

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

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**SURFACE WATER APPLICATION FOR)
BENEFICIAL WATER USE PERMIT NO.) PRELIMINARY DETERMINATION TO
40C 30123160 BY KITE CATTLE CO) GRANT PERMIT**

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On April 15, 2019, Kite Cattle Co. (Applicant) submitted Application for Beneficial Water Use Permit No. 40C 30123160 to the Lewistown Water Resources Regional Office of the Department of Natural Resources and Conservation (Department or DNRC). The Department published receipt of the Application on its website. The Department sent Applicant a deficiency letter under § 85-2-302, Montana Code Annotated (MCA), dated July 26, 2019. The Applicant responded with information dated received October 21, 2019. The priority date was reset to October 21, 2019 in accordance with § 85-2-302(6), MCA. The Application was determined to be correct and complete as of May 29, 2020. An Environmental Assessment for this Application was completed on July 29, 2020.

INFORMATION

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

Application as filed:

- Application for Beneficial Water Use Permit, Form 600 and attachments:
 - Basin Closure Area Addendum; narrative addressing the statutory criteria; aerial photo generally depicting the project site.

Information Received after Application Filed or Generated by the Department during the Application Process

- Applicant’s written response to the Department’s deficiency letter, received October 21, 2019.
- Communications:

- October 9, 2019 email to Applicant regarding looming deficiency letter deadline.
- July 2, 2020 conversation and subsequent email to Applicant regarding clarification about irrigation system.

Information within the Department’s Possession/Knowledge or generated by the Department during the Application Process

- Musselshell River Basin Water Management Study, June 1998.
- Various stream gaging records for Musselshell River.
- Personal knowledge of staff in DNRC’s Lewistown Regional Office regarding flows in Musselshell River.
- Memorandums generated by the Department:
 - Department memo dated October 16, 2019 summarizing final courtesy call regarding looming deficiency letter deadline.
- Department Technical Report, dated June 1, 2020.

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

PROPOSED APPROPRIATION

FINDINGS OF FACT

1. Applicant proposes to appropriate water from the Musselshell River from May 1 through June 30 and September 1 through October 31 at a flow rate of 5.57 cubic feet per second (CFS) and volume of up to 66.4 acre-feet (AF). The proposed purpose is irrigation of 66.4 acres consisting of 11.6 acres in the SENE Section 33 and 54.8 acres in the W2 Section 34, all in T9N, R28E, Musselshell County. Water will be diverted from the river via a pump located in the NESENE Section 33, T9N, R28E.

2. Applicant will monitor stream flows and measure water pumped from the Musselshell River. The Department will impose conditions in this Preliminary Determination requiring stream monitoring and measuring of diversions.

