 1,246,600**
Miscellaneous				
Survey and Grade Control	1	LS	$ 7,500.00	$ 7,500
Sediment and Erosion Control	1	LS	$ 8,000.00	$ 8,000
Topsoil Placement	3,960	CY	$ 4.00	$ 15,842
Revegetation	4.9	AC	$ 3,200.00	$ 15,633
Subtotal =				**$ 46,970**
Total Construction Cost				**$ 2,254,140**
Contingency (20%)				$ 450,830
TOTAL PROJECT COST				**$ 2,704,970**

TABLE 2
ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST
COUNTY ROAD 16 PIPELINE

Item	Amount	Unit	Unit Cost	Total
Mobilization/Demobilization	1	LS	$ 5,000.00	**$ 5,000**
Site Clearing	4,900	SY	$ 1.50	**$ 7,350**
36" HDPE Pipeline				
36" HDPE Pipe	21,525	LF	$ 140.00	$ 3,013,500
Excavation (Trenching)	36,114	CY	$ 4.00	$ 144,457
Compacted Granular Backfill (1.5" minus)	22,000	CY	$ 16.50	$ 363,000
Replace Gravel Road Surface	8,589	CY	$ 5.00	$ 42,944
Backfill / Compact / Haul Excess Material	5,525	CY	$ 6.00	$ 33,152
Air Vents	6.0	EA	$ 7,500.00	$ 45,000
Culvert Crossings	5.0	EA	$ 5,000.00	$ 25,000
Little Morrison Creek Crossing	1.0	LS	$ 30,000.00	$ 30,000
Energy Dissipator	1.0	LS	$ 15,000.00	$ 15,000
Rip D_{50}=6"	12.5	CY	$ 100.00	$ 1,250
Subtotal =				**$ 3,713,303**
Miscellaneous				
Survey and Grade Control	1	LS	$ 12,500.00	$ 12,500
Sediment and Erosion Control	1	LS	$ 30,000.00	$ 30,000
Traffic Control	1	LS	$ 45,000.00	$ 45,000
Topsoil Placement	800	CY	$ 4.00	$ 3,200
Revegetation	3	AC	$ 3,200.00	$ 8,800
Subtotal =				**$ 99,500**
Total Construction Cost				**$ 3,825,153**
Contingency (20%)				$ 766,530
TOTAL PROJECT COST				**$ 4,590,183**

ATTACHMENT 3

PLEASANT VALLEY RESERVOIR WATER AVAILABILITY MODEL

Case No. 07CW61 and Case No. 07CW72
Consolidated Cases

Prepared by:
Resource Engineering, Inc.
909 Colorado Avenue
Glenwood Springs CO 81601
(970) 945-6777
www.resource-eng.com

February 23, 2009

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

1.0 INTRODUCTION

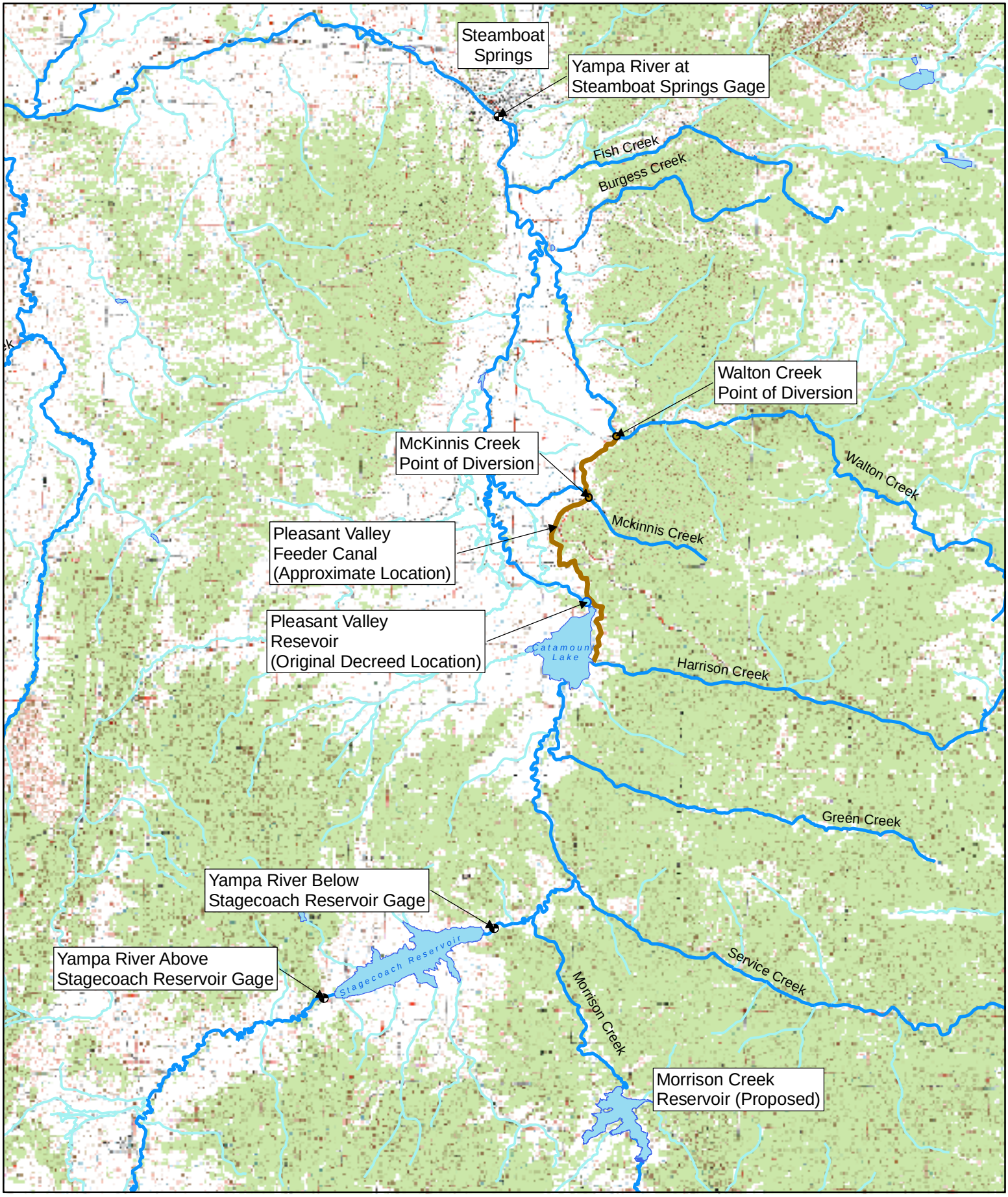
The Colorado River Water Conservation District (CRWCD) obtained water rights for the Pleasant Valley Reservoir (PVR) and Pleasant Valley Feeder Canal (Feeder Canal) located within the Yampa River basin in Civil Action 3926, Steamboat Springs, Colorado. The water rights were decreed by the Court on May 30, 1972 with an assigned priority date of March 30, 1964. The decree provided the CRWCD with a 43,220 AF storage right at the proposed PVR site and a rate limit of 300 CFS from the Feeder Canal. The proposed site for PVR and associated Feeder Canal are shown on the vicinity map in Figure 1. In 1979 in Case No. W-946-76, the CRWCD obtained a decree for an alternate points of diversion (APOD) for the PVR storage and Feeder Canal rights with the Division 6 Water Court. The decree allowed portions of the 43,220 AF storage right to be diverted upstream of the PVR site and stored in the Upper Yampa River Water Conservancy District's (District) Yamcolo and Bear (aka Stagecoach) Reservoirs. By stipulation entered in this case, the CRWCD agreed to limit the volume of water stored in Yamcolo Reservoir under the APOD to 2,500 AF. The District regularly stores this water in its Yamcolo Reservoir and in Case No. 82CW210, the Water Court issued a finding that the water had been used absolute. Subsequent to these decrees, the District acquired the PVR rights. In 1992 in Case No. 92CW26, the District filed an application requesting the Water Court to recognize that it had stored and beneficially used 20,854 AF of the PVR rights in Stagecoach Reservoir. In its decree entered in Case No. 92CW26, the Water Court issued a finding of "absolute" use in this amount. With this decree, the Yamcolo and Stagecoach APODs total to 23,354 AF. That leaves the District with 19,866 AF of the original 43,220 AF at the PVR site and its alternate points. In Case No. 07CW61, the District is seeking to make Morrison Creek Reservoir (Morrison Reservoir) an APOD for a portion of the remaining PVR storage right and Feeder Canal right.

1.1 ANALYSIS PURPOSE

For the District to transfer water into Morrison Reservoir under the PVR storage right and the Feeder Canal right, it must show a sufficient amount of water has historically been available at the PVR site to satisfy the Yamcolo Reservoir, Stagecoach Reservoir, and proposed Morrison Reservoir APODs. Resource Engineering, Inc. (RESOURCE) developed an Excel spreadsheet model to evaluate the historic natural flow (Flow Model) at the PVR site. This appendix report provides a description of the RESOURCE Flow Model analysis and results.

2.0 MODEL DESCRIPTION

The Flow Model operates on a monthly time-step beginning at the start of the 1985 water year and running through the 2007 water year. There are three components simulated in the Flow



RESOURCE ENGINEERING, INC
909 Colorado Avenue
Glenwood Springs, CO 81601
(970) 945-6777 Voice (970) 945-1137 Facsimile

N W E S

1 inch = 11,000 feet

Figure 1: Water Right Vicinity Map - Morrison Creek Reservoir

Change of Water Rights: Pleasant Valley Reservoir and Feeder Canal

Date: 2/23/2009
File: 1047-1.4
Drawn by: RKM
Approved by: RSF

Model: the Yampa River, the Pleasant Valley Feeder Canal (Feeder Canal), and the Pleasant Valley Reservoir (PVR). The Flow Model simulates a historic natural streamflow of the Yampa River from Stagecoach Reservoir downstream to the PVR site. The United States Geologic Service (USGS) gage records for the Yampa River at Stagecoach Reservoir were compiled to reflect the natural streamflow excluding the operational effects of the reservoir. As the Flow Model proceeds downstream from Stagecoach Reservoir, the streamflows from major tributary drainage basins are added. At the PVR site the simulated Yampa River streamflow is combined with the calculated discharge from the Feeder Canal to generate the total predicted available supply to PVR. That total supply is then run through a set of reservoir operating assumptions to determine if there was historically enough water at this site in time and amount to satisfy first, the 23,354 AF previously transferred to Yamcolo and Stagecoach Reservoirs and second, water that could be stored in the Morrison Reservoir.

2.1 AVAILABLE STREAMFLOW DATA

The USGS gages above and below Stagecoach Reservoir provide the first streamflow data of the Yampa River upstream of the PVR site. This location thus defined the upstream physical extent of the Flow Model. The gage downstream of Stagecoach Reservoir has three periods of continuous daily record: 1.) 1940 to 1944[1], 2.) 1957 to 1972[1], and 3.) 1985[1] to present. The gage upstream of Stagecoach Reservoir was implemented at the time of construction for Stagecoach Reservoir and has a continuous daily record from 1989[1] to present. To develop the natural streamflow of the Yampa River without the effects of the operation of Stagecoach Reservoir, the downstream gage records were used prior to reservoir construction and upstream gage records were used during the operation of the reservoir. The combined records provided continuous daily data of the Yampa River from the 1985 water year to present without the effects of Stagecoach Reservoir. This timeframe was used to establish the study period in the Flow Model as the 1985 water year through the 2007 water year. This period is considered representative of long term streamflow in the Yampa River as it contains a series of average, wet, and critically dry periods. The monthly streamflow data for the upstream gage, downstream gage, and the combined records are summarized in Appendix A1-A3 of this report.

To better predict the historic natural Yampa River streamflow at the PVR site, streamflows from major contributing tributary drainage basins needed to be added to the Yampa River streamflow at Stagecoach Reservoir. RESOURCE identified the following tributaries as contributing significant water: Morrison Creek, Service Creek, Green Creek, and Harrison Creek. In addition to these tributary basins, the Feeder Canal diverts water from the McKinnis Creek and the Walton

[1] Period of record expressed in water years

Creek drainages. A search of daily streamflow records on the USGS website was preformed for each of the above mentioned tributaries. Results were found for Service Creek and Walton Creek, which both had a daily continuous record from 1966 to 1973.[1] The monthly streamflow data for Service Creek and Walton Creek is summarized in Appendix A4-A5 of this report. For the modeled study period, there was no available daily streamflow data for any of the tributary basins.

2.2 GENERATED STREAMFLOW DATA

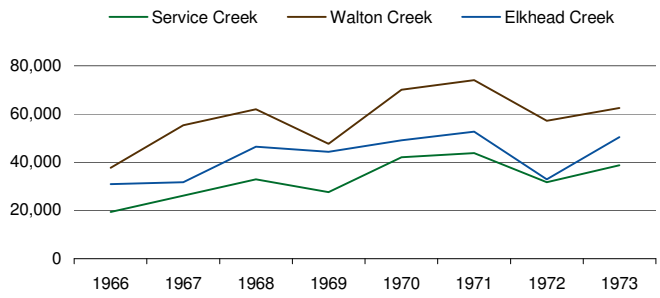
The lack of recorded gage data over the modeled study period required representative monthly streamflow volumes to be generated for each of the tributary basins: Morrison Creek, Service Creek, Green Creek, Harrison Creek, McKinnis Creek, and Walton Creek. The locations of these tributaries are shown on the vicinity map in Figure 1. In related work that RESOURCE had done for the District as described previously in this report, it was found that the hydrology of the Morrison Creek drainage basin was comparable to the hydrology of the Elkhead Creek drainage basin, which is located north of Steamboat Springs. That same basin comparison was also used in this study to generate monthly streamflows on Morrison Creek. In order to best match the hydrology of the remaining tributary basins, RESOURCE analyzed the available streamflow data on Service Creek, Walton Creek, and Elkhead Creek, which have an overlapping period of record from 1966-1973.[1] For this overlapping period, the total annual streamflow for each creek was compiled and from those totals, the percent average was calculated. The annual water yield per unit area for each creek was also derived, using the drainage area from the USGS website. These annual basin comparisons are shown in Figure 2. In addition to the annual analysis, average monthly hydrographs, shown in Figure 3, were prepared. Based on institutional field knowledge and the evaluation of the annual data and monthly hydrographs, RESOURCE concluded that tributary basins of Green Creek, Harrison Creek, and McKinnis Creek compared favorably with the hydrology of the Service Creek basin.

In the related work done by RESOURCE on Morrison Creek, the actual monthly streamflow data from Elkhead Creek was multiplied by both an area adjustment and precipitation adjustment to generate the monthly streamflow on Morrison Creek. The same calculation was done in this study when Elkhead streamflow data is available. The daily USGS gage records for Elkhead Creek are continuous from 1953-1996;[1] therefore, for the 1985-1996[1] portion of the study period the actual Elkhead streamflow data is correlated to Morrison Creek by the adjustment calculation. The monthly streamflow data for Elkhead Creek is summarized in Appendix A6 of this report. In the years without available gage data, 1997-2007,[1] the above mentioned adjustment calculation

Figure 2
Annual Tributary Basin Comparison
Service Creek, Walton Creek, and Elkhead Creek
1966 - 1973

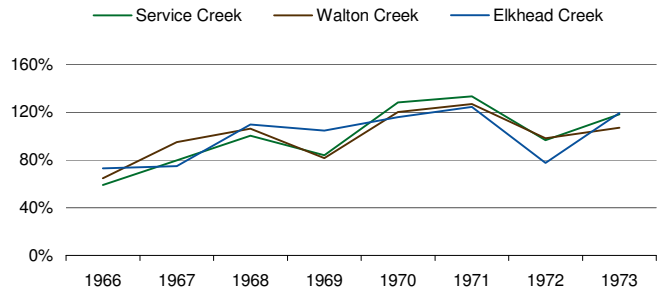
Total Annual Streamflow [1]
(acre-feet / year)

Water Year	Service Creek	Walton Creek	Elkhead Creek
1966	19,356	37,673	30,910
1967	26,094	55,339	31,658
1968	32,871	61,896	46,449
1969	27,562	47,639	44,262
1970	42,007	70,074	49,034
1971	43,742	74,005	52,623
1972	31,688	57,211	32,854
1973	38,787	62,472	50,475
Avg.	32,763	58,289	42,283



Annual Percent Average [2]

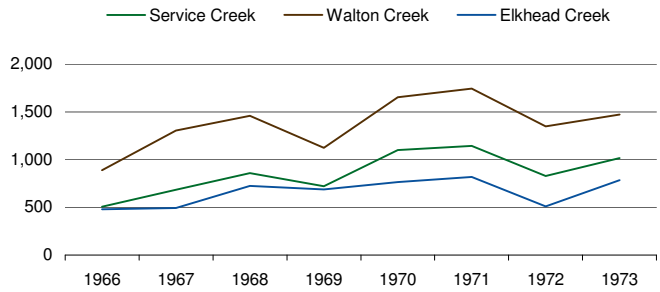
Water Year	Service Creek	Walton Creek	Elkhead Creek
1966	59%	65%	73%
1967	80%	95%	75%
1968	100%	106%	110%
1969	84%	82%	105%
1970	128%	120%	116%
1971	134%	127%	124%
1972	97%	98%	78%
1973	118%	107%	119%



Annual Basin Water Yield [3]
(acre-feet / sq. mile)

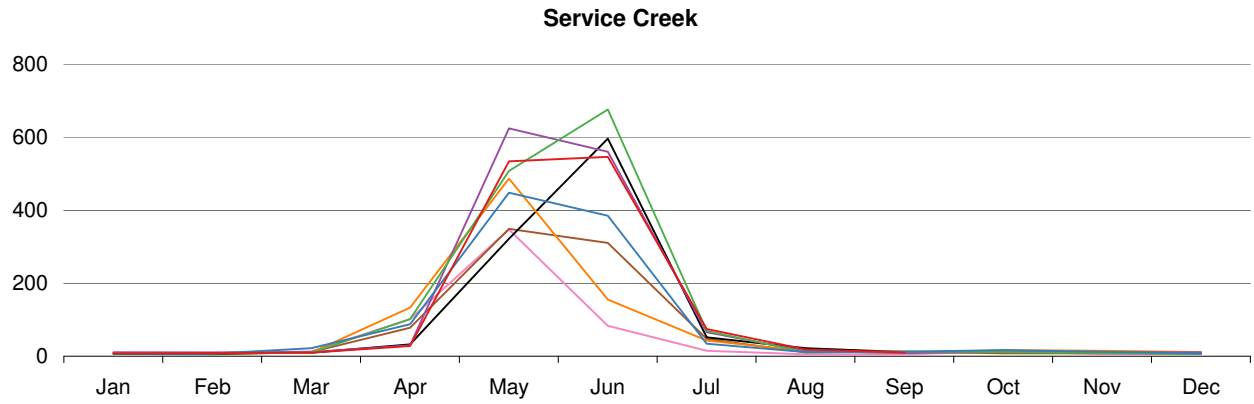
Water Year	Service Creek	Walton Creek	Elkhead Creek
1966	507	889	481
1967	683	1,305	493
1968	861	1,460	724
1969	722	1,124	689
1970	1,100	1,653	764
1971	1,145	1,745	820
1972	830	1,349	512
1973	1,015	1,473	786
Avg.	858	1,375	659

