BEFORE THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION OF THE STATE OF MONTANA

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APPLICATION TO CHANGE WATER RIGHT NO. 43B 30156179 by STATE OF MONTANA DEPARTMENT OF FISH, WILDLIFE & PARKS)	**PRELIMINARY DETERMINATION TO GRANT CHANGE**

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On July 18 2022, State of Montana Department of Fish, Wildlife & Parks (FWP) (Applicant) submitted Application to Change Water Right No. 43B 30156179 to change Water Right Claim Nos. 43B 30110714 and 43B 30110715 to the Bozeman Regional Office of the Department of Natural Resources and Conservation (Department or DNRC). The Department published receipt of the application on its website. The Department sent Applicant a deficiency letter under §85-2-302, Montana Code Annotated (MCA), dated January 11, 2023. The Applicant responded with information dated February 1, 2023. A preapplication meeting was held between the Department and the Applicant on July 11, 2022. The Application was determined to be correct and complete as of May 2, 2023. The Applicant submitted an amendment to the application on August 18, 2023, which reset the statutory timeline of the application. The amended application was determined to be correct and complete as of February 14, 2024. An Environmental Assessment for this application was completed on June 7, 2024.

INFORMATION

The Department considered the following information submitted by the Applicant, which is contained in the administrative record.

Application as filed:

- Irrigation Application for Change of Appropriation Water Right, Form 606-IR.
- Addenda:
    - Change to Instream Flow Addendum, Form 606-IFA.
    - Change in Purpose Addendum, Form 606-PA.
    - Temporary Change Addendum, Form 606-TCA for Statement of Claim No. 43B 30110714 and Statement of Claim No. 43B 30110715.
- Attachments:
    - Appendix A: Notice of Filing of Application to Change an Appropriation Right.
    - Appendix B: Letter from USDA Soil Conservation Service to DNRC on April 19, 1988, re: irrigation efficiency of Mill Creek Watershed.

- Appendix C: Typical irrigation system application efficiencies for surface and sprinkler irrigation systems.
- Appendix D: Estimation of Evaporation from Shallow Ponds & Impoundments in Montana, Potts, 1988.
- Appendix E: memorandums by FWP re: Big Creek Flow Losses, Big Creek (Yellowstone) flows, and Big Creek Flow Measurements.
- Appendix F: Well Logs.
- Appendix G: Water Rights Lease Agreement.

- Maps:
  - Historical Use Maps (Points of Diversion, Ditches, and Place of Use overlain on aerial photographs from 9/1/1949, 9/5/1976, and 8/30/1979, as well as 1951 Park County Water Resource Survey).
  - Return Flow Map (Place of Use, Source, and Return Flow Direction overlain on undated aerial photograph).

Information Received after Application Filed

- Amendment to Application dated August 18, 2023, received by DNRC on August 18, 2023.
- Email chain between Applicant and DNRC dated between August 17, 2023, and February 10, 2024, entitled "RE: Amendment to Application 43B 30156179," Re: Operation plan update.
- Letter from Applicant to DNRC dated January 23, 2023, Re: Response to Deficiency Letter for Application 43B 30156179, received by DNRC on February 1, 2023.

Information within the Department's Possession/Knowledge

- Water Resources Survey, Park County, 1951.
- Amended Irrigation Change Technical Report dated February 14, 2024.
- Irrigation Change Technical Report dated May 2, 2023.
- Surface Water Change Report dated June 29, 2023.
- National Park Service (2010). Native Fish Conservation Plan: Environmental Assessment. Available online at: file:///C:/Users/CNC311/Downloads/Native_Fish_Conservation_Plan_EA_Main.pdf.
- The Department also routinely considers the following information. The following information is not included in the administrative file for this Application, but is available upon request. Please contact the Bozeman Regional Office at 406-586-3136 to request copies of the following documents.

- "Technical Memorandum: Distributing Conveyance Loss on Multiple User Ditches" (Water Management Bureau, 2020)
- "Policy Memo - Return Flows" (Davis, 2016)
- "Development of Standardized Methodologies to Determine Historic Diverted Volume" (Roberts and Heffner, 2012)
- "Changes for Instream Flow Rights" (Tubbs, 2008)

The Department has fully reviewed and considered the evidence and argument submitted in this Application and preliminarily determines the following pursuant to the Montana Water Use Act (Title 85, chapter 2, part 3, part 4, MCA).

For the purposes of this document, Department of DNRC means the Department of Natural Resources & Conservation; CFS means cubic feet per second; GPM means gallons per minute; AF means acre-feet; AC means acres; AF/YR means acre-feet per year; Claim No. means Statement of Claim No.; and FWP means State of Montana Department of Fish, Wildlife & Parks.

WATER RIGHTS TO BE CHANGED

FINDINGS OF FACT

1. Applicant seeks to temporarily change the purpose, place of use (POU), and point of diversion (POD) of Statement of Claim No. 43B 30110714 (Claim No. 43B 30110714) and Statement of Claim No. 43B 30110715 (Claim No. 43B 30110715), which are for the purpose of flood irrigation from Big Creek via means of headgate. Claim No. 43B 30110714 was decreed with a flow rate of 0.88 cubic feet per second (CFS), a volume of 93.6 acre-feet (AF), a period of use and period of diversion from April 15 to November 1, and a priority date of June 30, 1882. Claim No. 43B 30110715 was decreed with a flow rate of 3.5 CFS, a volume of 792.9 AF, a period of use and period of diversion from April 15 to November 1, and a priority date of June 30, 1873. Both claims irrigate the same 72-acre place of use in the following areas in Sections 13, 23, and 24 of Township 6 South (T6S) Range 7 East (R7E), Park County: Government Lot (Govt. Lot) 5 SWSW Section (Sec.) 13, Govt. Lot 1 NENE Sec. 23, Govt. Lot 6 NESE Sec. 23, NESW Sec. 23, Govt. Lot 3 NWNE Sec. 23, Govt. Lot 2 SENE Sec. 23, SWNE Sec. 23, and Govt. Lot 1 NWNW Sec. 24. Both claims have two PODs, a headgate at SENWNE Sec. 22 T6S R7E, Park County, and a headgate at SWSENW Sec. 23 T6S R7E, Park County. Water is conveyed to the POU by means of ditch. The place of use is three miles northwest of Dailey Lake in Paradise Valley.

Table 1. WATER RIGHT(S) PROPOSED FOR CHANGE

Water Right Number	Flow Rate	Volume	Purpose	Period Of Use	Place Of Use	Points Of Diversion	Priority Date
43B 30110814	0.88 CFS	93.6 AF	Irrigation	4/15 - 11/01	Govt Lot 5 SWSW Sec 13; Govt Lot 1 NENE Sec 23; Govt Lot 6 NESE Sec 23; NESW Sec 23; Govt Lot 3 NWNE Sec 23; Govt Lot 2 SENE Sec 23; SWNE 23; Govt Lot 1 NWNW Sec 24; all in T6S R7E, Park County	SENWNE Sec 22 and SWSENW Sec 23, T6S R7E, Park County	6/30/1882
43B 30110715	3.5 CFS	792.9 AF	Irrigation	4/15 – 11/01			6/30/1873

2. In 2017, the Montana Water Court split Claim No. 43B 30110714 from Claim No. 43B 195264-00 and Claim No. 43B 30110715 from Claim No. 43B 195265-00.

3. Claim No. 43B 30110714 and Claim No. 43B 30110715 are part of the Yellowstone River, above & including Bridger Creek, Preliminary Decree that was issued on May 9, 2019.

4. Applicant leases water from the water right owners of record. Ownership for Claim No. 43B 30110714 and Claim No. 43B 30110715 is clear and not part of an “undivided interest” in a water right.

5. No water rights were historically supplemental to or comingled with Claim No. 43B 30110714 and Claim No. 43B 30110715. The lease agreement, between the Applicant and the water right owners, states that the Applicant shall obtain the Yellowstone River water right for continued irrigation of the place of use. Provisional Permit No. 43B 30045005 entirely replaces water diverted from Big Creek with water diverted from Yellowstone River for irrigation of the place of use. Provisional Permit No. 43B 30045005 did not exist as of 1973.

6. Claim No. 43B 30110715 is currently part of a temporary partial change to instream flows for a fishery purpose. In 1999, Change Authorization No. 43B 19526500 changed 10 CFS of the 12.5 CFS of parent Claim No. 43B 195265-00 to a fishery purpose and 2.5 CFS remained with an irrigation purpose. The period of diversion and period of use for Change Authorization No. 43B 19526500 is May 1 to November 1. No volumes were attributed to Change Authorization No. 43B 19526500. In 2009, Application to Renew a Temporary Change Authorization No. 43B 30044570 was submitted and Change Authorization No. 43B 19526500 was renewed for 10 years. When the Water Court split Claim No. 43B 195265-00, Claim No. 43B 30110715 received 2.8 CFS of the 10 CFS that was changed to instream flows for a fishery purpose by temporary Change Authorization No. 43B 19526500. The unchanged portion of Claim No. 43B 30110715, 0.7 CFS, maintained an irrigation purpose. No volumes were attributed to Change Authorization No. 43B 19526500 after the split. On September 12, 2018, Application to Renew a Temporary Change

Authorization No. 43B 30119662 was submitted, which when issued, renewed the portion of Change Authorization No. 43B 19526500 attributed to Claim No. 43B 30110715 for a period of 10 years. On December 28, 2018, Application to Renew a Temporary Change Authorization No. 43B 30121756 was submitted, which when issued, renewed the portion of Change Authorization No. 43B 19526500 attributed to Claim No. 43B 195265-00 for a period of 5 years. In April 2024, Application to Renew a Temporary Change Authorization No. 43B 19526500 was submitted. If the application does not receive objections based on new information, it will be issued and renew the portion of Change Authorization No. 43B 19526500 attributed to Claim No. 43B 195265-00 for a period of 5 years.

7. Application to Change a Water Right No. 43B 30156179 builds upon Change Authorization No. 43B 19526500 by adding volume to the instream fishery purpose and the remaining flow rate for Claim No. 43B 30110715 and temporarily changing the entire flow rate and volume of Claim No. 43B 30110714 to the instream fishery purpose. Historical use findings from Change Authorization No. 43B 19526500 will be used to inform the historical use analysis for Claim No. 43B 30110715 but not Claim No. 43B 30110714.

CHANGE PROPOSAL

FINDINGS OF FACT

8. Applicant proposes to temporarily change the purpose, place of use, and point of diversion of Claim No. 43B 30110714 and Claim No. 43B 30110715 (Figure 1). Applicant proposes to temporarily change the 0.7 CFS of Claim No. 43B 30110715 remaining with an irrigation purpose and the entire volume of Claim No. 43B 30110715, totaling the decreed volume of 792.9 AF. Applicant proposes to temporarily change the previously unchanged Claim No. 43B 30110714, totaling 0.88 CFS and the decreed volume of 93.6 AF. Table 2 provides an overview of the purpose, points of diversion, and places of use for Claim No. 43B 30110714 and Claim No. 43B 30110715.