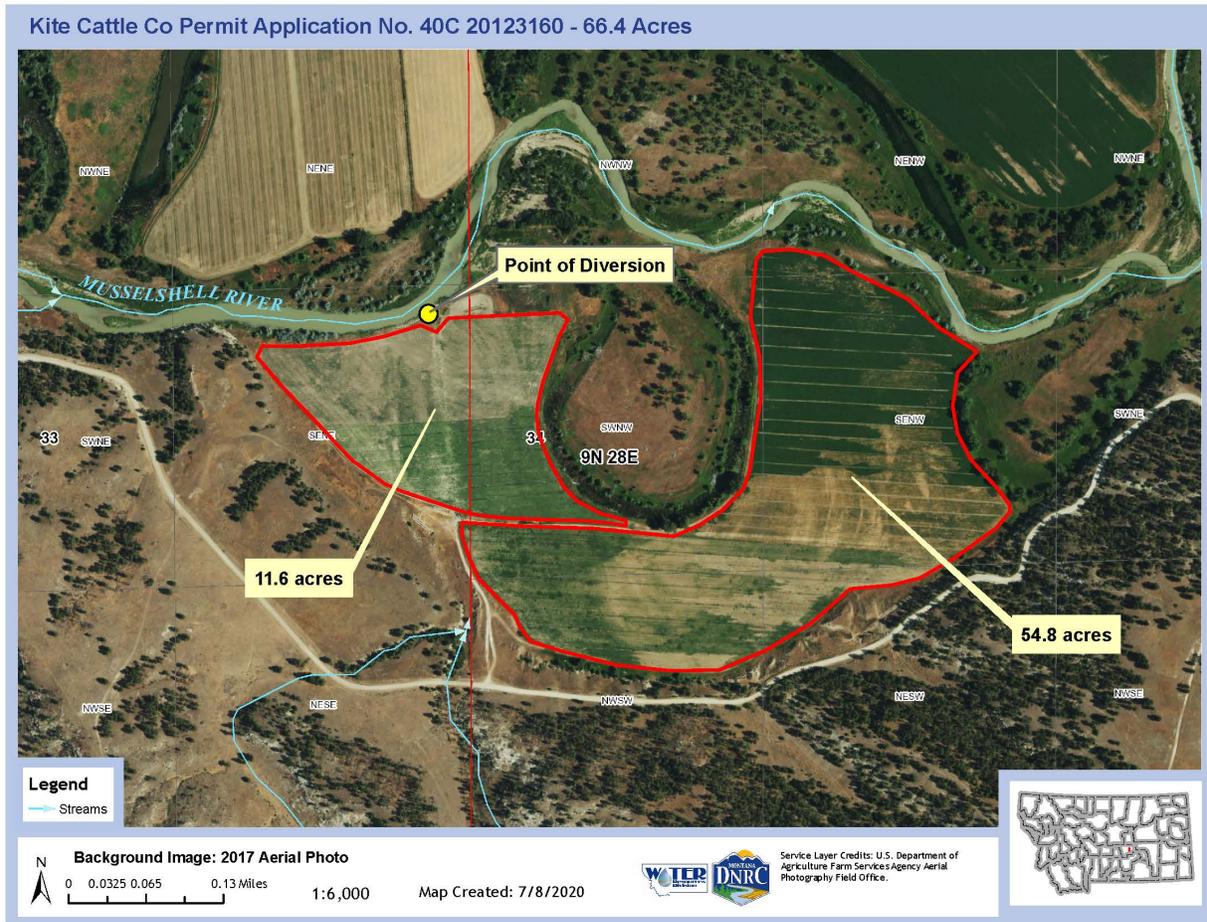
BASIN CLOSURE

3. This application is for irrigation purposes. The proposed period of appropriation is April 1 through June 30 and September 1 through October 31. The Musselshell River is closed to new consumptive appropriations during the period of July 1 through September 30, except applications for supplemental irrigation during the period of September 1 through September 30 may be accepted. During the proposed period of April 1 through June 30, and October 1 through October 31, the appropriation lies outside the closure period. During the month of September, the parcel to be irrigated is supplementally irrigated by contract water from Deadmans Basin. Therefore, the application meets the requirements of the basin closure and shall be accepted and processed.

CONCLUSIONS OF LAW

4. The application for permit lies outside the period of the Musselshell River Closure, therefore the application is not subject to closure requirements. ARM 36.12.1016.

Following is a map of the proposed project.



§ 85-2-311, MCA, BENEFICIAL WATER USE PERMIT CRITERIA

GENERAL CONCLUSIONS OF LAW

5. The Montana Constitution expressly recognizes in relevant part that:
 - (1) All existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed.
 - (2) The use of all water that is now or may hereafter be appropriated for sale, rent, distribution, or other beneficial use . . . shall be held to be a public use.
 - (3) All surface, underground, flood, and atmospheric waters within the boundaries of the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided by law.

Mont. Const. Art. IX, §3. While the Montana Constitution recognizes the need to protect senior appropriators, it also recognizes a policy to promote the development and use of the waters of the state by the public. This policy is further expressly recognized in the water policy adopted by the Legislature codified at § 85-2-102, MCA, which states in relevant part:

(1) Pursuant to Article IX of the Montana constitution, the legislature declares that any use of water is a public use and that the waters within the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided in this chapter. . . .

(3) It is the policy of this state and a purpose of this chapter to encourage the wise use of the state's water resources by making them available for appropriation consistent with this chapter and to provide for the wise utilization, development, and conservation of the waters of the state for the maximum benefit of its people with the least possible degradation of the natural aquatic ecosystems. In pursuit of this policy, the state encourages the development of facilities that store and conserve waters for beneficial use, for the maximization of the use of those waters in Montana . . .

6. Pursuant to § 85-2-302(1), MCA, except as provided in §§ 85-2-306 and 85-2-369, MCA, a person may not appropriate water or commence construction of diversion, impoundment, withdrawal, or related distribution works except by applying for and receiving a permit from the Department. See § 85-2-102(1), MCA. An applicant in a beneficial water use permit proceeding must affirmatively prove all of the applicable criteria in § 85-2-311, MCA. Section § 85-2-311(1) states in relevant part:

... the department shall issue a permit if the applicant proves by a preponderance of evidence that the following criteria are met:

(a) (i) there is water physically available at the proposed point of diversion in the amount that the applicant seeks to appropriate; and

(ii) water can reasonably be considered legally available during the period in which the applicant seeks to appropriate, in the amount requested, based on the records of the department and other evidence provided to the department. Legal availability is determined using an analysis involving the following factors:

(A) identification of physical water availability;

(B) identification of existing legal demands on the source of supply throughout the area of potential impact by the proposed use; and

(C) analysis of the evidence on physical water availability and the existing legal demands, including but not limited to a comparison of the physical water supply at the proposed point of diversion with the existing legal demands on the supply of water.

(b) the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. In this subsection (1)(b), adverse effect must be determined based on a consideration of an applicant's plan for the exercise of the permit that demonstrates that the applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied;

(c) the proposed means of diversion, construction, and operation of the appropriation works are adequate;

(d) the proposed use of water is a beneficial use;

(e) the applicant has a possessory interest or the written consent of the person with the possessory interest in the property where the water is to be put to beneficial use, or if the proposed use has a point of diversion, conveyance, or place of use on national forest system lands, the applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water under the permit;

(f) the water quality of a prior appropriator will not be adversely affected;

(g) the proposed use will be substantially in accordance with the classification of water set for the source of supply pursuant to 75-5-301(1); and

(h) the ability of a discharge permit holder to satisfy effluent limitations of a permit issued in accordance with Title 75, chapter 5, part 4, will not be adversely affected.