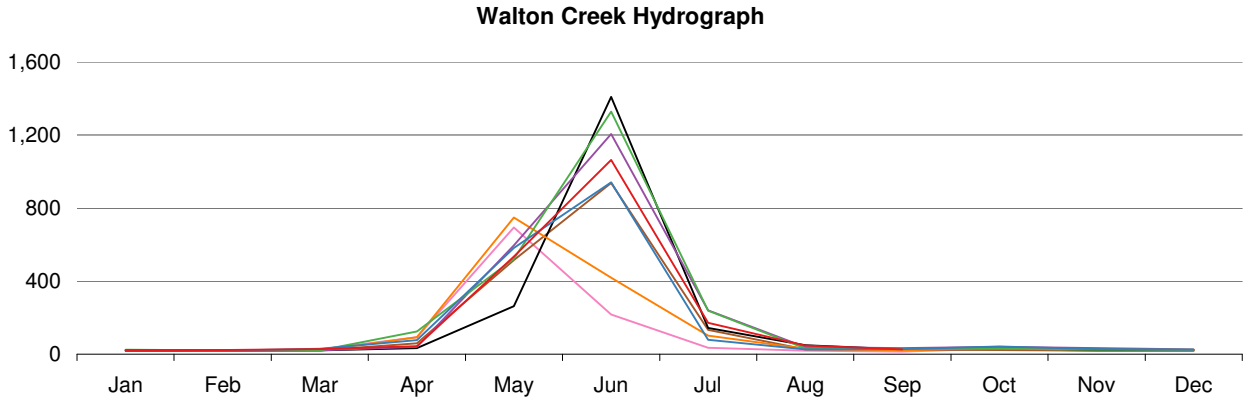
USGS Drainage Area (sq. mile)	
Service Creek	38.2
Walton Creek	42.4
Elkhead Creek	64.2

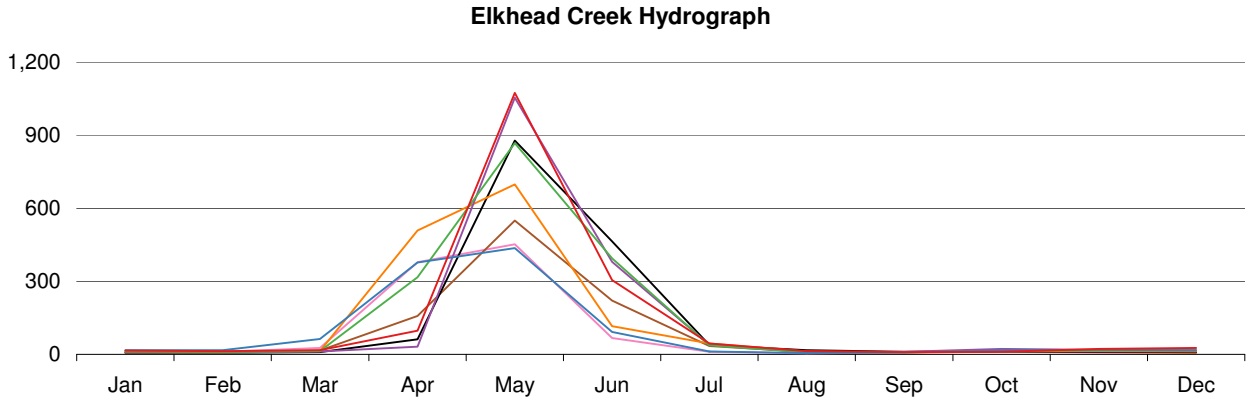


Notes:
(1) The Total Annual Streamflow equals the daily summation of USGS records by water year.
(2) The Annual Percent Average equals the total streamflow for each water year divided by the 1966-1973 average.
(3) Annual Basin Water Yield equals the total streamflow for each water year divided by the area of the basin.

Figure 3
Average Monthly Hydrographs
1966-1973
(acre-feet / month)







is made on a representative year from the Elkhead Creek basin that matches the type of year on the Yampa River at Stagecoach Reservoir.

To determine the type of year on the Yampa River at Stagecoach Reservoir, the annual total streamflow was compiled from the combined record for each year in the modeled study period, 1985-2007.[1] The percent average was then calculated by dividing the annual total for each year by the average annual amount over the study period. Those percentages were then classified into a type of year based on a five level distribution developed by RESOURCE: extreme dry (≤ 65%), dry (66%-85%), average (86%-114%), wet (115%-134%), and extreme wet (≥ 135%). The breakdown of the type of year on the Yampa River at Stagecoach is shown in Table 1. To define the representative year on Elkhead Creek, the same year type classification methodology that was used on the Yampa River was used for each year of the continuous period of record on Elkhead Creek (1954-1996[1]). RESOURCE then evaluated the year types and choose one year to represent each level: extreme dry (1977), dry (1992), average (1993), wet (1983), and extreme wet (1997). The breakdown of the type of year on Elkhead Creek and the chosen representative year are shown in Table 2. When streamflow data on Elkhead Creek is not available, the Elkhead Creek representative year is matched with the appropriate Yampa River year type and the monthly streamflow data for that representative year is correlated to Morrison Creek by the area and precipitation adjustments. For example, the total streamflow in 2002[1] was 44% below the 1985-2007[1] average on the Yampa River. Based on RESOURCE'S five level distribution breakdown, 2002 would be considered an extreme dry year; therefore, the 1977 monthly streamflow on Elkhead Creek was adjusted by the area and precipitation to generate the 2002 streamflow on Morrison Creek.

Again, for Service Creek and Walton Creek the same year type classification methodology that was used on the Yampa River was used for each year of the continuous periods of record, which for both creeks is 1966-1973.[1] RESOURCE then evaluated the year types and choose one year to represent each level: extreme dry (1966), dry (1969), average (1968), wet (1970), and extreme wet (1971). The year type breakdown was similar for both Service Creek and Walton Creek, so their representative years are the same. The breakdown of the type of year and the chosen representative year for both Service Creek and Walton Creek is shown in Table 3. Due to the limited number of years in the period of record for Service Creek and Walton Creek, an additional analysis was preformed to see how the hydrology from that eight year period compared with the nearly hundred year period of record at the Yampa River gage in Steamboat. The annual streamflow totals for the Yampa River at Steamboat were compiled from the daily USGS gage record. The annual yield of each water year was then expressed as a percent of the long term record. The results are shown in Table 4. Finally, RESOURCE examined the percent yield

Table 1
Type of Year on the Yampa River at Stagecoach Reservoir
(acre-feet / year)

Water Year	(1) Combined Yampa @ Stagecoach	(2) Percent Average	(3) Year Type
1985	100,296	183%	EW
1986	94,738	173%	EW
1987	57,972	106%	Avg
1988	56,163	103%	Avg
1989	47,350	87%	Avg
1990	32,398	59%	ED
1991	47,263	86%	Avg
1992	35,913	66%	Dry
1993	48,937	89%	Avg
1994	32,301	59%	ED
1995	49,290	90%	Avg
1996	89,799	164%	EW
1997	97,545	178%	EW
1998	75,559	138%	EW
1999	62,209	114%	Avg
2000	50,514	92%	Avg
2001	45,517	83%	Dry
2002	24,006	44%	ED
2003	42,633	78%	Dry
2004	33,690	62%	ED
2005	38,143	70%	Dry
2006	54,308	99%	Avg
2007	41,386	76%	Dry
Avg.	54,693		

Notes:
(1) The annual Yampa River streamflow at Stagecoach Reservoir equals the summation of the daily USGS gage records above and below the reservoir. The records were combined in a manner that simulates the Yampa River streamflow without the effects of the reservoir operation.
(2) The Percent Average equals the total streamflow for each water year divided by the 1985-2007 average.
(3) The Year Type corresponds to the five level classification based a distribution of percent average values. This distribution is shown in the table below.

Year Type	Distribution		
Extreme Dry (ED)	<=	65%	
Dry (Dry)	btw	66%	85%
Average (Avg)	btw	86%	114%
Wet (Wet)	btw	115%	134%
Extreme Wet (EW)	=>	135%	

Table 2
Type of Year on Elkhead Creek
(acre-feet / year)

Water Year	(1) Elkhead Creek	(2) Percent Average	(3) Year Type	
1954	16,704	42%	ED	
1955	26,683	66%	Dry	
1956	37,833	94%	Avg	
1957	54,697	136%	EW	
1958	46,278	115%	Wet	
1959	22,451	56%	ED	
1960	34,055	85%	Dry	
1961	18,112	45%	ED	
1962	49,380	123%	Wet	Representative Wet Year (1962)
1963	24,616	61%	ED	
1964	31,747	79%	Dry	
1965	48,188	120%	Wet	
1966	30,910	77%	Dry	
1967	31,658	79%	Dry	
1968	46,449	116%	Wet	
1969	44,262	110%	Avg	
1970	49,034	122%	Wet	
1971	52,623	131%	Wet	
1972	32,854	82%	Dry	
1973	50,475	126%	Wet	
1974	48,433	120%	Wet	
1975	53,702	134%	Wet	
1976	29,604	74%	Dry	
1977	12,008	30%	ED	Representative Extreme Dry Year (1977)
1978	60,228	150%	EW	Representative Extreme Wet Year (1978)
1979	57,898	144%	EW	
1980	54,252	135%	EW	
1981	21,456	53%	ED	
1982	44,661	111%	Avg	
1983	64,310	160%	EW	
1984	82,369	205%	EW	
1985	52,537	131%	Wet	
1986	66,583	166%	EW	
1987	30,250	75%	Dry	
1988	36,778	91%	Avg	
1989	17,161	43%	ED	
1990	19,709	49%	ED	
1991	27,496	68%	Dry	Representative Dry Year (1991)
1992	14,613	36%	ED	
1993	55,084	137%	EW	
1994	24,748	62%	ED	
1995	63,908	159%	EW	
1996	41,768	104%	Avg	Representative Average Year (1996)
Avg.	40,199			

Notes:
(1) Tha annual Elkhead Creek streamflow equals the summation of the daily USGS records.
(2) The Percent Average equals the total streamflow for each water year divided by the 1954-1996 average.
(3) See note and reference in Table 1.

Table 3
Type of Year on Service Creek and Walton Creek
(acre-feet / year)

Service Creek

Water Year	(1) Service Creek	(2) Percent Average	(3) Year Type	
1966	19,356	59%	ED	Representative Extreme Dry Year (1966)
1967	26,094	80%	Dry	
1968	32,871	100%	Avg	Representative Average Year (1968)
1969	27,562	84%	Dry	Representative Dry Year (1969)
1970	42,007	128%	Wet	Representative Wet Year (1970)
1971	43,742	134%	Wet	Representative Extreme Wet Year (1971)
1972	31,688	97%	Avg	
1973	38,787	118%	Wet	
Avg.	32,763			

Walton Creek

Water Year	(4) Walton Creek	(2) Percent Average	(3) Year Type	
1966	37,673	65%	ED	Representative Extreme Dry Year (1966)
1967	55,339	95%	Avg	
1968	61,896	106%	Avg	Representative Average Year (1968)
1969	47,639	82%	Dry	Representative Dry Year (1969)
1970	70,074	120%	Wet	Representative Wet Year (1970)
1971	74,005	127%	Wet	Representative Extreme Wet Year (1971)
1972	57,211	98%	Avg	
1973	62,472	107%	Avg	
Avg.	58,289			

Notes:
(1) Tha annual Service Creek streamflow equals the summation of the daily USGS records.
(2) The Percent Average equals the total streamflow for each water year divided by the 1966-1973 average.
(3) See note and reference in Table 1.
(4) Tha annual Walton Creek streamflow equals the summation of the daily USGS records.

Table 4
Percent of Average [1]
Yampa River at USGS Steamboat Springs Gage
Water Year (1911-2008)

Water Year	Percent Average	Water Year	Percent Average	Water Year	Percent Average	Water Year	Percent Average	Water Year	Percent Average
1911	88%	1921	161%	1931	73%	1941	91%	1951	104%
1912	142%	1922	84%	1932	114%	1942	95%	1952	135%
1913	91%	1923	126%	1933	103%	1943	89%	1953	86%
1914	123%	1924	97%	1934	38%	1944	75%	1954	47%
1915	84%	1925	97%	1935	76%	1945	97%	1955	73%
1916	105%	1926	116%	1936	115%	1946	83%	1956	93%
1917	153%	1927	135%	1937	70%	1947	115%	1957	161%
1918	118%	1928	140%	1938	113%	1948	103%	1958	113%
1919	87%	1929	141%	1939	90%	1949	117%	1959	86%
1920	139%	1930	102%	1940	78%	1950	87%	1960	100%
Avg.	113%	Avg.	120%	Avg.	87%	Avg.	95%	Avg.	100%

Water Year	Percent Average	Water Year	Percent Average	Water Year	Percent Average	Water Year	Percent Average	Water Year	Percent Average
1961	68%	1971	131%	1981	55%	1991	86%	2001	74%
1962	140%	1972	93%	1982	130%	1992	62%	2002	39%
1963	60%	1973	118%	1983	147%	1993	104%	2003	87%
1964	77%	1974	134%	1984	179%	1994	61%	2004	61%
1965	113%	1975	110%	1985	122%	1995	102%	2005	89%
1966	60%	1976	82%	1986	125%	1996	139%	2006	110%
1967	81%	1977	37%	1987	68%	1997	155%	2007	73%
1968	105%	1978	127%	1988	82%	1998	118%	2008	119%
1969	87%	1979	103%	1989	55%	1999	96%		
1970	126%	1980	101%	1990	62%	2000	94%		
Avg.	92%	Avg.	104%	Avg.	103%	Avg.	102%	Avg.	82%

Notes:
(1) The Percent Average equals the total streamflow for each water year divided by the 1911-2008 average

* Average of Service Creek and Walton Creek period of record (1966-1973) equals 100%

calculated for the eight years of interest (1966-1973[1]) and compared them to the long term average. Over the 1966 though 1973 period, streamflows on the Yampa River at Steamboat average from 60% of the long term record (1966) to 131% of the long term record (1971). Averaging all eight years together produced a value of 100% of the long term record. This indicates that the period 1966 through 1973 was representative of historic streamflow conditions as reflected in 100 years of record on the Yampa River at Steamboat. This comparative analysis is supported in Table 4.

As part of this study, RESOURCE determined that streamflow data for Green Creek, Harrison Creek, and McKinnis Creek would be generated by correlating those basins with Service Creek. As done with the Morrison Creek/Elkhead Creek correlation, the monthly streamflow of the representative year for Service Creek would be matched with the year type on the Yampa River and then adjusted by the area and precipitation. The area adjustment compares the watershed drainage area of the unknown basin with the watershed drainage area of the known basin (unknown/known). And similarly, the precipitation adjustment compares the annual average watershed precipitation of the unknown basin with the annual average watershed precipitation of the known basin (unknown/known). In this study, the watershed drainages for each basin were delineated and the area calculated using Geographic Information Systems (GIS) software. The annual average precipitation was also calculated in GIS using the PRISM program.

2.3 MODEL VALIDATION AND STREAMFLOW VERIFICATION

After Stagecoach Reservoir, the next USGS gage on the Yampa River downstream of the PVR site is at Steamboat Springs. To verify the generated tributary streamflows from the preceding analysis, the USGS gage records for the Yampa River at Steamboat Springs were compared to a calculated Yampa River streamflow at the same location over the modeled study period. To calculate a Yampa River streamflow comparable to the gage at Steamboat Springs the USGS gage records below Stagecoach Reservoir were used for the entire study period in order to reflect the operation of the reservoir. The generated tributary streamflows were then added to the Yampa River gage records below Stagecoach Reservoir to predict the streamflow at the PVR site. RESOURCE then identified three additional basins that needed to be added to the Yampa River streamflow below the PVR site: Fish Creek, Burgess Creek, and Spring Creek. A search of daily streamflow records on the USGS website was preformed for each of these tributaries. Results were found for Fish Creek, which had two periods of continuous record: 1.) 1967 to 1972,[1] and 2.) 1983[1] to present. The monthly streamflow data for Fish Creek is summarized in Appendix A7. Following the series of analysis set out in Section 2.2 for generating streamflow data, monthly streamflow values were calculated for Burgess Creek and Spring Creek using Fish

Creek as the correlating basin. These generated streamflows along with the actual Fish Creek record was added to the predicted Yampa River streamflow at the PVR site to obtain the calculated streamflow at Steamboat Springs. This predicted Steamboat Springs streamflow was compared against the USGS gage record. The pattern and magnitude of the predicted monthly streamflow matched well against the gage record. This visual comparison is shown in Figure 4. The average annual percent difference between the gage record and the predicted streamflow was 8 percent, and in 20 of the 23 years the predicted streamflow was less than the gage records. RESOURCE determined that the generated tributary streamflow produced a Yampa River streamflow that matched the historic hydrologic pattern and was conservative in magnitude.