Table 2. COMPARISON OF WATER RIGHT VERSIONS

Water Right No.	**Original**			**43B 19526500 post-split**			**43B 30156179**		
	Purpose	*POD*	*POU*	*Purpose*	*POD*	*POU*	*Purpose*	*POD*	*POU*
43B 30110715	Irrigation	**Headgate**: SENENE Sec 22 **Headgate**: SWSENW Sec 23	**Irrigation**: 72 acres in T6S R7E	**Irrigation**: Flow 0.7 CFS, Volume N/A **Fishery**: Flow 2.8 CFS, Volume N/A	**Headgate**: SENENE Sec 22 **Headgate**: SWSENW Sec 23 **Instream**: N2 Sec 22 (SENWNE Sec 22) **Instream**: Sec 23 (SWNESE Sec 23)	**Irrigation**: 72 acres in T6S R7E **Fishery**: N2 Sec 22 & Sec 23	**Fishery**: Flow 3.5 CFS, Volume 792.9 AF	**Instream**: SENWNE Sec 22 (N2 Sec 22) **Instream**: SWNESE Sec 23 (Sec 23)	**Instream**: SENWNE Sec 22 (N2 Sec 22) **Instream**: SWNESE Sec 23 (Sec 23)
43B 30110714	Irrigation	**Headgate**: SENENE Sec 22 **Headgate**: SWSENW Sec 23	**Irrigation**: 72 acres in T6S R7E	N/A	N/A	N/A	**Fishery**: Flow 0.88 CFS, Volume 93.6 AF	**Instream**: SENWNE Sec 22 **Instream**: SWNESE Sec 23	**Instream**: SENWNE Sec 22 **Instream**: SWNESE Sec 23

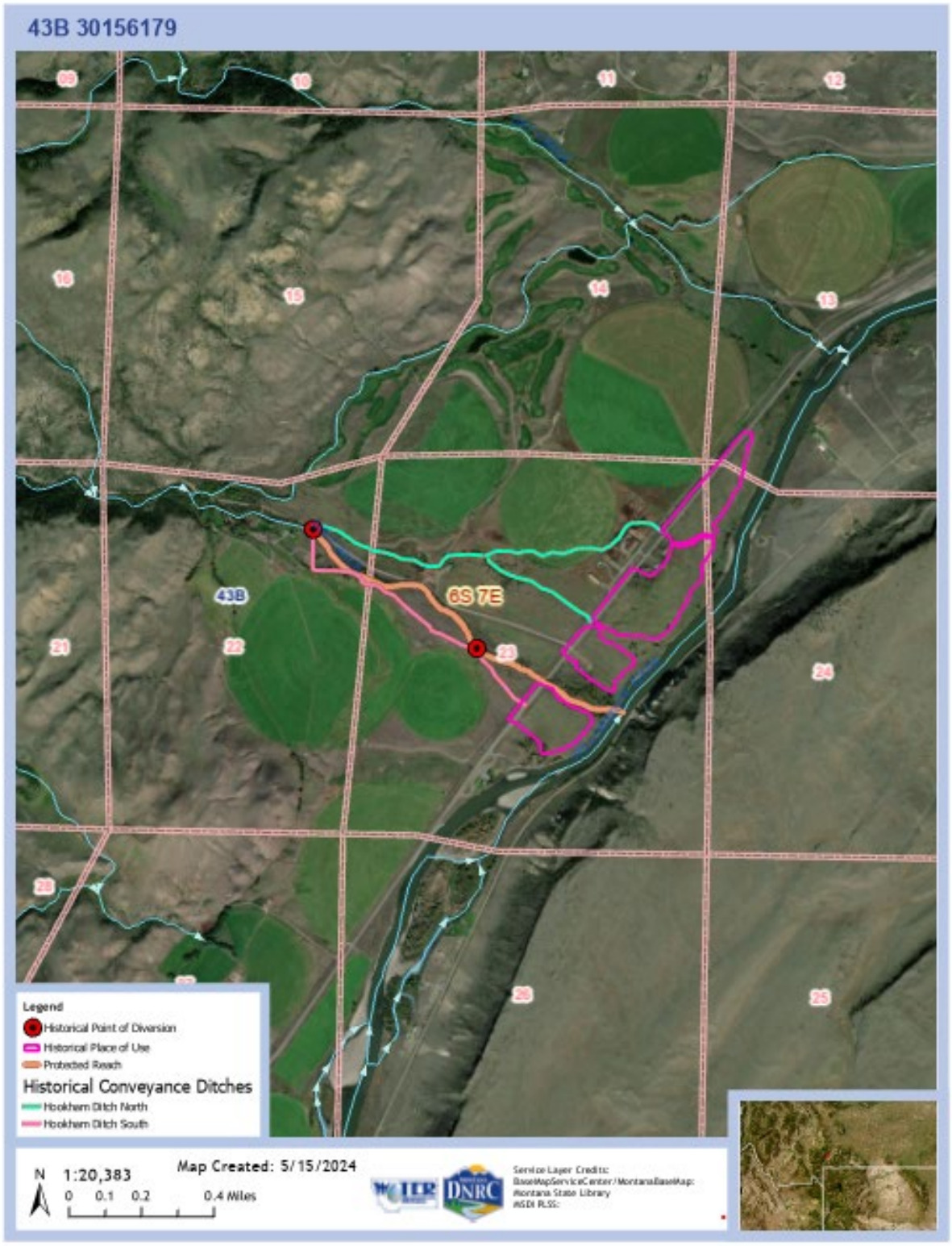

Figure 1. Historical and Proposed Use Map

9. Applicant proposes to temporarily change the purpose of Claim No. 43B 30110715 and Claim No. 43B 30110714 to an instream fishery purpose. Applicant proposes to retire all historical ditches and to cease irrigating the entire 72-acre historical place of use with Claim No. 43B 30110715 and Claim No. 43B 30110714. Applicant proposes to temporarily change the points of diversion and places of use for Claim No. 43B 30110715 and Claim No. 43B 30110714 to a protected reach on Big Creek that is 5518.2 ft in length between SENWNE Sec 22 T6S R7E Park County and SWNESE Sec 23 T6S R7E Park County. This is the same protected reach that runs between the upstream-most historical point of diversion and the confluence with Yellowstone River, which was defined in Change Authorization No. 43B 19526500 as N2 Sec 22 T6S R7E Park County to Sec 23 T6S R7E Park County. The Applicant defined this protected reach as the LLD of the entire reach; NE Sec 22, SWNW Sec 23, NENESW Sec 23, and N2SE Sec 23, all in T6S R7E Park County. The Department defines this protected reach as the LLD of the start and end of the protected reach. All LLDs describe the same protected reach. Applicant proposes to leave water historically consumed from the source in the protected reach from May 1 to November 1.

10. Applicant proposes the following operation plan (Table 3) for the upstream-most historical point of diversion, SENWNE Sec 22 T6S R7E Park County, and along the protected reach. As described in FOF 46, water was 100% consumed from the source, so the historically diverted volume and historically consumed volume are identical. The operation plan does not exceed the decreed volume or historical flow rate.

Table 3. Operation Plan

		Month	**May**	**June**		**July**		**August**	**September**	**October**	**Total**
		Dates	*1 - 31*	*1 - 21*	*22 - 30*	*1 - 15*	*16 - 31*	*1 - 31*	*1 - 30*	*1 - 10*	
		# DAYS	31	21	9	15	16	31	30	10	**163**
		CFS TO AF	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	**1.9835**
Amended Operation Plan	Total	CFS	2.80	1.22	2.80	4.38	2.80	2.80	2.80	2.80	
	Total	AF	172.2	50.8	50.0	130.3	88.9	172.2	166.6	55.5	**886.5**
	43B 30110714	CFS	0.25	0.08	0.25	0.88	0.26	0.25	0.25	0.25	
	43B 30110715	CFS	2.55	1.14	2.55	3.50	2.54	2.55	2.55	2.55	
	43B 30110714	AF	15.6	3.3	4.5	26.2	8.1	15.6	15.1	5.0	**93.6**
	43B 30110715	AF	156.5	47.5	45.4	104.1	80.7	156.5	151.5	50.5	**792.9**

11. Applicant proposes for the duration of the temporary change to coincide with the existing Application to Renew a Temporary Change Authorization No. 43B 30119662, which allows for Change Authorization No. 43B 19526500 to expire in April 2029 unless renewed. Applicant signed a Water Rights Lease Agreement with the water right owners of record for the duration of proposed temporary Change Authorization No. 43B 30156179.

12. Applicant proposed a measurement plan in their Application and Deficiency Letter Response, which includes regular streamflow measurements, staff gage readings, and a stage-discharge rating curve. Applicant takes continuous stream flow measurements through use of a water level logger and the rating curve. The measurement site is the existing measuring point for Change Authorization No. 43B 19526500 located in the NENENW Sec 22, T6S, R7E, Park Co. Applicant has maintained a gage station at this location since 2005. Prior to 2005 USGS regularly measured flow at this location and provided a rating table to the Applicant. Existing Change Authorization No. 43B 19526500 is authorized with one measurement location at the upstream-most historic point of diversion. No diversionary requirements exist in the protected reach that will cause a change in discharge between the start and the end of the protected reach. On account of these factors, the existing measurement location at the historic point of diversion will be used to meet the measurement requirements for Application to Change a Water Right No. 43B 30156179.

13. The following conditions will be incorporated into the analysis below.

WATER MEASUREMENT RECORDS REQUIRED

The Applicant or a designee shall measure the protected reach according to the measurement plan authorized in the Preliminary Determination Order using Department-approved measuring devices. Measurement records shall be made available to the Department upon request. The appropriator shall maintain the measuring devices, so they always operate properly and measure flow rate accurately.

Existing FWP gage 43B 91820 at Kendall Bridge near Emigrant will be used for the measurement location. Applicant shall take regular streamflow measurements and staff gage readings, approximately monthly, to update the stage-discharge rate curve. A water level logger will be used in conjunction with the rating curve for continuous stream flow measurements.

INSTREAM FISHERY OPERATION PLAN REQUIRED

The Applicant shall implement an operation plan to ensure the following maximum protected instream fishery flow rates and volumes are not exceeded along the protected reach (Table 4):

Table 4. Operation Plan

		Month	May	June		July		August	September	October	Total
		Dates	*1 - 31*	*1 - 21*	*22 - 30*	*1 - 15*	*16 - 31*	*1 - 31*	*1 - 30*	*1 - 10*	
		# DAYS	31	21	9	15	16	31	30	10	**163**
		CFS TO AF	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	**1.9835**
Amended Operation Plan	Total	CFS	2.80	1.22	2.80	4.38	2.80	2.80	2.80	2.80	
	Total	AF	172.2	50.8	50.0	130.3	88.9	172.2	166.6	55.5	**886.5**
	43B 30110714	CFS	0.25	0.08	0.25	0.88	0.26	0.25	0.25	0.25	
	43B 30110715	CFS	2.55	1.14	2.55	3.50	2.54	2.55	2.55	2.55	
	43B 30110714	AF	15.6	3.3	4.5	26.2	8.1	15.6	15.1	5.0	**93.6**
	43B 30110715	AF	156.5	47.5	45.4	104.1	80.7	156.5	151.5	50.5	**792.9**

CHANGE CRITERIA

14. The Department is authorized to approve a change if the Applicant meets its burden to prove the applicable § 85-2-402, MCA, criteria by a preponderance of the evidence. *Matter of Royston*, 249 Mont. 425, 429, 816 P.2d 1054, 1057 (1991); *Hohenlohe v. DNRC*, 2010 MT 203, ¶¶ 33, 35, and 75, 357 Mont. 438, 240 P.3d 628 (an Applicant's burden to prove change criteria by a preponderance of evidence is "more probable than not."); *Town of Manhattan v. DNRC*, 2012 MT 81, ¶ 8, 364 Mont. 450, 276 P.3d 920. Under this Preliminary Determination, the relevant change criteria in § 85-2-402(2), MCA, are:

> (2) Except as provided in subsections (4) through (6), (15), (16), and (18) and, if applicable, subject to subsection (17), the department shall approve a change in appropriation right if the appropriator proves by a preponderance of evidence that the following criteria are met:
> (a) The proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or certificate has been issued or for which a state water reservation has been issued under part 3.
> (b) The proposed means of diversion, construction, and operation of the appropriation works are adequate, except for: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.
> (c) The proposed use of water is a beneficial use.
> (d) The Applicant has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use or, if the proposed change involves a point of diversion, conveyance, or place of use on national forest system lands, the Applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water. This subsection (2)(d) does not apply to: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.