(2) The applicant is required to prove that the criteria in subsections (1)(f) through (1)(h) have been met only if a valid objection is filed. A valid objection must contain substantial credible information establishing to the satisfaction of the department that the criteria in subsection (1)(f), (1)(g), or (1)(h), as applicable, may not be met. For the criteria set forth in subsection (1)(g), only the department of environmental quality or a local water quality district established under Title 7, chapter 13, part 45, may file a valid objection.

To meet the preponderance of evidence standard, “the applicant, in addition to other evidence demonstrating that the criteria of subsection (1) have been met, shall submit hydrologic or other evidence, including but not limited to water supply data, field reports, and other information developed by the applicant, the department, the U.S. geological survey, or the U.S. natural resources conservation service and other specific field studies.” § 85-2-311(5), MCA (emphasis added). The determination of whether an application has satisfied the § 85-2-311, MCA criteria is committed to the discretion of the Department. Bostwick Properties, Inc. v. Montana Dept. of Natural Resources and Conservation, 2009 MT 181, ¶ 21. The Department is required grant a permit only if the § 85-2-311, MCA, criteria are proven by the applicant by a preponderance of

the evidence. Id. A preponderance of evidence is “more probably than not.” Hohenlohe v. DNRC, 2010 MT 203, ¶¶33, 35.

7. Pursuant to § 85-2-312, MCA, the Department may condition permits as it deems necessary to meet the statutory criteria:

(1) (a) The department may issue a permit for less than the amount of water requested, but may not issue a permit for more water than is requested or than can be beneficially used without waste for the purpose stated in the application. The department may require modification of plans and specifications for the appropriation or related diversion or construction. The department may issue a permit subject to terms, conditions, restrictions, and limitations it considers necessary to satisfy the criteria listed in 85-2-311 and subject to subsection (1)(b), and it may issue temporary or seasonal permits. A permit must be issued subject to existing rights and any final determination of those rights made under this chapter.

E.g., Montana Power Co. v. Carey (1984), 211 Mont. 91, 96, 685 P.2d 336, 339 (requirement to grant applications as applied for, would result in, “uncontrolled development of a valuable natural resource” which “contradicts the spirit and purpose underlying the Water Use Act.”); see also, In the Matter of Application for Beneficial Water Use Permit No. 65779-76M by Barbara L. Sowers (DNRC Final Order 1988)(conditions in stipulations may be included if it further compliance with statutory criteria); In the Matter of Application for Beneficial Water Use Permit No. 42M-80600 and Application for Change of Appropriation Water Right No. 42M-036242 by Donald H. Wyrick (DNRC Final Order 1994); Admin. R. Mont. (ARM) 36.12.207.

8. The Montana Supreme Court further recognized in Matter of Beneficial Water Use Permit Numbers 66459-76L, Ciotti: 64988-G76L, Starner (1996), 278 Mont. 50, 60-61, 923 P.2d 1073, 1079, 1080, *superseded by legislation on another issue*:

Nothing in that section [85-2-313], however, relieves an applicant of his burden to meet the statutory requirements of § 85-2-311, MCA, before DNRC may issue that provisional permit. Instead of resolving doubts in favor of appropriation, the Montana Water Use Act requires an applicant to make explicit statutory showings that there are unappropriated waters in the source of supply, that the water rights of a prior appropriator will not be

adversely affected, and that the proposed use will not unreasonably interfere with a planned use for which water has been reserved.

See also, Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court,

Memorandum and Order (2011). The Supreme Court likewise explained that:

.... unambiguous language of the legislature promotes the understanding that the Water Use Act was designed to protect senior water rights holders from encroachment by junior appropriators adversely affecting those senior rights.

Montana Power Co., 211 Mont. at 97-98, 685 P.2d at 340; see also Mont. Const. art. IX §3(1).

9. An appropriation, diversion, impoundment, use, restraint, or attempted appropriation, diversion, impoundment, use, or restraint contrary to the provisions of § 85-2-311, MCA is invalid. An officer, agent, agency, or employee of the state may not knowingly permit, aid, or assist in any manner an unauthorized appropriation, diversion, impoundment, use, or other restraint. A person or corporation may not, directly or indirectly, personally or through an agent, officer, or employee, attempt to appropriate, divert, impound, use, or otherwise restrain or control waters within the boundaries of this state except in accordance with this § 85-2-311, MCA. § 85-2-311(6), MCA.

10. The Department may take notice of judicially cognizable facts and generally recognized technical or scientific facts within the Department's specialized knowledge, as specifically identified in this document. ARM 36.12.221(4).