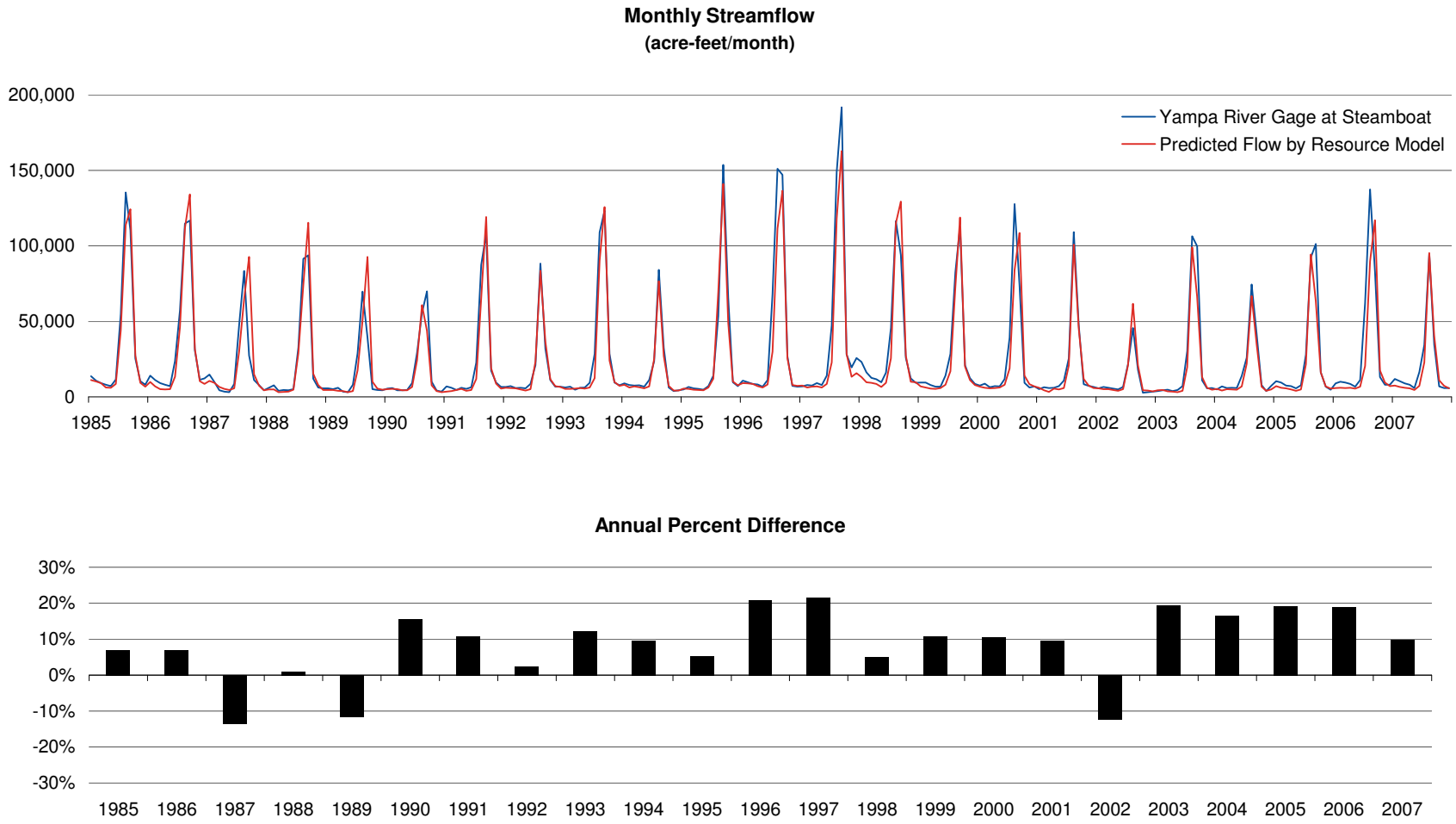
2.4 PLEASANT VALLEY FEEDER CANAL

There are two available sources of inflow at the PVR site, the Yampa River and the Feeder Canal. The Feeder Canal infrastructure was designed to divert water from McKinnis Creek and Walton Creek to PVR. The available monthly streamflow for both McKinnis Creek and Walton Creek was generated as described in Section 2.2 of this report. In the Flow Model the available monthly streamflow on McKinnis Creek is adjusted to reflect existing senior agricultural rights on the creek. In each month, the available flow is reduced by 6 CFS. As a simplifying, conservative assumption, the monthly reduction was not limited to the irrigation season. Likewise, the available monthly streamflow on Walton Creek is reduced by 100 CFS to account for existing senior agricultural water rights. In addition to the 100 CFS adjustment, 189 CFS is taken off the monthly available streamflow to reflect the Districts Four Counties absolute water right on Walton Creek. This amount of reduction is also conservative. An analysis was not preformed in this study to determine the monthly availability of the Four Counties absolute water right; therefore, the maximum amount was applied each month. The total of the available Walton Creek streamflow after the 289 CFS adjustment and the adjusted McKinnis Creek streamflow is what is available to divert through the Feeder Canal. In the Flow Model, the available Feeder Canal diversions are limited by the decree canal capacity of 300 CFS. A 10 percent canal efficiency loss is applied to the total diversions reaching PVR.

2.5 PLEASANT VALLEY RESERVOIR

At the PVR site, the predicted available streamflow from the Yampa River combined with the predicted diversions from the Feeder Canal are run through at set of reservoir operations in order to show the use of the District's 43,220 AF storage right. This analysis is preformed in the Flow Model. The Flow Model starts with the combined Yampa River gage records at Stagecoach Reservoir, which reflect the streamflow without the operational effects of the reservoir. The

Figure 4
Comparison of Yampa River Streamflow at Steamboat Springs

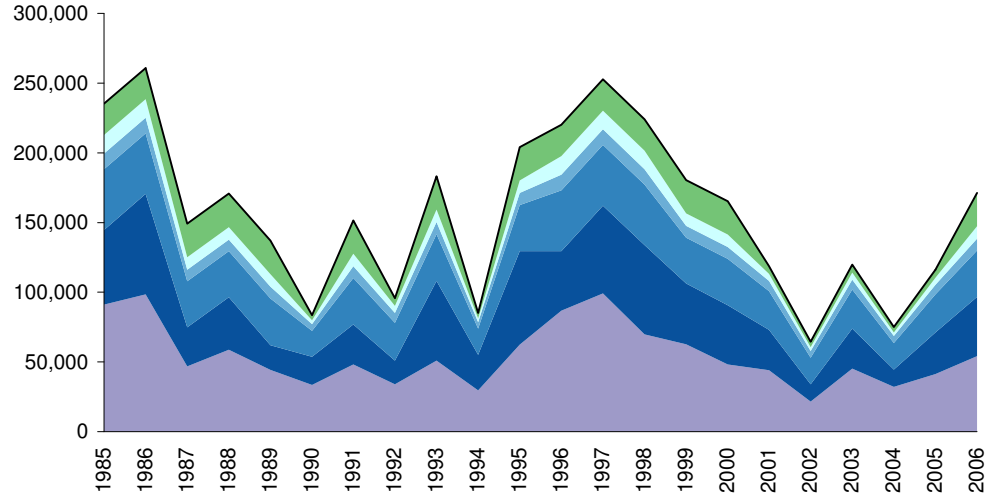


generated tributary inflows as described in Section 2.2 of this report are then added to the combined Yampa River records. In the summation of generated tributary inflows, an adjusted Harrison Creek streamflow is used. The available streamflow is reduced by 50 CFS due to the existence of the Four Counties senior absolute water rights previously decreed on Harrison Creek. The calculated Yampa River inflow and the Feeder Canal inflow, described in Section 2.4, equal the total inflow to PVR. A summary of reservoir inflows can be seen in Figure 5. The total available inflow to PVR is reduced by an assumed environmental bypass of 50 CFS. This constraint is to meet probable Federal minimum flow requirements for the Yampa River reach below the PVR site. The total available inflow is then reduced by the monthly reservoir evaporation loss. An area-capacity curve for PVR was not derived for this study. Instead, an adjusted monthly evaporation for Stagecoach Reservoir was used. The monthly evaporation volume was calculated by multiplying the evaporation rate with the surface area, assuming that the reservoir was always at capacity (775 acres). Those monthly totals were then multiplied by a factor of 1.5 to reflect the difference in capacities between Stagecoach Reservoir and PVR. The potential available storage is then the total available inflow minus the environmental bypass and the evaporative loss. For this analysis, the potential available storage is stored only in the months of March, April, May, June, and July. Storage in July is limited to years that are wet or extreme wet. The restriction on diverting after June conservatively assumes that senior agriculture water rights downstream of the reservoir would start placing calls in July of average, dry, and extreme dry years. In the Flow Model, reservoir accounting begins in March and there is no carryover, meaning that the reservoir starts each March with no storage (0.0 AF). The accounting keeps track of two scenarios, one without a limit on the reservoir capacity and another which limits storage to the first 43,220 AF. These results can be seen in Figure 6.

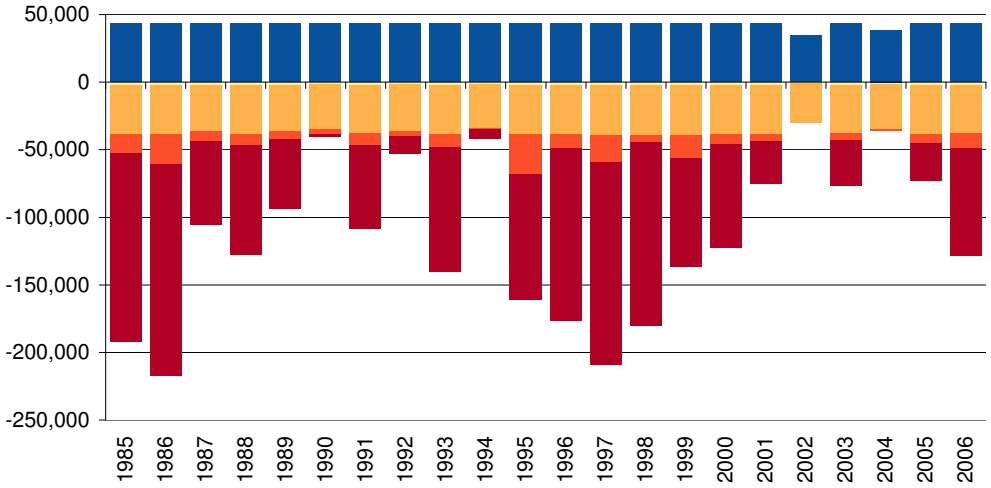
3.0 CONCLUSION

The Flow Model showed that at least 43,220 AF was available to store in every year except for 2002 (34,271 AF) and 2004 (38,687 AF), and on average there was approximately 111,000 AF available annually to divert. A summary of these results is shown in Table 5. The Flow Model also confirmed that the monthly supply diverted to Morrison Reservoir was available historically at the PVR site.

Figure 5
Annual Predicted Flow and Reservoir Operation
Pleasant Valley Reservoir Site
(acre-feet / year)

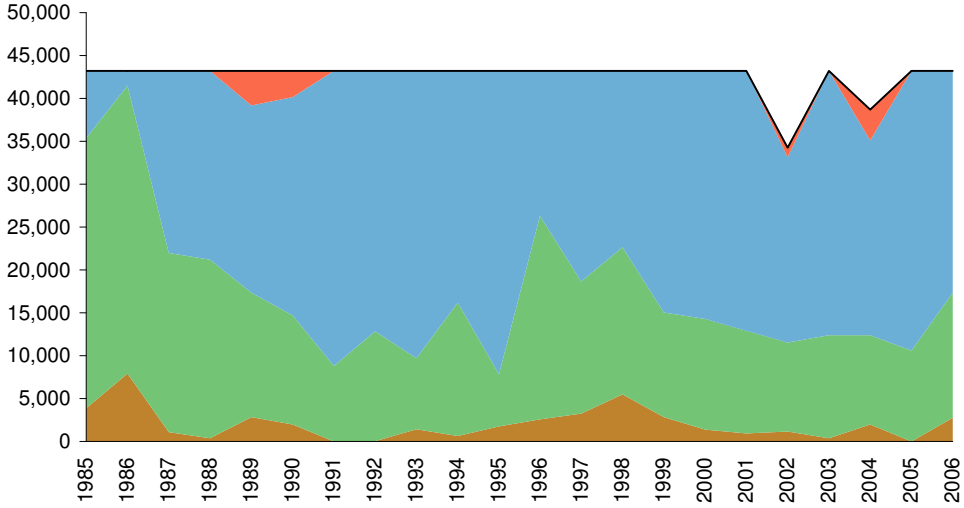


	Average Annual Flow	Average Percent Contribution
Pleasant Valley Canal	16,602	10%
Harrison Creek	8,086	5%
Green Creek	8,209	5%
Service Creek	31,919	21%
Morrison Creek	37,961	23%
Yampa River at Stagecoach	54,674	35%
Total Available Flow	157,450	100%



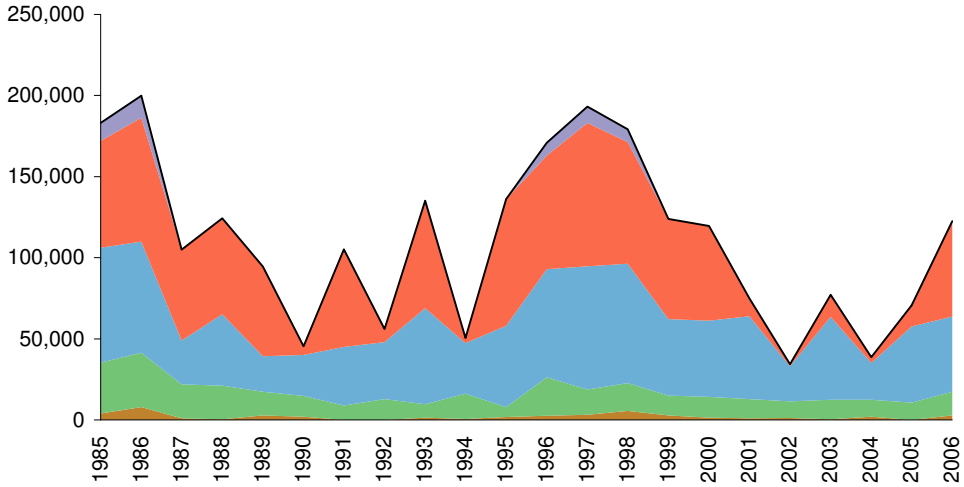
	Average Annual Flow
Stored Flow	42,607
Evaporation	2,161
Environmental Bypass	35,116
Sr. Call Bypass	9,248
Reservoir Capacity Bypass	68,318
Total Available Flow	157,450

Figure 6
Annual Predicted Monthly Stored Inflow
Pleasant Valley Reservoir Site with 43,220 AF Capacity
(acre-feet / year)



	Average Annual Flow	Average Percent Contribution
July Stored Inflow	0	0%
June Stored Inflow	537	1%
May Stored Inflow	24,729	58%
April Stored Inflow	15,316	36%
March Stored Inflow	2,026	5%
Total Stored Flow	42,607	100%

Annual Predicted Monthly Stored Inflow
Pleasant Valley Reservoir Site without Capacity Limit
(acre-feet / year)



	Average Annual Flow	Average Percent Contribution
July Stored Inflow	2,303	1%
June Stored Inflow	44,953	35%
May Stored Inflow	46,327	46%
April Stored Inflow	15,316	16%
March Stored Inflow	2,026	2%
Total Stored Flow	110,925	100%

Table 5
Summary of Annual Predicted Monthly Stored Inflow
Pleasant Valley Reservoir Site without Capacity Limit
(acre-feet / year)

Storage Year	Stored Inflow					
	March	April	May	June	July	Total
1985	3,893	31,468	70,824	65,779	11,090	183,055
1986	7,925	33,561	68,496	76,274	13,643	199,899
1987	1,073	20,921	26,894	56,182	0	105,070
1988	375	20,826	43,823	59,352	0	124,376
1989	2,824	14,509	21,851	55,289	0	94,474
1990	1,984	12,725	25,431	5,246	0	45,385
1991	0	8,812	36,133	60,157	0	105,102
1992	40	12,804	35,201	7,965	0	56,010
1993	1,405	8,300	59,074	66,336	0	135,114
1994	619	15,563	31,124	3,293	0	50,599
1995	1,743	6,080	50,101	78,266	0	136,190
1996	2,565	23,724	66,727	69,893	7,985	170,895
1997	3,245	15,423	75,984	88,383	10,174	193,209
1998	5,481	17,161	73,580	75,129	7,776	179,126
1999	2,837	12,195	47,180	61,656	0	123,867
2000	1,365	12,920	46,819	58,512	0	119,616
2001	932	11,976	51,114	10,977	0	74,999
2002	1,172	10,340	21,637	1,124	0	34,271
2003	363	12,036	51,061	13,738	0	77,197
2004	1,977	10,409	22,727	3,574	0	38,687
2005	0	10,590	47,012	13,103	0	70,705
2006	2,754	14,600	46,412	58,748	0	122,514
Avg	2,026	15,316	46,327	44,953	2,303	110,925

APPENDIX A

Appendix A1
Total Monthly and Annual Streamflow
Yampa River USGS Gage above Stagecoach Reservoir
(acre-feet)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	0	0	0	0	0	0	0	0	0	0	0	0	0
1941	0	0	0	0	0	0	0	0	0	0	0	0	0
1942	0	0	0	0	0	0	0	0	0	0	0	0	0
1943	0	0	0	0	0	0	0	0	0	0	0	0	0
1944	0	0	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	2,949	2,862	2,747	2,333	2,110	4,901	8,077	4,207	4,891	5,078	4,786	2,408	47,350
1990	2,356	2,487	1,793	1,313	1,954	3,765	2,957	2,364	3,114	5,201	3,237	1,857	32,398
1991	2,408	2,860	2,204	1,807	1,634	2,452	6,756	5,966	6,627	7,242	4,600	2,707	47,263
1992	2,394	2,729	2,404	2,339	2,021	2,378	4,165	3,493	4,122	4,915	3,031	1,922	35,913
1993	1,972	2,212	2,055	1,825	1,918	3,503	6,010	9,124	6,694	5,822	4,715	3,088	48,937
1994	2,733	2,638	2,297	2,291	2,023	2,832	4,891	2,809	2,346	3,096	2,648	1,696	32,301
1995	1,966	1,902	1,912	1,853	1,718	3,116	2,896	5,770	7,726	10,298	5,576	4,558	49,290
1996	4,715	4,411	4,372	4,564	4,338	4,540	15,386	17,098	13,986	8,037	4,901	3,451	89,799
1997	3,945	4,647	3,862	3,658	3,295	4,699	9,144	16,312	20,722	9,822	9,390	8,049	97,545
1998	7,141	5,062	3,348	3,084	2,325	6,934	10,881	13,908	7,468	7,424	5,242	2,741	75,559
1999	3,529	3,652	2,656	2,896	2,501	4,824	6,466	8,313	8,051	8,301	6,468	4,552	62,209
2000	3,580	3,463	2,737	2,910	2,900	3,352	7,192	7,952	4,907	5,137	3,725	2,658	50,514
2001	2,656	2,598	2,727	2,779	2,489	3,449	6,121	6,498	4,237	5,714	3,814	2,434	45,517
2002	2,370	2,233	2,352	2,590	2,291	3,473	3,459	853	732	1,061	1,553	1,037	24,006
2003	1,670	2,114	1,898	2,039	1,704	2,880	6,181	6,444	6,998	4,354	3,681	2,670	42,633
2004	1,924	2,356	2,616	2,604	2,400	4,278	3,529	1,944	3,182	4,239	2,688	1,930	33,690
2005	2,485	2,436	1,948	1,922	1,664	2,438	4,735	2,396	6,363	4,715	4,342	2,700	38,143
2006	2,813	2,934	2,688	2,737	2,543	4,741	8,872	7,545	5,143	6,339	4,977	2,977	54,308
2007	2,983	3,243	2,840	2,573	1,884	6,456	4,645	3,019	2,775	4,493	4,036	2,444	41,386