15. The evaluation of a proposed change in appropriation does not adjudicate the underlying right(s). The Department's change process only addresses the water right holder's ability to make a different use of that existing right. *E.g., Hohenlohe*, ¶¶ 29-31; *Town of Manhattan*, ¶ 8; *In the Matter of Application to Change Appropriation Water Right No.41F-31227 by T-L Irrigation Company* (DNRC Final Order 1991).

16. In addition to the § 85-2-402(2), MCA,[1] an Applicant for a temporary change authorization for instream flow must comply with the requirements and conditions set forth in §§ 85-2-407 and -408, MCA. Section 85-2-408, MCA provides in part:

> (1) The department shall accept and process an application for a temporary change in appropriation rights to maintain or enhance instream flow to benefit the fishery resource under the provisions of **85-2-402, 85-2-407,** and this section. The application must:
>
> (a) include specific information on the length and location of the stream reach in which the streamflow is to be maintained or enhanced; and
>
> (b) provide a detailed streamflow measuring plan that describes the point where and the manner in which the streamflow must be measured.
>
> (2) (a) A temporary change authorization under the provisions of this section is allowable only if the owner of the water right voluntarily agrees to:
>
> (i) change the purpose of a consumptive use water right to instream flow for the benefit of the fishery resource; or
>
> (ii) lease a consumptive use water right to another person for instream flow to benefit the fishery resource.
>
> (3) In addition to the requirements of **85-2-402** and **85-2-407,** an Applicant for a change authorization under this section shall prove by a preponderance of evidence that:
>
> (a) the temporary change authorization for water to maintain and enhance instream flow to benefit the fishery resource, as measured at a specific point, will not adversely affect the water rights of other persons; and
>
> (b) the amount of water for the proposed use is needed to maintain or enhance instream flows to benefit the fishery resource.
>
> (5) The department shall approve the method of measurement of the water to maintain and enhance instream flow to benefit the fishery resource through a temporary change authorization as provided in this section.
>
> . . . .
>
> (8) The maximum quantity of water that may be changed to maintain and enhance streamflows to benefit the fishery resource is the amount historically diverted. However, only the amount historically consumed, or a smaller amount if specified by the department in the lease authorization, may be used to maintain or enhance streamflows to benefit the fishery resource below the existing point of diversion.

[1] Pursuant to §§ 85-2-402 (2)(b) and -402(2)(d), MCA, the Applicant is not required to prove that the proposed means of diversion, construction, and operation of the appropriation works are adequate and is not required to prove possessory interest in the place of use because this application involves a temporary change in appropriation right for instream flow pursuant to § 85-2-408, MCA.

17. Pursuant to §§ 85-2-407, and -408, MCA, a temporary change for authorization for instream flow is subject to special conditions which are identified above and addressed in the sections below. The evaluation of a proposed change in appropriation does not adjudicate the underlying right(s). The Department's change process only addresses the water right holder's ability to make a different use of that existing right. *E.g., Hohenlohe*, ¶¶ 29-31; *Town of Manhattan*, ¶ 8.

HISTORICAL USE AND ADVERSE EFFECT

FINDINGS OF FACT - Historical Use

18. Applicant does not have firsthand knowledge of historical use, but rather relies on the historical use analysis for Claim No. 43B 30110715 completed for previous temporary Change Authorization No. 43B 19526500, post-1973 observations gained from leasing Claim No. 43B 30110714 and Claim No. 43B 30110715, irrigation practices common for the area, a representative ditch cross section for each historical ditch, aerial photographs, the 1951 Park County Water Resources Survey, and modified methods to calculate conveyance loss that account for limited historical use information (Application, IR.3, and Deficiency Response). Applicant did not provide affidavits or other historical records to the Department (Application, IR.3, and Deficiency Response).

19. The original right version of Claim No. 43B 30110714 and Claim No. 43B 30110715 include a headgate at SENWNE Sec 22 and SWSENW Sec 23, T6S R7E, Park County (Figure 1). The headgate at SENWNE Sec 22 supplies Hookham Ditch to the north of Big Creek ("North Ditch") and south of Big Creek ("South Ditch"). The ditches are visible in aerial photographs taken prior to 1973 and are found in the Water Resources Survey. The Applicant provides evidence that the point of diversion at SWSENW Sec 23 supplies Hookham Ditch South. The evidence includes two aerial photographs, along with information presented by the ranch manager and FWP staff conducting redd counts. Based on visual confirmation with aerial photographs, the Department agrees with this assessment and will conduct conveyance loss calculations on the North Ditch and South Ditch, as presented by the Applicant.

20. According to the original filings, the maximum historical flow rate for Claim No. 43B 30110714 is 0.88 CFS and Claim No. 43B 30110715 is 3.5 CFS. The Applicant provides evidence that the ditch segments of the North Ditch and South Ditch had sufficient capacity to carry the full flow rate of 4.38 CFS between the two ditches. The Applicant collected a representative ditch cross-section and ditch slope measurement for the North Ditch and for the South Ditch. The

Applicant selected three Manning's coefficients based on the variations in maintenance of the ditch and selected the middle value to represent average conditions in the ditch. The Applicant used Manning's Equation and ditch measurements to calculate the capacity of the North Ditch. Based on the following parameters, the Applicant calculated the capacity of the North Ditch to be 4.14 CFS.

$$Water\ depth\ =\ maximum\ conveyed\ without\ overtopping\ ditch, 0.6\ ft$$

$$Slope\ =\ 0.0104$$

$$Manning's\ coefficient\ =\ 0.030$$

21. The Applicant determined the capacity of the South Ditch is greater than 4.38 CFS. The Applicant collected measurements for a ditch profile and ditch slope. The ditch profile shows an approximate ditch depth of 1.5 ft. To determine the wetted perimeter for only Claim No. 43B 30110714 and Claim No. 43B 30110715, the Applicant used Manning's Equation to calculate the water depth given a flow rate of 4.38 CFS. The Applicant used the measured slope of 0.0158 and a Manning's coefficient of 0.030. The Applicant adjusted the water depth to approximate 4.38 CFS and found a depth of 0.51 ft. The depth calculated for 4.38 CFS, 0.51 ft, is less than the depth of the ditch, 1.5 CFS.

22. Claim No. 43B 30110714 and Claim No. 43B 30110715 are entirely supplemental on the 72-acre historical place of use. The Applicant asserts the supplemental relationship between the two claims is based on the flow rate proportion because the water rights are the most senior water rights on the source and do not experience water shortages (Application IR.3.C). Provisional Permit No. 43B 30045005 was never used concurrently with Claim No. 43B 30110714 or Claim No. 43B 30110715 because it replaced these claims after 1973 (Application IR.1.G).

23. The Applicant elected to have the Department calculate historical consumptive use for the water rights pursuant to ARM 36.12.1902. The Department calculated the historical volume consumed by the irrigation purpose and the historical volume consumed from the source. The water rights being changed are Statement of Claims. Claim No. 43B 30110714 has no previous change authorizations and as such, the underlying historical use of the right will be evaluated as it existed prior to July 1, 1973. Claim No. 43B 30110715 has been previously changed by temporary Change Authorization No. 43B 19526500; this current historical use analysis will be based on the Department's previous findings. The Department's historical use calculations for Claim No. 43B 30110715 describe historical use if temporary Change Authorization No. 43B 19526500 is not renewed or is terminated.

24. For Change Authorization No. 43B 19526500, the Department found water diverted was 100% consumed from the source and returned to Yellowstone River rather than Big Creek. The Department authorized Claim No. 43B 30110715 to leave water instream at 2.8 CFS from May 1 to November 1 as part of the change authorization. Given a period of use from May 1 to November 1, 184 days, and a flow rate of 2.8 CFS, the assumed historic volume based on operation is 1021.9 AF:

$$Assumed\ Operational\ Volume = 2.8\ CFS\ Flow\ Rate * 1.9835\ Conversion\ Constant * 184\ Days\ in\ Period\ of\ Use$$

25. The assumed historical volume upon authorization of Change Authorization No. 43B 19526500 is greater than the protectable volume calculated according to current Department standards but is reasonable for the Department standards used at the time. Change Authorization No. 43B 19526500 has no operation plan, so authorizes protection of 2.8 CFS throughout the period of use. While administration of instream flows has occurred throughout the period of use since 1999, operationally, enforcement of instream flows has been targeted to late season when discharge falls below the instream flow threshold. The protected volume has been no greater than the decreed volume (Application, IR.1.F). Change Authorization No. 43B 19526500 was granted using standard methods for instream flows as of 1999. Claim No. 43B 30110715 has continuously been in an active change authorization since that date, with no lapse in the temporary instream flows for a fishery purpose. Department standard practice is to honor historical use findings of active change authorizations. The Department finds the volume historically consumed from the source for Claim 43B 30110715 to be the assumed volume operating at 2.8 CFS up to the decreed volume of 792.9 AF.

26. The following analysis of pre-July 1, 1973, historical use pertains to Claim No. 43B 30110714 and, if Change Authorization No. 43B 19526500 is no longer active, to Claim No. 43B 30110715. All references to Claim No. 43B 30110715 in the following calculations pertain to its use pre-July 1, 1973, and not to its use authorized by Change Authorization No. 43B 19526500. The operational volume is for calculating what was historically perfected for the temporary instream flow purpose; no volume was assigned to Change Authorization No. 43B 19526500. The unchanged portion of Claim No. 43B 30110715 is a flow rate of 0.7 CFS. By ceasing irrigation with Claim No. 43B 30110714 and the unchanged portion of Claim No. 43B 30110715 on all historically irrigated acres, the decreed volume is now attributable to the temporary instream flow purpose.