Physical Availability

FINDINGS OF FACT

11. The proposed appropriation is 5.57 CFS up to 66.4 AF annually. The analysis of stream flows on the Musselshell River is complex because the basin includes three large storage projects that influence flows, all owned by the State of Montana. Bair Reservoir is an on-stream reservoir located in Meagher County, and Martinsdale Reservoir and Deadmans Basin are off-stream reservoirs located in Wheatland County. Collectively the reservoirs store in excess of 106,000

AF. Water is impounded when supply exceeds demand (typically during the winter and spring runoff conditions) and released from the reservoirs during the irrigation season to individual contract owners (primarily irrigators), when natural stream flows are insufficient to meet existing demands. These released waters are referred to as *contract water*. As such, USGS gaging records of discharge are heavily influenced during the irrigation season by releases of stored or contract water, and do not necessarily reflect natural stream conditions. However, for purposes of the Department’s physical water availability statutory criteria analysis, contract water will not be distinguished from natural stream flows, because the water physically exists in the river.

12. The Department compiled and analyzed USGS stream gaging data from the closest gage to the proposed diversion - USGS 06127500 Musselshell River near Musselshell Montana. The diversion point is approximately seven river miles upstream of the Musselshell gage. The gage is operated on a seasonal basis, but its discharge data includes the period of diversion requested in this proceeding. The following data reflect median of the mean monthly flows during the requested period at the Applicant’s point of diversion (median of the mean monthly volumes were calculated from the monthly flow rates then existing legal demands were added to the values to determine the flow rate at the Applicant’s diversion). Appendices A1 – A5.

**TABLE 1: USGS 06127500 Musselshell River at Musselshell, MT
(Calculation Period: 1928-09-01 to 2019-9-30) (Seasonal Gage)**

Month (Requested Months of Diversion)	May	June	September	October
Median Flow Rate (CFS)	209.5	338	129.4	103.2
Median Volume (AF)	12,844.2	20,112.2	5,210.3	5,865.2

13. The Musselshell gage data indicate water in the requested amount of 5.57 CFS up to 66.4 AF is physically available at the Applicant’s point of diversion during the period of use.

CONCLUSIONS OF LAW

14. Pursuant to § 85-2-311(1)(a)(i), MCA, an applicant must prove by a preponderance of the evidence that “there is water physically available at the proposed point of diversion in the amount that the applicant seeks to appropriate.”

15. It is the applicant's burden to produce the required evidence. *In the Matter of Application for Beneficial Water Use Permit No. 27665-411 by Anson* (DNRC Final Order 1987)(applicant produced no flow measurements or any other information to show the availability of water; permit denied); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005).

16. An applicant must prove that at least in some years there is water physically available at the point of diversion in the amount the applicant seeks to appropriate. *In the Matter of Application for Beneficial Water Use Permit No. 72662s76G by John Fee and Don Carlson* (DNRC Final Order 1990); *In the Matter of Application for Beneficial Water Use Permit No. 85184s76F by Wills Cattle Co. and Ed McLean* (DNRC Final Order 1994).

17. The Applicant has proven that water is physically available at the proposed point of diversion in the amount Applicant seeks to appropriate. § 85-2-311(1)(a)(i), MCA. FOFs 11-13.

Legal Availability

FINDINGS OF FACT

18. Stream conditions in the Musselshell River are influenced by the storage and release of contract water, therefore the complexity of determining legal demands is high. Releases from Deadmans Basin influence the lower two-thirds of the river, including the reach of river subject to this application. For purposes of this Preliminary Determination, it is necessary that the Department's Legal Availability determination consider the influence on stream flows due to water stored and subsequently released by the Deadmans Basin project. Generally, Deadmans Basin contract water releases inflate USGS gaging records after May 1 (when contract water can legally be released) and are difficult to distinguish from natural stream flows in the records. While insightful, exclusively comparing USGS records to Department water right records to determine legal availability in the Musselshell River is not sufficient to make a finding on the statutory criterion.

19. The Department also analyzed information from a hydrologic study that was published in 1998 – the Musselshell River Basin Water Management Study (Study). The Study was co-

authored by the Department, U.S. Bureau of Reclamation, Upper Musselshell Water Users' Association, and Deadmans Basin Water Users' Association. The Study included a water availability analysis which estimated the volume of water legally available at various points in the river, after accounting for existing water use. Reservoir operations and contract water releases from Bair Reservoir, Martinsdale Reservoir and Deadmans Basin were factored into the analysis. Professional hydrologists and/or engineers employed by the Department and U.S. Bureau of Reclamation collected data and utilized computer modeling to obtain results (the computer model used is known as HYDROSS). The Study's analysis and methods vary from a typical legal availability analysis using Department water right records because contract water is not present in most water courses, and the Study considered other factors such as consumptive water use, actual acres irrigated in the basin, and return flows from inefficient irrigation practices. Return flows are often a vital component of water use/reuse in stream courses where flood irrigation is present.

