

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

IN THE MATTER OF APPLICATION NO.)	
43BV-30011611 TO CHANGE WATER)	
RIGHT NOS. 43BV-6888, 43BV-143439,)	FINAL ORDER
43BV-143441, AND 43BV-143442 BY)	
VERMILLION RANCH LTD)	

Pursuant to the Montana Water Use Act (Title 85, chapter 2, parts 3 and 4, Montana Code Annotated (MCA)), the contested case provisions of the Montana Administrative Procedure Act (Title 2, chapter 4, part 6) (MAPA), and the administrative procedural rules for contested case hearings (Admin. R. M. 36.12.201, *et seq.*), and after notice required by § 85-2-307, MCA, a contested case hearing was held on April 28-29, 2008, in Big Timber, Montana, before the undersigned Hearing Examiner for the Montana Department of Natural Resources and Conservation (Department or DNRC) in the above-referenced matter. The purpose of the hearing was to determine whether an authorization to change water right numbers 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442 should be issued to Applicant Vermillion Ranch LTD (Applicant) for the above Application under the criteria set forth in §§ 85-2-402, -407 and -408, MCA. The Hearing Examiner has fully considered the record consisting of all testimony, evidence and argument submitted in this matter.

PARTIES

Applicant appeared at the hearing by and through counsel for Montana Trout Unlimited (TU), Laura Ziemer, Director of TU's Montana Water Project (Ziemer), and Stan Bradshaw. TU is the lessee under the Application. The following were called to testify as witnesses for the Applicant: Ms. Ziemer¹, in her capacity as technical consultant in preparation of the Application; Claude Mulholland, local rancher on Lower Sweet Grass Road (Mulholland); Dale Vermillion, owner of Vermillion Ranch LTD (Vermillion); Scott Barndt, Forestry Fisheries Biologist, Gallatin National Forest (Barndt); Eric Chase, DNRC surface water hydrologist (Chase); and Ronald R. Shields, retired United States Geologic Survey (USGS) surface water hydrologist, now

¹ Pursuant to the DNRC Pre-Hearing Conference Report; Order dated April 24, 2008, the Hearing Examiner ruled that Ms. Ziemer would be allowed in this hearing to testify for the Applicant in her capacity as the technical consultant on this Application, but would not be allowed to make any legal conclusions while testifying. Afterwards, Ms. Ziemer was allowed to resume her role as attorney for Applicant.

consulting hydrologist with Water Legend Hydrology (Shields). Mr. Shields submitted prefiled testimony, dated November 16, 2007, on behalf of the Applicant at hearing.

Objectors Pitchfork LTD Partnership, Daniel J. Tronrud, Sharon and Tommy G. and Sharon A. Thompson, Dennis D. Holman, Cremer Rodeo Land and Livestock Company, and Green Ranch LLC (collectively Objectors) appeared at the hearing by and through counsel Page C. Dringman. The following were called to testify as witnesses for the Objectors: Keith Goodhart, local sheep rancher and carpenter (Goodhart); Larry Dolan, DNRC surface water hydrologist (Dolan); Ronda Johnston, partner, and Matt Cremer, partner and in charge of day-to-day operations of Cremer Ranch (Cremer); Craig Anderson, partner, Pitchfork LTD (Anderson); Mark Thompson, owner of K Bar A Ranch, on behalf of his parents Objectors Tommy G and Sharon A Thompson (Thompson); David Holman, Holman Family Revocable Trust (Holman); Daniel Tronrud (counsel read Mr. Tronrud's testimony into the record orally from deposition) (Tronrud); Bill Hibnes, Agricultural Sales, former water commissioner on Sweet Grass Creek (2001-2002; 2004-2007) (Hibnes); and Roger J. Perkins, P.E., consulting water resources engineer, Aquoneering (Perkins). Mr. Perkins and Mr. Hibnes submitted written prefiled testimony, (not dated), on behalf of the Objectors at hearing.

Objector Kay R. King (King) appeared at the hearing *pro se*, and presented testimony on her own behalf. Steve King was called to testify as witness for Objector King.

DNRC Staff Expert Michael Roberts, surface water hydrologist (Roberts), appeared at the hearing and provided testimony regarding his Memorandum dated December 19, 2007 (Report), and his technical opinion in the matter.

EXHIBITS

Applicant offered and the Hearing Examiner accepted and admitted into evidence the following exhibits:

- **A-1:** Vermillion Ranch Application to DNRC (August 2, 2004), with Exhibit List
- **A-2:** January 21, 2005 Letter from DNRC Regarding Vermillion Ranch Application
- **A-3:** April 21, 2005 Letter to DNRC from TU Regarding Vermillion Ranch Application, with Exhibit List
- **A-4:** April 28, 2006 Letter to DNRC from TU Regarding Vermillion Ranch Application
- **A-5:** Vermillion Ranch Amended Application to DNRC (December 4, 2008), Map and Montana Irrigation Guide Attachments
- **A-6:** Red Book (Temporary Preliminary Decree for Sweet Grass Creek) for East Harrison Ditch, West Harrison Ditch, and Deegan Ditch

- **A-7:** Sweet Grass County Water Resources Survey Map
- **A-8:** Sweet Grass County Water Resources Survey Photo
- **A-9:** Sweet Grass County Water Resources Survey Notes
- **A-10:** 1951 WRS Aerial Photo
- **A-11:** 1976 WRS Aerial Photo
- **A-12:** 1979 WRS Aerial Photo
- **A-13:** 2005 WRS Aerial Photo
- **A-14:** Applicant's Pre-Hearing Memorandum Map
- **A-15:** 2006 DNRC Daily Flow Records for Sweet Grass Creek
- **A-16:** 2007 DNRC Daily Flow Records for Sweet Grass Creek
- **A-17:** 2007 DNRC Synoptic Run for Sweet Grass Creek
- **A-18:** 2007 DNRC Rating Curve for Vermillion Bridge Staff Gauge
- **A-19:** Habitat Suitability Index Models and Instream Flow Suitability Curves: Brown Trout (US Fish & Wildlife Service Biological Report 82 (10.124), Sept. 1986)
- **Application Exh. A:** NRCS Aerial Photograph of Vermillion Ranch Irrigated Acres
- **Application Exh. B:** 1950 Sweet Grass County Water Resources Survey
- **Application Exh. C:** 1906 District Court Decree of Vermillion Ranch Water Right Claims
- **Application Exh. D:** TU's Analysis of Water Use Under the Proposed Change
- **Application Exh. E:** Sweet Grass Creek Fishery Survey
- **Application Exh. F:** Affidavit of Legal Notice Publication
- **Application Exh. G:** Topographic Map Showing Changes in Proposed Use on Vermillion Ranch
- **Application Exh. H:** General Abstracts for Water Right Claim Nos. 43BV-143439 and 43BV-6888
- **Application Exh. I:** Water Lease Agreement Between TU and Vermillion Ranch
- **Application Exh. J:** Vermillion Motion to Amend Water Right Claim No. 43BV-143439

Objectors offered and the Hearing Examiner accepted and admitted into evidence the following exhibits:

- **OD-1:** Objectors' Water Rights
- **OD-2:** Objector's Original Objection to Vermillion Change Application
- **OD-3:** Chapter 4, *"Montana Stream Permitting: A Guide for Conservation District Supervisors and Others"*

- **OD-4:** Bureau of Reclamation's Water Measurement Manual, Pages 4-8 to 4-10 and 10-1 to 10-3
- **OD-5:** Sweet Grass Water Users information (from website), including Meeting Minutes for July 10, 2006, August 7, 2006, October 2, 2006, December 4, 2006, March 5, 2007, and June 4, 2007
- **OD-6:** Sweet Grass Water Users information (from website, including information that had originally been posted on the website and revised in November 2007)
- **OD-7:** Sweet Grass Water Users information (from website, consisting of text, photos and measurements posted November 12, 2007)
- **OD-8:** Sweet Grass Conservation District Guide
- **OD-9:** Water Commissioner Journals, Photos, and Records
- **OD-10:** Claude Mulholland Deposition Transcript, with attached Exhibits
- **OD-11:** Ronald Shields Deposition Transcript, with attached Exhibits
- **OD-12:** Letter from Lynn Godfrey, Water Commissioner, dated June 19, 1985
- **OD-13:** Daniel J. Tronrud's Discovery Responses to TU
- **OD-14:** Green Ranch LLC's Discovery Responses to TU

Objector King offered and the Hearing Examiner accepted and admitted into evidence the following exhibits:

- **OK-1:** King's Water Rights
- **OK-2:** Vermillion Letter, dated October 10, 2001 to the Clerk of District Court, Big Timber, Montana
- **OK-3:** Letter from Joan Langford, Water Commissioner, dated July 28, 2003, to Sweet Grass Water Users
- **OK-4:** Letter from Lynn Godfrey, Water Commissioner, dated August 14, 1990, to Sweet Grass Water Users
- **OK-5:** Letter from Lynn Godfrey, Water Commissioner, dated August 12, 1991, to Sweet Grass Water Users
- **OK-6:** Letter from Lynn Godfrey, Water Commissioner, dated August 22, 1994, to Sweet Grass Water Users
- **OK-7:** Letter from Walter DeGraw, Water Commissioner, dated August 5, 2000, to Sweet Grass Water Users

- **OK-8:** Letter from Walter DeGraw, Water Commissioner, dated August 3, 1999, to Sweet Grass Water Users

PRELIMINARY MATTERS

Official notice was taken of all documents in the record, including those exhibits already contained within the DNRC's files. The record was left open after hearing to receive post-hearing submissions from the Applicant and the Objectors containing proposed findings of fact and conclusions of law, and a summary as to whether or not the Applicant met the criteria for the issuance of a change authorization under §§ 85-2-402, -407, and -408, MCA. The Hearing Examiner received said post-hearing filings from all parties on June 16, 2008. Therefore, the record in this matter is considered to have closed as of that date.

Being well and fully advised, the Hearing Examiner makes the following Findings of Fact (FOF) and Conclusions of Law (COL):

FINDINGS OF FACT

General

1. Applicant filed Application No. 43BV-30011611, in the name of Vermillion Ranch LTD, and signed by C. Dale Vermillion, with the Department on August 2, 2004. Applicant is proposing to change the purpose and place of use of Water Right Numbers 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442. Laura Ziemer, Director of TU's Montana Water Project, was the primary compiler and consultant on this Application. (Department file; Ziemer Testimony; Exh. A-1 through A-5; App. FOF 2)
2. The Environmental Assessment (EA) prepared by the Department for this Application and dated March 31, 2006, was reviewed and is included in the record of this proceeding. The EA concludes that no significant environmental impacts were identified and that no Environmental Impact Statement (EIS) is required. (Department file; App. Exh. A-1; App. FOF 3)
3. A public notice describing facts pertinent to this Application was published in the Big Timber Pioneer, a newspaper of general circulation, on June 16, 2006, and was mailed to interested parties listed in the Department file. On July 17, 2006, Objectors Cremer Ranches, Cremer Rodeo Land and Livestock, and George Cremer and Bertha Cremer Enterprises,

represented by Rhonda Johnston, partner, and Matt Cremer, partner (Cremer); Dennis D. Holman/Holman Trust, represented by David Holman (Holman); Tommy G. and Sharon A. Thompson, represented by Mark Thompson, owner of K Bar A Ranch (with Power of Attorney) (Thompson); Daniel J. Tronrud (Tronrud); Green Ranch LLC, represented by John Green (Green); and Pitchfork LTD, represented by Craig Anderson (Anderson), all filed objections to the Application. Objector King, representing her family's ranch and water rights (King), also filed an objection to the Application. (Department file; § 85-2-307, MCA; App. FOF 4; Obj. FOF 13; Obj. Exh. OD-2)

4. Objector Cremer has hundreds of water rights in the Sweet Grass Basin 43BV, some of which are multiple points of diversion on Sweet Grass Creek or its tributaries, and others for stockwater wells, springs, domestic wells in the townsite of Melville, and other groundwater impoundments. Most of Objector Cremer's rights are year-round periods of use with priority dates ranging from 1880 to 1998. Objector Holman has water rights on the Sweet Grass Creek and Basin Creek water rights with priority dates ranging from 1883 (Basin Creek) to 1960. Objector Thompson has water rights on the Sweet Grass Creek and Basin Creek with priority dates ranging from 1884 (Basin Creek) to 1963. Objector Tronrud has water rights on the Sweet Grass Creek and Basin Creek with priority dates ranging from 1883 (Basin Creek) to 1973. Objector Green has at least 7 water rights in Basin 43BV with priority dates ranging from 1893 to 1973. Objector Pitchfork has 4 water rights on the Sweet Grass Creek with priority dates ranging from 1886 to 1900. Objector King has 26 water rights in the Sweet Grass Basin 43BV with priority dates ranging from 1883 to 2004. (Department file; Obj. Exh. OD-1; OD-13; OD-14; Obj. FOF 14; *see also* Stipulated Exh. #7)

5. Generally, the bases for the objections included: (1) concerns that the claimed irrigation on the acreage proposed to be taken out of production had not been occurring; (2) lack of historical information on measurements, diversions, consumptive use; (3) disagreement over formulaic calculations; (4) adverse effects to objectors and other water right holders from increase in historic use and changes in the historical diversion pattern from an agricultural operation to a constant instream flow; (5) disagreement over the proposed measuring plan and location of measuring devices; and (6) lack of actual benefit to fisheries. (Department file; Obj. Exh. OD-2; Obj. FOF 21; *see also* Stipulated Exh. #7)

6. The Department determined the above-referenced objections to be correct and complete. Subsequent to the deadline for filing objections, two objectors withdrew their objections and did not participate in the hearing. (Department file; § 85-2-307, MCA)