Appendix A2
Total Monthly and Annual Streamflow
Yampa River USGS Gage below Stagecoach Reservoir
(acre-feet)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	2,426	2,465	2,386	2,620	2,491	3,806	5,494	5,163	3,372	1,987	1,751	1,321	35,284
1941	2,396	2,428	2,277	2,180	1,876	2,200	3,999	13,462	6,807	4,808	4,544	2,265	49,242
1942	3,767	3,550	3,013	2,767	2,110	2,890	13,553	9,509	4,084	3,541	2,719	1,799	53,303
1943	2,610	2,295	1,783	1,783	1,944	2,906	8,543	4,987	5,707	3,600	4,772	2,170	43,099
1944	2,152	2,965	1,815	1,367	2,011	3,614	4,800	7,089	3,521	3,503	2,489	1,355	36,681
1945	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	3,261	2,797	2,138	2,180	2,104	2,690	9,574	20,065	26,438	25,474	12,036	7,426	116,184
1958	6,206	5,348	3,997	3,443	2,777	4,304	9,348	24,641	9,071	4,485	4,719	2,997	81,335
1959	3,318	3,787	3,689	3,382	2,666	3,392	9,874	12,157	7,563	5,584	6,161	3,491	65,063
1960	6,801	4,034	2,731	2,828	2,876	6,611	15,394	10,342	6,133	4,822	4,098	2,961	69,633
1961	3,176	3,201	2,418	2,233	1,825	3,386	6,117	5,947	2,959	3,548	3,233	4,957	43,000
1962	6,450	3,217	3,110	2,638	2,384	3,168	26,962	18,575	10,421	7,406	5,238	2,333	91,903
1963	4,772	4,203	2,938	2,880	2,949	3,957	4,788	2,091	3,255	2,688	3,420	2,477	40,418
1964	1,841	2,729	2,202	2,491	2,499	2,817	6,327	8,035	5,820	5,215	4,136	2,200	46,311
1965	2,882	2,955	2,880	2,888	2,503	2,642	8,928	11,703	11,381	10,084	8,954	5,336	73,136
1966	4,784	3,616	2,755	2,577	2,150	6,536	4,556	2,471	2,368	3,412	2,590	1,634	39,450
1967	2,864	3,370	2,356	2,402	2,126	4,675	4,826	4,655	6,553	5,302	4,395	2,918	46,444
1968	3,463	3,842	3,546	3,580	3,124	3,586	5,675	17,205	11,978	5,538	7,016	3,237	71,791
1969	4,626	3,535	3,677	3,719	2,975	3,679	10,610	5,929	9,287	5,113	5,524	4,505	63,178
1970	4,735	4,021	2,898	3,572	2,862	2,926	10,423	26,285	15,620	7,174	6,383	4,161	91,061
1971	5,302	4,816	4,151	3,888	3,420	6,589	16,856	14,995	12,635	6,603	4,921	4,431	88,607
1972	4,423	3,941	4,082	3,176	3,233	6,853	7,272	7,839	8,497	4,864	4,802	5,966	64,948
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	6,954	6,311	6,206	3,783	3,995	5,215	14,811	20,224	10,893	10,953	6,573	4,378	100,296
1986	6,206	3,868	2,408	2,608	2,971	8,081	13,646	13,403	15,120	12,948	7,644	5,833	94,738
1987	6,337	5,812	4,036	3,049	2,469	3,037	9,574	5,816	5,111	6,228	4,098	2,404	57,972
1988	3,088	2,898	1,192	1,517	1,775	2,462	13,760	9,874	6,474	5,875	4,493	2,755	56,163
1989	3,080	3,011	2,382	2,285	1,664	1,105	1,922	763	760	1,371	2,112	2,755	23,211
1990	2,531	3,007	2,928	2,680	2,953	3,348	2,759	2,717	2,698	2,830	2,303	1,892	32,646
1991	1,587	2,218	2,884	3,671	2,652	2,539	3,281	6,744	7,208	8,142	5,173	3,324	49,423
1992	3,683	3,981	3,880	3,191	2,702	2,743	2,702	2,811	3,187	3,739	4,142	3,913	40,674
1993	3,352	3,186	3,856	4,255	3,652	3,727	4,219	7,482	7,256	5,159	5,970	5,149	57,262
1994	4,292	3,408	4,288	4,118	3,937	3,971	3,082	2,949	2,652	2,769	3,055	3,326	41,848
1995	3,671	3,541	3,003	2,938	2,711	2,773	2,460	3,251	7,230	10,594	5,933	5,588	53,691
1996	5,506	5,637	5,738	5,044	4,403	5,411	9,888	18,635	14,898	7,377	5,455	4,856	92,848
1997	4,598	3,848	4,497	5,177	4,709	5,227	5,544	14,692	22,461	8,454	9,604	8,031	96,840
1998	6,788	5,381	5,699	5,522	4,040	5,342	8,323	14,741	7,325	7,065	6,637	5,054	81,917
1999	4,572	3,963	3,584	3,652	4,209	5,102	4,155	7,385	8,091	7,365	7,037	5,552	64,666
2000	4,935	4,324	3,931	4,193	4,620	5,554	4,711	4,804	4,120	4,469	4,782	4,314	54,757
2001	3,675	2,670	1,660	4,013	3,554	3,888	3,777	4,943	4,177	5,024	4,941	4,161	46,483
2002	3,061	2,888	2,908	2,799	2,590	2,971	2,922	1,611	1,000	2,128	2,916	2,628	30,421
2003	1,815	2,688	1,771	1,742	1,573	2,057	2,424	5,532	6,423	4,191	3,606	2,924	36,744
2004	2,809	2,095	2,967	3,261	3,285	3,267	2,430	1,759	2,206	2,662	2,573	2,483	31,796
2005	2,136	2,707	2,892	2,630	1,954	2,622	3,600	3,197	5,457	4,713	4,181	3,445	39,535
2006	3,265	3,554	3,501	3,673	3,535	3,989	4,969	8,009	5,502	5,964	5,534	4,036	55,532
2007	3,243	3,203	3,541	3,673	2,882	4,019	4,961	3,656	2,646	3,769	4,578	3,368	43,538

Appendix A3
Total Monthly and Annual Streamflow
Combined Yampa River USGS Gage Record without Stagecoach Reservoir Operational Effects
(acre-feet)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	2,426	2,465	2,386	2,620	2,491	3,806	5,494	5,163	3,372	1,987	1,751	1,321	35,284
1941	2,396	2,428	2,277	2,180	1,876	2,200	3,999	13,462	6,807	4,808	4,544	2,265	49,242
1942	3,767	3,550	3,013	2,767	2,110	2,890	13,553	9,509	4,084	3,541	2,719	1,799	53,303
1943	2,610	2,295	1,783	1,783	1,944	2,906	8,543	4,987	5,707	3,600	4,772	2,170	43,099
1944	2,152	2,965	1,815	1,367	2,011	3,614	4,800	7,089	3,521	3,503	2,489	1,355	36,681
1945	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	3,261	2,797	2,138	2,180	2,104	2,690	9,574	20,065	26,438	25,474	12,036	7,426	116,184
1958	6,206	5,348	3,997	3,443	2,777	4,304	9,348	24,641	9,071	4,485	4,719	2,997	81,335
1959	3,318	3,787	3,689	3,382	2,666	3,392	9,874	12,157	7,563	5,584	6,161	3,491	65,063
1960	6,801	4,034	2,731	2,828	2,876	6,611	15,394	10,342	6,133	4,822	4,098	2,961	69,633
1961	3,176	3,201	2,418	2,233	1,825	3,386	6,117	5,947	2,959	3,548	3,233	4,957	43,000
1962	6,450	3,217	3,110	2,638	2,384	3,168	26,962	18,575	10,421	7,406	5,238	2,333	91,903
1963	4,772	4,203	2,938	2,880	2,949	3,957	4,788	2,091	3,255	2,688	3,420	2,477	40,418
1964	1,841	2,729	2,202	2,491	2,499	2,817	6,327	8,035	5,820	5,215	4,136	2,200	46,311
1965	2,882	2,955	2,880	2,888	2,503	2,642	8,928	11,703	11,381	10,084	8,954	5,336	73,136
1966	4,784	3,616	2,755	2,577	2,150	6,536	4,556	2,471	2,368	3,412	2,590	1,634	39,450
1967	2,864	3,370	2,356	2,402	2,126	4,675	4,826	4,655	6,553	5,302	4,395	2,918	46,444
1968	3,463	3,842	3,546	3,580	3,124	3,586	5,675	17,205	11,978	5,538	7,016	3,237	71,791
1969	4,626	3,535	3,677	3,719	2,975	3,679	10,610	5,929	9,287	5,113	5,524	4,505	63,178
1970	4,735	4,021	2,898	3,572	2,862	2,926	10,423	26,285	15,620	7,174	6,383	4,161	91,061
1971	5,302	4,816	4,151	3,888	3,420	6,589	16,856	14,995	12,635	6,603	4,921	4,431	88,607
1972	4,423	3,941	4,082	3,176	3,233	6,853	7,272	7,839	8,497	4,864	4,802	5,966	64,948
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	6,954	6,311	6,206	3,783	3,995	5,215	14,811	20,224	10,893	10,953	6,573	4,378	100,296
1986	6,206	3,868	2,408	2,608	2,971	8,081	13,646	13,403	15,120	12,948	7,644	5,833	94,738
1987	6,337	5,812	4,036	3,049	2,469	3,037	9,574	5,816	5,111	6,228	4,098	2,404	57,972
1988	3,088	2,898	1,192	1,517	1,775	2,462	13,760	9,874	6,474	5,875	4,493	2,755	56,163
1989	2,949	2,862	2,747	2,333	2,110	4,901	8,077	4,207	4,891	5,078	4,786	2,408	47,350
1990	2,356	2,487	1,793	1,313	1,954	3,765	2,957	2,364	3,114	5,201	3,237	1,857	32,398
1991	2,408	2,860	2,204	1,807	1,634	2,452	6,756	5,966	6,627	7,242	4,600	2,707	47,263
1992	2,394	2,729	2,404	2,339	2,021	2,378	4,165	3,493	4,122	4,915	3,031	1,922	35,913
1993	1,972	2,212	2,055	1,825	1,918	3,503	6,010	9,124	6,694	5,822	4,715	3,088	48,937
1994	2,733	2,638	2,297	2,291	2,023	2,832	4,891	2,809	2,346	3,096	2,648	1,696	32,301
1995	1,966	1,902	1,912	1,853	1,718	3,116	2,896	5,770	7,726	10,298	5,576	4,558	49,290
1996	4,715	4,411	4,372	4,564	4,338	4,540	15,386	17,098	13,986	8,037	4,901	3,451	89,799
1997	3,945	4,647	3,862	3,658	3,295	4,699	9,144	16,312	20,722	9,822	9,390	8,049	97,545
1998	7,141	5,062	3,348	3,084	2,325	6,934	10,881	13,908	7,468	7,424	5,242	2,741	75,559
1999	3,529	3,652	2,656	2,896	2,501	4,824	6,466	8,313	8,051	8,301	6,468	4,552	62,209
2000	3,580	3,463	2,737	2,910	2,900	3,352	7,192	7,952	4,907	5,137	3,725	2,658	50,514
2001	2,656	2,598	2,727	2,779	2,489	3,449	6,121	6,498	4,237	5,714	3,814	2,434	45,517
2002	2,370	2,233	2,352	2,590	2,291	3,473	3,459	853	732	1,061	1,553	1,037	24,006
2003	1,670	2,114	1,898	2,039	1,704	2,880	6,181	6,444	6,998	4,354	3,681	2,670	42,633
2004	1,924	2,356	2,616	2,604	2,400	4,278	3,529	1,944	3,182	4,239	2,688	1,930	33,690
2005	2,485	2,436	1,948	1,922	1,664	2,438	4,735	2,396	6,363	4,715	4,342	2,700	38,143
2006	2,813	2,934	2,688	2,737	2,543	4,741	8,872	7,545	5,143	6,339	4,977	2,977	54,308
2007	2,983	3,243	2,840	2,573	1,884	6,456	4,645	3,019	2,775	4,493	4,036	2,444	41,386

Appendix A4
Total Monthly and Annual Streamflow
Service Creek USGS Gage
(acre-feet)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	0	0	0	0	0	0	0	0	0	0	0	0	0
1941	0	0	0	0	0	0	0	0	0	0	0	0	0
1942	0	0	0	0	0	0	0	0	0	0	0	0	0
1943	0	0	0	0	0	0	0	0	0	0	0	0	0
1944	0	0	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	492	404	400	317	241	420	3,051	10,751	2,487	456	176	160	19,356
1967	399	187	199	184	159	361	2,327	10,824	9,293	1,460	339	362	26,094
1968	244	235	249	228	198	301	968	9,965	17,863	1,591	688	341	32,871
1969	415	306	281	273	247	292	3,990	15,087	4,647	1,330	441	252	27,562
1970	509	454	349	313	292	358	893	19,343	16,786	2,032	426	253	42,007
1971	380	341	337	257	212	310	3,044	15,727	20,273	2,142	335	384	43,742
1972	346	251	199	214	211	674	2,618	13,881	11,528	1,063	340	365	31,688
1973	510	356	229	238	235	291	840	16,530	16,364	2,303	582	309	38,787
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix A5
Total Monthly and Annual Streamflow
Walton Creek USGS Gage
(acre-feet)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	0	0	0	0	0	0	0	0	0	0	0	0	0
1941	0	0	0	0	0	0	0	0	0	0	0	0	0
1942	0	0	0	0	0	0	0	0	0	0	0	0	0
1943	0	0	0	0	0	0	0	0	0	0	0	0	0
1944	0	0	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	1,107	827	793	691	547	807	2,769	21,523	6,504	1,092	584	428	37,673
1967	969	535	547	559	477	647	1,781	15,969	28,114	4,151	842	747	55,339
1968	684	599	617	585	554	635	980	8,174	42,286	4,479	1,498	805	61,896
1969	1,079	762	720	666	565	603	2,763	23,197	12,573	3,152	914	644	47,639
1970	1,091	904	732	664	581	627	1,202	18,476	36,187	7,440	1,178	992	70,074
1971	1,265	1,012	811	738	603	674	3,731	16,164	39,843	7,363	956	845	74,005
1972	897	714	744	670	570	932	2,331	18,034	28,235	2,471	795	818	57,211
1973	1,285	831	744	691	657	869	1,321	16,584	31,932	5,332	1,461	766	62,472
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix A6
Total Monthly and Annual Streamflow
Elkhead Creek USGS Gage
(acre-feet)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	0	0	0	0	0	0	0	0	0	0	0	0	0
1941	0	0	0	0	0	0	0	0	0	0	0	0	0
1942	0	0	0	0	0	0	0	0	0	0	0	0	0
1943	0	0	0	0	0	0	0	0	0	0	0	0	0
1944	0	0	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	3,021	15,741	6,742	645	282	87	26,518
1954	157	218	215	246	222	307	7,180	6,661	1,123	205	54	116	16,704
1955	218	232	208	209	178	215	6,688	15,009	3,199	320	193	13	26,683
1956	175	293	338	338	288	469	11,710	20,460	3,232	392	110	29	37,833
1957	240	268	246	228	194	307	3,251	24,611	21,255	3,076	695	325	54,697
1958	404	571	553	492	611	799	6,306	31,694	4,173	420	114	140	46,278
1959	175	196	178	160	122	277	2,370	15,592	2,705	346	145	184	22,451
1960	474	371	246	234	219	883	13,161	14,892	3,035	349	91	101	34,055
1961	108	86	139	128	151	371	1,892	12,750	1,938	110	18	420	18,112
1962	524	485	430	369	389	603	18,794	22,316	4,655	652	101	62	49,380
1963	198	170	190	123	244	804	3,241	16,965	2,102	205	201	173	24,616
1964	143	214	159	181	184	219	1,126	22,687	5,691	781	231	132	31,747
1965	167	209	194	196	175	240	3,956	29,685	11,185	1,203	479	500	48,188
1966	467	497	382	360	298	833	11,342	14,029	2,015	327	113	245	30,910
1967	324	213	211	192	265	491	4,715	17,042	6,607	1,066	308	224	31,658
1968	307	267	217	188	191	275	1,837	27,220	13,926	1,181	541	298	46,449
1969	410	322	276	261	233	399	15,259	21,636	3,459	1,365	364	276	44,262
1970	462	389	353	294	263	379	950	32,688	11,409	1,218	299	330	49,034
1971	678	569	470	372	280	412	9,511	26,876	11,830	1,138	262	225	52,623
1972	458	480	538	536	505	1,963	11,314	13,529	2,763	356	169	243	32,854
1973	541	566	530	495	370	523	2,926	33,293	9,166	1,400	404	262	50,475
1974	346	654	797	686	746	2,158	7,898	27,769	6,040	768	365	205	48,433
1975	388	567	183	192	189	714	2,471	27,904	17,729	2,668	531	166	53,702
1976	388	302	358	355	478	610	2,704	19,240	4,350	627	111	82	29,604
1977	185	234	213	109	193	320	5,955	3,959	673	58	63	46	12,008
1978	105	138	187	210	259	1,264	5,387	35,528	15,461	1,149	358	180	60,228
1979	196	282	292	148	156	274	3,617	38,343	13,057	1,108	309	116	57,898
1980	236	311	343	247	247	347	5,116	38,418	7,867	647	269	204	54,252
1981	259	266	306	307	334	588	4,314	11,171	3,247	359	92	211	21,456
1982	644	404	437	525	352	314	2,990	28,326	8,380	1,590	406	293	44,661
1983	564	678	630	545	474	732	2,740	33,938	20,194	2,662	864	290	64,310
1984	1,225	930	770	566	462	489	4,624	51,008	19,012	1,474	889	922	82,369
1985	1,023	1,178	670	615	555	1,390	15,325	26,843	3,229	944	420	343	52,537
1986	701	558	480	453	513	2,507	18,443	31,145	9,231	1,477	396	679	66,583
1987	1,573	1,301	910	819	693	787	12,738	8,880	1,780	424	200	144	30,250
1988	275	454	441	444	398	670	8,640	21,204	3,511	466	132	143	36,778
1989	195	302	369	298	257	679	8,033	5,591	1,136	183	80	37	17,161
1990	219	233	323	184	173	818	8,719	6,145	2,339	323	155	77	19,709
1991	176	131	162	168	155	267	3,843	17,582	4,136	473	216	189	27,496
1992	147	114	120	125	173	438	6,508	5,223	1,362	297	62	44	14,613
1993	606	551	293	362	423	659	4,066	36,524	9,987	1,168	325	120	55,084
1994	475	301	356	488	295	404	9,585	11,171	1,204	203	191	74	24,748
1995	261	296	333	315	371	1,353	4,923	31,145	20,422	3,695	579	215	63,908
1996	434	327	364	357	373	765	7,359	25,912	4,207	763	467	439	41,768
1997	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix A7
Total Monthly and Annual Streamflow
Fish Creek USGS Gage
(acre-feet)