The Study's HYDROSS model computed legal availability on a median basis (volume in AF) considering water rights filed on the Musselshell River through the year 1989 (see Appendix B1). For purposes of this application's analysis the Department factored (subtracted) into the results all water rights issued on the river since 1989 to make the results more current (although water right records were added to the results, gaged streamflow or hydrologic data, as calculated within the Study, were not added). The total annual volume for stock water rights was included for each month, while the irrigation rights were limited by the lessor of either total annual volume issued, or volume diverted per month based on authorized flow rate (see Appendices B2 and B3). The results of the Study and Department input are as follows:

TABLE 2: 1998 Musselshell Study - Legal Availability near Roundup, MT – (Volume in AF)

	May	Jun	Sep	Oct
Volume Available on a Median Basis	31,950	33,714	0	2,000
Water rights issued above Roundup since 1989	618	608	152	265

Volume Legally Available	31,332	33, 106	-152	1,735
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TABLE 3: 1998 Musselshell Study - Legal Availability at Musselshell, MT – (Volume in AF)

	May	Jun	Sep	Oct
Volume Available on a Median Basis	31,950	33,714	0	2,694
Water rights issued above Musselshell since 1989	5,104	5,093	154	3,458
Volume Legally Available	26,846	28,621	-154	-764

The proposed diversion is located between the Roundup and Musselshell gages. The Study shows water is legally available on a volume basis in the months of May and June at both gages. Water is available in October at the Roundup gage, but not at the Musselshell gage. Water is not available in September at either gage. Appendices B1 – B3.

20. The Study was published in 1998 and since that time, there have been numerous years when water has been available in the requested amount. USGS stream gage data contains the most up-to-date streamflow information available at the time of this analysis. The physical water supply at the Applicant’s POD shown in Table 1 above, was used to compare legal availability at the USGS stream gage at Musselshell. Legal demands on the Musselshell River between Applicant’s POD and the Musselshell gage were subtracted from Table 1. Irrigation volumes were estimated based on continuous monthly diversions or maximum annual amount reflected in the centralized water right database and are likely an overestimate of legal demands in the lower Musselshell region. Stock water volumes were calculated by multiplying the number of animal units by 30 gallons per day, unless the right was limited by a maximum volume. The results are as follows:

TABLE 4: Legal Availability for Musselshell River at Musselshell, MT

(Physical Availability at POD Minus Legal Demands)

Month	Physical Availability (CFS)	Existing Legal	Physical Minus	Physical Availability (AF)	Existing Legal	Physical Minus

		Demands (CFS)	Legal (CFS)		Demands (AF)	Legal (AF)
May	209.5	129.6	79.9	12,844.2	7,931.3	4,912.9
June	338.0	129.5	208.5	20,112.4	7,705.6	12,406.8
September	129.4	129.5	-0.1	7,696.7	7,705.6	-8.9
October	103.2	121.5	-18.3	5,865.2	6,990.4	-1,125.2

The analysis shows that water is legally available in May and June at the USGS Musselshell gage but water is not available in September and October on a median basis. Further, DFWP’s instream flow water reservation of 80 CFS presents a minimum threshold for showing legal availability. The FWP reservation is junior to the vast majority of water rights on the river, and it also represents a flow that is in continuous use. In review of USGS gaging records, mean monthly stream flows in May, June, September, and October exceed DFWP’s 80 CFS water reservation in at least 85%, 88%, 49% and 36% of corresponding months (May, June, September, October) included in the period of record at Musselshell (period of record is 1929-2019) (see Appendix A1). Since Deadmans Basin can begin contract water releases on May 1, the USGS records are corrupted to some degree because they are not fully representative of natural flows. However, there are also periods in many years where the DFWP reservation is met by natural flows.

21. Table 4 shows that water is legally available in May and June but not in September and October. Although water is not available on a median basis in September and October, there are times when water is legally available in each month. This assessment is contingent on minimum stream flow conditions that must exist before a new appropriation can occur. The conditions are outlined in the Conditions section in this Order. Musselshell River Basin Water Management Study; Technical Report; Conditions section; File.

22. The Department finds that water is legally available at the USGS Musselshell Gage in the Musselshell River in May and June, however water is not always legally available in September and October. A condition has been imposed in this Preliminary Determination for the

monitoring of stream flows to ensure minimum flows are present and water is legally available on that specific date.

CONCLUSIONS OF LAW

23. Pursuant to § 85-2-311(1)(a), MCA, an applicant must prove by a preponderance of the evidence that:

(ii) water can reasonably be considered legally available during the period in which the applicant seeks to appropriate, in the amount requested, based on the records of the department and other evidence provided to the department. Legal availability is determined using an analysis involving the following factors:

(A) identification of physical water availability;

(B) identification of existing legal demands on the source of supply throughout the area of potential impact by the proposed use; and

(C) analysis of the evidence on physical water availability and the existing legal demands, including but not limited to a comparison of the physical water supply at the proposed point of diversion with the existing legal demands on the supply of water.

E.g., ARM 36.12.101 and 36.12.120; Montana Power Co., 211 Mont. 91, 685 P.2d 336 (Permit granted to include only early irrigation season because no water legally available in late irrigation season); *In the Matter of Application for Beneficial Water Use Permit No. 81705-g76F by Hanson* (DNRC Final Order 1992).