7. Applicant is seeking to change Water Right Claim Nos. 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442 from irrigation to instream flows on Sweet Grass Creek, a tributary to the Yellowstone River. Applicant entered into a temporary instream flow water right lease with Trout Unlimited for a term of 10 years, pursuant to § 85-2-407, MCA, which term is slated to commence on the date the Application is approved by DNRC. Applicant is proposing to dedicate a total of 2.0 cfs as measured at the historic points of diversion to enhance the fishery resource on Sweet Grass Creek. The Water Right Claims are diverted from Sweet Grass Creek at the East Harrison Ditch and the Deegan Ditch on the Vermillion Ranch. (Department file; Ziemer Testimony; App. Exh. A-I)

Deegan Ditch Water Right Claim No. 43BV-W-6888

8. The Deegan Ditch Water Right Claim (No. 43BV-W-6888) is a May 10, 1882 water right claim (2.5 cfs; 240 acre-feet/year), and a statement of claim reflecting 48.5 claimed acres irrigated from May 1-October 19. (Department file; Ziemer Testimony; App. Exh. A-1 through A-4)

9. This water right was historically diverted at the Deegan Ditch, and changed in the 1980s to a pump site closer to the confluence of Sweet Grass Creek and the Yellowstone River, which irrigates lands in Sections 31 and 5 on the Vermillion property. (Department file; App. Exh. A-1 through A-4; Application Exh. H; Testimony of Ziemer and Vermillion)

10. Under this change Application, the Applicant proposes to:

- Change 1/5 of the flow rate of Water Right Claim No. 43BV-W-6888 to an instream use (0.5 cfs);
- The 0.5 cfs instream dedication for this water right claim comes from only one source: retiring 24.7 acres claimed as historically irrigated by the Deegan Ditch out of production (22.26 acre parcel, 0.84 acre parcel, 1.6 acre parcel); and changing 0.5 cfs and 72 acre-feet (using a 45% efficiency for flood irrigation) of asserted diverted volume to instream flow;

- Deliver the asserted historically-diverted amount (72 acre-feet) of the Deegan Ditch water right below the Deegan Ditch pump (0.5 cfs) for no more than 72 days (from July 11 to September 20);
- Legally protect from diversion downstream of the Deegan Ditch pump the historic consumptive volume of the East Harrison and Deegan Ditch Water Rights (50 acre-feet, 0.48 cfs, *as stipulated to by TU*);
- Continue to flood irrigate 23.6 acres under Water Right Claim No. 43BV-6888 (48.3 acres²) with 2 cfs during this period. However, Applicant did not specify how long the Deegan Ditch pump would be running; only that it would be occasionally running;
- Measure the instream flow change for the Deegan Ditch Water Right (No. 43BV-W-6888) and the proposed 0.5 cfs instream dedication at the staff gauge on the Vermillion Bridge (2.0 cfs + 0.5 cfs = 2.50 cfs total for Deegan) for no more than 72 days (from July 11 to September 20);
- Deliver 2.50 cfs between July 11 and July 21 when the Deegan Ditch pump is running, and 0.75 cfs [Deegan 0.5 cfs + .25 cfs East Harrison] when the Deegan Ditch pump is not running (Water Right No. 43BV-W-6888); and
- Deliver 2.50 cfs between September 10 and September 20 when the Deegan Ditch pump is running, and 0.5 cfs when the Deegan Ditch pump is not running (Water Right No. 43BV-W-6888). The 0.25 cfs is only protected below the East Harrison headgate for 52 days, from July 21 to Sept 10.

(Department file; Testimony of Ziemer and Vermillion; App. Exh. A-1, A-4, A-5, A-14; Application Exh. H; App. Pre-Hearing Memorandum and Map; App. FOF 5)

11. Applicant offered to modify in its *Brief in Support of Proposed Findings of Fact and Conclusion of Law* (p.3) its proposal for the period of instream flow for Water Right Claim No. No. 43BV-W-6888 to match that of Water Right Claim No. 43BV-W-143439, July 21-September 10. However, it is not clear how this modification would affect the calculations and analysis put forward at hearing. (Department file; Testimony of Ziemer and Vermillion; App. Exh. A-3, A-5, A-14; App. FOF 28-31)

2 The total claim on the abstract for Water Right Claim No. 43BV-6888 says 48.5 acres. It appears the Applicant may have miscalculated the total claim under this right.

East Harrison Ditch Water Right Claim Nos. 43BV-W-143349, -143441, -143442

12. Applicant has three East Harrison Ditch Water Right Claims:

- Water Right Claim No. 43BV-W-143439 is a September 1, 1878 water right claim (3.0 cfs; 800 acre-feet/year), and a statement of claim reflecting 137 claimed acres irrigated from May 1-October 4. As set forth in the findings more fully below, Applicant was unable to find evidence of historical irrigation of 27.6 acres that lie to the east and up-slope of the East Harrison Ditch, in Sections 31 and 5 on the Vermillion property. For this reason, the statement of claim for Water Right Claim No. 43BV-143439 was amended to remove these 27.6 claimed acres, and claim instead only the 109 acres;
- Water Right Claim No. 43BV-W-143441 is a June 29, 1973 water right (32.83 cfs; 2100 acre-feet/year), supplemental to the 1878 water right, and claiming the same 137 irrigated acres from May 1-October 4; and
- Water Right Claim No. 43BV-W-143442 is a September 12, 1881 water right (0.55 cfs; 171.23 acre-feet/year), supplemental to the 1878 water right, and claiming the same 137 irrigated acres from May 1-October 4.

(Department file; Testimony of Ziemer and Vermillion; App. Exh. A-I; Application Exh. H; App. Pre-Hearing Memorandum and Map; App. FOF 18)

13. The point of diversion for the three East Harrison Ditch Water Right Claims (-143439, -143441, -143442) is the East Harrison Ditch, which irrigates lands in Sections 31 and 5. Water Right Claim No. 43BV-W-143439 is the senior-most water right claim on Sweet Grass Creek. (Department file; Testimony of Ziemer and Vermillion; App. Exh. A-1 through A-4; A-14; Application Exh. H; App. Pre-Hearing Memorandum and Map; App. FOF 5; Obj. FOF 2)

14. Under this change Application, the Applicant proposes to:

- Change $\frac{1}{2}$ of the flow rate of Water Right Claim No. 43BV-W-143439 to an instream use (1.5 cfs). The 1.5 cfs instream dedication comes from two sources:
 - 1) Retiring 26.25 acres (0.72 cfs; 98 acre-feet) from flood irrigated production on two separate parcels (17.45 acres and 8.8 acres); and
 - 2) Converting the southern East Harrison Ditch 40.1 acres (0.78 cfs) from flood irrigation (150 acre-feet) to wheel-line sprinkler irrigation (70 acre-feet) for a total diverted volume of approximately 80 acre-feet (150 acre-feet – 70 acre-feet = 80 acre-feet) of salvaged water.

- Change portions of Water Right Claim Nos. 43BV-W-143441 and 43BV-W-143442 to instream flow rights, because they contain overlapping places of use and are supplemental to Water Right Claim No. 43BV-W-6888 and the primary East Harrison Water Right Claim No. 43BV-W-143439. Based on the Applicant's original claims, it appears Water Right Claim Nos. 43BV-W-143442 and 43BV-W-143439 match acre for acre (Water Right Claim No. 43BV-W-143442 actually claims 27.6 acres more than 43BV-W-143439). These acres, located on the east side of the East Harrison Ditch, were apparently taken out of the proposed change (*stipulated to by TU as "unirrigated"*) after the first iteration of this proposal. Water Right Claim No. 43BV-W-143441 completely overlaps with those same acres, while also irrigating lands on the west side of Sweet Grass Creek. Basically, all three of these water rights have the right to irrigate the same 109.4 acres of concern in this Application;
- Legally protect instream from diversion the historically-diverted volume of 178 acre-feet (98 acre-feet for 26.25 acres retired + 80 acre-feet diverted volume of water salvaged from the 40.1 acres) of East Harrison Water Right Claim No. 43BV-143439 to the East Harrison headgate (measuring at least 1.5 cfs at East Harrison staff gauge) for no more than 52 days (July 21 to September 10);
- Change the place of use of the supplemental water rights (-143441 and -143442) by removing an additional 14.8 acres of overlapping places of use from production (19.3 acre-feet; total diverted volume of 55 acre-feet/year), to ensure the water rights are not used to irrigate the acres the Applicant proposes to retire from irrigation (26.25 acres);
- Below the East Harrison headgate, legally protect instream from diversion the historically consumed amount of East Harrison Water Right Claim No. 43BV-143439 (0.25 cfs; 26 acre-feet, *as stipulated to by TU*) for no more than 52 days (July 21 to September 10); and
- Measure the proposed instream flow dedication of 1.5 cfs (0.72 cfs (26.25 acres proposed to be retired) + 0.78 cfs (40.1 acres salvage water) = 1.5 cfs), for the East Harrison Water Right Claim (No. 43BV-143439) at the staff gauge in Sweet Grass Creek below the East Harrison headgate.

(Department file; Testimony of Ziemer and Vermillion; App. Exh. A-1 through A-5; A-14; App. Pre-Hearing Memorandum and Map; App. FOF 5; Obj. FOF 2)

15. A summary of the elements for the Applicant's current Water Right Claims proposed for change under this Application is as follows:

WR Claim #	Place of Use	Priority Date	Claim Volume (AF)	Claim Flow Rate (cfs)	Point of Diversion	Period of Diversion	Claim Total Acres (Purpose)
Deegan Ditch Water Right No. -6888 (Decreed)	S2 SEC 31, T1N, R16E (27.00 acres); NW SEC 5, T1S, R16E (21.50 acres)	05/10/1882	240.56 AF	2.50 cfs	SWNWSE, SEC 31, T1N, R16E (Headgate); SEC 31, SWNESW, T1N, R16E (Pump)	May 1 – October 19	48.50 acres (Flood Irrigation)
E Harrison Water Right No. -143439 (Decreed)	SE SEC 31, T1N, R16E (63.00 acres); SEC 5, T1S, R16E (40.00 acres); SEC 5, T1S, R16E (34.00 acres)	09/01/1878	800.00 AF	3.00 cfs	SWNESE SEC 30, T1N, R16E (Headgate)	May 1 – October 4	137.00 acres claimed; amended to 109.4 acres (Flood Irrigation)
E Harrison Water Right No. -143441 (Decreed)	W2 SEC 31, T1N, R16E (206.00 acres); W2NE SEC 31, T1N, R16E (15.00 acres); SE SEC 31, T1N, R16E (63.00 acres); SEC 31, T1S, R16E (40.00 acres); SEC 31, T1S, R16E (34.00 acres)	06/29/1973	2100.00 AF	32.83 cfs	NWNENW SEC 20, T1N, R16E (Headgate); SWNESE SEC 30, T1N, R16E (Headgate)	May 1 – October 4	358.00 acres (Supplemental Flood Irrigation)
E Harrison Water Right No. -143442 (Decreed)	SE SEC 31, T1N, R16E (63.00 acres); SEC 5, T1S, R16E (40.00 acres); SEC 5, T1S, R16E (34.00 acres)	09/12/1881	171.23 AF	0.55 cfs	SWNESE SEC 30, T1N, R16E (Headgate)	May 1 – October 4	137.00 acres; amended to 109.4 acres (Supplemental Flood Irrigation)

(Department file; Testimony of Ziemer, Shields)

16. While the Applicant has placed a volume on Water Right Claim Nos. 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442, no volume is decreed for these rights other than the

volume “shall not exceed that amount put to historical and beneficial use.” The Water Court typically does not decree volumes for irrigation claims. (See § 85-2-234, MCA)

17. A summary of the Water Right Claims as proposed to be changed by the Applicant under this change Application is as follows:

WR Claim #	Change in Place of Use (Acres Removed from Production)	Change in Volume (AF)	Change in Flow Rate (cfs)	Period of Diversion	Salvage Water (Conversion from Flood to Wheel-Line Irrigation)	Legally Protect from Diversion the Historic Consumptive Volume
Deegan Ditch Water Right No. -6888 (Decreed)	24.7 acres (22.26 acres, and 2 smaller parcels – 0.84 acres and 1.6 acres) out of 48.5 acres total	72 AF	0.5 cfs (instream flow)	72 days (July 11 – September 20)		0.5 cfs
E Harrison Water Right No. -143439 (Decreed)	26.25 acres (2 separate parcels – 17.45 acres and 8.8 acres) out of 108.75 acres total (.72 cfs)	178 AF Total (98 AF + 79.72 AF for salvage water)	1.5 cfs (instream flow)	52 days (July 21 – September 10)	40.1 acres (79.72 AF; 0.78 cfs)	0.78 cfs salvage water + 0.72 cfs = 1.5 cfs
E Harrison Water Right No. -143441 (Decreed)	Change in POU only					
E Harrison Water Right No. -143442 (Decreed)	Change in POU only					

(Department file; Testimony of Ziemer and Vermillion; App. Exh. A-1 through A-5; A-14; App. Pre-Hearing Memorandum and Map; App. FOF 5; Obj. FOF 2)

Historic Use/Adverse Effect

Deegan Ditch Water Right Claim No. 43BV-6888

18. Applicant asserts that the Deegan Ditch Water Right Claim No. 43BV-6888 was documented in the 1906 District Court Decree for Sweet Grass Creek. (Department file; App. Exh. A-1, Application Exh. C; App. Pre-Hearing Memorandum and Map)

19. With regard to the 48.5 claimed acres irrigated from Deegan Ditch under Water Right Claim No. 43BV-6888, the 1950 Sweet Grass County Water Resources Survey (WRS) maps and aerial photo do not indicate that the entire 48.5 claimed acres were irrigated at the time of the survey. Ms. Ziemer testified that the 1945 WRS aerial photo did indicate (in purple on the photo) that the land could have been irrigated, and that the notes indicate that 10 acres were irrigated, with a possible 25 acres "irrigable." I find that irrigable refers to lands that *could be* irrigated, not necessarily lands that were in fact, irrigated. I further find that based on the testimony and record, 35 acres out of 48.5 acres are shown to have been irrigated on the WRS aerial photos. (Department file; App. Exh. A-8; Ziemer Testimony; Obj. FOF 42-43)