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1940	0	0	0	0	0	0	0	0	0	0	0	0	0
1941	0	0	0	0	0	0	0	0	0	0	0	0	0
1942	0	0	0	0	0	0	0	0	0	0	0	0	0
1943	0	0	0	0	0	0	0	0	0	0	0	0	0
1944	0	0	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0	0	0	0	0
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0	0
1967	784	485	521	497	417	586	1,753	11,310	22,691	5,254	577	479	45,355
1968	388	372	377	325	303	428	1,073	6,432	33,735	6,296	1,059	490	51,278
1969	594	617	561	532	460	564	3,199	22,003	16,156	2,690	575	502	48,451
1970	1,097	1,002	740	657	521	620	1,124	13,984	28,872	7,847	612	630	57,705
1971	810	869	715	537	441	632	3,174	10,997	29,088	6,746	712	692	55,411
1972	579	498	573	529	362	817	2,029	12,714	24,268	1,753	86	192	44,401
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	8,844	28,874	12,141	932	584	51,376
1983	1,702	1,160	547	413	359	422	489	5,256	28,428	16,160	1,201	156	56,291
1984	747	885	705	424	299	308	1,065	17,588	33,948	13,966	973	649	71,555
1985	829	775	530	390	275	492	2,769	14,815	23,945	2,985	492	379	48,675
1986	701	610	499	415	388	992	2,789	14,922	23,544	4,514	532	403	50,307
1987	1,031	859	431	291	274	445	3,512	17,050	7,360	604	326	226	32,410
1988	338	420	311	249	233	351	2,457	11,361	21,955	1,183	285	225	39,369
1989	160	183	157	151	190	607	3,346	12,776	11,094	769	315	339	30,086
1990	285	276	260	211	210	565	2,856	7,410	20,501	1,918	312	242	35,046
1991	413	386	308	280	264	385	1,386	10,017	23,800	2,186	469	328	40,224
1992	249	344	303	251	275	521	2,628	17,804	8,097	1,543	808	1,069	33,892
1993	155	332	222	163	324	420	823	13,214	24,121	7,684	520	453	48,433
1994	844	682	567	393	289	749	2,612	15,144	8,912	1,767	53	43	32,057
1995	257	288	241	221	209	631	1,161	5,316	27,366	20,376	685	256	57,007
1996	823	920	741	378	300	551	2,124	14,979	29,354	4,635	266	271	55,341
1997	543	468	465	269	158	644	1,700	15,352	34,495	5,611	1,325	4,404	65,434
1998	3,191	1,878	1,432	1,180	875	1,045	1,603	13,166	20,930	5,802	1,029	2,100	54,232
1999	582	608	342	219	174	740	1,678	8,547	22,745	3,285	617	301	39,837
2000	218	185	149	156	154	298	2,644	18,861	18,078	1,006	291	497	42,537
2001	209	218	199	141	105	384	2,079	19,426	11,504	523	428	326	35,542
2002	298	339	372	335	185	221	2,448	10,624	6,087	201	218	227	21,554
2003	368	328	288	280	233	350	2,317	17,635	25,621	2,036	301	369	50,126
2004	252	253	224	194	162	1,269	3,489	14,271	15,674	1,563	325	1,183	38,859
2005	2,245	1,388	958	730	633	678	2,705	15,928	24,080	4,006	529	489	54,368
2006	783	764	718	664	517	637	3,743	20,789	23,332	2,392	542	821	55,702
2007	1,607	1,412	831	525	398	1,316	2,745	16,171	9,003	783	624	778	36,194

ATTACHMENT 4

BBC CONSULTING
POPULATION GROWTH AND WATER DEMAND REPORT

Upper Yampa Water Conservancy District
February 20, 2009

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February 20, 2009

Mr. Scott Grosscup
Balcomb & Green, P.C.
Post Office Drawer 790
Glenwood Springs, CO 81602

Re: Future Population Growth and Water Demand in Routt County

Dear Mr. Grosscup:

At your request, BBC Research & Consulting (BBC) has reviewed our previous economic and demographic growth projections and water demand forecasts for the Yampa Valley. We have also examined more recent information — including data from the 2000 Census, population estimates and forecasts developed by the Colorado State Demography Office (SDO), and water use estimates and projections from various sources. This letter summarizes anticipated future population growth and water demands in Routt County, focusing primarily on the county's unincorporated areas.

Background and Qualifications for this Assignment

BBC is a 39 year old economic research firm based in Denver. I am a Managing Director at BBC and currently lead BBC's water, natural resource and environmental economics practice. BBC has considerable experience and expertise in regional economic, demographic and water demand forecasting. We have produced long term forecasts for a wide range of entities such as the Denver Water Department, Colorado Springs Utilities, Garfield County, the Bear River Basin Advisory Group, the Wyoming Water Development Commission, and the Town of Paonia.

From 1996 through 1998, BBC developed projections of future economic and population growth and water demand for the overall Yampa River Basin on behalf of the Colorado River Water Conservation District, United States Fish and Wildlife Service, local government representatives in Moffat County and Routt County and other interested parties comprising the Yampa Management Team. These projections were accepted by consensus and incorporated into the Yampa River Fish Recovery and Water Management Plan. BBC's report, ***Yampa Valley Water Demand Study*** (June 30, 1998), was peer reviewed by Dr. John Loomis from Colorado State University prior to publication.

Recently, BBC developed long-term socioeconomic forecasts for several counties in northwest Colorado on behalf of the Associated Governments of Northwest Colorado (AGNC) and the Colorado Department of Local Affairs (DOLA). We also helped develop projections of energy-related water needs in the Yampa, White and Colorado River Basins for the Colorado River Basin Roundtable and Yampa/White/Green River Basin Roundtable. I directed BBC's work on both of these projects.

Routt County Population Growth Experience and Trends

Over the past 37 years, Routt County has experienced considerable development and population growth. From a population of less than 6,600 residents in 1970, the county has grown to over 23,000 residents as of 2007.[1] From 1970 through 1990, the county's population grew by an average of 3.9 percent per year, though some periods saw faster growth than others during that twenty year period. Since 1990, the county population has grown by an average of 2.9 percent per year.

Distribution of population growth within Routt County. Routt County includes four incorporated cities and towns—Hayden, Oak Creek, Steamboat Springs and Yampa. Historically, the fastest growing areas of Routt County have been the city of Steamboat Springs and the unincorporated portions of the county. The population of Steamboat Springs grew at an average annual rate of 5.4 percent per year from 1970 to 1990 and an average annual rate of 3.2 percent from 1990 to 2007. The population living in unincorporated Routt County increased at an average annual rate of 3.1 percent from 1970 to 1990 and grew at an average annual rate of 3.0 percent from 1990 to 2007.

While Steamboat Springs has historically captured the majority of the population growth in Routt County, the city's share of county population growth appears to be gradually declining. From 1970 through 1990, the city captured 58 percent of the total population growth in the county. From 1990 through 2007, the city's share declined to 54 percent. (From 2000 through 2007, the city captured 50 percent of the county's overall growth).

Conversely, the share of Routt County population growth taking place in unincorporated areas has been increasing. From 1970 to 1990, 30 percent of Routt County population growth occurred in unincorporated areas. From 1990 to 2007, 36 percent of county population growth took place outside of municipal areas. (From 2000 through 2007, 37 percent of the county's overall growth was in unincorporated areas).

Figure 1, on the following page, summarizes historic population growth for Routt County, the four municipalities within the county, and the unincorporated portions of the county.

[1] Table 5. Population for Colorado Counties and Municipalities. Colorado Division of Local Government, State Demography Office, November 2008.

Figure 1.
Population Growth in Routt County, 1970-2007

Historical Population Data	Hayden	Oak Creek	Steamboat Springs	Yampa	Unincorporated Areas	County Total
1970	763	492	2,340	286	2,711	6,592
1980	1,720	929	5,098	472	5,185	13,404
1990	1,444	673	6,695	317	4,959	14,088
2000	1,634	849	9,815	443	6,949	19,690
2007	1,869	978	11,502	504	8,207	23,060
Average Annual Growth Rates						
1970-1990	3.2%	1.6%	5.4%	0.5%	3.1%	3.9%
1990-2007	1.5%	2.2%	3.2%	2.8%	3.0%	2.9%
Shares of County Growth						
1970-1990	9.0%	2.0%	58.0%	0.0%	30.0%	100.0%
1990-2007	4.7%	3.4%	53.6%	2.1%	36.2%	100.0%

Source: U.S. Census Bureau; Colorado State Demography Office, 2008.

1990 to 2000 growth in unincorporated portions of Routt County. Between 1990 and 2000, the population of Routt County living in unincorporated areas increased by 1,990 residents. Based on comparison of 1990 and 2000 population by census tracts and census block groups, most of the growth in the unincorporated portions of Routt County occurred south of Steamboat Springs. The population living in unincorporated portions of southern Routt County (delineated in blue shading on Figure 2 on the following page) increased by 1,729 residents during the 1990s, accounting for almost 87 percent of total population growth in the county's unincorporated areas.

Figure 2.
Definition of Southern Routt County Area Based on Census Block Groups (area shown in blue)

Source: BBC Research & Consulting, 2008.

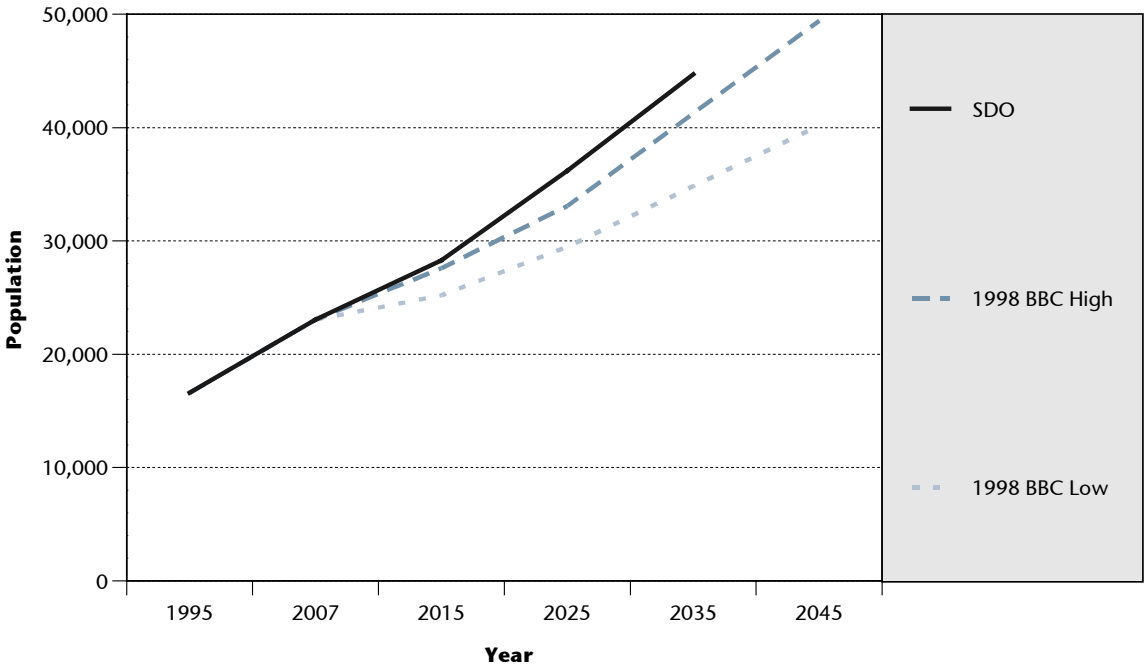
Future Growth Projections

As mentioned earlier, BBC performed an extensive study of the economy and economic prospects of the Yampa Valley (Routt County and Moffat County) during the mid to late 1990s. During that project, we evaluated the growth potential of each of the major components of the valley's economy and major water-using sectors. The Yampa Valley Water Demand Study resulted in a high and low scenario for Routt County population growth through 2025 and through 2045. In the 1998 final report, BBC projected that Routt County's population in 2025 would be between 29,500 and 33,100 residents and that the county population by 2045 would be between 40,190 and 49,450 residents.

The Colorado State Demography Office (SDO) produces the official population estimates for Colorado counties and municipalities for the years between the Census Bureau's decennial counts. The SDO also produces population projections for Colorado's counties. These projections are the official forecasts for state planning and funding distribution purposes. BBC is very familiar with the SDO's forecasts and methods and recently collaborated with the SDO in our socioeconomic study of northwest Colorado for AGNC and DOLA.

Based on the post-2000 population estimates for Routt County and the SDO's most recent population forecast for the county, it appears that BBC's forecasts from the late 1990s may underestimate future growth in Routt County. The SDO forecast (issued in 2008) anticipates 36,188 residents in Routt County in 2025—which exceeds the high scenario for county population growth from BBC's previous projections. The SDO forecasts end in 2035, at which time they anticipate 44,708 residents will live in the county. Figure 3 shows population growth in Routt County from 1995 through 2007 and provides a comparison of BBC's 1998 population forecasts with the most recent SDO forecasts.

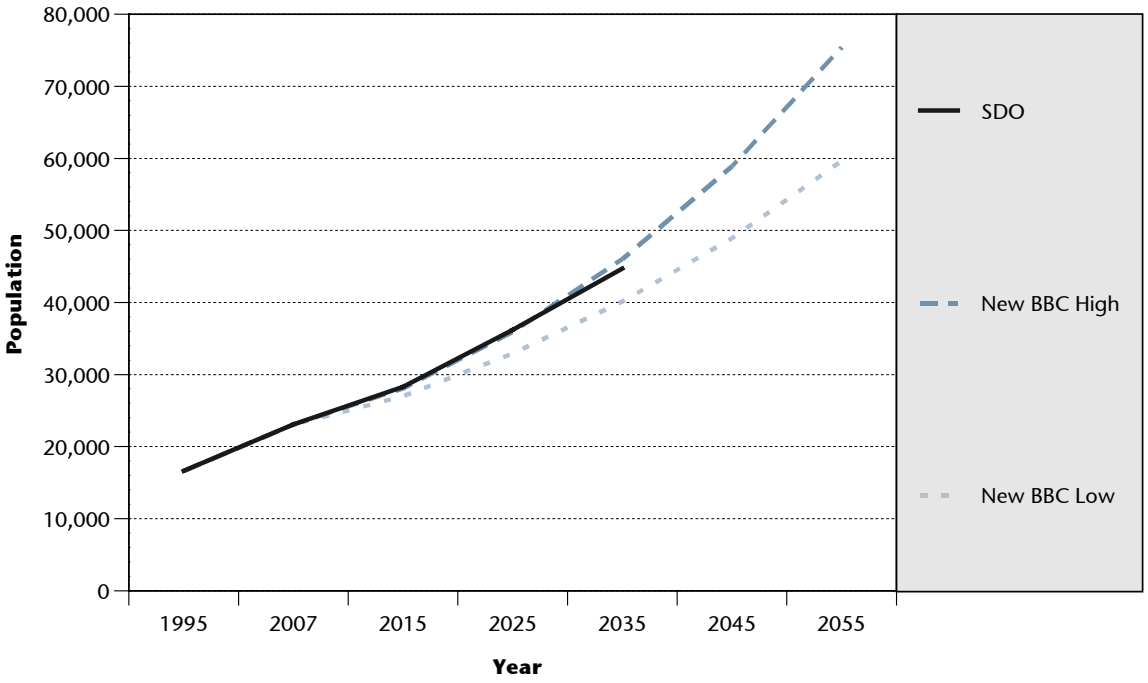
Figure 3.
Projected Routt County Population Totals: Yampa Valley Water Demand Study (1998) and Colorado State Demography Office (2008)



Source: BBC Research & Consulting, 1998; Colorado State Demography Office, 2008.

In light of the SDO's more recent assessment of future growth in Routt County, and recognizing that the SDO forecasts are intended to represent the most likely forecast of future population growth rather than a high or low scenario, we now anticipate that Routt County's population will grow at an average rate of between 2.0 and 2.5 percent per year over the long-term. These growth rates would lead to a total county population of between 60,000 and 75,000 residents by 2055. Figure 4, on the following page, depicts these updated population growth scenarios, along with the SDO's forecast for purposes of comparison.

Figure 4.
Updated Population Projections for Routt County



Source: BBC Research & Consulting, 2009; Colorado State Demography Office, 2008.