24. It is the applicant's burden to present evidence to prove water can be reasonably considered legally available. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7 (the legislature set out the criteria (§ 85-2-311, MCA) and placed the burden of proof squarely on the applicant. The Supreme Court has instructed that those burdens are exacting.); see also 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 (burden of proof on applicant in a change proceeding to prove required criteria); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005) (it is the applicant's burden to produce the required evidence.); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 by Utility Solutions, LLC*

(DNRC Final Order 2007)(permit denied for failure to prove legal availability); see also ARM 36.12.1705.

25. A flow of water on a given date does not show that water is legally available without showing that all prior appropriators were diverting all claimed water at that moment. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pgs. 5-6. A flow of water past a point on a particular date or dates does not demonstrate that water is legally available. Id.

26. Based on Applicant's plan to measure appropriations and exercise its water right only when water is legally available downstream, and based on conditions imposed in this Preliminary Determination, Applicant has proven by a preponderance of the evidence that water can reasonably be considered legally available during the period in which it seeks to appropriate, in the amount requested, based on the records of the Department and other evidence provided to or collected by the Department. § 85-2-311(1)(a)(ii), MCA. (FOF's 18-22)

Adverse Effect

FINDINGS OF FACT

27. In many years, the Musselshell River cannot meet all water demands placed on it. The State of Montana owns three large storage reservoirs located in the basin that impound seasonal flows for release to contract holders later in the irrigation season, when natural flows cannot meet demand, thus altering the natural flow regime of the river. The Musselshell River is designated a chronically dewatered stream and is involved in an ongoing water right enforcement program known as the Musselshell River Distribution Project. The Fourteenth Judicial District Court administers the enforcement program on the river. The mainstem river is also administratively closed to new consumptive uses of water during the months of July through September, except that applications for supplemental irrigation during September may be filed with the Department. Musselshell River Basin Water Management Study, 1998; 36.12.1016, ARM; 85-2-150, MCA.

28. The Applicant currently irrigates the proposed 66.4-acre place of use with contract water from Deadmans Basin.

29. Applicant can control his diversion by shutting off his pump. Applicant also plans to measure water and will be required to adhere to a trigger flow condition prior to diverting from the source.

30. Water right appropriations on the Musselshell River are currently enforced during the irrigation season by the Fourteenth Judicial District Court. All water users that divert water from the river are subject to distribution enforcement by the Court's water commissioners.

Enforcement starts each season when stream flows are insufficient to meet demand and when the bulk of irrigation begins. This typically occurs by late April or early May. Water users can only divert water during this time when their priority date is senior enough to do so. The proposed appropriation will be part of the enforcement project, and therefore will be subject to District Court control.

31. During any period when the enforcement project is not in operation, the Applicant will be junior to all other water rights on the source and will be subject to "calls" on water. During the non-enforcement period, the Department further finds it is necessary to establish minimum flow levels, or trigger flows, by condition, which can be monitored through a USGS stream gage so senior appropriators are protected. When the enforcement project is not in operation and when stream flows are less than the prescribed trigger flow, the appropriator cannot divert water. The appropriator can divert only when stream flows exceed the 80 CFS trigger flow. Applicant will be required to monitor a USGS stream gage to meet its obligation. Conditions section.

32. The Department finds that no adverse effects will result from the proposed appropriation, based on the Applicant's plan, control (enforcement) over appropriations by the Fourteenth Judicial District Court, and conditions imposed in the Conditions section of this Order.

CONCLUSIONS OF LAW

33. Pursuant to § 85-2-311(1)(b), MCA, the Applicant bears the affirmative burden of proving by a preponderance of the evidence that the water rights of a prior appropriator under an existing

water right, a certificate, a permit, or a state water reservation will not be adversely affected. Analysis of adverse effect must be determined based on a consideration of an applicant's plan for the exercise of the permit that demonstrates that the applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied. See Montana Power Co. (1984), 211 Mont. 91, 685 P.2d 336 (purpose of the Water Use Act is to protect senior appropriators from encroachment by junior users); Bostwick Properties, Inc. ¶ 21.

34. An applicant must analyze the full area of potential impact under the § 85-2-311, MCA criteria. *In the Matter of Beneficial Water Use Permit No. 76N-30010429 by Thompson River Lumber Company* (DNRC Final Order 2006). While § 85-2-361, MCA, limits the boundaries expressly required for compliance with the hydrogeologic assessment requirement, an applicant is required to analyze the full area of potential impact for adverse effect in addition to the requirement of a hydrogeologic assessment. Id. ARM 36.12.120(5).

35. Applicant must prove that no prior appropriator will be adversely affected, not just the objectors. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 4.

36. In analyzing adverse effect to other appropriators, an applicant may use the water rights claims of potentially affected appropriators as evidence of their “historic beneficial use.” See 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.

37. It is the applicant’s burden to produce the required evidence. E.g., Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7 (legislature has placed the burden of proof squarely on the applicant); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005). (DNRC Final Order 2005). The Department is required to grant a permit only if the § 85-2-311, MCA, criteria are proven by the applicant by a preponderance of the evidence. Bostwick Properties, Inc. ¶ 21.