20. The 1950 Sweet Grass County WRS notes, dated May 12, 1950 (2nd page), state: "Both Deegan and Uttermohl [previous owners of what is now the Vermillion Ranch] are not available for contact Monday through Friday; therefore, information was secured from Mr. Clyde Bainter, a neighbor, and by personal observation. The Deegan Ditch is a private ditch from the Sweet Grass Creek, supplying water to the Deegan holdings in Sec. 5-1S16E and Sec. 31-1N16E. The ditch is in poor condition at the present time; however, work is being done on the headgate, ditch, and flume which are out. A small amount of irrigation is accomplished despite the poor condition of the system." (Department file; App. Exh. A-9; App. FOF 20; Obj. FOF 44)

21. DNRC staff expert, Mike Roberts, testified that the 1950 Sweet Grass County WRS notes indicate that the 24.7 acres to be retired under Water Right Claim No. 43BV-6888, "with the exception of the western portion of the 32.1 acre parcel in the southern portion of section 31," were shown to have been irrigated historically. There is a 32-acre parcel shown on the map included in the original Application on which Mr. Roberts appears to have relied upon in his staff expert report. As Mr. Roberts points out, a portion of that 32-acre parcel is not shown as irrigated on the 1950 Sweet Grass County WRS. The 24.7 acres to be retired appear to have been first proposed when the Applicant amended their Application. The 24.7 acres taken out of production includes much of the western portion of that 32-acre parcel, as well as some smaller parcels added in the amendment. In his review of the aerial photos from 1950, 1976, 2001, and 2005, Mr. Roberts stated that some of the irrigated lands appeared to have been irrigated, but with variable amounts of water, i.e. topographically high areas using much less water than adjacent areas. Ms. Ziemer acknowledged that the 1950 Sweet Grass County WRS map for Section 31, TIN R16E, Section 5, TIS R16E, do not indicate irrigation in the 22.26 area claimed in Applicant's Pre-Hearing Map (*not marked as an exhibit*). I cannot discern what acres, if any,

Applicant is asserting were shown as irrigated of the 24.7 proposed to be retired. (Department file; Roberts Testimony, mp3, day 2, pt. 53, 6:15, *et seq.*; Roberts Report, p. 3; App. FOF 21-23, App. Exh. A-10 through A-13; Ziemer Testimony, Track #4; Obj. FOF 45-46)

22. Mr. Dale Vermillion testified that he purchased the ranch lands irrigated by the Deegan Ditch in 1972, and the property in Section 31 and a small part of Section 5 irrigated out of the East Harrison Ditch in 1997. Mr. Vermillion did not testify to any knowledge of the operation of the Deegan Ditch irrigation prior to 1972 or to the extent (amount, timing, and exact acreage) of the irrigation on the lands under Water Right Claim No. 43BV-6888. During this time, the Deegan Ditch diversion dam and headgate at the original point of diversion were difficult to maintain, and had to be rebuilt several times. The Deegan Ditch headgate downstream was moved in the mid-1980s, and he put in a pump at the current location below the Vermillion Bridge under Change Authorization No. 43BV-688899. However, the "sheep field" (the 22.26 acre parcel proposed to be retired on Applicant's Pre-hearing Map) could not be irrigated at the new Deegan Ditch pump location. (Department file; Vermillion Testimony, 9:12 *et seq.*, 10:20 *et seq.*; App. FOF 42-43; Obj. FOF 30)

23. I find that while the WRS aerial photos (1947, 1951, and 1979) indicate the Deegan Ditch lands were historically irrigated or could have been irrigated, the amounts appear to be variable or not at all. The WRS aerial photos show the majority of the Deegan Ditch lands proposed to be removed from irrigation do not appear to have received as much water from irrigation as adjacent, more obviously irrigated lands under the same water right (43BV-6888). It appears these partially irrigated lands under the POU for 43BV-6888 coincide with the Section 31 lands shown as irrigable but not irrigated in the 1950 Sweet Grass County WRS. I find that the 24.7 acres proposed for change were irrigated but only partially, i.e. not full service irrigation. (Department file; App. Exh. A-7 through A-13)

East Harrison Water Right Claim Nos. 43BV-W-143439, -143441, and -143442

24. East Harrison Ditch Water Right Claim No. 43BV-W-143439 claimed 137 acres as historically irrigated. In 2004, in preparation for this change Application, Applicant amended Water Right No. 43BV-W-143439 in the Montana Water Court to reduce the claimed acreage of 137 acres to 109.4 acres. In its motion before the Montana Water Court, Applicant stated that

the 27.6 acres³ were upslope of the East Harrison Ditch and could not have been flood irrigated historically. In addition, the 1906 District Court decree awarded the Applicant's predecessor-in-interest, Herman Uttermohl, two water rights from Sweet Grass Creek (the 1882 decreed right for 2.5 cfs corresponds to the Deegan Ditch water right; the 1878 decreed right for 3.55 cfs corresponds to the two East Harrison Ditch water rights). (Department file; App. Exh. A-I, Application Exh. C, Application Exh. J; App. FOF 19-20)

25. Mr. Vermillion further testified that he observed flood irrigation on the "East Harrison ranch lands" as he drove by them for almost 25 years to get to the Deegan Ditch ranch lands that he had purchased in 1972. Mr. Vermillion did not testify to familiarity with the extent (amount, timing, or specific acreage) of the irrigation of the East Harrison ranch lands. (Department file; Vermillion Testimony, mp3, day 1, pt. 13, 0:45, et seq., 1:15, et seq.; 2:17, et seq., 5:55, et seq.)

26. Applicant testified that it has flood irrigated alfalfa-hay crops since 1972 with Water Right Claim Nos. 43BV-W-006888 (Deegan Ditch), 43BV-W-143439 and 43BV-W-143442 (East Harrison Ditch) on approximately 185.5 acres. Applicant did not specify which part of the acreages claimed under these various Water Right Claims constituted the 185.5 acres, i.e. whether this calculation includes acres which will continue to be irrigated. Applicant did not testify regarding the amount of irrigation under these individual water rights or irrigation under the "overlapping" Water Right Claim No. 43BV-W-143441. I find the use of Water Right Claim No. 43BV-W-143441 was not clearly explained at hearing or in the record. There is a total of 358 acres under Water Right Claim No. 43BV-W-143441, which includes irrigated lands on the west side of Sweet Grass Creek. As stated previously, I am not certain Water Right Claim No. 43BV-W-143441 is part of the proposed change, nor was it ever discussed. (Department file; Testimony of Ziemer, Vermillion)

27. Mr. Claude Mulholland testified that he has been flood irrigating out of the East Harrison Ditch (*parcels mapped in blue on App. Exh. A-14 indicated (from north to south) as 18.7 acres, 2.8 acres, 8.8 acres, and 12 acres*) and from the Deegan Ditch pump (*23.6-acre parcel mapped in gold on App. Exh. A-14*) on the Vermillion Ranch lands for at least the last six years. Mr. Mulholland testified that the wheel line irrigation on the East Harrison Ditch started in 2006. Prior to that time, all irrigation ceased while harvesting. Mr. Mulholland also indicated that some

3 The 27.6 acres lie entirely in Section 31, T1N, R16E.

of the fields were actually sub-irrigated from adjacent irrigation, not actually irrigated. There is no indication in the record that Mr. Mulholland's recent efforts reflect irrigation as it occurred during the relevant time period (pre- July 1, 1973) and thus while anecdotal, it is irrelevant to a determination of the historical rights to be changed. (Department file; Mulholland Testimony, mp3, day 1, pt. 8, 2:55, et seq.; Track #9; Obj. Deposition Exh. OD-10 and Map; Obj. Exh. O-2; Obj. FOF 34-39)

28. The 1950 Sweet Grass County WRS notes also indicate that Mr. Bainter, then operator of the Hawks' ranch, irrigated only 60 acres out of the East Harrison Ditch, not the original claimed amount of 137 acres. I find that a review of the 1950 Sweet Grass County WRS maps, the 1947, 1951, and 1979 Sweet Grass County WRS aerial photos, and notes appear to indicate that the 109 acres claimed to be irrigated from East Harrison Ditch under Water Right Claim Nos. 43BV-W-143439, -143441, and -143442 had been irrigated historically. The irrigation on these acres appears from the record to be better than the Deegan Ditch acres, but still received partial service. However, Applicant has not produced evidence to show the amount or timing of the irrigation with these individual Water Right Claims. (Department file; App. Exh. A-8; App. FOF 21)

Deegan Ditch Water Right Claim No. 43BV-6888

29. Applicant proposes to take out of production 24.7 acres of the Deegan Ditch ranch lands to support the instream conversion. Applicant has also calculated an historic consumed volume of 32.23 acre-feet on the 24.7 Deegan Ditch acres proposed to be retired. Applicant estimated the volume of water historically applied to the 24.7 acres by applying the Natural Resources Conservation Service (NRCS) estimate of per acre of crop consumption for alfalfa hay in the lower Sweet Grass Creek climactic (zone 2, moderately high) area (15.66 inches or 1.305 acre-feet/acre) and multiplying that by the number of acres being retired from irrigation (24.7 acres) to arrive at a figure of 32 acre-feet of crop consumption (0.23 cfs). (Department file; App. Pre-Hearing Memorandum and Map; App. Exh. A-5)

30. Applicant did not have any actual flow measurements at the historic Deegan Ditch headgate and turn-outs; therefore, Applicant relied on estimates to arrive at the historic crop consumption. Applicant estimated the historically-diverted volume of water for the 24.7 acres by estimating the efficiency of the flood irrigation on those lands, using the Big Timber NRCS office for their soil-type mapping, and determination of flood irrigation efficiency based on the soil type

and field conditions (using the Balaney-Criddle Method), from the NRCS Montana Irrigation Guide. Dan Glasgow, Big Timber NRCS Soil Conservation Technician, estimated a 45% efficiency for wild flood irrigation. Dividing the consumptive crop requirement by the flood irrigation efficiency of 45%, Applicant estimated an historically-diverted volume of approximately 72 acre-feet ($71.9 \text{ acre-feet}/24.7 \text{ acres} = 2.9 \text{ acre-feet/acre}$). Taking $71.9 \text{ acre-feet}/(1.983)(.5 \text{ cfs}) = 72.52$ days at 0.5 cfs dedicated for instream flow. NRCS estimates assume certain optimal irrigation conditions. Applicant did not provide any evidence that indicated that this property was historically irrigated with the optimal conditions assumed as the basis for this calculation. Ms. Ziemer testified that they assumed the water rights had been largely fulfilled during the irrigation season because the Applicant is a senior water user. However, historic aerial photographs (1947, 1951, and 1979) of the acreage at best show marginal irrigation and do not show the optimal irrigation that would be necessary for application of the NRCS calculations. (Department file; Ziemer Testimony; App. Pre-Hearing Memorandum and Map; App. Exh. A-5)

East Harrison Ditch Water Right Claim Nos. Nos. 43BV-W-143439, -143441, and -143442

31. Applicant proposes to take out of irrigated production 26.25 acres of the East Harrison ranch lands. Applicant applied the NRCS estimate of per-acre crop consumption for alfalfa hay in the lower Sweet Grass Creek climactic area (1.305 acre-feet/acre), and multiplied that NRCS estimate by the number of acres being retired from irrigation from the East Harrison Ditch (26.25 acres), to estimate historic consumptive volume (34 acre-feet). Using Mr. Dan Glasgow's estimates, looking at the soil type and field characteristics on these lands, Mr. Glasgow estimated a 35% efficiency for wild flood irrigation and seasonal crop consumption for alfalfa-grass was calculated to be 26.4 inches/acre, or 2.2 acre-feet/acre. To estimate the volume of water that needed to be applied to the 26.25 acres, the Applicant divided the consumptive crop requirement (34 acre-feet) by the estimated 35% field efficiency to arrive at an estimate of historically-diverted volume of approximately 98 acre-feet ($97.87 \text{ acre-feet}/26.25 \text{ acres} = 3.73 \text{ acre-feet/acre}$). Taking $97.87 \text{ acre-feet}/(1.983/1.0 \text{ cfs})(0.72 \text{ cfs}) = 68.5$ days at 0.72 cfs⁴

⁴ The flow rate of 0.72 cfs for the 26.25 acres was based on the proportional share of those acres to the total acres irrigated by the 3.0 cfs East Harrison Water Right, as follows: $26.25 \text{ acres}/108.75 \text{ total irrigated acres} = 24\%$ taken out of production (24% of 3.0 cfs = 0.72 cfs). (See App. Amendment to Application, p. 5)

dedicated for instream flow. (Department file; App. Exh. A-5, and attachment, *NRCS Irrigation Guide*, pg. 151; Roberts Testimony, mp3, day 2, pt. 53, 3:20 et seq.; App. FOF 29-34)

32. Mr. Vermillion testified that he would also remove an additional 14.8 acres from irrigated production to support the requested instream conversion (*indicated in solid, light blue on App. Exh. A-14*). Using the NRCS calculation (App. Exh. A-6, item B (i), pg. 4), Applicant estimated the additional historic consumptive use volume would be 19.2 acre-feet/acre (1.305 acre-feet/acre crop demand X 14.8 acres), and estimated a diverted volume of 55 acre-feet/year (19.2 acre-feet/acre / 35% efficiency). Applicant did not provide any evidence that indicated that this property was historically irrigated with the optimal conditions assumed as the basis for this calculation. Applicant acknowledged that the two overlapping water rights 43BV-143441 and -442 are out of priority in July and August and Mr. Vermillion testimony indicated that he did not irrigate with 43BV-143441. (Department file; Vermillion Testimony, mp3, day 1, pt. 13, 6:50, et seq.; App. Exh. A-3; Application Exh. 4; App. FOF 31)