Locations of future growth. In the next few years, the City of Steamboat Springs is likely to capture a relatively large share of Routt County population growth due to both the redevelopment of the base area near the ski mountain and plans to promote urban-style development at West Steamboat. Over the longer-term, the development trends discussed earlier suggest that no more than 50 percent of future county population growth will occur within Steamboat Springs, about 10 percent will occur in the other incorporated municipalities in the county (Hayden, Oak Creek and Yampa), and at least 40 percent will take place in unincorporated areas. Applying these capture rates to the revised projections of future Routt County population summarized in Figure 4 indicates that between 23,000 and 29,000 residents will live in unincorporated portions of Routt County by 2055. Figure 5 summarizes projected future population growth in various parts of Routt County under BBC's revised projections.

Figure 5.
Potential Population Range in 2055*

Area	Low (2% AAGR)	High (2.5% AAGR)
Steamboat Springs**	29,801	37,692
Other Towns***	7,011	8,589
Unincorporated****	22,846	29,159
County Total	**59,658**	**75,441**

Notes: AAGR is an abbreviation for average annual growth rate.
* Based on updated BBC projections of total county growth.
** Assumes 50% of future growth will occur in Steamboat Springs.
*** Assumes 10% of future growth will occur in Hayden, Oak Creek and Yampa.
**** Assumes 40% of future growth will occur in unincorporated county.
Source: BBC Research & Consulting, 2009.

Comparing the population projections in Figure 5 with the estimated population totals within Routt County in 2007 (summarized in Figure 1) indicates a net increase in the population living in unincorporated Routt County of between 14,600 residents and 21,000 residents. As noted previously, most of the growth in unincorporated Routt County between 1990 and 2000 occurred south of Steamboat Springs. BBC anticipates that growth will continue in this area, but that a substantial portion of future growth in unincorporated Routt County will also occur to the west—between Steamboat Springs and Hayden.

Experience of Other Resort Regions

A number of other resort regions throughout the Rocky Mountain West are experiencing the same types of growth forces affecting Routt County. Initially driven primarily by skiing, scenic mountain regions have subsequently attracted growing numbers of residents and retirees interested in the year-round quality of life that they offer. Extensive development of second homes also continues to help fuel growth in resort area economies.

The experience of other resort regions provides broader perspective on long-term population growth. Some examples include Eagle County and Summit County in Colorado, as well as Blaine County, Idaho (Sun Valley) and Teton County, Wyoming (Jackson). These areas are high altitude locations with relatively modest amounts of developable land based around thriving resort centers, analogous to Routt County and Steamboat Springs.

Looking back a little more than 50 years to the 1950 Census, the population of Eagle County included 4,488 residents, with about 2,500 residents living in unincorporated areas. From 1950 to 2000, the population of Eagle County increased to almost 42,000 residents. The County's average annual population growth rate over the 50 year period was about 4.6 percent. During the same 50 year period, the population in unincorporated Eagle County increased from about 2,500 residents to over 21,000 people—an average annual growth rate of 4.4 percent. Rapid population growth in

Eagle County is expected to continue. Projections by the SDO indicate an expected Eagle County population of more than 97,000 residents by 2035.

Summit County has experienced the same type of population growth, albeit on a somewhat smaller scale. In 1950, the population of Summit County included 1,135 residents. By the year 2000, the Summit County population had reached 23,548, reflecting an average annual growth rate of about 6.3 percent. The population in Summit County's unincorporated areas increased from 513 in 1950 to almost 14,000 by 2000—an average annual increase of 6.8 percent. Like Eagle County, Summit County is also expected to continue to grow rapidly over the next 30 years. The State Demographer's projected population for Summit County in 2035 is over 55,000 residents.

The resort phenomenon is not limited to Colorado. Blaine County, Idaho—where the Sun Valley resort is located—grew from less than 5,400 residents in 1950 to almost 19,000 residents by 2000. Most of the growth in Blaine County has occurred within its 5 municipalities. Residents of unincorporated areas make up a little less than one-third of the county's total population. Teton County, Wyoming grew from less than 2,600 residents in 1950 to over 18,000 in 2000. Both the Town of Jackson and the unincorporated parts of the county have grown at an average rate of 4.0 percent per year over the 50 year period. About 53 percent of Teton County's population lives in unincorporated areas.

Projected Future Water Demands

Future growth in unincorporated portions of Routt County will require additional water resources for municipal and domestic (M&D) uses. Future water needs can be projected based on anticipated population growth (as described in the first part of this report) and projected water use per capita (referred to in the subsequent discussion as water use factors, gallons per capita per day or GPCD).

Routt County municipal and domestic water use per capita. Estimates and projections of water use per capita for the Routt County area are available from several sources.

During BBC's 1998 ***Yampa Valley Water Demand Study***, we projected future water demands for residential and commercial uses based on the following water use factors:

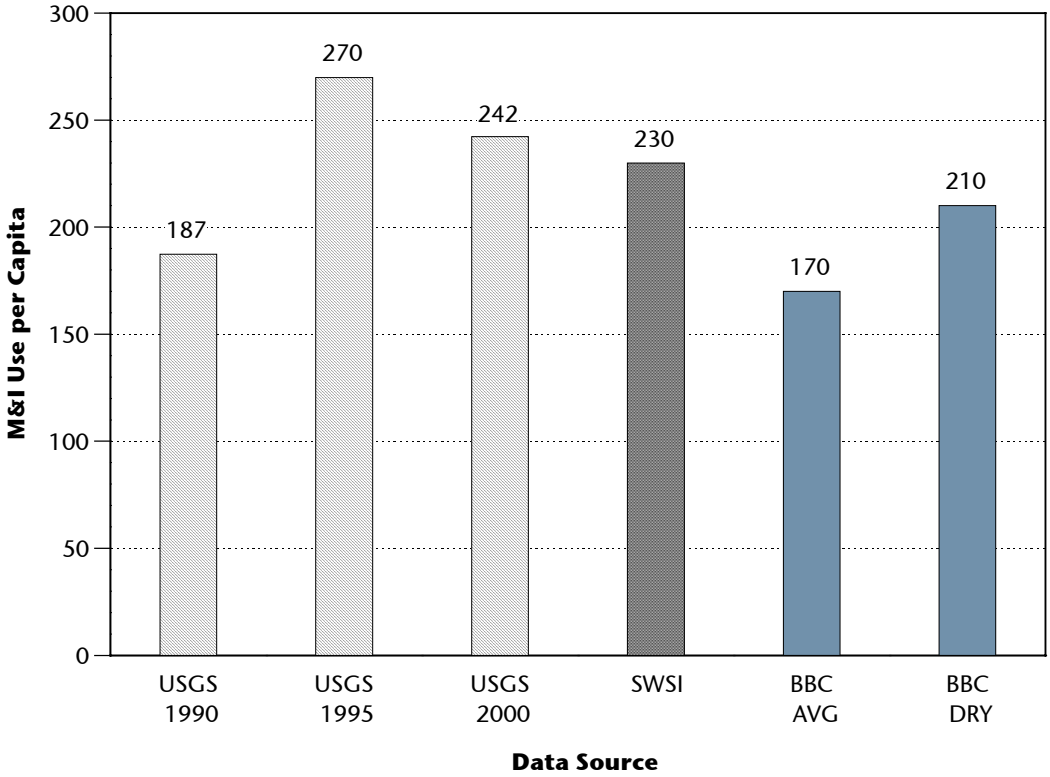
- Residential use under normal weather conditions 140 gallons per capita per day
- Total M&D use under normal weather conditions 170 gallons per capita per day
- Residential use under dry weather conditions 175 gallons per capita per day
- Total M&D use under dry weather conditions 210 gallons per capita per day

Historical water use data is available every five years from the United States Geological Survey's ***Estimated Water Use in the United States*** data series (USGS). The USGS estimates of combined municipal and domestic water use for Routt County were 187 gallons per capita per day (GPCD) in 1990, 270 GPCD in 1995 and 242 GPCD in 2000. USGS estimates of 2005 water use are expected to be available in early 2009, but are not yet published.

The Statewide Water Supply Initiative (SWSI) study commissioned by the Colorado Water Conservation Board developed projections of future municipal and industrial water use for each major river basin in Colorado. The SWSI projections for the Yampa/White river basins, published in 2004, used a municipal water use factor of 230 GPCD.

Figure 6 provides a graphic comparison of the water use factors from these various sources.

Figure 6.
Estimated and Projected Municipal and Domestic Water Use Factors for the Routt County Area



Source: BBC Research & Consulting, 1998; USGS, various years; Colorado Statewide Water Supply Initiative, 2004.

Compared to the USGS historic water use estimates and the SWSI projections, BBC's 1998 water use factors for municipal and domestic use are relatively low. This likely results from the fact that BBC's 1998 water demand estimates (and projections) were developed using population estimates for the "effective population" of Routt County. The effective population included an estimate of visitor population equivalents in addition to the permanent residents — recognizing that the large number of seasonal homes and temporary visitors in Routt County leads to additional water demands beyond the water use required by just the permanent residents. If the visitor population equivalents were not included, the water use factors from the 1998 study would have been higher.

Projected future municipal and domestic water demands in Routt County. To estimate the water needs of future Routt County residents, BBC multiplied the number of new residents projected to move into the area between 2007 and 2045 by the water use factors developed in our 1998 study. As suggested by the paragraph above, this produces a conservative (potentially low) estimate of future water needs—estimates based on historical water use data from USGS or the SWSI per capita water use projections would be larger.

Figure 7, on the following page, summarizes the projected future water needs of residents expected to move into Routt County between 2007 and 2055.

Figure 7.
Projected Increase in Municipal and Domestic Water Demand in Routt County, 2007 to 2055

	Low Growth Scenario	High Growth Scenario
Steamboat Springs		
Projected Additional Population (2007-2055)	18,300	26,200
Annual Water Needs Under Average Conditions		
M&D Water Use per Capita	170 GPCD	170 GPCD
Projected Water Needs (million gallons)	1,136 MG	1,626 MG
Projected Water Needs (acre-feet)	3,485 AF	4,989 AF
Annual Water Needs Under Dry Conditions		
M&D Water Use per Capita	210 GPCD	210 GPCD
Projected Water Needs (million gallons)	1,403 MG	2,008 MG
Projected Water Needs (acre-feet)	4,305 AF	6,163 AF
Other Routt County Municipalities		
Projected Additional Population (2007-2055)	3,650	5,250
Annual Water Needs Under Average Conditions		
M&D Water Use per Capita	170 GPCD	170 GPCD
Projected Water Needs (million gallons)	226 MG	326 MG
Projected Water Needs (acre-feet)	695 AF	1,000 AF
Annual Water Needs Under Dry Conditions		
M&D Water Use per Capita	210 GPCD	210 GPCD
Projected Water Needs (million gallons)	280 MG	402 MG
Projected Water Needs (acre-feet)	859 AF	1,235 AF
Unincorporated Routt County		
Projected Additional Population (2007-2055)	14,600	21,000
Annual Water Needs Under Average Conditions		
M&D Water Use per Capita	170 GPCD	170 GPCD
Projected Water Needs (million gallons)	906 MG	1,303 MG
Projected Water Needs (acre-feet)	2,780 AF	3,999 AF
Annual Water Needs Under Dry Conditions		
M&D Water Use per Capita	210 GPCD	210 GPCD
Projected Water Needs (million gallons)	1,119 MG	1,610 MG
Projected Water Needs (acre-feet)	3,434 AF	4,940 AF

Source: BBC Research & Consulting, 2009.

Under average year conditions, new residents of Steamboat Springs are expected to need between 3,500 and 5,000 acre-feet of additional supply for municipal and domestic purposes. Under dry year conditions, these new residents are projected to require approximately 4,300 to 6,200 acre-feet of additional water supply.

New residents in the other incorporated towns in Routt County are projected to need 700 to 1,000 acre-feet of additional water supply by 2055 under average year conditions. Under dry year conditions, these future residents of Hayden, Oak Creek and Yampa are anticipated to need as much as 1,235 acre-feet of additional supply by 2055.

Under average year conditions, new residents of Routt County's unincorporated areas are projected to need between 2,800 and 4,000 acre-feet of additional supply for municipal and domestic purposes. Under dry year conditions, these new residents could require approximately 3,400 to 5,000 acre-feet of additional water supply.

Other potential water demands in the Upper Yampa Water Conservancy District (UYWCD) service area. The 1998 ***Yampa Valley Water Demand Study*** also examined other types of water demands, including irrigation and livestock use, thermoelectric generation, mining, industrial, snowmaking and golf uses. The study projected that annual water diversions in the Yampa Valley under normal year water conditions could increase by as much as 31,000 acre-feet between 1995 and 2045 (from about 465,000 acre-feet to about 496,000 acre-feet). Much of this additional potential water demand was associated with possible increases in thermoelectric demand and mining water needs.

While these demands are more difficult to predict than growth in municipal and domestic demand, BBC's recent work in northwest Colorado to evaluate the socioeconomic and water demand implications of potential oil shale development reinforces the possibility that these demands could develop in the foreseeable future. The bulk of these additional demands would occur within the UYWCD service area, which includes the Craig Station power plant managed by Tri-State Generation and Transmission Association.

The 1998 study also quantified potential irrigation demands under high demand (dry year) conditions. The study found that agricultural demands could increase by more than 25 percent under dry year conditions (from about 409,000 acre-feet to 520,000 acre-feet) if sufficient water supplies were available to Yampa Valley irrigators.

Information Considered for this Report

I examined the following documents in the course of preparing this letter.

Census 2000 Summary Tape File 1. U.S. Census Bureau. Accessed via the American Community Survey web site, 2008.

Census 1990 Summary Tape File 1. U.S. Census Bureau. Accessed via the American Community Survey web site, 2008.

Estimated Use of Water in the United States, County-level Data Files for 1990, 1995 and 2000. United States Geological Survey. Accessed via USGS web-site.

Population for Colorado Counties and Municipalities. Colorado Division of Local Governments, State Demography Office. Prepared in 2008, accessed via State Demography Office web site, 2009.

Preliminary Population Forecasts by County: 2000 to 2035. Colorado Division of Local Governments, State Demography Office. Prepared in 2008, accessed via State Demography Office web site, 2009.

Statewide Water Supply Initiative: Section 5, Projected Water Use. Prepared by CDM for the Colorado Water Conservation Board. 2004.

Yampa Valley Water Demand Study. Prepared by BBC Research & Consulting for the Recovery Program for Endangered Fishes of the Upper Colorado River; Yampa Fish Recovery and Water Management Plan and the Yampa River Project Management Team. 1998.

We hope you find this information helpful. Please let us know if you have any questions.

Sincerely,

Doug Jeavons
Managing Director

ATTACHMENT 5

SUMMARY OF WATER QUALITY ASSESSMENT

Morrison Creek Dam Feasibility Study
URS 2008

Prepared by:
Resource Engineering, Inc.
909 Colorado Avenue
Glenwood Springs CO 81601
(970) 945-6777
www.resource-eng.com

February 23, 2009

1. Water Quality Sampling

URS Corporation (URS) developed a general sampling and analysis plan and initiated a water quality assessment study in the Morrison Creek drainage area with the objective of evaluating the treatability of Morrison Creek water for drinking water purposes. In addition, supplementary samples were obtained for a particle size analysis of suspended sediment loads at Morrison and Silver creeks in order to assess the potential impact on reservoir sedimentation and the need for drinking water treatment.

Water quality samples were collected at three different sites within the Morrison Creek watershed, two on Morrison Creek and one on Silver Creek. Sampling site MC-1 is located on the Morrison Creek approximately 1,800 feet downstream of the confluence of Morrison and Silver creeks. Site MC-2 is located on the Morrison Creek approximately 100 feet upstream of the confluence with Silver Creek. The remaining sampling site, identified as SC-1, is located on Silver Creek approximately 100 feet above the confluence with Morrison Creek. The location of the three sampling sites is depicted in Figure 1 of this attachment.

Water quality samples were collected at these sites by URS personnel; Kevin McBride, the Upper Yampa Water Conservancy District's Manager was also present during the first sampling event. On April 14, 2008 and on June 4, 2008 water quality samples were obtained from the MC-1 site. Due to the presence of ice and snow during the April 14, 2008 sampling visit, water quality samples for the MC-2 and SC-1 sites were obtained only for the June 4, 2008 site visit. Flow measurements corresponding to these dates were not reported by URS.

2. Water Quality Results

Water quality samples were analyzed by Evergreen Analytical (EA) Laboratories and results were compared to standards included in the National Primary Drinking Water Regulations (Primary Standards). The primary standards are legally enforceable standards that apply to public water systems to protect public health by limiting the levels of contaminants in drinking water. Results were also compared to National Secondary Drinking Water Standards (Secondary Standards), which are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The Environmental Protection Agency (EPA) recommends secondary standards to water systems but does not require systems to comply (EPA, 2002). However, the standards to which these results were compared are subject to change and regulation by the Colorado Department of Public Health and Environment (CDPHE).

A letter report by URS (URS WQ Report)[1] summarizes the results for those parameters that exceeded either the primary or secondary standards. Table 1 displays a comparison of water quality results against primary and secondary standards. A brief discussion of each parameter that exceeded the EPA standards follows below:

- Color: The analysis of samples collected at the MC-1 site on April 14, 2008 indicates that the National Secondary Standard for water color was exceeded by 5 color units. However, the URS WQ Report notes that Morrison Creek appeared to be stagnant at the time of this sampling event. Additionally, it is likely that a simple water treatment, such as filtration, will reduce the value of this analyte below the recommended Secondary Standard.

- Aluminum: Samples collected at all three sites during the June 4 of 2008 site visit exceeded the concentration recommended by EPA Secondary Standards. The EPA recommends that Aluminum in drinking water does not exceed 0.2 mg/L because of taste and odor problems. Aluminum is the third most abundant element in the Earth's lithosphere and its compounds are often found in natural waters, especially at low pH waters (Weiner, 2000)[2]. Morrison and Silver creeks measured pH values between 5.74 and 6.36 at the time of the water sampling events. Chemical coagulants, such as ply-aluminum chlorides may be used to treat and reduce the aluminum concentration in drinking water.