27. No documented history of calls on these water rights exist, so the historical consumptive use will be calculated for the full irrigation season of April 15 to November 1. Claim No. 43B 30110714 and Claim No. 43B 30110715 were used to grow pasture grass, alfalfa, and at times small grains. Flood irrigation was the method of irrigation pre-July 1, 1973. The Applicant calculated the number of days it would take to deliver water to the field at a volume equal to the field applied volume of the crop, given the on-farm efficiency, and the conveyance losses. The Applicant explained the North Ditch serves 56 acres and requires 65.9 days of irrigation to deliver 398.7 AF, 78% of 511.2 AF, after ditch losses. The Applicant explained the South Ditch serves 16 acres and requires 15.1 days of irrigation to deliver 112.5 AF, 22% of 511.2 AF, after ditch losses. The Applicant does not describe field leveling or other improvements prior to 1973. The Applicant asserted the on-farm efficiency is 15% and provides evidence to support it is highly leaky and points to a change authorization for a water right serving a nearby place of use with comparable field conditions where the Department accepted a field efficiency of 15%. The Department found the Gardiner Weather Station to be the closest and most representative, which has an annual evapotranspiration of 22.46 inches. The Department selected the Park County Management Factor for 1964-1973, which is 56.9%. The Department selected irrecoverable losses for flood irrigation, which is 5%. The Department assigned historical consumptive volume (i.e., the volume historically consumed by purpose) to Claim No. 43B 30110714 and Claim No. 43B 30110715 based on the proportion of flow rate each water right claims of the total flow rate for both water rights. (Application, IR.3 and Deficiency Letter Response)

Table 5. Historical Consumptive Volume

Historic Consumptive Volume (HCV)	Gardiner, Park County Flood/Sprinkler ET *(Inches)*	Park County 1964-1973 Management Factor *(Percent)*	Historic Acres	HCV minus IL *(AF)*	On-farm Efficiency *(Percent)*	Field Application *(AF)*	Historic Irrecoverable Losses (IL) *(AF)*	HCV *(AF)*
North Ditch	22.46	56.9%	56	59.6	15%	397.6	19.9	79.5
30110714	0.88 cfs/4.38 cfs = 0.2 (all volumes x 0.2)			11.9	-	79.5	-	15.9
30110715	3.5 cfs/4.38 cfs = 0.8 (all volumes x 0.8)			47.7	-	318.1	-	63.6
South Ditch	22.46	56.9%	16	17.0	15%	113.6	5.7	22.7
30110714	0.88 cfs/4.38 cfs = 0.2 (all volumes x 0.2)			3.4	-	22.7	-	4.5
30110715	3.5 cfs/4.38 cfs = 0.8 (all volumes x 0.8)			13.6	-	0.0	-	18.2
Total	-	-	72	76.7	-	511.2	-	102.2
30110714	0.88 cfs/4.38 cfs = 0.2 (all volumes x 0.2)			15.3	-	102.2	-	20.4
30110715	3.5 cfs/4.38 cfs = 0.8 (all volumes x 0.8)			61.3	-	409.0	-	81.8

28. The Department found Claim No. 43B 30110714 to be 100% consumed from the source (Surface Water Change Report). The volume historically consumed from the source for Claim No. 43B 30110714 is equal to the historical diverted volume.

29. The Department calculated the historical diverted volume (HDV) for pre-July 1, 1973, to be 630.6 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 537.0 AF). The Department calculated the historical diverted volume given Change Authorization No. 43B 19526500 as 886.5 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 792.9 AF). The HDV for Claim No. 43B 30110714 is limited to the decreed volume because the calculated HDV exceeds the decreed volume, 93.6 AF. Claim No. 43B 30110714 and Claim No. 43B 30110715 were used in conjunction and were able to provide for all pre-1973 consumptive and nonconsumptive irrigation demands. The HDV for Claim No. 43B 30110715 given Change Authorization No. 43B 19526500 is equal to the assumed operational volume of Change Authorization No. 43B 19526500 up to the decreed volume of 792.9 AF.

30. The Department calculated HDV pursuant to the standard methodology in ARM 36.12.1902(10). The Department used the following general equation to calculate HDV:

$$HDV = \frac{HCV_{\text{minus IL}}}{On\ Farm\ Efficency} + Seasonal\ Conveyance\ Loss$$

31. The Department calculated conveyance losses for the North Ditch and South Ditch separately and summed the volumes to determine seasonal conveyance loss. For each component of conveyance loss, the Department multiplied by the flow rate proportion to determine conveyance loss specific to each water right. The Department calculated flow rate proportion with the following equation:

$$Flow\ Rate\ Proportion = \frac{FlowRate_{\text{water right}}}{Flow\ Rate_{total}}$$

32. Seasonal conveyance loss is the sum of seepage loss, vegetation loss, and ditch evaporation. The Department did not distribute conveyance losses pursuant to the DNRC memorandum re: “Distributing Conveyance Loss on Multiple User Ditches” (Water Management Bureau, 2020). The Applicant proposed a different method to calculate conveyance loss that the Department finds to still conform with ARM 36.12.1902(10). The number of days irrigated is calculated based on the number of days it would take to deliver the HDV to the field at a flow rate of 4.14 CFS for the North Ditch and 4.38 CFS for the South Ditch. The North Ditch is limited in capacity to 4.14 CFS and the South Ditch can convey 4.38 CFS. Table 6 summarizes the calculation of days irrigated.

Table 6. Days Irrigated

Ditch	Acres Served	Acres Total	Proportion Acres	Field Applied Total	Field Applied Served	Conveyance Loss	Diverted Volume (AF)	CFS	Conversion (CFS to AF/day)	AF/day	Days
North Ditch	56	72	0.78	511.2	398.7	142.4	540.0	4.1	1.9835	8.21	65.8
South Ditch	16	72	0.22	511.2	112.5	17.9	131.4	4.4	1.9835	8.69	15.1
											80.9

33. The days needed to deliver the diverted volume, 80.9, is shorter than the period of diversion. Conveyance loss calculations assume no other water rights are delivered while Claim No. 43B 30110714 and Claim No. 43B 30110715 are delivered. Claim Nos. 43B 193685-00, 43B 193686-00, 43B 193687-00, 43B 193688-00, 43B 195264-00, and 43B 195265-00 were conveyed by both the Hookham and Mutual Ditches. Claim No. 43B 193247-00 is a stock direct from ditch right. For purposes of analysis, it is assumed these water rights are served on the remaining days of the period of diversion. There is no history of call on Claim No. 43B 30110714 and Claim No. 43B 30110715. The method proposed by the Applicant is a reasonable alternative to determine days irrigated when firsthand knowledge of the irrigation operation is unknown.

34. The Department calculated seepage loss with the following equations:

$$Seepage\ Loss_{\text{North Ditch or South Ditch}} = Wetted\ Perimeter * Ditch\ Length * Seepage\ Loss\ Rate * Days\ Irrigated * \frac{1acre}{43560ft^2}$$

$$Seepage\ Loss_{total} = Seepage\ Loss_{NorthDitch} + Seepage\ Loss_{SouthDitch}$$

$$Seepage\ Loss_{30110714} = (Seepage\ Loss_{NorthDitch} * 0.2) + (Seepage\ Loss_{SouthDitch} * 0.2)$$

$$Seepage\ Loss_{30110715} = (Seepage\ Loss_{NorthDitch} * 0.8) + (Seepage\ Loss_{SouthDitch} * 0.8)$$

35. Using the water depth and slope provided by the Applicant and calculating the side slope (2.20 for North Ditch and 2.10 for South Ditch) using the cross sections supplied by the Applicant, the Department calculated the wetter perimeter as 4.20 ft for the North Ditch and 4.07 ft for the South Ditch. The Department confirmed the ditch length values provided by the Applicant with aerial photos in ArcGIS Pro. The North Ditch splits 2680 ft from the point of diversion. The Applicant averaged the lengths of the legs after the split, 2980 ft and 2040 ft, to determine a length of 2510 ft after the split. The North Ditch is 5190 ft (2680 ft + 2510 ft). Based on the deficiency review, the Applicant updated the length of the South Ditch to 4426 ft to run from the same point

of diversion as the North Ditch to the south field. The Department confirmed the South Ditch length with aerial photos in ArcGIS Pro. The Applicant stated, and Department confirmed, the ditch loss rate is 2.2 ft^3/ft^2/day because the underlying soils are described as sandy loam, gravelly and cobbly. The ditch loss rate selected is the border between sand, gravelly sandy loam, and gravelly sand. The method used to calculate days irrigated is detailed above. Table 7 summarizes the seepage loss calculations:

Table 7. Seepage Loss

Seepage Loss:	Ditch Wetted Perimeter *(Feet)*	Ditch Length *(Feet)*	Ditch Loss Rate *(ft3/ft2/day)*	Days Irrigated	Seepage Loss *(AF)*
North Ditch	7.96	5190	2.2	65.9	137.5
30110714	0.88 cfs/(0.88 cfs + 3.5 cfs) = 0.2 flow rate proportion				27.63
30110715	3.5 cfs/(0.88 cfs + 3.5 cfs) = 0.8 flow rate proportion				109.87
South Ditch	5.01	4426	2.2	15.1	16.9
30110714	0.88 cfs/(0.88 cfs + 3.5 cfs) = 0.2 flow rate proportion				3.40
30110715	3.5 cfs/(0.88 cfs + 3.5 cfs) = 0.8 flow rate proportion				13.51
Total	-	-	-	-	154.4
30110714	-	-	-	-	31.02
30110715	-	-	-	-	123.39

36. The Department calculated vegetation loss with the following equations:

$$Vegetation\ Loss_{\text{North or South Ditch}} = Vegetation\ Loss\ Rate * Flow\ Rate * Days\ Irrigated * Ditch\ Length$$

$$Vegetation\ Loss_{Total} = Vegetation\ Loss_{NorthDitch} + Vegetation\ Loss_{SouthDitch}$$

$$Vegetation\ Loss_{30110714} = Vegetation\ Loss_{NorthDitch} * 0.2 + Vegetation\ Loss_{SouthDitch} * 0.2$$

$$Vegetation\ Loss_{30110715} = Vegetation\ Loss_{NorthDitch} * 0.8 + Vegetation\ Loss_{SouthDitch} * 0.8$$

The vegetation loss rate is the standard of 0.75% loss per mile (NEH standard, 1993). The flow rate is the maximum conveyed by each ditch. Methods to determine maximum flow rate, days irrigated, and ditch length are described above. The Applicant did not multiply the vegetation loss figure by 2 as a unit conversion constant in the Application, which resulted in calculating 2.0 AF for the North Ditch and 0.4 AF for the South Ditch. The Department multiplied the vegetation loss

figure by the unit conversion constant. Table 8 summarizes the Department's vegetation loss calculations:

Table 8. Vegetation Loss

Vegetation Loss:	% loss/mile	Est. Flow Rate *(CFS)*	Days Irrigated	Ditch Length *(miles)*	Vegetation Loss *(AF)*
North Ditch	0.0075	4.14	65.9	1.0	4.0
30110714	0.88 cfs/(0.88 cfs + 3.5 cfs) = 0.2 flow rate proportion				0.81
30110715	3.5 cfs/(0.88 cfs + 3.5 cfs) = 0.8 flow rate proportion				3.21
South Ditch	0.0075	4.38	15.1	0.8	0.8
30110714	0.88 cfs/(0.88 cfs + 3.5 cfs) = 0.2 flow rate proportion				0.17
30110715	3.5 cfs/(0.88 cfs + 3.5 cfs) = 0.8 flow rate proportion				0.66
Total	-	-	-	-	4.9
30110714	-	-	-	-	0.98
30110715	-	-	-	-	3.88

37. The Department calculated ditch evaporation with the following equations:

$$Ditch\ Evaporation_{NorthorSouthDitch} = Ditch\ Width * Ditch\ Length * \left(Annual\ Evaporation * \frac{\text{Days Irrigated}}{210}\right) * \frac{1\ acre}{43560\ ft^2}$$

$$Ditch\ Evaporation_{Total} = Ditch\ Evaporation_{NorthDitch} + Ditch\ Evaporation_{SouthDitch}$$

$$Ditch\ Evaporation_{30110714} = Ditch\ Evaporation_{NorthDitch} * 0.2 + Ditch\ Evaporation_{SouthDitch} * 0.2$$

$$Ditch\ Evaporation_{30110715} = Ditch\ Evaporation_{NorthDitch} * 0.8 + Ditch\ Evaporation_{SouthDitch} * 0.8$$

Ditch width is the wetted width, or the width of the channel at the height of the water level. The Applicant provided the wetted width (7.8 ft for North Ditch and 4.72 ft for South Ditch) and the Department confirmed with the ditch profiles provided by the Applicant. Methods to determine ditch length are provided above. The closest weather station with evaporation data included in Potts (1998) is the Bozeman Weather Station, which has an annual evaporation of 3.15 AF. The Applicant did not adjust the annual evaporation for the period of days irrigated and calculated 1.39 AF for the North Ditch and 0.20 AF for the South Ditch. The Department adjusted the annual

evaporation for the days irrigated. Table 9 summarizes the Department's ditch evaporation calculations.