33. The NRCS estimate assumes optimal irrigation for the location, a full irrigation season (April –October). The total historic consumed volume is estimated by Applicant to be 53.3 acre-feet on the East Harrison Ditch acres proposed to be retired (34 acre-feet on 26.25 acres, and 19.3 acre-feet on 14.8 acres, totaling 53.3 acre-feet). Applicant did not provide any evidence that indicated that this property was historically irrigated with the optimal conditions assumed as the basis for this calculation. In total, Applicant has calculated approximately 85.5 acre-feet (53.3 acre-feet East Harrison lands + 32.23 acre-feet Deegan Ditch lands) of historically consumed volume on the total acreage proposed to be retired (26.25 acres + 14.8 acres + 24.7 acres = 65.75). DNRC staff expert Mike Roberts testified that this is an accepted method for estimating consumptive use, assuming that the optimal irrigation (full-service) actually occurred for application of the formula. (Department file; Hearing Record; Testimony of Ziemer, Vermillion, Roberts)

34. Sweet Grass Creek typically has had a water commissioner appointed by petition of water users. Bill Hibnes was the water commissioner on Sweet Grass Creek from 2001 to 2002 and 2004 to 2007. Mr. Hibnes administers the temporary preliminary decree on Sweet Grass Creek, and testified that his guide for administering that decree is known as the "Red Book," which describes the flow rate and priority date of water to be administered. Mr. Hibnes testified that he administers the water rights according to flow rates, priority dates, and diversions described in the Red Book, and he administers the 80-mile long Sweet Grass Creek through

cooperation of water users. Mr. Hibnes testified that his commissioner notes are the only record of his execution of his duties as a water commissioner. (Department file; Hibnes Pre-filed Testimony, questions 5, 17; Hibnes Testimony, mp3, day 2, pt. 46, 6:45 et seq.; pt. 48, 1:20 et seq.; 3:55 et seq.; 5:20 et seq.; App. FOF 48-56; Obj. FOF 56)

35. The Red Book describes the Vermillion Ranch as having water rights on the East Harrison Ditch (identified as: 43BV 13443900, with a flow rate of 3.0 cfs and a priority date of September 1, 1878; and 43 BV 14344200, with a flow rate of .55 cfs and a priority date of September 12, 1881). (Department file; Hibnes Testimony, mp3, day 2, pt. 46, 6:45 et seq.; App. Exh. A-6; App. FOF 48-56; Obj. FOF 56)

36. It appears from a review of Commissioner Hibnes' notes from the years 2002 through 2007, the earliest date that call was made on an upstream juniors' water use was on July 23, 2007 (1887 priority water). In two other years during these years, call was made on July 29, 2006 (1887 priority water⁵), and July 28, 2003 (1888 priority water). The latest date that a call was made on upstream juniors' water use was in 2005, when the call was not placed until August 29, 2005, for 1886 priority water. Excluding the year 2006, with the exception of instances in which Mr. Hibnes granted occasional out-of-priority uses, in the years in which he has been a Commissioner, his notes reflect that once a call has been made to a specific priority date, the call has not been withdrawn for the remainder of the irrigation season to allow earlier priority dates to resume irrigation. (Department file; Hibnes Testimony; App. Exh. A-6; Commissioner Hibnes' 2001, 2002, 2004, 2005, and 2007 notes; Commissioner Langford's 2003 notes; App. FOF 48-56)

37. Applicant asserts that the DNRC flow records support that in the years 2006 and 2007, flows exceeded the maximum possible amount that the Applicant could claim for instream flow for a substantial part of July and August. While it is not clear if there was ever reference made to a call on the Applicant's water rights, the likelihood of that occurring on the Deegan Ditch Water Right (Claim No. 43BV-W-6888) is probably low since it is the geographically lowest water right on Sweet Grass Creek. The East Harrison Ditch Water Right (Claim No. 43BV-W-143439) shares the same POD with other water users, but it has the earliest priority date so the likelihood of a call being made on that water right is low as well. Also, since the Deegan Ditch

⁵ Commissioner Hibnes' notes reflect that he changed the call from 1883 to 1887 for July 29 on September 25, 2006.

pump was removed in the mid-1980s (Applicant does not irrigate the 22.26 acre field), there is no reason to call if they are not using the right. (Department file; App. Exh. A-5, A-10, A-11, and A-14; App. FOF 57-58)

38. Commissioner Hibnes' notes from 2001 to 2007 indicate that the East Harrison Ditch is used consistently during irrigation season. The total diversionary rights at the East Harrison Ditch headgate is 107.4 cfs (6 users), and that the Vermillion pump (presumably the Deegan Ditch pump) was recorded as not running more often than running. Mr. Roberts also noted that the Deegan pump does not appear to irrigate the lands proposed to be taken out of production (24.7 acres), as those lands were historically irrigated by the original Deegan Ditch diversion. However, no flow data for the original Deegan Ditch POD or data prior to 2001 was presented at hearing. It appears the Deegan Ditch 23.6 acres that remain in production were and will continue to be irrigated. (Department file; DNRC Water Rights Query database; Roberts Testimony; App. Exh. A-5, A-10, A-11; Obj. FOF 78)

39. Applicant claims that given the history of calls as reflected in Commissioner Hibnes' notes (post 2001), and given the pattern of flows in lower Sweet Grass Creek (2006-2007), as reflected in measurements at Vermillion Bridge, the change of use of part of the Applicant's water rights would not be a departure from the historic pattern of call. (Department file; Cremer Testimony, mp3, day 1, pt. 31, 11:46 et seq.; Anderson (Pitchfork) Testimony, mp3, day 1, pt. 35, 8:15 et seq.; App. FOF 60)

40. Applicant further asserted that reference should be made to the *Montana Water Right Claim Examination Rules Amended by the Montana Supreme Court (2006)*. At Rule 14(b), Guideline (Claim Examination Manual), states: "[t]he guideline for irrigation within a basin or subbasin will be the flow rate necessary to reasonably irrigate one acre of crop: (1) The flow rate guideline will be 17 gpm per acre ... and was based on: (i) the commonly accepted method of irrigation; (ii) the peak consumptive use of alfalfa during a drought year growing season; and (iii) a reasonable efficiency for the method of irrigating the field." *Montana Water Right Claim Examination Rules Amended by the Montana Supreme Court (2006)*. Applicant states that by applying the 17 gpm guideline to the East Harrison ranch lands proposed to be retired (26.5 acres), the flow rate necessary to irrigate those acres would be 1.01 cfs (17 gpm X 26.5 acres/448.8 gpm). For the Deegan Ditch acres proposed to be retired (24.7 acres), the flow rate would be .94 cfs (17 gpm X 24.7 acres/448.8 gpm). The Hearings Examiner takes administrative notice of the *Water Right Claim Examination Rules Amended by the Montana*

Supreme Court (2006), at Rule 14(b). (Department file; Claim Examination Manual, Sec. VILB3; App. FOF 32)

41. Roger Perkins, Water Resource Engineer, based on his review of the *Landstat Themes* (1999-2005) from the NRIS website, aerial photos, and an on-site field inspection, testified that the 26.25 acres Applicant proposes to take out of production from the East Harrison Ditch showed very little evidence that it had been irrigated. Mr. Perkins stated that based on the Landstat maps, from 2001-2007, the evapotranspiration (ET) calculation indicated that some subirrigation occurred, but surface irrigation was limited. The methodology described by Mr. Perkins used to determine actual ET (SEBAL), is estimated from Landstat imagery that, according to Mr. Mike Roberts, represents "a discrete, instantaneous value," which is "one point in the daily ET cycle that can vary significantly in the course of 24 hours." Mr. Roberts states that without supporting data, ET is difficult to analyze. (Department file; Testimony of Perkins, Roberts, Track #42-44; Perkins Pre-filed Expert Testimony and Supplemental Pre-filed Expert Testimony; Roberts Report; Obj. FOF 49-55)

42. At hearing, Mr. Perkins clarified that the proposed 2.0 cfs instream flow right will substantially increase historic diversions and volume used, based on his mapping and field analysis. Mr. Perkins asserts that the "amount of water historically consumed" with regard to this Application based on 50 acres, as described more fully below, is "50 acre-feet." In Mr. Perkins' Vermillion Ranch Report (*attached to his Pre-Filed Direct Testimony*), he states, "...removing irrigation, if it occurred, from these fields will reduce depletion of water from the hydrologic system by about one acre-foot /acre each season. For 50 acres, this is simply 50 acre-feet." Mr. Perkins determined a 1 acre-ft/ acre based on his estimate of consumptive use (24") minus effective rainfall (7") and subirrigation (5"). These values were stated but not well supported in this report, as Mr. Roberts referred to in his staff expert report. (Department file; Perkins' Pre-filed Expert Testimony, Attachment p. 2, p. 7 (*not numbered*); Roberts Report; Obj. FOF 49-55, 79)

43. Mr. Perkins did not appear to question the findings described in the Sweet Grass County WRS that showed much of the land as historically irrigated or irrigable. (Department file; Perkins Testimony, mp3, day 2, pt. 43, 9:35 et seq.; App. FOF 37-38)

44. Applicant's estimate was 32 acre-feet from the 24.7 retired acres irrigated from the Deegan Ditch, and 34 acre-feet from the 26.25 retired acres irrigated from the East Harrison Ditch, for a total of 64 acre-feet. Applicant agreed to stipulate to Mr. Perkins' estimate of 50

acre-feet historic consumptive use for both the East Harrison Ditch and Deegan Ditch water right claims. The consumptive use allocated to Deegan Ditch would be 48.5% of the total retired acreage (24.7 acres/50.95 acres), or 24 acre-feet (48.5% of 50 acre-feet), and 0.23 cfs for the 52-day instream flow period (24 acre-feet/1.983 acre-foot/cfs per day)/52 days). The proportion allocated to the East Harrison Ditch would be 51.5% (26.25 acres/50.95 acres) or 26 acre-feet (51.5% of 50 acre-feet), and 0.25 cfs for the 52-day instream flow period (26 acre-feet/1.983 acre-feet/cfs per day)/52 days). (Department file; App. Pre-Hearing Memorandum and Map; Ziemer Closing Statement, mp3, day 2, pt. 57, 2:53, et seq.; App. FOF 34-40)

45. Applicant chose to stipulate to the 50 acre-feet historic consumptive use, agreeing to accept Mr. Perkins' estimate of 24 acre-feet as the historic consumptive use for the Deegan Ditch water rights, and 26 acre-feet for the East Harrison Ditch. To ensure the Applicant's historically-diverted volumes or flow rates were not adjusted downward and to ensure the proposed change does not expand the use of the Applicant's rights beyond their historic use, Applicant recently amended its Application to retire the additional 14.8 acres (*indicated in light blue on the Pre-Hearing map*). Using this stipulated amount, the Applicant estimated an historically-diverted volume of 143 acre-feet, by dividing the consumptive use (50 acre-feet) by the flood-irrigation efficiency (35%). Applicant had originally estimated the historically-diverted volume to be 180 acre feet (98 acre-feet from East Harrison Ditch; 72 acre-feet from Deegan Ditch). By adding in the 14.8 additional retired acreage to the stipulated historically-diverted volume of 143 acre-feet, Applicant estimated an additional 55 acre-feet to this calculation (1.305 acre-feet crop consumption/acre X 14.8 acres/35% irrigation efficiency) or 198 acre-feet (143 acre-feet + 55 acre-feet). By stipulating to the 50-acre feet consumptive use for 50 acres, the Applicant is asking for less than "optimal" IWR (Balaney-Criddle) demands. Adding in another 14.8 acres makes it even less "optimal". Even if the 50 acre-feet (1 acre-foot/acre) stipulation was agreed to by the Applicant, I find this would allow for 0.25 cfs consumptive use below East Harrison Ditch (26 acre-feet/1.983 = 13.1 cfs/52 days = 0.25 cfs) and 0.23 cfs consumptive use below Deegan Ditch (24 acre-feet/1.983 af per cfs = 12.1 cfs/52 days = 0.23 cfs) for 50 days. I make note that in the original Application, the Objectors assert that the 50 acre-feet is equal to both the consumed amount and the diverted amount. Mr. Roberts questioned their calculations of the diverted amount in his staff expert report. (Department file; Ziemer Testimony; App. Pre-Hearing Memorandum and Map; App. FOF 28; Obj. FOF 53)

46. Applicant is the farthest downstream user on Sweet Grass Creek. There are no junior or senior water users downstream of the original points of diversion; therefore, Water Right Claim Nos. 43BV-W-006888 and 43BV-W-143439-00 are the lowest points of diversion on Sweet Grass Creek. Sweet Grass Creek flows into the Yellowstone River below Applicant's points of diversion. Objectors argue that the Applicant's water rights will be split between instream flow and irrigation demands; therefore, irrigation demands on the East Harrison Ditch would be in addition to these instream flow demands, acting as a continual call on junior users for up to 72 days. Objectors further argue Applicant intends to continue irrigating using a portion of both the East Harrison Ditch and Deegan Ditch rights, thus creating a greater demand on the Sweet Grass Creek and an enlargement of the Applicant's historical practices. As set forth more fully below, Objectors assert this will result in an adverse affect on the return flow pattern in Sweet Grass Creek, by adversely affecting the timing and practice of their flood irrigation using late season flows. (Department file; Testimony of Ziemer, Vermillion, and Objectors Cremer, Anderson, Thompson, Holman, and King; Obj. COL 11-12; App. Exh. A-1)

47. Objectors testified to the seasonal differences between irrigation use and harvesting operations on the upper (Melville and above) versus lower portions of Sweet Grass Creek. Objectors also testified as to how this seasonal difference allowed the upper water right owners to irrigate while downstream users were harvesting and didn't need the water. Objectors noted that irrigation usage is intermittent, not continual, whereas the instream flow right is a continual right. (Department file; Testimony of Objectors Cremer, Track #31; Anderson, Track #34; Thompson, Track #36; and Holman, Track #39; Discovery Responses for Objectors Tronrud and Green, Obj. Deposition Exh. OD-13 and OD-14)