- Iron: Results from all water samples collected at the three sites exceeded the Secondary Standards. The recommended level was surpassed by up to 600% for the June 4, 2008 sample obtained at the MC-2 site (upstream of the confluence with Silver Creek). Iron is naturally released into waters by weathering of igneous, sedimentary, and metamorphic rocks. It also comes from several human sources, from mineral processing and acid-mine drainage to sewage and landfill leachate. Iron is not normally considered a toxic substance. Water treatment alternatives include microfiltration, reverse osmosis, aeration and lime precipitation (Weiner, 2000).

- Total Coliform and E. Coli: EPA Primary Standards indicate that every sample with a positive total coliform result must be analyzed for either fecal coliforms or E. Coli. EAL Laboratories reported a count of 3 colonies per mL (CFU/mL) for the MC-1 sample taken on April 14, 2008. Water samples obtained on June 4, 2008 were analyzed for E. Coli. Results corresponding to both Morrison Creek sites tested

[1] URS Letter Reports, July 18, 2008 - RE: Morrison Creek Sampling Results and October 22, 2008 – RE: Water Quality Assessment.
[2] Weiner, Eugene R., 2002. Applications of Environmental Chemistry. ISBN 1-56670-354-9

positive for E. Coli. Fecal coliform and E. Coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Drinking water can be treated using chlorine, ultra-violet light, or ozone.

- Radionuclides: Water samples collected during the June 4, 2008 site visit were analyzed for radionuclides (Alpha and Beta particles, Radium 226, and Radium 228). The concentrations of Alpha particles, Radium 226, and Radium 228 in the water samples obtained at the three sites exceeded the Secondary Standards; however, detected levels for these parameters were below those required by the Primary Standards. This indicates that there are no potential health effects associated with concentrations of Alpha particles, Radium 226, and Radium 228 present in Morrison and Silver Creeks. The concentration of Beta particles is reported as Gross Beta in picocuries per liter without the corresponding conversion to millirems; therefore, compliance with the EPA Primary Standards for this parameter cannot be determined. To avoid this situation with future sampling results, Beta particles should be reported in millirems/year; alternatively, the laboratory report should include the concentration of each Beta particle and photon emitter. It is recommended that Morrison and Silver Creeks continue to be tested for radionuclides in the future.
- Uranium: 1.15 μg per liter (μg/L) of uranium were detected during the analysis of water sampled at MC-1 on April 14, 2008. The Secondary Standard for this parameter is 0 and the Primary Standard for uranium is 30 μg/L. Exposure to a concentration of 1.15 μg/L should not result in potential risks to human health. Furthermore, uranium was not detected in the analyses of water samples collected on June 4, 2008.

In addition to water quality analyses by EA Laboratories, Phillips Enterprises performed a particle size analysis (PSA) of suspended solids. Samples were obtained at the MC-2 and SC-1 sites on June 6, 2008 utilizing a US DH-48 Depth Integrating Suspended-Sediment Sampler. Results from the PSA indicate that during the high flow season Morrison Creek's suspended sediment load is approximately 3 times higher than that corresponding to Silver Creek (79.6 mg/L to 29.5 mg/L). This is consistent with field observations of a Morrison Creek more turbid than Silver Creek and with Total Suspended Solids concentrations reported by EA Laboratories.

The URS letter reports contain tables with the complete list of laboratory results including the particle size analysis. Additionally, the reports include a detailed Sampling and Analysis Plan for water quality and suspended sediment load. A copy of the URS letter reports may be obtained from the Upper Yampa Water Conservancy District.

Table 1. Water Quality Results for Selected Parameters

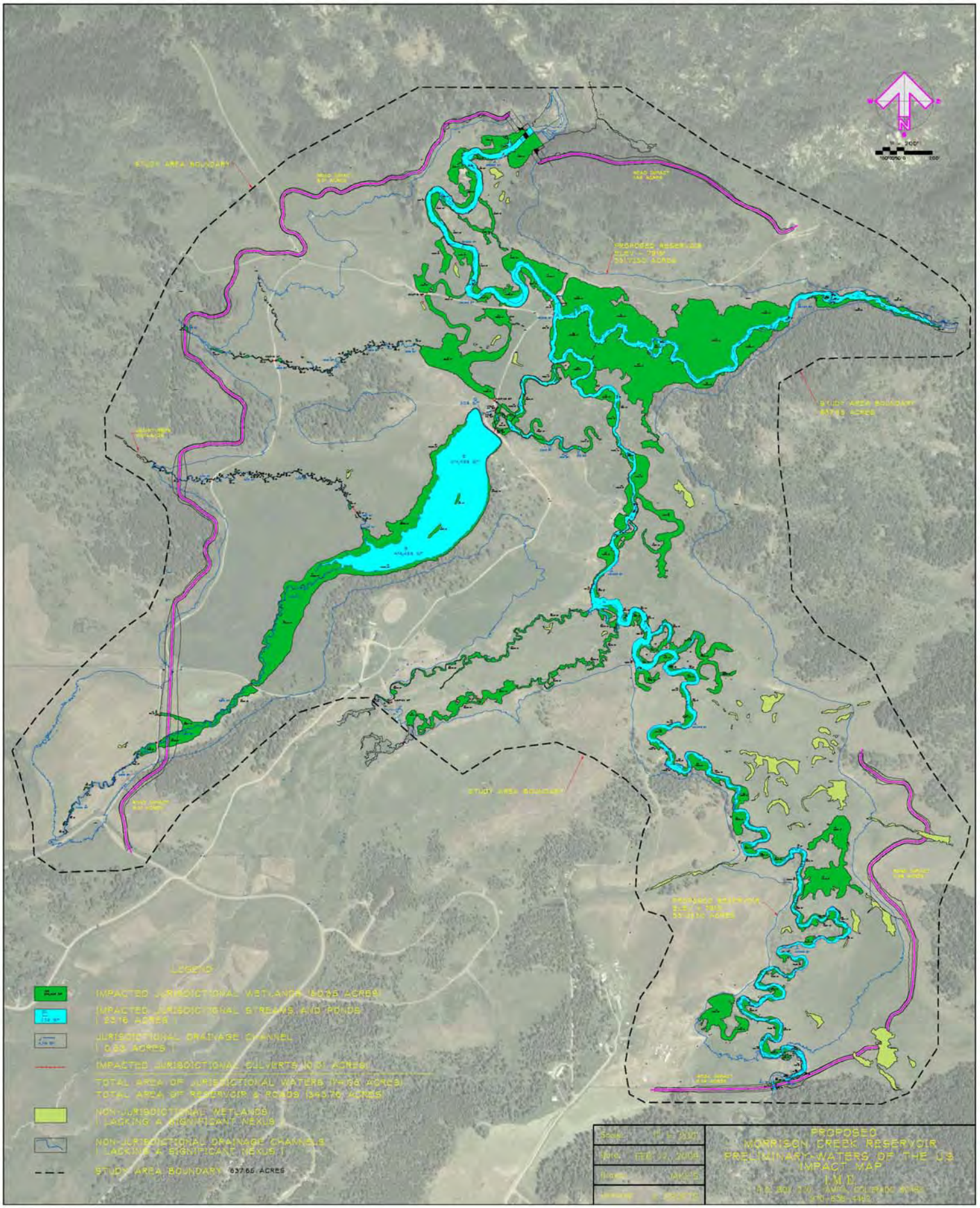
Parameter	Primary Standard	Secondary Standard	Units	Sampling Date: 04/14/2008			Sampling Date: 06/04/2008			Minimum Detection Level
				MC-1	MC-2	SC-1	MC-1	MC-2	SC-1	
Color	N/A	15	Color units	20	NS[1]	NS[1]	NR[2]	NR[2]	NR[2]	2
Aluminum	N/A	0.05 - 0.2	mg/L	0.182	NS[1]	NS[1]	0.874	1.73	0.216	0.01
Iron	N/A	0.3	mg/L	0.462	NS[1]	NS[1]	1.04	2.26	0.318	0.01
Total Coliforms	5%[3]	0	CFU/100 mL	3	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	-
E. Coli	5%[3]	0	CFU/100 mL	NS[1]	NS[1]	NS[1]	8	80	<2	-
Gross Alpha	15	0	pCi/L	NS[1]	NS[1]	NS[1]	3.1	3.3	0.5	-
Gross Beta	4	0	millirems/year	NS[1]	NS[1]	NS[1]	2.2	4.6	0.7	-
Radium 226 and Radium 228 (combined)	5	0	pCi/L	NS1	NS[1]	NS[1]	1.5	1.1	1.3	-
Uranium	0.03	0	mg/L	0.00115	NS[1]	NS[1]	ND[4]	ND[4]	ND[4]	0.00009
Total Suspended Solids	N/A	N/A	mg/L	ND[4]	NS[1]	NS[1]	36	59.2	ND[4]	2

Notes:
NS[1]: Site not sampled.
NR[2]: Parameter not reported.
5%[3]: EPA requires that no more than 5.0% of the samples have a total coliform-positive per month (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month).
ND[4]: Not detected (the parameter was not present at concentrations at or above the Method Detection Limit.

ATTACHMENT 6

I.M.E. PRELIMINARY WATERS OF THE U.S. IMPACT MAP

Morrison Creek Reservoir



UYWCD Exhibit 5

RESOURCE ENGINEERING INC.

Linda Bassi, Esq
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

July 7, 2010

RE: Request for Permission to Inundate a Portion of Silver Creek
Water Division No. 6, CWCB Case No. 77CW1328

1.0 INFORMATION

On behalf of the Upper Yampa Water Conservancy District (District), Resource Engineering, Inc. (RESOURCE) submits this request for permission to inundate a portion of the Colorado Water Conservation Board's (CWCB) instream flow water right (ISF) decreed on Silver Creek in Case No. 77CW1328, Water Division No. 6. This request for inundation is made pursuant to the provisions of 2 CCR 408-2, Section 7 and in fulfillment of certain terms and conditions contained in the District's Stipulation and Agreement entered into with the CWCB in Case Nos. 07CW61 and 07CW72, consolidated.

This request to inundate a portion of Silver Creek is necessitated by the District's plans to construct the Morrison Creek Reservoir. The reservoir's dam is located on Morrison Creek approximately 0.5 river miles downstream of its confluence with Silver Creek. The resulting storage pool would potentially cause inundation of approximately 3,720 feet of lower Silver Creek. The CWCB's Silver Creek ISF that is the subject of the request is decreed for 5.0 cfs and extends from its confluence with Morrison Creek upstream a distance of approximately 12 miles to its confluence with the South Fork of Silver Creek. The location of the planned Morrison Creek Reservoir and the CWCB's affected ISF right is shown in Figure 1, attached.

1.1 Background Information

The District was formed under the Water Conservancy Act of the State of Colorado by decree of the Routt County District Court in Civil Action 3815 on March 8, 1966. The District's purpose was and 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 is authorized to appropriate water rights and initiate and implement plans for augmentation for the benefit of water users within the District's boundaries. C.R.S. §§ 37-45-118 and 37-92-302(5). The construction and operation of the planned Morrison Creek Reservoir is an authorized use under the State's Water Conservancy Act.

Application and Decree. The District filed two applications for water storage rights on Morrison Creek in 07CW61 and 07CW72. In Case No. 07CW61, the District requested to change a portion of its conditional storage right associated with the Pleasant Valley Reservoir and Feeder Canal to an upstream location on Morrison Creek for beneficial uses within its service area and/or delivery to nearby Stagecoach Reservoir. In Case

No. 07CW72, the District requested a new storage right for the Morrison Creek Reservoir in the same location on Morrison Creek and for the same purposes as described in 07CW61. The application for a new junior right was filed by the District as a backup to its request for a change in the location of a portion of its Pleasant Valley Reservoir at the upstream Morrison Creek site. The water court subsequently consolidated the two cases due to their similarities.

Opposition was filed to the two applications by several individuals, the State and Division Engineer, and the CWCB. The District subsequently entered into stipulations with the parties and obtained a final decree from the court awarding storage rights on Morrison Creek of up to 10,620 acre feet (AF) associated with its Pleasant Valley Reservoir and Feeder Canal water rights. By stipulation with the parties, the District's application in Case No. 07CW72 was dismissed. As part of its Stipulation and Agreement entered into with the CWCB, the District agreed that prior to inundating any of the CWCB's instream flow right on Silver Creek it would request and obtain approval from the CWCB for such storage and partial inundation of Silver Creek pursuant to the provisions of 2 CCR 408-2, Section 7. This request by the District is made in fulfillment of this agreement.

The District delayed its pursuit of this inundation request in order to facilitate a coordinated discussion between the numerous State, local and federal agencies that would be involved in permitting the project. While that process is ongoing, the District has decided to pursue this request at this time as a result of conversations with CWCB staff and the CWCB's current instream flow request on Morrison Creek (CWCB ID: 10/6/A-003.).

2.0 PURPOSE AND NEED

The purpose of the Morrison Creek Reservoir is to help firm the storage supply in the District's nearby Stagecoach Reservoir and/or provide direct reservoir release for domestic, municipal, irrigation, and other uses to its constituents and contractees within its service area. The District's service area covers nearly all of Routt County and a portion of Moffat County. It extends from the headwaters of the Yampa River and its tributaries downstream to an area just south and west of the City of Craig. The Morrison Creek Reservoir is an "indentified project" to meet the objectives of the CWCB's "Water for the 21st Century" initiative.

The District has existing contract commitments in its Stagecoach Reservoir for delivery of approximately 13,000 AF annually. It also has adjudicated an area-wide augmentation plan, approved by the court in Case No. 06CW49, to provide for additional contracts in the amount of up to 2,000 AF of annual releases for augmentation to additional District contractees (total storage commitment of 15,000 AF). Hydrologic studies completed by the District conclude that the firm yield of water available for storage in Stagecoach Reservoir is approximately 9,247 AF annually, 5,753 AF short of the District's existing contract pool totals. Construction of the Morrison Creek Reservoir is planned to help firm the yield of Stagecoach Reservoir by importing water from the adjacent Morrison Creek basin into Stagecoach during dry year conditions. This imported supply would not otherwise have been available to Stagecoach Reservoir and

therefore helps firm its dry year yield. Modeling by RESOURCE has estimated that the Morrison Creek Reservoir has potential to improve the yield of Stagecoach Reservoir by approximately 5,300 AF annually. Thus, there is an existing need to construct the Morrison Creek Reservoir. The delivery of water to Stagecoach Reservoir will be made by pipeline and/or ditch across the Morrison Divide and further pipeline, ditch, and/or use of the stream channel of Little Morrison Creek for conveyance to Stagecoach Reservoir.

In addition to importing Morrison Creek water into Stagecoach Reservoir for project firming, some additional water supply would be available for release from Morrison Creek Reservoir for benefit of future users. Water demand for domestic, irrigation, commercial, and municipal uses in the Upper Yampa Basin within Applicant's service area will increase in the future. The District has an identified planning period of 50 years. During that period, the demands for water under the District's existing contracts and anticipated future contracts are expected to increase because of changes in water rights administration requiring contractees to use more water directly or by exchange and growth within the individual service areas. As a result, the reservoir will provide local economic benefits as it will help support continued residential and industrial development within Routt and Moffat Counties. The development of additional water for these purposes would facilitate development of Colorado's allotment of interstate waters.

3.0 RESERVOIR IMPACT ON SILVER CREEK ISF

This section addresses the requirements of 2 CCR 408-2, Section 7e: Required Information. It includes information concerning the location, size, and impact of the proposed inundation on the CWCB's Silver Creek ISF.

3.1 Location and Size of Inundation

The location of the planned Morrison Creek Reservoir is generally shown in Figure 1, Morrison Creek Reservoir Vicinity Map. Figure 2 provides the reviewer with additional detail of the planned reservoir site and possible inundation. As summarized in Figure 2, the Morrison Creek Reservoir, at the planned high water elevation of 7,915 feet, will impound approximately 4,965 AF and inundate 330 acres of land. Of this amount, 25.6 acres of lower Silver Creek will be inundated. Thus, approximately 7.7 percent of the reservoir's surface area is associated with the Silver Creek vicinity and is the subject of this inundation request.

3.2 Impact of Inundation on CWCB ISF and Natural Environment

Figure 3 provides additional detail concerning the potential impact of the Morrison Creek Reservoir inundation of Silver Creek. The inundation will directly impact approximately 3,720 linear feet of lower Silver Creek. This represents approximately 5.8 percent of the total 12 mile ISF reach. Information available from CWCB staff reports indicates that fishing surveys within the region have found a naturally reproducing brook trout

(Salvelinus fontinalis) population[1]. In addition, cutthroat trout (Oncorhynchus clarki) and rainbow trout (O. mykiss) have been reported in the area by Larson, et al.

Figure 3 displays that there is potential to inundate approximately 100 feet of Silver Creek within the National Forest Wilderness Area. However, additional boundary surveys of this area are planned and such survey might conclude that the inundation does not impact wilderness areas. In any event, inundation within the wilderness area will be avoided unless specifically authorized pursuant to federal law.

Section 404 Permit. The diversion and storage of water into the Morrison Creek Reservoir will also require a number of permits and approvals at the federal, state, and local levels prior to construction. At the federal level, a Section 404 Permit under the Clean Water Act will be required from the U.S. Army Corps of Engineers (Corps). To help determine the probability of whether or not a Section 404 Permit could be obtained for the Project, the District completed a wetlands investigation of the Morrison Creek Reservoir site. The District retained the services of IME, a company specializing in wetland evaluation and permitting. During a 15 day period between April 14, 2008, and November 6, 2008, IME identified and mapped wetland species within the study area. The level of investigation, although detailed, is considered preliminary and additional studies will be necessary in the future.

The field delineation methods used in the IME wetland delineation are those described in Vegetation Sections of the 1987 ***Corps of Engineers Wetlands Delineation Manual,*** specifically: *Step 7 – Characterize Each Plant Community Type, Step 9 – Determine Whether Hydrophytic Vegetation Is Present,* and *Step 18 – Establish a Baseline as Defined in the Routine – Onsite Inspection Methodology*. No formal wetland sample plots or field data sheets were evaluated in this initial evaluation. The primary emphasis in the initial wetland delineation was to identify dominant plant species along the wetland boundary as outlined in Step 7 of the Corps Manual.