Table 9. Ditch Evaporation

Ditch Evaporation:	Ditch Width *(Feet)*	Ditch Length *(Feet)*	Annual Evaporation *(AF)*	Period Adjusted Evaporation *(AF)*	Ditch Evaporation *(AF)*
North Ditch	7.8	5190	3.15	0.99	0.9
30110714	0.88 cfs/(0.88 cfs + 3.5 cfs) = 0.2 flow rate proportion				0.18
30110715	3.5 cfs/(0.88 cfs + 3.5 cfs) = 0.8 flow rate proportion				0.73
South Ditch	4.72	4426	3.15	0.23	0.1
30110714	0.88 cfs/(0.88 cfs + 3.5 cfs) = 0.2 flow rate proportion				0.02
30110715	3.5 cfs/(0.88 cfs + 3.5 cfs) = 0.8 flow rate proportion				0.09
Total	-	-	-	-	1.0
30110714	-	-	-	-	0.21
30110715	-	-	-	-	0.82

38. The Department calculated total HDV as the sum of the HDV for the North Ditch and South Ditch. The Department calculated HDV for Claim No. 43B 30110714 and Claim No. 43B 30110715 by using HCV and seasonal conveyance loss specific to each water right. Table 10 summarizes the HDV calculations.

Table 10. Historical Diverted Volume

Historic Diverted Volume (HDV)	HCV minus IL *(AF)*	On-farm Efficiency *(Percent)*	Seasonal Conveyance Loss *(AF)*	HDV *(AF)*
North Ditch	59.6	15%	142.4	540.0
30110714	11.9		28.6	108.1
30110715	47.7		113.8	431.9
South Ditch	17.0	15%	17.9	131.4
30110714	3.4		3.59	26.3
30110715	13.6		14.3	105.1
Total	76.7		160.3	671.5
30110714	15.3		32.2	134.4
30110715	61.3		128.1	537.0

39. The Department calculated the HDV for pre-July 1, 1973, to be 630.6 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 537.0 AF). The Department calculated the historical diverted volume given Change Authorization No. 43B 19526500 to be 886.5 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 792.9 AF). The HDV for Claim No. 43B 30110714 is limited to the decreed volume because the calculated HDV exceeds the decreed volume, 93.6 AF. The HDV

for Claim No. 43B 30110715 given Change Authorization No. 43B 19526500 is equal to the assumed operational volume of Change Authorization No. 43B 19526500 up to the decreed volume of 792.9 AF.

40. The Department finds the following historical use.

WR #	Priority Date	Diverted Volume	Flow Rate	Purpose (Total Acres)	Consumptive Use	Place of Use	Point of Diversion
43B 30110714	6/30/ 1882	93.6 AF	0.88 CFS	Irrigation 72 acres	20.4 AF	L5 SWSW Sec 13; L1 NENE Sec 23; L6 NESE Sec 23; NESW Sec 23; L3 NWNE Sec 23; L2 SENE Sec 23; SWNE 23; L1 NWNW Sec 24; all in T6S R7E, Park Co.	SENWNE Sec 22 and SWSENW Sec 23, T6S R7E, Park Co.
43B 30110715	6/30/ 1873	792.9 AF	3.5 CFS	Irrigation 72 acres	81.8 AF		

ADVERSE EFFECT

FINDINGS OF FACT

41. Applicant proposes to temporarily change the purpose, place of use, and point of diversion of Claim No. 43B 30110714 and Claim No. 43B 30110715 (Figure 1). Applicant proposes to temporarily change the 0.7 CFS of Claim No. 43B 30110715 remaining with an irrigation purpose and the entire volume of Claim No. 43B 30110715, totaling the decreed volume of 792.9 AF. Applicant proposes to temporarily change the previously unchanged Claim No. 43B 30110714, totaling 0.88 CFS and the decreed volume of 93.6 AF. Applicant proposes to temporarily change the purpose of Claim No. 43B 30110715 and Claim No. 43B 30110714 to an instream fishery purpose. Applicant proposes to retire all historical ditches and to cease irrigating the entire 72-acre historical place of use with Claim No. 43B 30110715 and Claim No. 43B 30110714. Applicant proposes to temporarily change the points of diversion and places of use for Claim No. 43B 30110715 and Claim No. 43B 30110714 to a protected reach on Big Creek that is 5518.2 ft in length between SENWNE Sec 22 T6S R7E Park County and SWNESE Sec 23 T6S R7E Park County. Applicant proposes to leave water historically consumed from the source in the protected reach from May 1 to November 1.

42. The Department calculated the HDV for pre-July 1, 1973, to be 630.6 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 537.0 AF). The Department calculated the historical diverted

volume given Change Authorization No. 43B 19526500 as 886.5 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 792.9 AF). The HDV for Claim No. 43B 30110714 is limited to the decreed volume, 93.6 AF. The HDV for Claim No. 43B 30110715 given Change Authorization No. 43B 19526500 is equal to the assumed operational volume of Change Authorization No. 43B 19526500 up to the decreed volume of 792.9 AF. Claim No. 43B 30110715 has a proposed diverted volume equal to the historical diverted volume (792.9 AF) given Change 43B 19526500 is still active. Claim No. 43B 30110714 has a proposed diverted volume equal to the historical diverted volume, 93.6 AF.

43. The proposed volume consumed from the source is equal to the volume historically consumed from the source, which is the maximum protectable amount for the temporary instream flow purpose. The proposed consumed by source volume is equal to the historical diverted volume, 792.9 for Claim No. 43B 30110715, and the historical diverted volume for Claim No. 43B 30110714 because both water rights were entirely consumed from the source.

44. The Applicant proposes the following operation plan for Claim No. 43B 30110714 and Claim No. 43B 30110715.

Table 11. Operation Plan

		Month	**May**	**June**		**July**		**August**	**September**	**October**	**Total**
		Dates	*1 - 31*	*1 - 21*	*22 - 30*	*1 - 15*	*16 - 31*	*1 - 31*	*1 - 30*	*1 - 10*	
		# DAYS	31	21	9	15	16	31	30	10	**163**
		CFS TO AF	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	**1.9835**
Amended Operation Plan	Total	CFS	2.80	1.22	2.80	4.38	2.80	2.80	2.80	2.80	
	Total	AF	172.2	50.8	50.0	130.3	88.9	172.2	166.6	55.5	**886.5**
	43B 30110714	CFS	0.25	0.08	0.25	0.88	0.26	0.25	0.25	0.25	
	43B 30110715	CFS	2.55	1.14	2.55	3.50	2.54	2.55	2.55	2.55	
	43B 30110714	AF	15.6	3.3	4.5	26.2	8.1	15.6	15.1	5.0	**93.6**
	43B 30110715	AF	156.5	47.5	45.4	104.1	80.7	156.5	151.5	50.5	**792.9**

45. The Department calculated the volume associated with the new use with the following equation:

$$Volume_{ProposedUse} = Flow\ Rate_{ProposedUse} * 1.9835 * Days$$

46. The new and historical consumptive uses for Claim No. 43B 30110714 are equal. Instream flow changes may protect up to the HDV at the historical point of diversion and the volume historically consumed from the source through the remainder of the protected reach, pursuant to § 85-2-436(3)(c), MCA. The Applicant presented substantial and credible evidence in Change Authorization No. 43B 19526500 for Claim No. 43B 30110715 to be considered 100% consumed from the source. The field conditions and aquifer properties are identical for Claim No. 43B 30110714 because the place of use is identical. The Department finds Claim No. 43B 30110714

is 100% consumed from the source, so the volume historically consumed from the source would equal the historical diverted volume 93.6 AF.

47. The project meets Department requirements to not analyze the rate and timing of return flows, absent a valid objection, which allows the Department to analyze return flows on an annual basis. The Department requirements are return flows will enter back to the same historical source upstream of next downstream appropriator, water is left instream so historically diverted flows are available during the historical period of diversion, and the change does not constitute an enlargement of flow rate and consumptive use.

48. The Department calculated return flows under historical practices for Claim No. 43B 30110714 by subtracting the historical consumptive volume including irrecoverable losses from the decreed volume because the decreed volume is less than the historical field application. A flow rate of 2.8 CFS with a volume of up to the decreed volume for Claim No. 43B 30110715 was left instream in Big Creek for the instream flow purpose, which returned to Yellowstone River at the confluence of Big Creek and Yellowstone River. The remaining 0.7 CFS of Claim No. 43B 30110715 could be used in conjunction with Claim No. 43B 30110714 to irrigate the historical 72-acre place of use. Pursuant to MCA 85-2-102(7)(b) the Department will not consider consumptive use differences caused by a change in method of irrigation without a change in historical place of use. The Department will assume the historical management factor, evapotranspiration, on-farm efficiency, and irrecoverable losses for calculating return flows for the irrigation purpose remaining on Claim No. 43B 30110715. The maximum annual volume that returned to hydraulically connected surface waters for Claim No. 43B 30110715, 327.2 AF, is the difference between the field application volume, 409.0 AF, and the historical consumptive volume including irrecoverable losses, 81.8 AF. The volume used for the instream flow and irrigation purposes in combination cannot exceed the decreed volume. The Applicant provided lease documentation from 2008 that shows irrigation was not occurring on the historical place of use while water was being leased for instream flows (Application, Appendix G).

49. Claim No. 43B 30110714 was 100% consumed from the source and returned instead to Yellowstone River. The Yellowstone River is the hydraulically connected surface water source for the purpose of evaluating return flows. The instream flow portion of Claim No. 43B 30110715, 2.8 CFS, was left in the source rather than being diverted as of Change Authorization No. 43B 19526500. The portion of Claim No. 43B 30110715 that remained for irrigation, 0.7 CFS, was 100% consumed from the source and returned instead to Yellowstone River. All historically diverted flows are left in the source and return to the Yellowstone River, which is the hydraulically

connected surface water source to the historically irrigated acreage. The annual volume that will return to hydraulically connected surface water source, Yellowstone River, under new practice is 886.5 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 792.9 AF). No change in the pattern or timing of return flow exists for water rights diverting from Yellowstone River at or downstream of confluence with Big Creek because the water remains instream. No water rights divert from Yellowstone River upstream of the confluence with Big Creek along the reach where return flows historically accrued, identified in the Surface Water Change as beginning at NWSE Sec 23 T6S R7E, Park County. One water right is located in the vicinity of the return flow reach, Claim No. 43B 194673-00. This claim is a pump from Yellowstone River and the map included with the claim file, as well as aerial photographs, confirm the pump is located upstream of where return flows historically accrued. Given there are no water rights in the reach where return flows historically accrued before the confluence between Big Creek and Yellowstone River, and all water rights diverting from Yellowstone River after the confluence will not experience a change in the pattern or timing of return flows, other appropriators will not be affected. (Surface Water Change Report).