48. Objectors assert that while some were not able to get a second cutting, they would use irrigation water available after their first cutting for pasture irrigation, regrowth and small grains, and noted the importance of recharge to the aquifer and downstream users. Objectors also pointed out that the historical pattern of use for irrigation resulted in water rights being called, but as soon as the irrigation ceased, it was made available again; therefore, water was seldom shut-off for the entire remainder of the summer. Objectors further emphasize that the Water Commissioner journals (post 2001) indicate that the Deegan pump was seldom on. (Department file; Testimony of Objectors Cremer, Anderson, Thompson, Holman, and King; Obj. FOF 60-65; 78, Stipulated Exh. #8, Obj. Deposition Exh. OD-9)

49. Mr. Vermillion testified that he had written a letter to the Sweet Grass County Clerk of Court in October 2001, stating that he only had sufficient water to irrigate from the Deegan Ditch six days in 2001, between July 20 and September 1, and disagreed with his share of the water commissioner's bill. (Department file; Vermillion Testimony, Track #15; Obj. Exh. OK-2)

50. Objectors testified that generally, when they are flood irrigating, they apply most of the water between May and early August. Objector Anderson testified that he has never started a first cutting before July 4 because of the later growing season in the Melville area, and when he gets a second cutting or puts water back on fields for regrowth and pasture, that occurs in late July or September. (Department file; Testimony of Objectors Cremer, mp3, day 1, pt. 32, 8:10, et seq.; Anderson, mp3, day 1, pt. 35, 8:40, et seq.; King, mp3, day 2, pt. 52, 3:05, et seq.; Obj. FOF 65-66)

51. Objector Cremer testified that he also has concerns with recharge for stock, domestic wells, and springs, due to the continuous demand for instream flow at the very lowest property on Sweet Grass Creek, based on their experience during water shortage years. Objector Cremer usually gets a first cutting between July 5 and July 27, and a second cutting of hay around August 28, and he argues that less water going into the Cremer gravel bar would likely result in a lowering of the water table, as well as a loss of crops, reduction of livestock grazing, and well replacement, and would likely change the river dynamics. (Department file; Cremer Testimony; Obj. FOF 67-69)

52. Objector Thompson testified that he usually only gets one cutting, but his primary concern is that he has an 1889 right, and the instream flow right at the lower end of Sweet Grass Creek will knock back the Sweet Grass Creek to 1887 rights, so he will never be able to use the 1889 water right again. (Department file; Thompson Testimony; Obj. FOF 71-73)

53. Objector Holman testified that he is at the upper end of the Melville area, and usually starts a first cutting between July 4 and the end of July, and sometimes gets a second cutting from the end of August to the middle of September. (Department file; Holman Testimony; Obj. FOF 74-75)

54. Objector King testified that because of the difference in elevation, distance and weather, the upper Sweet Grass users are able to continue to irrigate while the lower users are haying. She also stated that based on copies of letters and water commissioner notes, final calls for water occurred on August 14, 1990, August 12, 1991, August 22, 1994, August 3, 1999, August

5, 2000, August 22, 2002, July 28, 2003, August 17, 2004, August 22, 2005, and July 28, 2006. Objector King also testified that water after the first haying was important, whether or not a second cutting was planned, so changing the water rights from the on/off pattern to a constant flow will cause her water rights to be adversely effected. (Department file; King Testimony, Obj. Exh. OK-3 through OK-8)

55. DNRC has conducted flow measurements on Sweet Grass Creek in both 2006 and 2007. Those flow measurements include measurements at six measurement sites over approximately sixty river miles of Sweet Grass Creek. (Department file; Chase Testimony, mp3, day 1, pt. 20, 2:15 et seq., and 3:22 et seq.; App. Exh. A-16)

56. In addition to the two-year study, in April 2007, DNRC conducted a synoptic measurement run of Sweet Grass Creek that included 15 measurements along the creek from Tronrud Bridge to Vermillion Bridge. The synoptic run, taken at a base flow condition largely unaffected by irrigation diversions, indicates that from the point of inflow at Tronrud Bridge to the outflow at Vermillion Bridge, Sweet Grass Creek is a relatively stable system, and a slightly gaining stream, even though the flow increases and decreases from Tronrud Bridge to Vermillion Bridge. Calls for irrigation water generally take from 12 hours to 2 days to deliver the water. (Department file; Testimony of Chase, Hibnes; 10:25 et seq.; 11:50, et seq., 14:25, et seq.; App. Exh. A-16)

57. Applicant estimated the seepage loss from the East Harrison and Deegan Ditches to be approximately 10% or less for the East Harrison Ditch and approximately 1% for the Deegan Ditch, concluding that even though these are rough estimates, seepage loss from the main ditches are not likely to be a significant source of water loss. This was based on synoptic runs, which showed the Ditches did not lose much water. (Department file; Ziemer Testimony; App. Exh. A-1; App. Pre-Hearing Memorandum and Map)

58. Applicant asserts that the evidence supports that early to mid-season flood irrigation practices will be almost completely undisturbed by the instream dedication. The earliest requested instream dedication begins July 10 from the Deegan Ditch Water Right, and the East Harrison Ditch instream dedication begins July 21, well after the greatest volume of water is taken from Sweet Grass Creek for flood irrigation (spring through mid-summer). Further, because the Vermillion Ranch contains the furthest downstream diversions on Sweet Grass Creek (East Harrison and Deegan Ditches), a formal hydrologic analysis was not performed to determine what proportion of the return flows and seepage loss may return to Sweet Grass

Creek and what proportion may flow directly into the Yellowstone River, on the original premise that Applicant was not required to protect any consumed water past the headgate. Regardless, Applicant asserts that any return flow went into the Yellowstone River below the confluence of Sweet Grass Creek. It appears from the record that the groundwater gradient is most likely in a southern direction and therefore most of the conveyance and on-field losses from the Deegan Ditch would likely contribute to the Yellowstone River. However, the East Harrison Ditch scenario is different. While return flows from the places of use likely head towards the Yellowstone River, ditch seepage losses during conveyance could return to Sweet Grass Creek. Mr. Roberts testified that there are potentially significant hydrologic impacts when converting from flood to sprinkler irrigation, as more water is applied with flood irrigation, resulting in a potential increase in late season return flows; sprinkler irrigation reduces late season return flows. The potential impacts of flood to sprinkler will only effect Sweet Grass users through a potential reduction in the aforementioned ditch seepage from the East Harrison Ditch. However, technically Yellowstone River users could be affected below the historic point of return flow on the Yellowstone. (Department file; Testimony of Ziemer, Roberts; App. Exh. A-1; A-15, A-16; FOF 55, 63-64)

59. Due to the different amendments to the Application, and some inconsistencies in the record pertaining to volume, it is not entirely clear what the Applicant is seeking to change. For instance, the Applicant defines 0.25 cfs and 26 acre-feet as consumed water, *as stipulated by Applicant*, for protection below the East Harrison Ditch headgate. However, Applicant refers to the proposed 0.5 cfs instream dedication to be fulfilled to the Deegan Ditch, in addition to the Deegan Ditch water right of 2.0 cfs. It appears the proposed 0.5 cfs instream dedication should be 0.25 cfs; therefore, the protected amount at the Vermillion Bridge near the Deegan Ditch pump, where the Deegan Ditch water would be measured, should be between 2.0 cfs (July 11-21 and September 11-21) and 2.25 cfs (July 21 to September 11). (Department file; Hearing Record; App. FOF 5)

60. Additionally, Applicant proposes to deliver historically-diverted volume of 72 acre-feet for flood irrigation on the Deegan Ditch fields. Applicant calculated this amount using Dan Glasgow's, a NRCS Soil Conservation Technician, calculations based on soil type and flood conditions, and dividing the consumptive crop requirement by the flood irrigation efficiency of 45%. This does not appear to be consistent with protecting 2.0 to 2.25 cfs to the Deegan Ditch for the proposed periods of time, as it should be about 324 acre-feet ($2\text{cfs} \times 22 \text{ days} \times 1.983 =$

87.25 acre-feet) + (2.25 cfs X 53 days X 1.983 = 236.5 acre-feet). It is not clear why there is such a discrepancy with the volume. (Department file; App. Exh. A-3; Application Exh. 2 and 3; App. FOF 5)

61. Applicant is seeking delivery of 1.5 cfs to the East Harrison headgate for 52 days (July 21 to September 10); protection of 0.25 cfs below the East Harrison headgate for 52 days (July 21 to September 10); delivery of 2.0 cfs to the historic Deegan Ditch for 72 days (July 11 to July 21; September 10 to September 20; and 2.25 cfs from July 22 to September 10); and protection of 0.25 cfs below the historic Deegan Ditch for 72 days (July 11 to July 21; September 10 to September 20, and 0.5 cfs from July 21 to September 10). It is difficult to tell where the addition of the proposed 0.5 cfs is factored into these estimates. It is possible this is salvage water, but it is not clear from the record. (Department file; Hearing Record)

62. Regardless of the confusion of the numbers set forth above, all of these numbers are based on unsupported applications of NRCS estimates and formulas. The Water Right Claims in this case further provide the volume “cannot exceed the amount put to historical and beneficial use.” The NRCS estimates and formulas are based on certain optimal irrigation and growing conditions, including full service of irrigation presumably into October. As summarized below, it is clear from the record that these optimal conditions did not occur to support application of the NRCS calculations. Further, it is not clear from the record whether the Applicant intends to continue irrigating the “retired acreage” in the other part of the period of use not in instream flow period of use. (Department file; Hearing Record)

63. Applicant asserts that based on the record that most of the water applied by flood irrigation is applied between May and early August, and based upon the flow data (2006-2007) within the record, and based upon the historic pattern of calls (post 2001) not occurring until late July and August, the change to an instream flow right will have minimal, if any, impact upon late irrigation-season stream flows in Sweet Grass Creek. While the Applicant provides estimated calculations for the historic consumptive use, I find Applicant has not provided actual quantitative evidence of the diverted and historic consumptive volumes for Water Right Claim Nos. 43BV-W-006888 (Deegan Ditch), 43BV-W-143439, and 43BV-W-143442 (East Harrison Ditch). (Department file; Hearing Record)

64. The irrigated lands proposed to be retired appear to have been irrigated or capable of irrigation prior to 1973, as observed on the 1950 Sweet Grass County WRS maps and notes, and pre-1973 aerial photos. The aerial photos clearly indicate that not all of this property

received full service irrigation or achieved the optimal irrigation conditions for the NRCS calculations. Most of Applicant's testimony related to irrigation practices far past the relevant date of per July 1, 1973, with no indication or support that recent practices reflect the practices of the relevant time period. Objectors' testimony supports that the conclusion that optimal growing conditions did not exist. I find there is not enough evidence to support that full-service, or even partial service irrigation, of these lands in historic or recent history has occurred. Without a clear assessment of historic consumptive use, it is difficult to determine the historic diverted amount as it is based on dividing the consumptive use by irrigation efficiency. The factual record does not support the application of the NRCS calculations. It is also unclear as to how the proposed 14.8 acres to be removed from production fit into the calculations put forth by the Applicant. The Applicant testified to volumes for these acres (55 acre-feet diverted; 19.2 acre-feet consumed); however, these volumes do not appear to be a part of the total volume calculations for all of the water rights. (Department file; Hearing Record)

65. Applicant further failed to explain how the continued irrigation under the Water Right Claims proposed for change coupled with the NRCS estimates for instream flow would not expand the historic use of each of the individual Water Right Claims. Virtually no information was provided on the proposed continued irrigation current or historic so as to assess the overall effect of the change. The sum of the parts cannot exceed the irrigation of the whole under each water right. While the change is for instream flow, the Objectors are correct in that an expansion of the historic use of the water rights in this case can affect upstream users based on an earlier call. The call and flow information are primarily in the last ten years. In addition, during this time period the Deegan Ditch pump did not operate more often than not; when it did operate, it did not irrigate 22.26 acres (sheep field) of that proposed for change (24.7 acres) for Water Right Claim No. 43BV-6888. Because I cannot determine that the historic use of these water rights will not be expanded by this change, I cannot conclude that there will be no adverse effect. I find the Applicant has not proven the historic extent of the water rights to be changed or by a preponderance of evidence 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. (Department file; Hearing Record)

Beneficial Use

66. Under this change application, Applicant originally proposed to change half of the flow rate 1.5 cfs of Water Right Claim No. 43BV-W-143439, and to retire 26.25 acres of irrigated land, and salvage water from converting 40.1 acres from flood irrigation to wheel-line sprinkler irrigation to deliver the asserted historically-diverted volume of 178 acre-feet (98 acre-feet for East Harrison Ditch 26.25 acres retired + 80 acre-feet for the conversion to sprinkler irrigation) for this acreage down to the East Harrison Ditch headgate (measuring at least 1.5 cfs at the East Harrison staff gauge) for no more than 52 days, from July 21 to September 10. Below the East Harrison Ditch headgate to the confluence of Sweet Grass Creek with the Yellowstone River, Applicant seeks to legally protect from diversion the asserted historically consumed volume attributable to this partial change of Water Right Claim No. 43BV-W-143439 (0.25 cfs, 26 acre-feet) for no more than 52 days, from July 21 to September 10. Applicant later amended its Application to retire an additional 14.8 acres of irrigated land under Water Right Claim No. 43BV-14349 with overlapping places of use (Claims Nos. 43BV-143441 and -143442) from irrigated production (of the 109.4 amended Claim). The asserted diverted volume and consumed volume for the East Harrison ditch water rights were not amended. (Department file; Ziemer Testimony; App. Exh. A-I, Sec. 4.B.; App. Exh. A-5; App. FOF 5, 46)