38. Section 85-2-311 (1)(b) of the Water Use Act does not contemplate a de minimis level of adverse effect on prior appropriators. Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pg. 8.

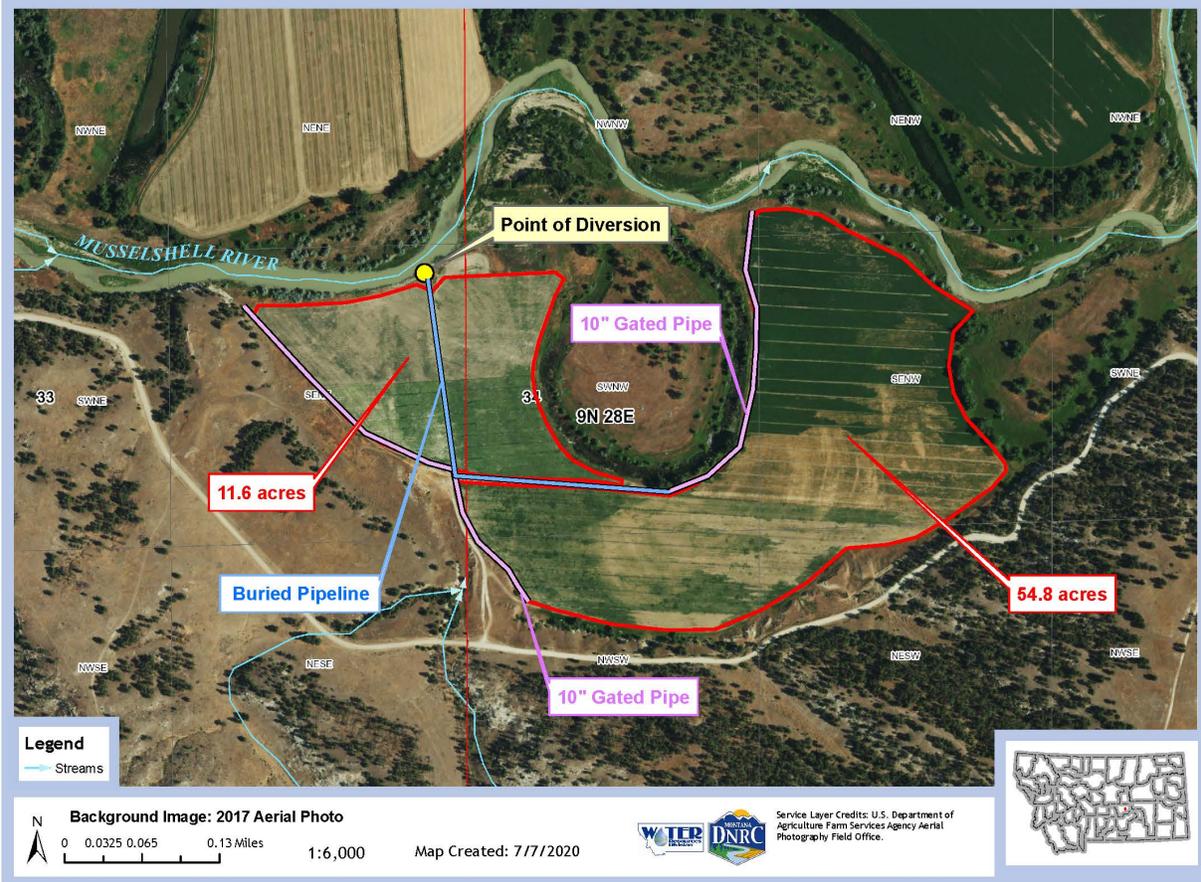
39. No evidence that the resulting reduction in flows in the creek would not aggravate water shortages experienced downstream from the area affected by project. *In the Matter of Beneficial Water Use Permit No. 55880-40A by Daniel Debuff* (DNRC Final Order 1987);

40. Based on the conditions imposed in this Preliminary Determination and the Applicant's plan to measure diversions, the Applicant has proven by a preponderance of the evidence that the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. § 85-2-311(1)(b), MCA. (FOF's 27-32)

Adequate Diversion

FINDINGS OF FACT

41. The means of diversion is a pump and the conveyance mechanism to the place of use is a pipeline. Water will be diverted from the river via a 40-horsepower electric pump (Dempster model 14BCM single stage pump at 1,760 RPM) mounted to a concrete sump. The pump delivers water to a 14-inch steel pipe (buried), which extends to a 14-inch plastic pipe. A junction in the conveyance system redirects water to a gated pipe (10-inch) irrigation system. The manufacturer's pump curve was supplied with the application showing the capacity of the pump to appropriate a flow rate of 5.57 CFS. Additionally, the pump is currently in place and operational and diverts contract water at the requested flow rate. The diversion works convey water through the buried pipe to three sections of gated pipe. One section of gated pipe is situated in a northwesterly direction to irrigate a field approximately 11.6 acres in size. Another portion is situated in a southerly direction to irrigate the southernmost portion of another field approximately 54.8 acres in size. The last portion of gated pipe is situated northeasterly to irrigate the larger, northern portion of the 54.8-acre field. A map depicting the proposed system is below:



42. The proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use.

CONCLUSIONS OF LAW

43. Pursuant to § 85-2-311(1)(c), MCA, an Applicant must demonstrate that the proposed means of diversion, construction, and operation of the appropriation works are adequate.