50. No water rights were supplemental to the water rights being changed. Provisional Permit 43B 30045005 irrigates the entire historical place of use with water from another source. (Application, IR.1.G).

51. The Department considered the following water rights for adverse effect. The water rights considered for adverse effect include all water rights with Big Creek as a source from the upstream-most historical POD to the confluence with Yellowstone River. Additionally, the Department considered for adverse effect the stretch of Yellowstone River where return flows historically accrued. No surface water rights divert from the Yellowstone River between the start of the reach where return flows historically accrued and the confluence with Big Creek. All surface water rights diverting from Yellowstone River after the confluence with Big Creek would experience no change in return flows because all historically diverted water will enter Yellowstone River at the confluence.

Table 12. Water Rights Considered for Adverse Effect

WRNUMBER	ALL_OWNERS	PURPOSES	MEANOFDIV	DITCH_NAME
43B 190628 00	MONTANA LAND RELIANCE	FISHERY	INSTREAM	
43B 193247 00	MOUNTAIN SKY GUEST RANCH LLC	STOCK	DITCH	HOOKHAM DITCH
43B 193682 00	ANTELOPE BASIN LLC; MONTANA LAND RELIANCE	FISHERY	INSTREAM	
43B 193683 00	ANTELOPE BASIN LLC; MONTANA LAND RELIANCE	FISHERY	INSTREAM	
43B 193684 00	MONTANA LAND RELIANCE	FISHERY	INSTREAM	
43B 193685 00	MOUNTAIN SKY GUEST RANCH LLC	IRRIGATION	DITCH	MUTUAL, HOOKHAM
43B 193686 00	MOUNTAIN SKY GUEST RANCH LLC	IRRIGATION	DITCH	MUTUAL, HOOKHAM
43B 193687 00	MOUNTAIN SKY GUEST RANCH LLC	IRRIGATION	DITCH	MUTUAL, HOOKHAM
43B 193688 00	MOUNTAIN SKY GUEST RANCH LLC	IRRIGATION	DITCH	MUTUAL, HOOKHAM
43B 195264 00	MOUNTAIN SKY GUEST RANCH LLC	IRRIGATION	DITCH	MUTUAL, HOOKHAM
43B 195265 00	MOUNTAIN SKY GUEST RANCH LLC	FISHERY; IRRIGATION	HEADGATE	HOOKHAM DITCH
43B 30017687	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	FISHERY	INSTREAM	

52. Applicant will only call on junior water rights when discharge falls below trigger flow equal to the flow rate protected instream, as defined by the operation plan (Table 11). The protected flow rate is less than or equal to the historical flow rate. The timing of the operation plan remains consistent with the historical timing of diversion. (Application, IR.4.B).

53. Applicant proposes a measurement plan described in FOF 12 and FOF 62 and will report measurement data to the Department annually. (Application, IR.4.A and Deficiency Review Response).

54. The Department finds no other water rights will be impacted as a result of this change because the proposed consumptive and diverted volumes do not exceed historical volumes, no net loss in return flows will occur, and the operation plan is consistent with the historical pattern of diversion.

BENEFICIAL USE

FINDINGS OF FACT

55. Applicant proposes to use water for an instream fishery purpose, which is a recognized beneficial use of water in the State of Montana (§85-2-102(5)(c)).

56. For Claim No. 43B 30110715, Applicant proposes to 792.9 AF diverted volume and 0.7 CFS additional flow rate protected instream according to the operation plan (Table 11). For Claim No. 43B 30110714, Applicant proposes to use 93.6 AF diverted volume and 0.88 CFS protected instream according to the operation plan (Table 11). (Application Amendment)

57. The additional flow rate is proposed for July 1 to July 15, which corresponds with the falling limb of the spring hydrograph. Additional water during this window will benefit Yellowstone Cutthroat Trout by increasing access to spawning gravels. Spawning gravels of often in the margins of Big Creek. Increased flow rate will translate to increased water depth, which will

improve access to spawning gravels. Applicant predicts the maximum benefit will occur in late June through mid to late-July when the Yellowstone Cutthroat Trout are spawning. The variable date range corresponds with the start of spawning activity, which is dependent on the water temperature and flow conditions. Applicant provides data to support Lower Big Creek is used by Yellowstone Cutthroat Trout for spawning. Yellowstone Cutthroat Trout are an ecologically important native species that are classified as sensitive by State and Federal wildlife agencies (National Park Service, 2010). Applicant provided a table comparing median monthly flows and the FWP Big Creek Instream Water Reservation. The table shows the median monthly flows fall below the water reservation for June and July in most years between 2005 and 2020. Additional flow rate in the month of July would increase the number of years median monthly flows are above the Instream Water Reservation. (Application IR.1.F and IR.6.A)

58. The Department finds that the Applicant has proven by a preponderance of the evidence that the proposed instream fishery purpose is a beneficial use and that 886.5 AF (43B 30110714 is 93.6 AF and 43B 30110715 is 792.9 AF) and 1.58 CFS (43B 30110714 is 0.88 CFS and 43B 30110715 is 0.7 CFS) is the amount necessary for the proposed beneficial use.

ADEQUATE DIVERSION

FINDINGS OF FACT

59. The proposed change of Claim No. 43B 30110714 and Claim No. 43B 30110715 does not require a means of diversion or conveyance. Per § 85-2-402(2)(b), MCA, a change in appropriation right for instream flow pursuant to § 85-2-436, MCA, is exempt from the adequacy of diversion criterion.

POSSESSORY INTEREST

FINDINGS OF FACT

60. Pursuant to § 85-2-402(2)(d), MCA, the Applicant is not required to prove that they have a possessory interest, or the written consent of the person with the possessory interest in the property where the water is to be put to beneficial use because this application involves a change in appropriation right for instream flow per § 85-2-436, MCA.

TEMPORARY PROTECTED REACH/ MEASUREMENT PLAN

FINDINGS OF FACT

61. The Applicant is proposing to temporarily change the purpose and place of use of Claim No. 43B 30110714 and Claim No. 43B 30110715 to instream flow for the benefit of the fishery resource in Big Creek for a period of 5 years, to coincide with the expiration of Change Authorization No. 43B 19526500, with the option to renew. During the term of this temporary

change, the Applicant will retire all historical ditches and cease irrigating the entire 72-acre historical place of use with Claim No. 43B 30110715 and Claim No. 43B 30110714. After this change, the Applicant will appropriate up to 1.58 CFS, in addition to 2.8 CFS protected by Change Authorization No. 43B 19526500, in the proposed 5518.2 ft instream place of use in Big Creek, which will extend from SENWNE Sec 22 T6S R7E Park County to SWNESE Sec 23 T6S R7E Park County. The proposed period of use is May 1 to November 1. The volume available to be appropriated instream is 886.5 AF.

62. The Applicant will monitor flow rates and volumes appropriated for the instream flow purpose by measuring the protected reach according to the measurement plan authorized in the Preliminary Determination Order using Department-approved measuring devices. Measurement records shall be made available to the Department upon request. The appropriator shall maintain the measuring devices, so they always operate properly and measure flow rate accurately. Existing FWP gage 43B 91820 at Kendall Bridge near Emigrant will be used for the measurement location. Applicant shall take regular streamflow measurements and staff gage readings, approximately monthly, to update the stage-discharge rate curve. A water level logger in a stilling well, which records water levels every 0.5 hours, will be used in conjunction with the rating curve for continuous stream flow measurements.

63. The Department finds the Applicant has met the additional criteria for a temporary change in appropriation right to maintain or enhance instream flow to benefit a fishery resource under the provisions of § 85-2-408, MCA.

CONCLUSIONS OF LAW

HISTORICAL USE AND ADVERSE EFFECT

64. Montana's change statute codifies the fundamental principles of the Prior Appropriation Doctrine. Sections 85-2-401 and -402(1)(a), MCA, authorize changes to existing water rights, permits, and water reservations subject to the fundamental tenet of Montana water law that one may change only that to which he or she has the right based upon beneficial use. A change to an existing water right may not expand the consumptive use of the underlying right or remove the well-established limit of the appropriator's right to water actually taken and beneficially used. An increase in consumptive use constitutes a new appropriation and is subject to the new water use permit requirements of the MWUA. *McDonald v. State*, 220 Mont. 519, 530, 722 P.2d 598, 605 (1986) (beneficial use constitutes the basis, measure, and limit of a water right); *Featherman v. Hennessy*, 43 Mont. 310, 316-17, 115 P. 983, 986 (1911) (increased consumption associated with expanded use of underlying right amounted to new appropriation rather than change in use);

Quigley v. McIntosh, 110 Mont. 495, 103 P.2d 1067, 1072-74 (1940) (appropriator may not expand a water right through the guise of a change – expanded use constitutes a new use with a new priority date junior to intervening water uses); *Allen v. Petrick*, 69 Mont. 373, 222 P. 451(1924) ("quantity of water which may be claimed lawfully under a prior appropriation is limited to that quantity within the amount claimed which the appropriator has needed, and which within a reasonable time he has actually and economically applied to a beneficial use. . . . it may be said that the principle of beneficial use is the one of paramount importance . . . The appropriator does not own the water. He has a right of ownership in its use only"); *Town of Manhattan*, ¶ 10 (an appropriator's right only attaches to the amount of water actually taken and beneficially applied).[2]

65. Sections 85-2-401(1) and -402(2)(a), MCA, codify the prior appropriation principles that Montana appropriators have a vested right to maintain surface and ground water conditions substantially as they existed at the time of their appropriation; subsequent appropriators may insist that prior appropriators confine their use to what was actually appropriated or necessary for their originally intended purpose of use; and, an appropriator may not change or alter its use in a manner that adversely affects another water user. *Spokane Ranch & Water Co. v. Beatty*, 37 Mont. 342, 96 P. 727, 731 (1908); *Quigley*, 110 Mont. at 505-11,103 P.2d at 1072-74; *Matter of Royston*, 249 Mont. at 429, 816 P.2d at 1057; *Hohenlohe*, ¶¶ 43-45.[3]

66. The cornerstone of evaluating potential adverse effect to other appropriators is the determination of the "historic use" of the water right being changed. *Town of Manhattan*, ¶10 (recognizing that the Department's obligation to ensure that change will not adversely affect other water rights requires analysis of the actual historic amount, pattern, and means of water use). A change Applicant must prove the extent and pattern of use for the underlying right proposed for change through evidence of the historic diverted amount, consumed amount, place of use, pattern of use, and return flow because a statement of claim, permit, or decree may not include the beneficial use information necessary to evaluate the amount of water available for change or

[2] DNRC decisions are available at: https://dnrc.mt.gov/Directors-Office/HearingOrders