67. Sweet Grass Creek has been used for spawning, rearing, and as habitat for resident fish. Studies conducted by FWP within the proposed protected reach of this instream flow change show several species are present, including fathead minnow, stonecat, brown trout, longnose dace, white sucker, brook stickleback, mottled sculpin, mountain sucker, lake chub, shorthead redhorse, and mountain whitefish. Another survey by FWP showed the presence of brown trout spawning redds in the lower creek and trout fry. Applicants assert Sweet Grass Creek has failed to achieve its full potential as spawning and rearing habitat in part due to chronic dewatering, especially in times of drought, and habitat degradation. (Department file; Testimony of Ziemer, Vermillion; App. Exh. A-1)

68. Instream flow purposes is a recognized beneficial use. (Department file; Barndt Testimony; § 85-2-102(4)(a), MCA; § 85-2-402(2)(c), -407, and 408, MCA)

69. Scott Barndt, formerly Montana Department of Fish, Wildlife & Parks regional fisheries biologist for the Sweet Grass Creek area, testified that he observed fish on Applicant's property. He stated that the additional flow to Sweet Grass Creek would be beneficial to the fishery, even though the additional flows proposed under the contested change application would not reach

optimal flow levels for trout in lower Sweet Grass Creek during summer flows. Mr. Barndt testified that the additional flows would support aspects of stream ecology by providing riffles and pools (highly oxygenated/solar fuels organisms), and migration corridors for the fish. (Department file; Barndt Testimony; App. Exh. A-19)

70. Mr. Barndt acknowledged that this Application contains measurement information indicating a flow rate of 1.82 cfs at the East Harrison Ditch diversion, and no flow at the mouth of the river. (Department file; Barndt Pre-filed Direct Testimony, pg. 3; Barndt Testimony; App. Exh. A-19; App. FOF 8)

71. At hearing, Mr. Barndt cited to research published by the United States Fish & Wildlife Service that showed a 1:2 ratio between base streamflow increases and suitable brown trout habitat, meaning that for every one unit increase in streamflow, there was a corresponding doubling in suitable brown trout habitat, even at flows of less than 1.0 cfs. (Department file; Barndt Testimony, mp3, day 1, pt. 16, 5:30, et seq., 7:00, et seq., App. Exh. A-19, Habitat Suitability Index Models and Instream Suitability Curves: Brown Trout (US Fish & Wildlife Service Biological Report 82 (10.124) Sept.1986), pg. 17)

72. Mr. Barndt acknowledged that he had done no analysis or studies of low flow models or fishery needs in the Sweet Grass Creek through the Vermillion Ranch property. However, Mr. Barndt testified that the increased amount of flow under the proposed change will improve spawning and rearing in lower Sweet Grass Creek. (Department file; Barndt Testimony, Track #17; App. Exh. A-19)

73. Mr. Barndt acknowledged that he had not completed a study of annual average daily base flow and did not know what that number would be. (Department file; Barndt Testimony, Track #16 through #19; App. Exh. A-19)

74. Mr. Barndt testified that a graph on page 17 of Applicant's Exhibit A-19, the *Habitat Suitability Index Models and Instream Flow Suitability Curves: Brown Trout (US Fish and Wildlife Service Biological Report 82 (10.124) Sept. 1986)*, which addresses habitat suitability models and habitat requirements for brown trout by life stage, indicated that for every 5% increase in average daily base flow, a corresponding 10% increase in suitable habitat occurs. Page 1 of this study states that Suitability Index graphs are developed on assumption that increments of growth, survival or biomass plotted on the y-axis can be directly converted into an index of suitability from 0.0 to 1.0 for the species (0.0 indicating not suitable and 1.0 indicating

optimal conditions). (Department file; Barndt Testimony, Track #16 through #19; App. Exh. A-19)

75. I find the Applicant has provided sufficient evidence that the quantity of water proposed to be used is the flow and volume necessary to benefit the fishery resource. (Department file; Hearing Record)

Measurement Plan

76. Applicant is proposing to measure the instream flow dedication with two staff gauges. TU, working under the supervision of Mr. Ron Shields, has placed staff gauges at each historic place of diversion, below the East Harrison diversion and on the Vermillion Bridge, just upstream from the pump for the Deegan Ditch water right claim, to track the instream flow water through the protected reach of Sweet Grass Creek. Any call for water made, if necessary, will be based on their water measurements and priority of water rights within the protected reach. The lower site on the bridge abutment appears to be several hundred yards below the historical points of diversion. (Department file; Shields Testimony, mp3, day 1, pt. 23, 1:32, et seq., 2:10 et seq.; App. Exh. A-5; App. FOF 9-14; Obj. FOF 80)

77. Mr. Shields testified that the staff gauges will enable measurement of the stage of Sweet Grass Creek, and then the flow will be determined by the use of rating curves, created by Mr. Shields for the two staff gauges. The rating curves relate the stage reading on the staff gauge to the flow (cfs) of Sweet Grass Creek at that location. (Department file; Ron Shields Pre-filed Expert Testimony, Exh. B; Shields Testimony, mp3, day 1, pt. 23, 3:15, et seq.; App. FOF 9; Obj. FOF 81)

78. Mr. Mike Roberts, DNRC staff expert, stated that using a current meter to generate a state-discharge relationship and rating is a common water measurement practice among resource professionals. Mr. Roberts stated that the accuracy is predicated on methodology, site selection and conditions, experience using the equipment, equipment maintenance, and the velocity and depth of the water measured. Mr. Roberts further stated that the use of USGS protocol for open channel measurements, as proposed by the Applicant, is the most accurate methodology for current meter measurement. (Department file; Roberts Testimony; Roberts Report; App. FOF 11)

79. Additionally, Mr. Eric Chase testified to the methodology DNRC uses, which is to take a reading of a staff gauge level that has been correlated to a flow rate through the use of a rating curve built from actual flow measurements. This is the same as the Applicant's proposed methodology to measure flows in Sweet Grass Creek. (Department file; Chase Testimony, mp3, day 1, pt 20, 7:41, et seq.)

80. At the Vermillion Bridge, DNRC uses the Applicant's staff gauge in tandem with a recording device to measure flows at that site. Mr. Shields testified that staff gauges must be checked annually to assess their continued accuracy. Mr. Shields performs oversight and quality control for TU's streamflow monitoring efforts. TU, on behalf of the Applicant, intends to monitor the continued accuracy of the two Sweet Grass Creek staff gauges. This will be accomplished by taking annual streamflow measurements, after ice-out and before high-water begins, then another measurement immediately after high water recedes, then a measurement at least once a month during the summer, to check the results of the measurements against the staff gauge rating curve to assure that the rating curve is still accurate. (Department file; Shields Testimony, mp3, day 1, pt. 23, 2:42, et seq., pt. 25, 7:45, et seq., 10:53, et seq., day 2, pt. 56, 00:20, et seq.; Ziemer Testimony, mp3, day 1, pt. 6, 2:49, et seq., day 2, pt. 56, 2:03, et seq.; Shields Pre-filed Expert Testimony, pg. 2; App. FOF 12)

81. TU, on behalf of the Applicant, will take primary responsibility for conducting the flow monitoring program, including reporting Sweet Grass Creek flow and staff gauge readings to the DNRC on an annual basis, following USGS protocol for open channel flow measurements in its monitoring. TU will have an expert hydrographer to oversee its flow monitoring efforts. Mr. Shields suggested at least weekly readings of the staff gauges during the irrigation season. (Department file; App. Exh. A-I, Application Exh. L; Shields Testimony, mp3, day 2, pt. 56, 1:48, et seq.; App. FOF 13)

82. Measurement of flows at the two gauge sites proposed by the Applicant involves reading a staff gauge and comparing the reading to a rating table to get a flow rate. Mr. Hibnes testified that in the normal course of administering water rights as a water commissioner, he reads staff gauges on measuring devices such as flumes, and that he is comfortable reading staff gauges, but the accuracy of the rating curve has to be maintained. (Department file; Shields Pre-filed Expert Testimony, Exh. B; Hibnes Testimony, mp3, day 2, pt. 48, 0.55 et seq., 1:15, et seq., 18:42, et seq.; App. FOF 14-15)

83. Mr. Shields testified that most measurements used to support rating curves were taken with a Marsh-McBirney Flomate 2000 open channel flow meter, which Mr. Shields stated is not always accurate at low velocities. Mr. Eric Chase, DNRC hydrologist involved in DNRC studies on the Sweet Grass, and Mr. Larry Dolan, DNRC hydrologist, testified to the margin of error at low flows with a flow meter, stating that the margin of error was +/-5% - 15%. (Department file; Testimony of Shields, Dolan, Chase; Obj. FOF 82-91)

84. The earliest proposed date of instream use, July 10, occurs generally after the Applicant has cut its first cutting of hay in most years. The instream change application calls for delivering 1.5 cfs as measured at the East Harrison staff gauge for 52 days, from July 21 to September 10, annually. If the 1882 Deegan Ditch right is out of priority, then the 1.5 cfs measurement at the East Harrison staff gauge constitutes the sole administration of the Applicant's instream rights. The instream change application calls for delivering 2.75 cfs as measured at the Vermillion Bridge staff gauge, when the Deegan Ditch pump is running. When the Deegan Ditch pump is not pulling irrigation water, then the Vermillion Ranch instream change application calls for delivering 0.75 cfs to the Vermillion Bridge staff gauge for 52 days, from July 21 to September 10, annually. (Department file; App. Exh. A-5)

85. Mr. Mike Roberts testified that the installation and rating of a staff gauge at the upper location above the Deegan Ditch pump would enable the Applicant and water commissioner to determine if the requested amount is available for streamflow at the headgate (1.5 cfs from July 21 to September 10, and 0.5 cfs from July 11 to September 20). Both staff gauges and diversionary measuring devices will need to be properly functioning. (Department file; Roberts Testimony)

86. I find the Applicant has provided a detailed streamflow measuring plan that describes the point where and the manner in which the streamflow must be measured. (Department file; Hearing Record; § 85-2-408(1)(a)(b), MCA)

Salvage Water

87. Applicant seeks to salvage water through conversion of 40.1 acres from flood irrigation to wheel-line sprinkler irrigation (79.72 acre-feet). The Application was not publicly noticed as salvage water. (Department file; Ziemer Testimony; § 85-2-402(2)(e), MCA)

88. In 2006, a wheel-line sprinkler was installed on the southern 40.1 acres from the East Harrison Ditch (*indicated on App. Exh. A-14*). Using the NRCS calculations, Applicant estimated the irrigation efficiency of the NRCS cost-shared wheel line to be 75% (*App. Exh. A-3, App. Exh. A-4*). According to Applicant, the flood irrigation (using a 35% field efficiency) would require a diverted volume of about 150 acre-feet ($1.305 \text{ acre-feet/year/acre dry-year crop demand} \times 40.1 \text{ acres} = 52.33 \text{ acre-feet crop consumption} \times 35\% = 149.52 \text{ acre-feet}$). For the wheel-line sprinkler (using a 75% field efficiency), this would require a diverted volume of approximately 70 acre-feet ($52.33 \text{ acre-feet}/75\% = 69.8 \text{ acre-feet}$). Applicant calculated that the volume of water available for conversion to instream use is the difference in the field efficiency between the historic flood irrigation (149.52 acre-feet, NRCS calculation) and the new wheel-line irrigation (69.9 acre-feet), or 79.72 acre-feet salvaged water ($79.72 \text{ acre-feet}/(1.983) \times (0.78 \text{ cfs}) = 51.53 \text{ days at } 0.78 \text{ cfs}$). (Department file; App. Exh. A-5; App. Pre-Hearing Memorandum and Map)

89. Mr. Roger Perkins testified on behalf of the Objectors that the Water Court Appropriation Rules and Final Adjudication Rules use a 25% increase for sprinkler versus field irrigation. (Department file; Perkins Testimony; App. Exh. A-5; App. FOF 27; Obj. FOF 101)

90. In this case, the 40.1 acres converted to sprinkler irrigation are indicated as historically irrigated on the 1950 Sweet Grass County WRS, but appear only partially irrigated on the 1950 aerial photo. (Department file; App. Exh. A-5)

Applicant provided no evidence to support a historic diverted volume of a historic consumptive amount for these acres. Typically this type of conversion from flood to sprinkler irrigation does amount to diverted water savings, but not consumptive use, based on an increase in efficiency. Water salvaged should be determined by subtracting from the diverted amount from a flood irrigation operation, the diverted amount from a sprinkler operation. I cannot find where the salvage water created by the flood to sprinkler conversion fits into the Applicant's change request.⁶ Further, it appears Applicant is assuming full-service irrigation in its' NRCS calculations. I have found no evidence to support that the Applicant received full-service irrigation on these lands. (Department file; Hearing Record; § 85-2-402(2)(e), MCA)

⁶ The salvage water may be the proposed 0.5 cfs referenced in App. FOF 5.

Water Quality

91. No objections were raised as to water quality or as to the ability of a discharge permitholder to satisfy effluent limitations. (Department file; § 85-2-402(2)(f) and (g), MCA)

Based on the foregoing Findings of Fact and the record in this matter, the Hearing Examiner makes the following:

CONCLUSIONS OF LAW

Montana Water Use Act (Title 85)

1. The Department has jurisdiction to approve a temporary change in appropriation right for instream flow to maintain or enhance streamflows to benefit the fishery resource pursuant to §§ 85-2-407, and -408, MCA, if the appropriator proves, by a preponderance of the evidence, the applicable criteria in § 85-2-402, MCA. Section 85-2-402(2), MCA, states, *inter alia*, and as applicable to this instream flow change Application:

...

(2) Except as provided in subsections (4) through (6), (15), and (16), and if applicable, (17), the Department shall approve a change in appropriation right if the appropriator proves by a preponderance of the evidence that the following criteria are met:

(a) the proposed change in appropriation right will not adversely affect the use of 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;

...