Once the wetlands were identified, IME surveyed their location using GPS units capable of sub-meter accuracy. The data files were downloaded and inserted into 2 foot contour interval topographic mapping and the potential acres of impacts calculated. Based upon this study process the following findings were made:

1. Three wetland community types were identified within a 637.6 acre study area including:
    a. Tall Shrub Wetland Plants,
    b. Mid-height Herbaceous Wetland Plant, and
    c. Short Herbaceous Wetland Plants.
2. Within the entire study area, 50.3 acres of jurisdictional wetlands could be impacted by the Project.
3. Within the smaller Silver Creek study area there are approximately 16.5 acres of jurisdictional wetlands that could be impacted (Figure 3).
4. No fens or organic soils were found anywhere within the study area.

[1] CWCB Staff ISF Executive Summary Report for Morrison Creek (Lower Segment), undated

5 The investigation found no potential threatened, endangered, or sensitive plant species that could occur on this site.
6 IME determined that there were no specific fatal flaws relative to this site.

Threatened and Endangered Species. Under the Section 404 process, the Corps will complete a NEPA review of the Project merits. As part of its review, the Corps is required under the Endangered Species Act of 1973 to protect threatened and endangered species and their habitat. The effect of this Act is that the Corps, as part of the NEPA process, will review the project to determine if the proposed action will affect any species which are listed under the Endangered Species Act. Additionally, the Corps must review a list maintained by the Colorado Division of Wildlife (CDOW) that includes species of special concern, which are not legally protected but are considered when assessing impacts. During the evaluation of threatened, endangered, and other species of concern, the Corps will undergo formal consultation with the United States Fish and Wildlife Service (USFWS) as required by Section 7 of the Act.

The USFWS has previously determined that existing water depletions are adversely impacting four endangered fish species in the Yampa River basin. The four endangered species include: Colorado Pike Minnow, Razorback Sucker, Humpback Chub, and Bonytail Chub. Due to poor conditions that currently exist, the USFWS has determined that depletions associated with future water development projects may jeopardize the continued existence of the four fish species.

In 2005, the USFWS, in cooperation with the State of Colorado, prepared a Programmatic Biological Opinion (PBO) regarding the four endangered fish species in the Yampa River[2]. The PBO sets forth specific recovery actions designed to aid in the recovery of the four fish species while allowing water users in the Yampa River to develop new depletions estimated to be up to 53,000 AF per year. Under the PBO, new water projects involving depletions of more than 100 AF per year require signing of a Recovery Agreement and payment of a one time fee to fund recovery efforts under the USFWS's "Management Plan for Endangered Fishes in the Yampa River Basin and Environmental Assessment."[3] By signing the Recovery Agreement, the water users simply agree not to interfere with implementation of recovery actions under the management plan.

The potential stream depletions associated with the Morrison Creek Reservoir fall under the umbrella of the Programmatic Biological Opinion prepared by the USFWS. Because the depletions will exceed 100 AF per year, the District will have to formally recognize and sign the Recovery Agreement and pay a one-time fee to fund various recovery actions. As of 2006, the required fee was $16.67 per acre foot. Thus, for example, if the total stream depletions associated with the Project were estimated to be 1,000 AF, a one-time payment of $16,670 would be required. The exact amount of Project

[2] U.S. Fish and Wildlife Service (USFWS), 2005. Final Programmatic Biological Opinion on the Management Plan for Endangered Fishes in the Yampa River Basin. USFWS Mountain-Prairie Region (6), Lakewood, Colorado.
[3] Roehm, G.W., 2004. Management Plan for the Endangered Fishes in the Yampa River Basin and Environmental Assessment. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Lakewood, Colorado, 214 pages.

depletions are not known at this time. Not all of the reservoir storage will actually be depleted as much of the water will eventually return to the Yampa River basin as treated effluent or irrigation return flows. The actual depletions will depend upon the end use and will be assessed during the District's continuing review of the Morrison Creek Reservoir.

Cultural Resource. When a federal agency permits an activity that may affect cultural resources, the agency must consult with Colorado's State Historic Preservation Officer. State Agencies also become involved when the activity involved a nominated or listed State Registered property. The process involves the following three steps:

1. Evaluating the eligibility of the cultural resources.
2. Determining effects of proposed work on eligible or listed properties.
3. Seeking alternatives to avoid, minimize, or mitigate effects to such.

A 1993 study assessing a potential reservoir site on Morrison Creek downstream of the proposed Project did locate a number of isolated archaeological sites in the basin[4]. No determinations were made as to their eligibility to the National Register. These sites, as well as other potential sites in the study area, will be examined as part of a new archaeological survey.

4.0 PROPOSED MITIGATION

To help offset the inundation of a maximum of 3,720 linear feet of Silver Creek due to construction of the planned Morrison Creek Reservoir, the District will provide the following mitigation:

1. The District will work with CWCB staff and the Colorado Division of Wildlife to develop a reservoir management plan specific to Morrison Creek Reservoir. Such plan shall identify desirable fish species and set forth procedures to introduce and maintain populations in the reservoir.

2. The District will maintain minimum bypass flows on Morrison Creek below the planned Morrison Creek Reservoir. Presently, there are no ISF rights on Morrison Creek; however, the CWCB has declared its intent to appropriate new ISF rights on Morrison Creek in amounts of 13.2 cfs (April 1 – August 15) and 8.1 cfs (August 16 – March 31). If decreed, the CWCB ISF rights would be junior in priority to the Morrison Creek Reservoir. Under its mitigation proposal, the District would forego storage opportunities as necessary and agree to bypass the lesser of the recommended ISF water right or the natural flow of Morrison Creek.

In addition to the proposed mitigation measures, the District will also be required to meet the requirements of other state, local, and federal agencies' permitting requirements

[4] Hydrosphere Resource Consultants, 1993. Yampa River Basin Alternatives Feasibility Study Final Report. Colorado River Water Conservation District, Colorado Water Conservation Board, U.S. Bureau of Reclamation, Boulder, Colorado.

made at the time of application for the Morrison Creek Reservoir. This includes the COE wetlands (404), CDPHE's water quality certifications (401), USEPA 403b reviews, Federal Energy Regulatory Commissions (FERC) review, and Routt County's 1041 process.

We trust that this letter contains sufficient information to assess the District's request to inundate a portion of Silver Creek. Should you have any questions or require additional information, please do not hesitate to contact us.

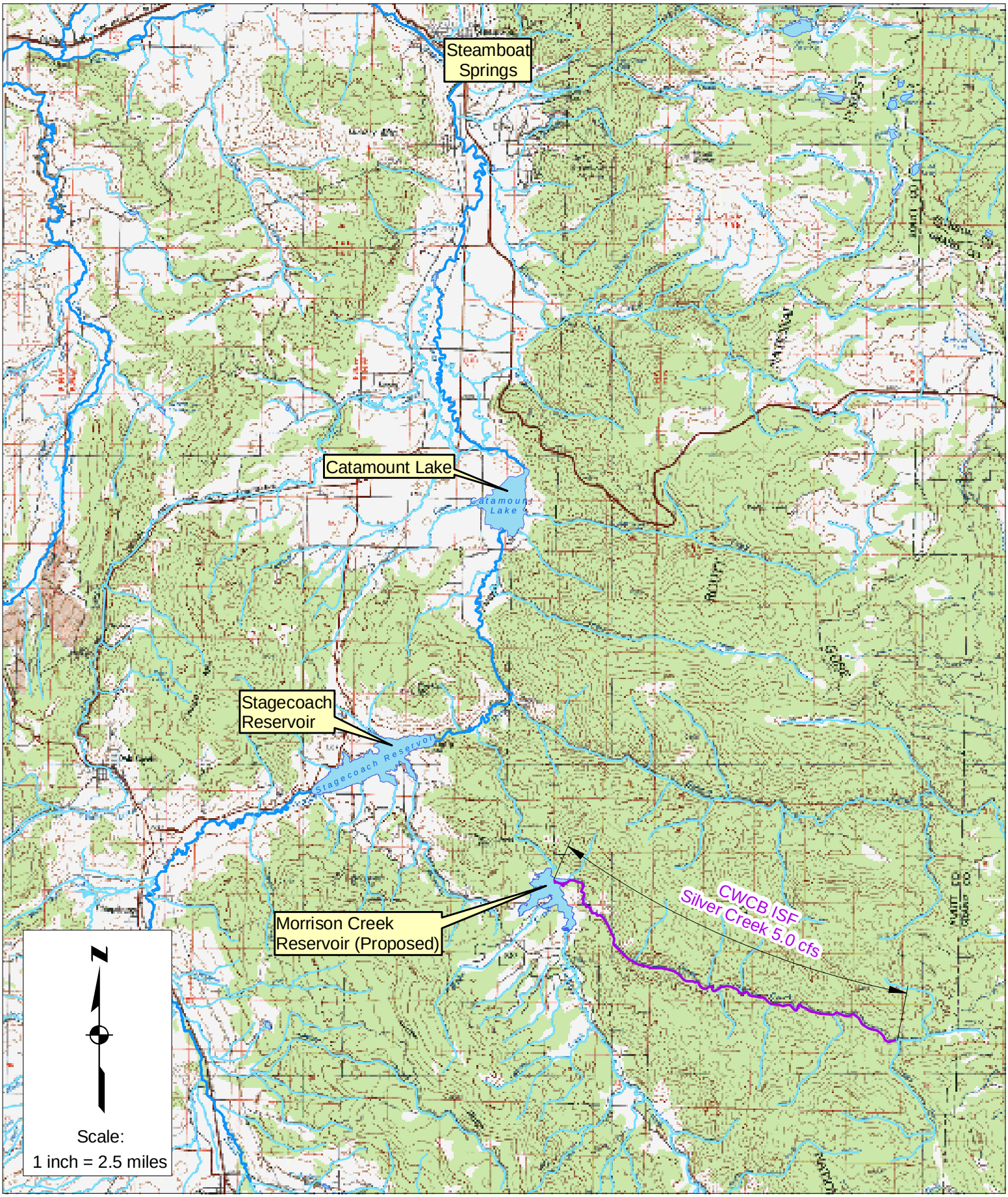
Sincerely,

RESOURCE ENGINEERING, INC.

R. Scott Fifer
Hydrologist

RSF/ll
1047-7.2.1

cc: Kevin McBride
David Hallford



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Glenwood Springs, CO 81601
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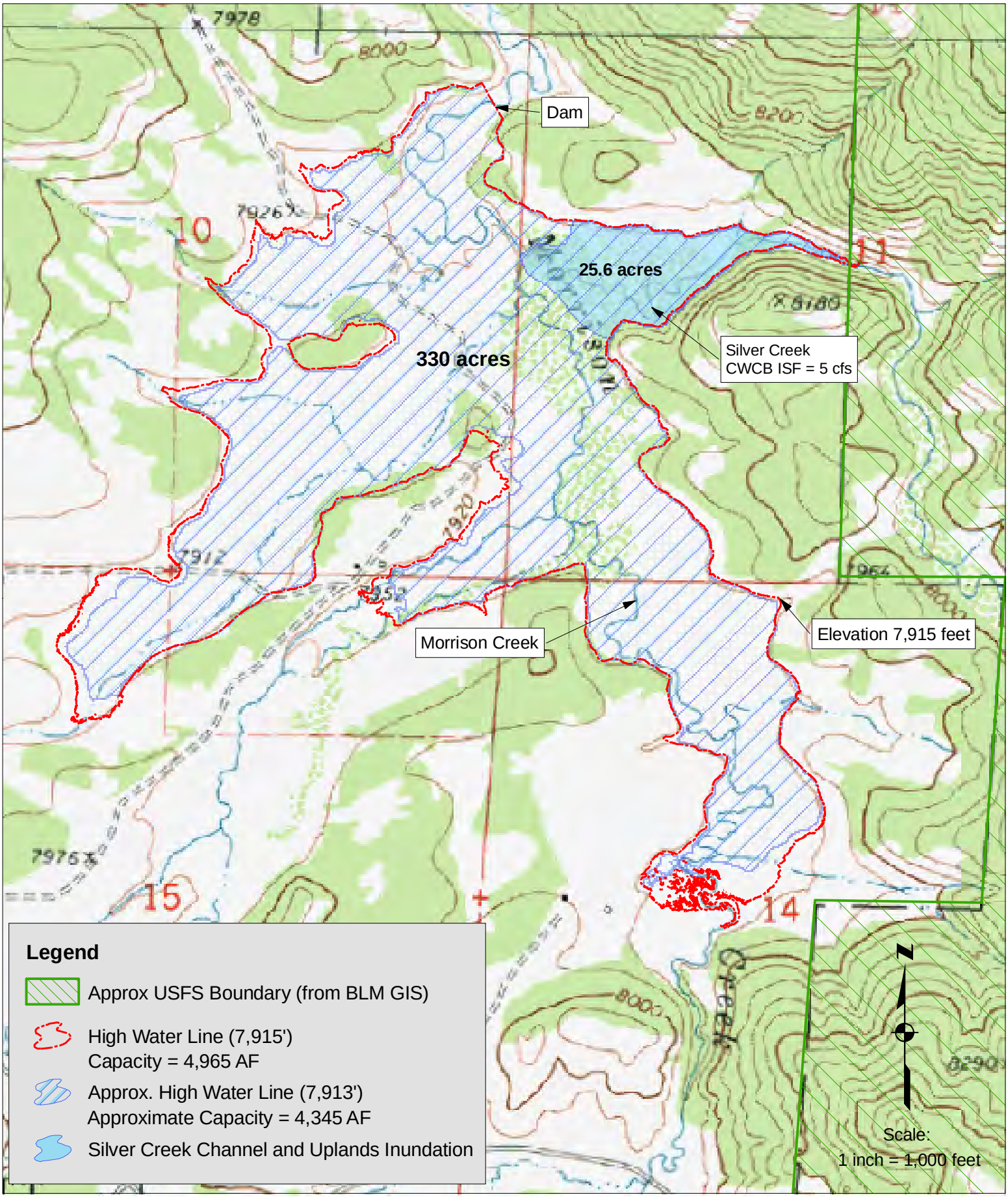
UPPER YAMPA WATER CONSERVANCY DISTRICT

FIGURE 1
Vicinity Map
CWCB Silver Creek ISF
Morrison Creek Reservoir

Date: 7/06/2010
File: 1047-7.0
Drawn by: RP
Approved by: RSF

UYWCD Exhibit 6



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UPPER YAMPA WATER CONSERVANCY DISTRICT

FIGURE 2
Morrison Creek Reservoir
CWCB Inundation Request

Date: 7/06/2010
File: 1047-7.0
Drawn by: RP
Approved by: RSF

UYWCD Exhibit 6

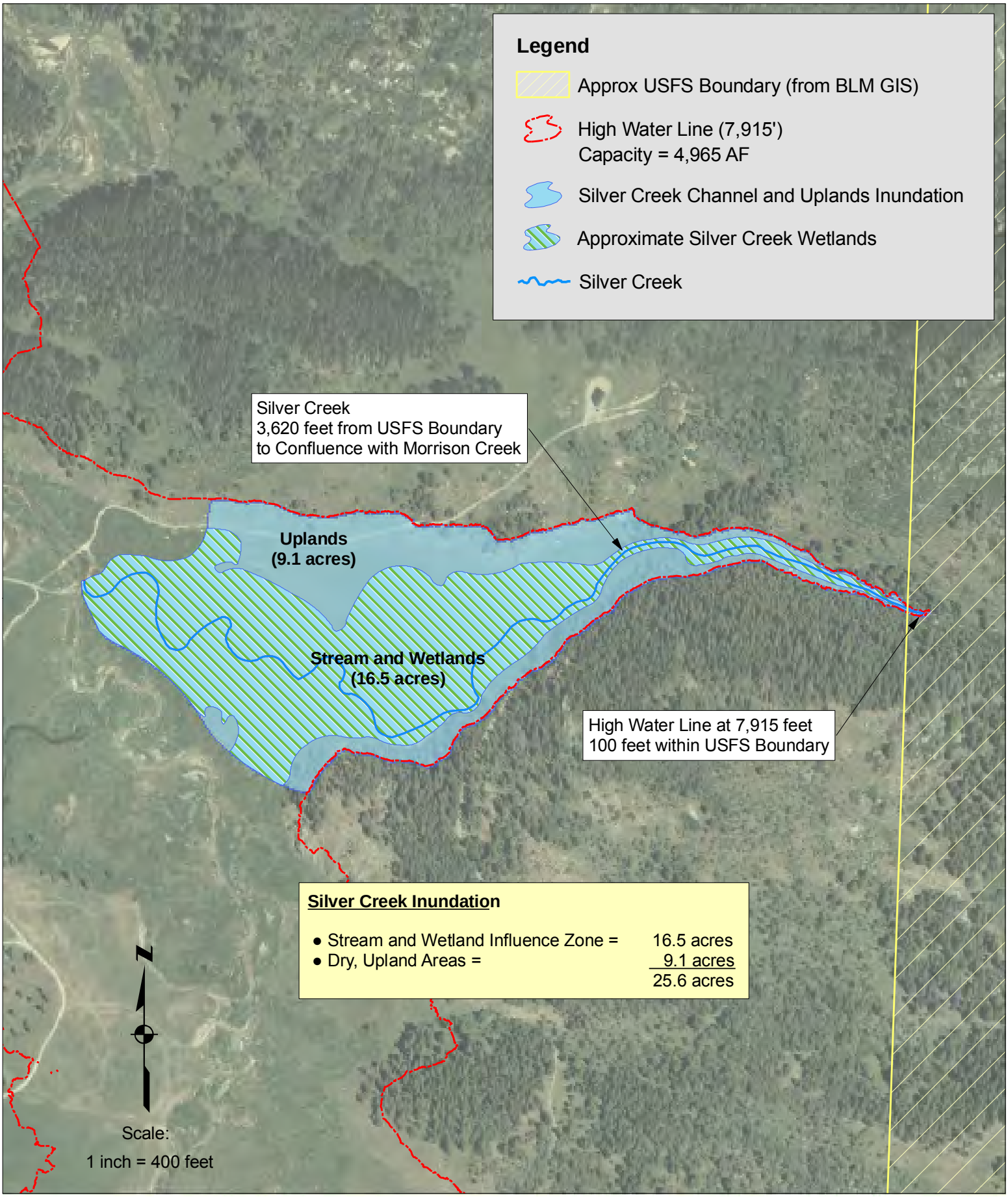

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FIGURE 3
Morrison Creek Reservoir
CWCB Inundation Request
Silver Creek Tributary

Date: 7/06/2010
File: 1047-7.0
Drawn by: RP
Approved by: RSF

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