[3] *See also Holmstrom Land Co., Inc., v. Newlan Creek Water District*,185 Mont. 409, 605 P.2d 1060 (1979); *Lokowich v. Helena*, 46 Mont. 575, 129 P. 1063 (1913); *Thompson v. Harvey*, 164 Mont. 133, 519 P.2d 963 (1974) (plaintiff could not change his diversion to a point upstream of the defendants because of the injury resulting to the defendants); *McIntosh v. Graveley*, 159 Mont. 72, 495 P.2d 186 (1972) (appropriator was entitled to move his point of diversion downstream, so long as he installed measuring devices to ensure that he took no more than would have been available at his original point of diversion); *Head v. Hale*, 38 Mont. 302, 100 P. 222 (1909) (successors of the appropriator of water appropriated for placer mining purposes cannot so change its use as to deprive lower appropriators of their rights, already acquired, in the use of it for irrigating purposes); and, *Gassert v. Noyes*, 18 Mont. 216, 44 P. 959 (1896) (change in place of use was unlawful where reduced the amount of water in the source of supply available which was subject to plaintiff's subsequent right).

potential for adverse effect.[4] A comparative analysis of the historic use of the water right to the proposed change in use is necessary to prove the change will not result in expansion of the original right, or adversely affect water users who are entitled to rely upon maintenance of conditions on the source of supply for their water rights. *Quigley*, 103 P.2d at 1072-75 (it is necessary to ascertain historic use of a decreed water right to determine whether a change in use expands the underlying right to the detriment of other water user because a decree only provides a limited description of the right); *Royston*, 249 Mont. at 431-32, 816 P.2d at 1059-60 (record could not sustain a conclusion of no adverse effect because the Applicant failed to provide the Department with evidence of the historic diverted volume, consumption, and return flow); *Hohenlohe*, ¶ 44-45; Town of Manhattan v. DNRC, Cause No. DV-09-872C, Montana Eighteenth Judicial District Court, *Order Re Petition for Judicial Review,* Pgs. 11-12 (proof of historic use is required even when the right has been decreed because the decreed flow rate or volume establishes the maximum appropriation that may be diverted, and may exceed the historical pattern of use, amount diverted or amount consumed through actual use); Matter of Application For Beneficial Water Use Permit By City of Bozeman, *Memorandum*, Pgs. 8-22 (Adopted by DNRC *Final Order* January 9,1985)(evidence of historic use must be compared to the proposed change in use to give effect to the implied limitations read into every decreed right that an appropriator has no right to expand his appropriation or change his use to the detriment of juniors).[5]

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[4]A claim only constitutes *prima facie* evidence for the purposes of the adjudication under § 85-2-221, MCA. The claim does not constitute *prima facie* evidence of historical use in a change proceeding under § 85-2-402, MCA. For example, most water rights decreed for irrigation are not decreed with a volume and provide limited evidence of actual historic beneficial use. Section 85-2-234, MCA

[5] Other western states likewise rely upon the doctrine of historic use as a critical component in evaluating changes in appropriation rights for expansion and adverse effect: Pueblo West Metropolitan District v. Southeastern Colorado Water Conservancy District, 717 P.2d 955, 959 (Colo. 1986)("[O]nce an appropriator exercises his or her privilege to change a water right … the appropriator runs a real risk of requantification of the water right based on actual historical consumptive use. In such a change proceeding a junior water right … which had been strictly administered throughout its existence would, in all probability, be reduced to a lesser quantity because of the relatively limited actual historic use of the right."); Santa Fe Trail Ranches Property Owners Ass'n v. Simpson, 990 P.2d 46, 55 -57 (Colo.,1999); Farmers Reservoir and Irr. Co. v. City of Golden, 44 P.3d 241, 245 (Colo. 2002)("We [Colorado Supreme Court] have stated time and again that the need for security and predictability in the prior appropriation system dictates that holders of vested water rights are entitled to the continuation of stream conditions as they existed at the time they first made their appropriation); Application for Water Rights in Rio Grande County, 53 P.3d 1165, 1170 (Colo. 2002); Wyo. Stat. § 41-3-104 (When an owner of a water right wishes to change a water right … he shall file a petition requesting permission to make such a change …. The change … may be allowed provided that the quantity of water transferred … shall not exceed the amount of water historically diverted under the existing use, nor increase the historic rate of diversion under the existing use, nor increase the historic amount consumptively used under the existing use, nor decrease the historic amount of return flow, nor in any manner injure other existing lawful appropriators.); Basin Elec. Power Co-op. v. State Bd. of Control, 578 P.2d 557, 564 -566 (Wyo,1978) (a water right holder may

67. An Applicant must also analyze the extent to which a proposed change may alter historic return flows for purposes of establishing that the proposed change will not result in adverse effect. The requisite return flow analysis reflects the fundamental tenant of Montana water law that once water leaves the control of the original appropriator, the original appropriator has no right to its use and the water is subject to appropriation by others. *E.g., Hohenlohe*, ¶ 44; *Rock Creek Ditch & Flume Co. v. Miller*, 93 Mont. 248, 17 P.2d 1074, 1077 (1933); *Newton v. Weiler*, 87 Mont. 164, 286 P. 133 (1930); *Popham v. Holloron*, 84 Mont. 442, 275 P. 1099, 1102 (1929); *Galiger v. McNulty*, 80 Mont. 339, 260 P. 401 (1927); *Head v. Hale*, 38 Mont. 302, 100 P. 222 (1909); *Spokane Ranch & Water Co.*, 37 Mont. at 351-52, 96 P. at 731; *Hidden Hollow Ranch v. Fields*, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185; ARM 36.12.101(56) (Return flow - that part of a diverted flow which is not consumed by the appropriator and returns underground to its original source or another source of water - is not part of a water right and is subject to appropriation by subsequent water users).[6]

68. Although the level of analysis may vary, analysis of the extent to which a proposed change may alter the amount, location, or timing return flows is critical in order to prove that the proposed change will not adversely affect other appropriators who rely on those return flows as part of the source of supply for their water rights. *Royston*, 249 Mont. at 431, 816 P.2d at 1059-60; *Hohenlohe*, at ¶¶ 45-46 and 55-6; *Spokane Ranch & Water Co.*, 37 Mont. at 351-52, 96 P. at 731.

69. In *Royston*, the Montana Supreme Court confirmed that an Applicant is required to prove lack of adverse effect through comparison of the proposed change to the historic use, historic consumption, and historic return flows of the original right. 249 Mont. at 431, 816 P.2d at 1059-60. More recently, the Montana Supreme Court explained the relationship between the fundamental principles of historic beneficial use, return flow, and the rights of subsequent appropriators as they relate to the adverse effect analysis in a change proceeding in the following manner:

> The question of adverse effect under §§ 85-2-402(2) and -408(3), MCA, implicates return flows. A change in the amount of return flow, or to the hydrogeologic pattern of return flow, has the potential to affect adversely downstream water rights. There

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not effect a change of use transferring more water than he had historically consumptively used; regardless of the lack of injury to other appropriators, the amount of water historically diverted under the existing use, the historic rate of diversion under the existing use, the historic amount consumptively used under the existing use, and the historic amount of return flow must be considered.)

[6] The Montana Supreme Court recently recognized the fundamental nature of return flows to Montana's water sources in addressing whether the Mitchell Slough was a perennial flowing stream, given the large amount of irrigation return flow which feeds the stream. The Court acknowledged that the Mitchell's flows are fed by irrigation return flows available for appropriation. *Bitterroot River Protective Ass'n, Inc. v. Bitterroot Conservation Dist.*, 2008 MT 377, ¶¶ 22, 31, 43, 346 Mont. 508, 198 P.3d 219,(*citing Hidden Hollow Ranch v. Fields*, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185).

> consequently exists an inextricable link between the "amount historically consumed" and the water that re-enters the stream as return flow. . . .
> An appropriator historically has been entitled to the greatest quantity of water he can put to use. The requirement that the use be both beneficial and reasonable, however, proscribes this tenet. This limitation springs from a fundamental tenet of western water law-that an appropriator has a right only to that amount of water historically put to beneficial use-developed in concert with the rationale that each subsequent appropriator "is entitled to have the water flow in the same manner as when he located," and the appropriator may insist that prior appropriators do not affect adversely his rights.
> This fundamental rule of Montana water law has dictated the Department's determinations in numerous prior change proceedings. The Department claims that historic consumptive use, as quantified in part by return flow analysis, represents a key element of proving historic beneficial use.
> We do not dispute this interrelationship between historic consumptive use, return flow, and the amount of water to which an appropriator is entitled as limited by his past beneficial use.

Hohenlohe, at ¶¶ 42-45 (internal citations omitted).

70. The Department's rules reflect the above fundamental principles of Montana water law and are designed to itemize the type evidence and analysis required for an Applicant to meet its burden of proof. ARM 36.12.1901 through 1903. These rules forth specific evidence and analysis required to establish the parameters of historic use of the water right being changed. ARM 36.12.1901 and 1902. The rules also outline the analysis required to establish a lack of adverse effect based upon a comparison of historic use of the water rights being changed to the proposed use under the changed conditions along with evaluation of the potential impacts of the change on other water users caused by changes in the amount, timing, or location of historic diversions and return flows. ARM 36.12.1901 and 1903.

71. Applicant seeks to change existing water rights represented by its Water Right Claims. The "existing water rights" in this case are those as they existed prior to July 1, 1973, because with limited exception, no changes could have been made to those rights after that date without the Department's approval. Analysis of adverse effect in a change to an "existing water right" requires evaluation of what the water right looked like and how it was exercised prior to July 1, 1973. In *McDonald v. State*, the Montana Supreme Court explained:

> The foregoing cases and many others serve to illustrate that what is preserved to owners of appropriated or decreed water rights by the provision of the 1972 Constitution is what the law has always contemplated in this state as the extent of a water right: such amount of water as, by pattern of use and means of use, the owners or their predecessors put to beneficial use. . . . the Water Use Act contemplates that all water rights, regardless of prior statements or claims as to amount, must nevertheless, to be recognized, pass the test of historical,

> unabandoned beneficial use. . . . To that extent only the 1972 constitutional recognition of water rights is effective and will be sustained.

220 Mont. at 529, 722 P.2d at 604; *see also Matter of Clark Fork River Drainage Area*, 254 Mont. 11, 17, 833 P.2d 1120 (1992).

72. Water Resources Surveys were authorized by the 1939 legislature. 1939 Mont. Laws Ch. 185, § 5. Since their completion, Water Resources Surveys have been invaluable evidence in water right disputes and have long been relied on by Montana courts. *In re Adjudication of Existing Rights to Use of All Water in North End Subbasin of Bitterroot River Drainage Area in Ravalli and Missoula Counties*, 295 Mont. 447, 453, 984 P.2d 151, 155 (1999) (Water Resources Survey used as evidence in adjudicating of water rights); *Wareing v. Schreckendgust*, 280 Mont. 196, 213, 930 P.2d 37, 47 (1996) (Water Resources Survey used as evidence in a prescriptive ditch easement case); *Olsen v. McQueary*, 212 Mont. 173, 180, 687 P.2d 712, 716 (1984) (judicial notice taken of Water Resources Survey in water right dispute concerning branches of a creek).