(c) the proposed use of water is a beneficial use; and

...

(e) if a change in appropriation right involves salvaged water, the proposed water-saving methods will salvage at least the amount of water asserted by the applicant. (§ 85-2-402(2) (a), (c), (e), MCA)

2. For the instant instream flow change Application, the requirements of § 85-2-402(2) (b), (d), (f)-(g), MCA, are not applicable because the proposed change Application is for a temporary instream flow; no objections were received as to water quality or the ability of a discharge permitholder to satisfy effluent limitations. (§ 85-2-402(2) (b), (d), (f)-(g), MCA; FOF 3-6; 92)

3. A temporary change in appropriation right for an instream flow may be approved for a period not to exceed 10 years. A temporary change in appropriation right may be approved for consecutive or intermittent use. (§ 85-2-407(2), MCA)

4. 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 §§ 85-2-402, -407, and -408, MCA. An application for a temporary change authorization for instream flow under § 85-2-408(1), MCA, shall:

- (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. (§ 85-2-408(1) (a), (b), MCA)

5. A temporary change authorization under § 85-2-408(2), MCA, is allowable only if the owner of the water right voluntarily agrees to:

- (a) change the purpose of a consumptive use water right to instream flow for the benefit of the fishery resource; or
- (b) lease a consumptive use water right to another person for instream flow to benefit the fishery resource. (§ 85-2-408(2) (a), (i), (ii), MCA)

6. In addition to the requirements of §§ 85-2-402, and -407, MCA, the Applicant must prove by a preponderance of the evidence, pursuant to § 85-2-408(3), MCA, 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 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. (§ 85-2-408(3) (a), (b), MCA)

7. 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. (§ 85-2-408(7), MCA)

8. The requirements of Montana's change statutes have been litigated and upheld in Matter of Application for Change of Appropriation Water Rights Nos. 101960-41S and 101967-41S by Royston (1991), 249 Mont. 425, 816 P.2d 1054 (applicant has the burden of proof at all stages before the Department and courts). Generally an applicant can change up to the historic

diverted flow rate and volume as limited by the historic consumptive use of the water right as long as the applicable criteria are met. Id.

9. 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 (1999), 295 Mont. 447, 453, 984 P.2d 151, 155 (Water Resources Survey used as evidence in adjudicating of water rights); Wareing v. Schreckendgust (1996), 280 Mont. 196, 213, 930 P.2d 37, 47 (Water Resources Survey used as evidence in a prescriptive ditch easement case); Olsen v. McQueary (1984), 212 Mont. 173, 180, 687 P.2d 712, 716 (judicial notice taken of Water Resources Survey in water right dispute concerning branches of a creek).

10. Official notice was taken of all documents in the record, including those documents referenced above, and any exhibits already contained within the DNRC's files. The Department may take notice of judicially cognizable facts and generally recognized technical or scientific facts within the department's specialized knowledge. Parties may object to official notice by filing exceptions to this Final Order. (Admin. R. M. 36.12.221(4))

11. Proposed findings of fact were solicited and received from the parties in this case. Section 2-4-623(4), MCA, provides that if a party submits proposed findings, the decision shall include a ruling upon each finding. However, case law has construed such a provision to not require express rulings on each proposed finding as long as the agency's decision on such findings is clear. If certain findings are not included they are considered as having been rejected, which is all that is required. See Wilderness Ass'n v. DNRC (1982), 200 Mont. 11, 39, 648 P.2d 734; Montana Consumer Counsel v. PSC and MPC (1975), 168 Mont. 180, 193, 541 P.2d 770. Once the [trier of fact] adopts findings and conclusions, they become his or her own. See Matter of R.L.S. v. Barkhoff (1983), 207 Mont. 199, 674 P.2d 1082. The Hearing Examiner thus assumes sole and complete responsibility for the findings and conclusions contained in this decision.

Historic Use/Adverse Effect

12. Applicant seeks to change existing water rights represented by its Water Right Claims (Nos. 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442). The "existing water rights"

in this case are those as they existed prior to July 1, 1973, because no changes could have been made to those rights after that date without the Department's approval. (§§ 85-2-401, and -402, MCA; FOF 1). Thus, the focus in this case is what those rights looked like and how they were exercised prior to July 1, 1973. E.g., Matter of Clark Fork River Drainage Area (1992) 254 Mont. 11, 17, 833 P.2d 1120. The Montana Water Court does not decree a volume for irrigation claims nor does the Court decree the pattern of historic use. (§ 85-2-234, MCA).

13. An applicant can change only that to which it has a right. E.g., McDonald v. State (1986) 220 Mont. 519, 722 P.2d 598. See also, In re Application for Water Rights in Rio Grande County, 53 P.3d 1165, 1170 (Colo. 2002) (while the enlargement of a water right, as measured by historic use, may be injurious to other rights, it also simply does not constitute a permissible "change" of an existing right); Robert E. Beck, 2 Water and Water Rights, § 16.02(b), p. 271 (1991 ed.) (issues of waste and historic use, as well as misuse ... properly be considered by the administrative official or water court when acting on a reallocation application) (*citations omitted*). The applicant in a change proceeding in Montana must prove the historic beneficial use of the water to be changed, even if the water right was decreed in Montana's adjudication. See McDonald, supra (beneficial use is the basis, the measure and the limit, irrespective of greater quantity attempted to be appropriated); 79 Ranch, Inc. v. Pitsch (1983), 204 Mont. 426, 441, 666 P.2d 215, 222. As stated by the Montana Supreme Court in McDonald:

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.** Thus an owner may have a decreed right to a certain number of miner's inches of water; or a statutory appropriative right to a stated amount; or a right depending upon mere use; or even a prescriptive right to a stated amount; nonetheless, **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...no matter how the water right is expressed in the decrees of the water court, either in flow rate or in acre feet or a combination thereof, such expression of amount is not the final determining factor. It is best expressed in the statutes of other states: *beneficial use* shall be the *basis*, the *measure* and the *limit* of all rights to the use of water.

(Emphasis added), 220 Mont. at 529-30, 722 P.2d at 604-05.

14. The DNRC in administrative rulings has held that a water right in a change proceeding is defined by actual beneficial use, not the amount claimed or even decreed. E.g., In the Matter of

Application for Change Authorization No. G(W)028708-411 by Hedrich/Straugh/Ringer (Final Order, 1991); In the Matter of Application for Change Authorization No. G(W)008323-g76L by Starkel/Koester (Final Order, 1992). Historic beneficial use is the cornerstone to evaluating potential adverse effect to other appropriators, senior and junior. Other appropriators have a vested right to have the stream conditions maintained substantially as they existed at the time of their appropriations. Spokane Ranch & Water Co. v. Beatty (1908), 37 Mont. 342, 96 P. 727; Robert E. Beck, 2 Water and Water Rights, supra, § 14.04(c)(1) (1991 ed.); W. Hutchins, Selected Problems in the Law of Water Rights in the West, p. 378 (1942); *In the Matter of Application to Change Appropriation Water Right No.41F-31227 by T-L Irrigation Company (Final Order, 1991)* (senior appropriator cannot change pattern of use to detriment of junior); McDonald, supra (existing right is the pattern of historic use); see also, § 85-2-401, MCA. . It is a fundamental part of Montana and western water law that the extent of a water right is determined by reference to the historic beneficial use of the water right. McDonald, supra; In re Application for Water Rights in Rio Grande County, supra.

Montana's change statute at § 85-2-402(2)(a), MCA, reads in part:

... 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.*

....

(13) A change in appropriation right contrary to the provisions of this section is invalid. An officer, agent, agency, or employee of the state may not knowingly permit, aid, or assist in any manner an unauthorized change in appropriation right. A person or corporation may not, directly or indirectly, personally or through an agent, officer, or employee, attempt to change an appropriation right except in accordance with this section.

(Emphasis added).

The Colorado Supreme Court has repeatedly addressed this same issue of historic use and adverse effect in the prior appropriation doctrine under a statute similarly worded to § 85-2-402(2)(a), MCA. E.g., In re Application for Water Rights in Rio Grande County, 53 P.3d 1165, 1170 (Colo. 2002), supra; Santa Fe Trail Ranches Property Owners Ass'n v. Simpson, 990 P.2d 46, 55-57 (Colo. 1999); Orr v. Arapahoe Water and Sanitation Dist., 753 P.2d 1217, 1223 (Colo. 1988). The Colorado Supreme Court has consistently explained:

A classic form of injury involves diminution of the available water supply that a water rights holder would otherwise enjoy at the time and place and in the amount of demand for beneficial use under the holder's decreed water right operating in priority (*citation omitted*).

...

... it is inherent in the notion of a "change" of water right that the property right itself can only be changed and not enlarged (*citation omitted*). The appropriator of native water may not enlarge an appropriation without establishing all of the elements of an independent appropriation, which will necessarily have a later priority date (*citation omitted*).

...

... diversions are implicitly limited in quantity by historic use at the original decreed point of diversion. . . [W]e have explained this limitation by noting that "over an extended period of time a pattern of historic diversions and use under the decreed right at its place of use will mature and become the measure of the water right for change purposes." (*Citation omitted*).

...

The right to change a point of diversion is therefore limited in quantity by the historic use at the original point of diversion. (*Citations omitted*). "Thus, a senior appropriator cannot enlarge the historical use of a water right by changing the point of diversion and then diverting from the new location the full amount of water decreed to the original point of diversion, even though the historical use at the original point of diversion might have been less than the decreed rate of diversion."

...

FN9. The term "historic use" refers to the "historic consumptive use." (*Citations omitted*).

In re Application for Water Rights in Rio Grande County, *supra*.

In Pueblo West Metropolitan Dist. v. Southeastern Colorado Water Conservancy Dist., 717 P.2d 955 (Colo. 1986), the court held:

[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.

(Emphasis added).

See also, Wells A. Hutchins, Water Rights and Laws in the Nineteen Western States, p. 624 (1971) (changes in exercise of appropriative rights do not contemplate or countenance any increase in the quantity of water diverted under the original exercise of the right; in no event would an increase in the appropriated water supply be authorized by virtue of a change in point of diversion, place of use, or purpose of use of water); A. Dan Tarlock, Law of Water Rights and

Water Resources, § 5:78 (2007) (“A water holder can only transfer the amount that he has historically put to beneficial use.... A water holder may only transfer the amount of water consumed. The increment diverted but not consumed must be left in the stream to protect junior appropriators. Consumption is a function of the evapotranspiration of the appropriator’s crops. Carriage losses are usually added to the amount consumed by the crops.”); Colo. Rev. Stat. § 37-92-301(5) (in proceedings for a reallocation [change], it is appropriate to consider abandonment of the water right).

15. Consumptive use of water may not increase when an existing water right is changed. (*In the Matter of Application to Change a Water Right No. 40M 30005660 By Harry Taylor II and Jacqueline R. Taylor* (Final Order, 2005); *In The Matter of Application to Change a Water Right No. 40A 30005100 by Berg Ranch Co./Richard Berg* (Proposal for Decision, 2005; Final Order adopting Proposal for Decision); *In the Matter of Application to Change a Water Right No. 41I 30002512 by Brewer Land Co, LLC* (Proposal for Decision, 2003; Final Order adopting Proposal for Decision).

16. Montana’s change statute simply codifies western water law.⁷ One commentator describes the general requirements in change proceedings as follows:

Perhaps the most common issue in a reallocation [change] dispute is whether other appropriators will be injured because of an increase in the consumptive use of water. Consumptive use has been defined as “diversions less returns, the difference being the amount of water physically removed (depleted) from the stream through evapotranspiration by irrigated crops or consumed by industrial processes, manufacturing, power generation or municipal use. Irrigation consumptive use is the amount of consumptive use supplied by irrigation water applied in addition to the natural precipitation which is effectively available to the plant.”

...

An appropriator may not increase, through reallocation [change] or otherwise, the actual historic consumptive use of water to the injury of other appropriators. In general, any act that increases the quantity of water taken from and not returned to the source of supply constitutes an increase in historic consumptive use. As a limitation on the right of reallocation, historic consumptive use is an application of the principle that appropriators have a vested right to the continuation of stream conditions as they existed at the time of their initial appropriation. Historic consumptive use varies greatly with the circumstances of use.

Robert E. Beck, 2 Water and Water Rights, *supra*, § 14.04(c)(1), pp. 14-50, 51.

⁷ Although Montana has not codified the law in the detail Wyoming has, the two states’ requirements are virtually the same. Wyo. Stat. § 41-3-104.

17. In a change proceeding, the *consumptive* use of the historical right has to be determined:

In a reallocation [change] proceeding, both the actual historic consumptive use and the expected consumptive use resulting from the reallocation [change] are estimated. Engineers usually make these estimates. With respect to a reallocation [change], the engineer conducts an investigation to determine the historic diversions and the historic consumptive use of the water subject to reallocation [change]. This investigation involves an examination of historic use over a period that may range from 10 years to several decades, depending on the value of the water right being reallocated [changed].

....

When reallocating [changing] an irrigation water right, the quantity and timing of historic consumptive use must be determined in light of the crops that were irrigated, the relative priority of the right, and the amount of natural rainfall available to and consumed by the growing crop.

....

Expected consumptive use after a reallocation [change] may not exceed historic *consumptive* use if, as would typically be the case, other appropriators would be harmed. Accordingly, if an increase in consumptive use is expected, the quantity or flow of reallocated [changed] water is decreased so that actual historic consumptive use is not increased.

Robert E. Beck, 2 Water and Water Rights, *supra*, § 14.04(c)(1)

18. Prior to the enactment of the Water Use Act in 1973 and the promulgation of § 85-2-402, MCA, the burden of proof in a change lawsuit was on the person claiming the change adversely affected their water right, although the law was the same in that an adverse effect to another appropriator was not allowed. Holmstrom Land Co., Inc. v. Newlan Creek Water Dist. (1979), 185 Mont. 409, 605 P.2d 1060, *rehearing denied*, (1980) 185 Mont. 409, 605 P.2d 1060, *following Lokowich v. Helena* (1913), 46 Mont. 575, 129 P. 1063; Thompson v. Harvey (1974), 164 Mont. 133, 519 P.2d 963 (plaintiff could not change his diversion to a point upstream of the defendants because of the injury resulting to the defendants); McIntosh v. Graveley (1972), 159 Mont. 72, 495 P.2d 186 (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 (1909), 38 Mont. 302, 100 P. 222 (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); Gassert v. Noyes (1896), 18 Mont. 216, 44 P. 959 (after the defendant used his water right for placer mining purposes the water was turned into a gulch, whereupon the plaintiff appropriated it for irrigation purposes; the defendant then changed the place of use

of his water right, resulting in the water no longer being returned to the gulch - such change in use was unlawful because it absolutely deprived the plaintiff of his subsequent right).

19. Montana has no legal standard in a water right change proceeding for assigning a volume for historic consumptive use. The actual historic use of water could be less than the optimum utilization represented by the duty of water in any particular case. In re Application for Water Rights in Rio Grande County, 53 P.3d 1165, (Colo. 2002); 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”); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.* (Proposal for Decision, 2005; Final Order, adopting Proposal for Decision). As a result, there may be evidence that property was irrigated but the amount diverted and consumed is not necessarily equivalent to the duty of water. 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. It is the applicant’s burden to produce evidence of historical use, and not doing so constitutes a failure of proof. *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC, supra.* “Absent quantification of annual volume historically consumed, no protective condition limiting annual volume delivered can be placed on a Change Authorization, and without such a condition, the evidence of record will not sustain a conclusion of no adverse effect to prior . . . appropriators.” *In the Matter of the Application for Change of Appropriation Water Rights Nos. 101960-41S and 101967-41S by Keith and Alice Royston* (Final Order, COL No. 8, 1989), affirmed Royston (1991), 249 Mont. 425, 428, 816 P.2d 1054, 1057, supra. Without evidence of the amount of actual historical use, the Department cannot issue a change in appropriation water right. § 85-2-402(a), MCA; *In the Matter of the Application of Beneficial Water Use Permit Number 41H 30003523 and the Application for Change No. 41H 30000806 by Montana Golf Enterprises, LLC.* (Proposal for Decision, 2003) (proposed decision denied change for lack of evidence of historical use; application subsequently withdrawn); In re Application for Water Rights in Rio Grande County, supra; *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC., supra.*

20. Guides and estimates such as the Montana Irrigation Guide or the NRCS can be used under certain circumstances to estimate the consumptive use of a crop for an irrigation season.

The Montana Irrigation Guide is not a Department standard. The Montana Irrigation Guide assumes optimal conditions, irrigation practices, and water availability and a full growing season. To use the Montana Irrigation Guide an applicant must demonstrate that the facts surrounding the appropriation mirror the assumptions of the Guide, i.e. optimal conditions, full growing season and optimal water availability. An applicant is not entitled to claim that amount of consumption attributable to precipitation but only that associated with the appropriation. Similarly the Montana Supreme Court Claim Examination Rules are another benchmark as to the general reasonableness of a claimed appropriation. The Examination Rules however are not conclusive as to historic use nor are they a substitute for actual proof of the right as historically used. Each use of water is unique to its factual situation including, purpose of the use, available flows, geography, climate etc. (§ 85-2-402(a), MCA)

21. The applicant for a change of appropriation right has the burden as to the nonexistence of adverse impact. Royston, *supra* (change denied in part for failure to prove lack of adverse effect due to lack of analysis of return flow). Section 85-2-402(2), MCA, provides that the Department shall approve a change in appropriation right if the appropriator proves by a preponderance of evidence that the proposed change will not “adversely affect the use of the existing water rights of other persons.” The phrase “by a preponderance of the evidence” means such evidence, as when weighted with that opposed to it, has more convincing force and from which it results that the greater probability of truth lies therein. This means that *if no evidence were given on either side of an issue, your finding would have to be against the party asserting that issue*. In the event that evidence is evenly balanced so that you are unable to say that the evidence of either side of an issue preponderates, that is, has the greater convincing force, then your findings on that issue must be against the person who has the burden of proving it. Ekwortzel v. Parker (1971), 156 Mont. 477, 484-485, 482 P.2d 559, 563 (quoting with approval District Court’s Jury Instruction No. 2) (emphasis added)

22. Water Resources Surveys are exhaustive county-by-county records of actual on-the-ground water use that were authorized by the 1939 legislature. The surveys involved extensive detailed work in both the office and the field to compile a comprehensive inventory of water rights and included the use of aerial photography to assure accuracy in mapping the land areas of water use. Field forms were prepared for each landowner, showing the name of the owner and operator, photo index number, a plat defining the ownership boundary, type of irrigation system, source of water supply and the total acreage irrigated and irrigable under each. In this

case, the 1950 Sweet Grass County WRS is an accurate and reliable source for establishing what lands were historically irrigated (including lands capable of irrigation) in Sweet Grass County. Based upon the 1950 Sweet Grass WRS, aerial photos, maps, and notes, Applicant has shown by a preponderance of evidence that the property claimed in the historic place of use was irrigated by Water Right Claim Nos. 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442 proposed to be changed. (§ 85-2-402(2)(a), MCA; FOF 18-28)

23. While the place of use (pre- and post-Change Authorization) for Water Right Claim Nos. 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442 were shown to be irrigated, the amount that each of these claims historically contributed to the irrigation claimed cannot be determined from the record. It is clear that all of the property claimed as irrigated did not receive full service irrigation, so as to apply the proffered NRCS estimates. Mere calculations, in the absence of historical facts to support the propriety of the calculations, are insufficient. (Admin. R. M. 36.12.115; FOF 29-45)

24. It is impossible to determine the actual historical flow, diverted volume and consumed amount for each of the water rights proposed for change. Applicant failed to prove the extent of the historic rights to be changed and that the proposed change in combination with the continued irrigation would not expand the water rights claimed. See, Royston, supra. An expanded water right can create adverse effect for both upstream and downstream water users. Applicant has not proven by a preponderance of the evidence 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. (§ 85-2-402(2)(a), MCA; FOF 45-65)

25. Along with consumptive use, the analysis of return flow is a critical component of a change in appropriation and specifically whether a change will cause adverse effect to another appropriator. Generally, return flow is water that is not consumed or otherwise lost to the system. The Department defines "return flow" in part as:

"Return flow" means that part of a diverted flow which is applied to irrigated land and is not consumed and returns underground to its original source or another source of water, and to which other water users are entitled to a continuation of, as part of their water right...

Admin. R. M. 36.12.101(56). See *also*, Doney, Montana Water Law Handbook, p. 21 (1981). It is well settled in Montana and western water law, that once water leaves the control of the

appropriator whether through seepage, percolating, surface, or waste waters,” and reaches a water course, it is subject to appropriation. *E.g.*, Rock Creek Ditch & Flume Co. v. Miller (1933), 93 Mont. 248, 17 P.2d 1074, 1077; Royston, *supra*; Bitterroot River Protective Ass'n, Inc. v. Bitterroot Conservation Dist., 2008 MT 377, ¶¶22, 31, 43, 346 Mont. 508, ¶¶22, 31,43, 198 P.3d 219, ¶¶22, 31,43, *citing* Hidden Hollow Ranch v. Fields (2004), 321 Mont. 505, 92 P.3d 1185. A change can affect return flow patterns and timing, affecting other water users. *In the Matter of the Application of Beneficial Water Use Permit Number 41H 30003523 and the Application for Change No. 41H 30000806 by Montana Golf Enterprises, LLC*, *supra* (application subsequently withdrawn); *In The Matter of Application To Change A Water Right No. 43B 30002710 By USA (Dept. Of Agriculture – Forest Service) (Final Order, 2005)*; *In The Matter of Application No. 76H-30009407 To Change Water Right Nos. 76H-108772 And 76H-1-8773 By North Corporation (Final Order, 2008)*.

26. Applicant provided very little analysis of seepage or return flow downstream in the record to support the Applicant’s analysis that return water would be returned in the Sweet Grass Creek or Yellowstone River drainage if the change were approved. Applicant has not proven by a preponderance of the evidence that changes to return flows caused by the proposed change will not adversely affect other water users. (Admin. R. M. 36.12.1903; Royston, *supra*; FOF 58)

27. Applicant has not proven by a preponderance of the evidence 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. (§ 85-2-402(2)(a), MCA; FOF)

28. Applicant has not proven by a preponderance of the evidence that the instream flow to benefit the fishery resource, as measured at a specific point, will not adversely affect the rights of other persons. (§ 85-2-408(3)(a), MCA; FOF 45-65)

29. Applicant is entitled to protect, to the original point of diversion, up to the amount historically diverted. (§85-2-408(7), MCA). Applicant has not proven by a preponderance of the evidence the amount historically diverted for the water rights proposed for change. (§85-2-408(7), MCA; FOF 45-65)

30. Applicant is entitled to protect the amount historically consumed, or a smaller amount if specified by the Department, to maintain or enhance streamflows to benefit the fishery resource below the existing point of diversion. (§ 85-2-408(7), MCA). Applicant has not proven by a

preponderance of the evidence the amount historically consumed for the water rights proposed for change. (§85-2-408(7), MCA; FOF 45-65)

Beneficial Use

31. Applicant's proposal to utilize the water under this change authorization for instream flow is a recognized beneficial use. (§ 85-2-102(4)(d), MCA; § 85-2-402(2)(c), MCA; FOF 66-75)

32. It is a fundamental premise of Montana water law that beneficial use is the basis, measure, and limit of the use. *E.g., McDonald, supra; Toohey v. Campbell* (1900), 24 Mont. 13, 60 P. 396. The amount of water under a water right is limited to the amount of water necessary to sustain the beneficial use. *E.g., Siebel, supra; In The Matter Of Application For Beneficial Water Use Permit No. 43c 30007297 By Dee Deaterly (Final Order, 2007), affirmed other grounds, Dee Deaterly v. DNRC et al*, Cause No. 2007-186, Montana First Judicial District, *Order Nunc Pro Tunc on Petition for Judicial Review* (2009); *Worden v. Alexander* (1939), 108 Mont. 208, 90 P.2d 160; *Allen v. Petrick* (1924), 69 Mont. 373, 222 P. 451. Moreover, the Department is specifically prohibited, "[t]he department . . . may not issue a permit for more water than . . . can be beneficially used without waste for the purpose stated in the application." *E.g., Siebel, supra, In the Matter of Application for Beneficial Water Use Permit 76LJ-30008762 by Vinnie J & Susan N Nardi (Final Order, 2006)*; § 85-2-312(1)(a), MCA. Waste is defined to include the "application of water to anything but a beneficial use." (§ 85-2-102(23), MCA)

33. Applicant has proven by a preponderance of evidence that the flows to be protected in the reach below the historic point of diversion to the mouth of Sweet Grass Creek will benefit the fishery below the original points of diversion, and the quantity of water proposed to be used is the flow and amount necessary to sustain the proposed beneficial use. (§ 85-2-102(4), MCA; § 85-2-402(2)(c), MCA; FOF 66-75)

34. Applicant has proven by a preponderance of evidence the amount of water for the proposed use is needed to maintain or enhance instream flows to benefit the fishery resource (§ 85-2-408(3)(b), MCA; FOF 66-75)

Measurement Plan

35. Applicant is required to include specific information on the length and location of the stream reach in which the streamflow is to be maintained or enhanced. (§ 85-2-408(1)(a),

MCA). Applicant has identified and provided specific information on the length and location of the stream reach in which the streamflow is to be maintained or enhanced. (§ 85-2-408(1)(a), MCA; FOF 76-86)

36. Applicant is required to provide a detailed streamflow measuring plan that describes the point where and the manner in which the streamflow must be measured. (§ 85-2-408(1)(a), MCA). Applicant has provided a detailed stream flow measurement plan that describes the point and manner in which stream flow must be measured. (§ 85-2-408(1)(b), MCA; FOF 76-86)

Salvage Water

37. Applicant has not proven by a preponderance of the evidence that it will salvage at least the amount of water asserted under this proposed change (40.1 acres, approximately 80 acre-feet; 0.78 cfs). There is no clear quantification or proof of historic diverted or consumptive use. (§ 85-2-402(2)(e), MCA; FOF 87-91)

Water Quality

38. No objections were raised as to water quality or as to the ability of a discharge permit holder to satisfy effluent limitations. (§ 85-2-402(2)(f) and (g), MCA; FOF 3-6)

WHEREFORE, based upon the foregoing Findings of Fact and Conclusions of Law, the Hearing Examiner makes the following:

FINAL ORDER

Application No. 43BV-30011611 to change Water Right Numbers 43BV-6888, 43BV-143439, 43BV-143441, and 43BV-143442 by Vermillion Ranch LTD is hereby **DENIED**.

NOTICE

If all administrative remedies have been exhausted, this Final Order may be appealed by a party in accordance with the Montana Administrative Procedure Act (Title 2, Chapter 4, MCA) (MAPA) by filing a petition in the appropriate court within 30 days after service of the Final Order.

If a petition for judicial review is filed and a party to the proceeding elects to have a written transcript prepared as part of the record of the administrative hearing for certification to

the reviewing district court, the requesting party must make their own arrangements for preparation and payment of the written transcript. If no request is made, the Department will transmit only a copy of the audio recording of the oral proceedings to the district court.

DATED this 16th day of October, 2009.

/Original signed by Jolyn E Eggart/
Jolyn E. Eggart, Hearing Examiner
Water Resources Division
Department of Natural Resources
and Conservation
PO Box 201601
Helena, Montana 59620-1601

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the FINAL ORDER was served upon all parties listed below on this 16th day of October 2009 by first class United States mail.

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