73. While evidence may be provided that a particular parcel was irrigated, the actual amount of water historically diverted and consumed is critical. *E.g., In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, DNRC Proposal for Decision adopted by Final Order (2005). The Department cannot assume that a parcel received the full duty of water or that it received sufficient water to constitute full-service irrigation for optimum plant growth. Even when it seems clear that no other rights could be affected solely by a particular change in the location of diversion, it is essential that the change also not enlarge an existing right. *See MacDonald*, 220 Mont. at 529, 722 P.2d at 604; *Featherman*, 43 Mont. at 316-17, 115 P. at 986; *Trail's End Ranch, L.L.C. v. Colorado Div. of Water Resources*, 91 P.3d 1058, 1063 (Colo., 2004).

74. The Department has adopted a rule providing for the calculation of historic consumptive use where the Applicant proves by a preponderance of the evidence that the acreage was historically irrigated. ARM 36.12.1902(16). In the alternative an Applicant may present its own evidence of historic beneficial use. In this case Applicant has elected to proceed under ARM 36.12.1902. (FOF No. 23).

75. If an Applicant seeks more than the historic consumptive use as calculated by ARM 36.12.1902(16), the Applicant bears the burden of proof to demonstrate the amount of historic consumptive use by a preponderance of the evidence. The actual historic use of water could be less than the optimum utilization represented by the calculated duty of water in any particular case. *E.g., Application for Water Rights in Rio Grande County*, 53 P.3d 1165 (Colo., 2002) (historical use must be quantified to ensure no enlargement); *In the Matter of Application to*

Change Water Right No. 41H 1223599 by MGRR #1, LLC.; *Orr v. Arapahoe Water and Sanitation Dist*., 753 P.2d 1217, 1223-1224 (Colo., 1988) (historical use of a water right could very well be less than the duty of water); *Weibert v. Rothe Bros., Inc.,* 200 Colo. 310, 317, 618 P.2d 1367, 1371 - 1372 (Colo. 1980) (historical use could be less than the optimum utilization "duty of water").

76. Based upon the Applicant's evidence of historic use, the Applicant has proven by a preponderance of the evidence the historic use of Claim No. 43B 30110714 to be a diverted volume of 93.6 AF, a historically consumed volume of 20.4 AF, and flow rate of 0.88 CFS. Based upon the Applicant's evidence of historic use, the Applicant has proven by a preponderance of the evidence the historic use of Claim No. 43B 30110715 to be a diverted volume of 792.9 AF, a historically consumed volume of 81.8 AF, and flow rate of 3.5 CFS. (FOF Nos. 18—40)

77. Based upon the Applicant's comparative analysis of historic water use and return flows to water use and return flows under the proposed change, the Applicant has proven that the proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or certificate has been issued or for which a state water reservation has been issued. Section 85-2-402(2)(b), MCA. (FOF Nos. 41—54)

BENEFICIAL USE

78. A change Applicant must prove by a preponderance of the evidence the proposed use is a beneficial use. Sections 85-2-102(4) and -402(2)(c), MCA. Beneficial use is and has always been the hallmark of a valid Montana water right: "[T]he amount actually needed for beneficial use within the appropriation will be the basis, measure, and the limit of all water rights in Montana . . ." McDonald, 220 Mont. at 532, 722 P.2d at 606. The analysis of the beneficial use criterion is the same for change authorizations under §85-2-402, MCA, and new beneficial permits under §85-2-311, MCA. ARM 36.12.1801. The amount of water that may be authorized for change is limited to the amount of water necessary to sustain the beneficial use. *E.g., Bitterroot River Protective Association v. Siebel, Order on Petition for Judicial Review*, Cause No. BDV-2002-519 (Mont. 1st Jud. Dist. Ct.) (2003) (*affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518); *Worden v. Alexander*, 108 Mont. 208, 90 P.2d 160 (1939); *Allen v. Petrick*, 69 Mont. 373, 222 P. 451(1924); *Sitz Ranch v. DNRC*, DV-10-13390,, *Order Affirming DNRC Decision*, Pg. 3 (Mont. 5th Jud. Dist. Ct.) (2011) (citing *BRPA v. Siebel*, 2005 MT 60, and rejecting Applicant's argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet); *Toohey v. Campbell*, 24 Mont. 13, 60 P. 396 (1900) ("The policy of the law is to

prevent a person from acquiring exclusive control of a stream, or any part thereof, not for present and actual beneficial use, but for mere future speculative profit or advantage, without regard to existing or contemplated beneficial uses. He is restricted in the amount that he can appropriate to the quantity needed for such beneficial purposes."); § 85-2-312(1)(a), MCA (DNRC is statutorily prohibited from issuing a permit for more water than can be beneficially used).

79. Applicant proposes to use water for instream flow for a fishery purpose which is a recognized beneficial use. Section 85-2-102(5), MCA. Applicant has proven by a preponderance of the evidence instream flow for a fishery purpose is a beneficial use and that 886.5 acre-feet of diverted volume and 1.58 flow rate of water requested is the amount needed to sustain the beneficial use. Section 85-2-402(2)(c), MCA (FOF Nos. 55—58).

ADEQUATE MEANS OF DIVERSION

80. Pursuant to § 85-2-402 (2)(b), MCA, the Applicant is not required to prove that the proposed means of diversion, construction, and operation of the appropriation works are adequate because this application involves a [(i) A CHANGE IN APPROPRIATION RIGHT FOR INSTREAM FLOW PURSUANT TO §§ 85-2-320 OR 85-2-436/ (ii) A TEMPORARY CHANGE IN APPROPRIATION RIGHT FOR INSTREAM FLOW PURSUANT TO § 85-2-408/ (iii) A CHANGE IN APPROPRIATION RIGHT PURSUANT TO § 85-2-420 FOR MITIGATION OR MARKETING FOR MITIGATION].

81. Pursuant to § 85-2-402 (2)(b), MCA, Applicant has proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. (FOF No. 59)

POSSESSORY INTEREST

82. Pursuant to § 85-2-402(2)(d), MCA, the Applicant is not required to prove that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use because this application involves a [(i) A CHANGE IN APPROPRIATION RIGHT FOR INSTREAM FLOW PURSUANT TO §§ 85-2-320/ 85-2-436 MCA // (ii) A TEMPORARY CHANGE IN APPROPRIATION RIGHT FOR INSTREAM FLOW PURSUANT TO § 85-2-408 MCA// (iii) A CHANGE IN APPROPRIATION RIGHT PURSUANT TO § 85-2-420 MCA FOR MITIGATION OR MARKETING FOR MITIGATION].

83. The Applicant has proven by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. (FOF No. 60).

PRELIMINARY DETERMINATION

Subject to the terms and analysis in this Preliminary Determination Order, the Department preliminarily determines that this Application to Change Water Right No. 43B 30156179 should be GRANTED subject to the following.

Applicant is authorized to temporarily change the purpose, place of use, and point of diversion of Claim No. 43B 30110714 and Claim No. 43B 30110715. Applicant is authorized to temporarily change the 0.7 CFS of Claim No. 43B 30110715 remaining with an irrigation purpose and the entire volume of Claim No. 43B 30110715, totaling the decreed volume of 792.9 AF. Applicant is authorized to temporarily change the previously unchanged Claim No. 43B 30110714, totaling 0.88 CFS and the decreed volume of 93.6 AF. Applicant is authorized to temporarily change the purpose of Claim No. 43B 30110715 and Claim No. 43B 30110714 to an instream fishery purpose. Applicant will retire all historical ditches and cease irrigating the entire 72-acre historical place of use with Claim No. 43B 30110715 and Claim No. 43B 30110714. Applicant is authorized to temporarily change the points of diversion and places of use for Claim No. 43B 30110715 and Claim No. 43B 30110714 to a protected reach on Big Creek that is 5518.2 ft in length between SENWNE Sec 22 T6S R7E Park County and SWNESE Sec 23 T6S R7E Park County. Applicant will leave water historically consumed from the source in the protected reach from May 1 to November 1.

This Authorization is subject to the following conditions, limitation, or restrictions:

WATER MEASUREMENT RECORDS REQUIRED

The Applicant or a designee shall measure the protected reach according to the measurement plan authorized in the Preliminary Determination Order using Department-approved measuring devices. Measurement records shall be made available to the Department upon request. The appropriator shall maintain the measuring devices, so they always operate properly and measure flow rate accurately.

Existing FWP gage 43B 91820 at Kendall Bridge near Emigrant will be used for the measurement location. Applicant shall take regular streamflow measurements and staff gage readings, approximately monthly, to update the stage-discharge rate curve. A water

level logger will be used in conjunction with the rating curve for continuous stream flow measurements.

INSTREAM FISHERY OPERATION PLAN REQUIRED

The Applicant shall implement an operation plan to ensure the following maximum protected instream fishery flow rates and volumes are not exceeded along the protected reach (Table 13):

Table 13. Operation Plan

		Month	**May**	**June**		**July**		**August**	**September**	**October**	**Total**
		Dates	*1 - 31*	*1 - 21*	*22 - 30*	*1 - 15*	*16 - 31*	*1 - 31*	*1 - 30*	*1 - 10*	
		# DAYS	31	21	9	15	16	31	30	10	**163**
		CFS TO AF	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	1.9835	**1.9835**
Amended Operation Plan	Total	CFS	2.80	1.22	2.80	4.38	2.80	2.80	2.80	2.80	
	Total	AF	172.2	50.8	50.0	130.3	88.9	172.2	166.6	55.5	**886.5**
	43B 30110714	CFS	0.25	0.08	0.25	0.88	0.26	0.25	0.25	0.25	
	43B 30110715	CFS	2.55	1.14	2.55	3.50	2.54	2.55	2.55	2.55	
	43B 30110714	AF	15.6	3.3	4.5	26.2	8.1	15.6	15.1	5.0	**93.6**
	43B 30110715	AF	156.5	47.5	45.4	104.1	80.7	156.5	151.5	50.5	**792.9**

NOTICE

The Department will provide public notice of this Application and the Department's Preliminary Determination to Grant pursuant to § 85-2-307, MCA. The Department will set a deadline for objections to this Application pursuant to §§ 85-2-307, and -308, MCA. If this Application receives a valid objection, it will proceed to a contested case proceeding pursuant to Title 2, chapter 4, part 6, MCA, and § 85-2-309, MCA. If this Application receives no valid objection or all valid objections are unconditionally withdrawn, the Department will grant this Application as herein approved. If this Application receives a valid objection(s) and the valid objection(s) are conditionally withdrawn, the Department will consider the proposed condition(s) and grant the Application with such conditions as the Department decides necessary to satisfy the applicable criteria. E.g., §§ 85-2-310, -312, MCA.

DATED this 7th day of June, 2024.

/Original signed by Kerri Strasheim/
Kerri Strasheim, Manager
Bozeman Regional Office
Montana Department of Natural Resources and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 7th day of June, 2024, by first class United States mail.

STATE OF MONTANA, DEPT. OF FISH WILDLIFE & PARKS
PO BOX 200701
HELENA, MT 59620-0701

(VIA EMAIL)
STATE OF MONTANA, DEPT. OF FISH, WILDLIFE & PARKS
% ANDY BRUMMOND
PO BOX 938
LEWISTOWN, MT 59457
ABRUMMOND@MT.GOV

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Bozeman Regional Office, (406) 556-4537