44. The adequate means of diversion statutory test merely codifies and encapsulates the case law notion of appropriation to the effect that the means of diversion must be reasonably effective, i.e., must not result in a waste of the resource. *In the Matter of Application for Beneficial Water Use Permit No. 33983s41Q by Hoyt* (DNRC Final Order 1981); § 85-2-312(1)(a), MCA.

45. Applicant has proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. § 85-2-311(1)(c), MCA (FOFs 41-42).

Beneficial Use

FINDINGS OF FACT

46. The proposed beneficial use is irrigation and the amount of water to be appropriated is 5.57 CFS up to 66.4 AF annually. The appropriation will be supplemented by contract water purchased from Deadmans Basin. The Applicant plans to utilize its junior appropriation until it is no longer in priority, at which point it will switch to using contract water.

47. The requested flow rate (5.57 CFS) is based on design of the irrigation system by Big Sky Irrigation, a commercial irrigation dealer from Billings. The volume (66.4 AF or 1.0 AF/acre), is a deficient amount but is based on an amount the Applicant believes can reasonably be appropriated within the requested period of diversion. The requested period represents a partial irrigation season due to the limitations imposed by the Musselshell Basin Closure. The remaining volume used by the irrigation system will be supplied by contract water from Deadmans Basin and a flow meter will be installed in the irrigation system to monitor appropriations.

48. The Department finds that the requested flow rate and volume are a beneficial use of water.

CONCLUSIONS OF LAW

49. Under § 85-2-311(1)(d), MCA, an Applicant must prove by a preponderance of the evidence the proposed use is a beneficial use.

50. An appropriator may appropriate water only for a beneficial use. See also, § 85-2-301 MCA. 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., Bitterroot River Protective Association v. Siebel, Order on

Petition for Judicial Review, Cause No. BDV-2002-519, Montana First Judicial District Court, Lewis and Clark County (2003), *affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518; *In The Matter Of Application For Beneficial Water Use Permit No. 43C 30007297 by Dee Deaterly* (DNRC Final Order), *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; *In the Matter of Application for Beneficial Water Use Permit No. 41S-105823 by French* (DNRC Final Order 2000).

Amount of water to be diverted must be shown precisely. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 3 (citing BRPA v. Siebel, 2005 MT 60, and rejecting applicant's argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet).

51. It is the applicant's burden to produce the required evidence. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7; *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005); see also Royston; Ciotti.

52. Applicant proposes to use water for Irrigation which is a recognized beneficial use. § 85-2-102(4), MCA. Applicant has proven by a preponderance of the evidence that a flow rate of 5.57 CFS and volume of 66.4 AF is a beneficial use and the amount needed to sustain the beneficial use within the requested period of appropriation. § 85-2-311(1)(d), MCA. (FOFs 46-48)

Possessory Interest

FINDINGS OF FACT

53. The Applicant signed and had the affidavit on the application form notarized affirming the Applicant has possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use.

CONCLUSIONS OF LAW

54. Pursuant to § 85-2-311(1)(e), MCA, an Applicant must prove by a preponderance of the evidence that it has a possessory interest or the written consent of the person with the possessory interest in the property where the water is to be put to beneficial use, or if the proposed use has a point of diversion, conveyance, or place of use on national forest system lands, the applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water under the permit.

55. Pursuant to ARM 36.12.1802:

(1) An applicant or a representative shall sign the application affidavit to affirm the following:

(a) the statements on the application and all information submitted with the application are true and correct and

(b) except in cases of an instream flow application, or where the application is for sale, rental, distribution, or is a municipal use, or in any other context in which water is being supplied to another and it is clear that the ultimate user will not accept the supply without consenting to the use of water on the user's place of use, the applicant has possessory interest in the property where the water is to be put to beneficial use or has the written consent of the person having the possessory interest.

(2) If a representative of the applicant signs the application form affidavit, the representative shall state the relationship of the representative to the applicant on the form, such as president of the corporation, and provide documentation that establishes the authority of the representative to sign the application, such as a copy of a power of attorney.

(3) The department may require a copy of the written consent of the person having the possessory interest.

56. The Applicant has proven by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. § 85-2-311(1)(e), MCA. (FOF 53)

PRELIMINARY DETERMINATION

Subject to the terms, analysis, and conditions in this Order, the Department preliminarily determines that this Application for Beneficial Water Use Permit No. 40C 30123160 should be GRANTED.

The Department determines the Applicant may divert water from the Musselshell River, by means of a pump, from May 1 through June 30 and September 1 through October 31, at a flow rate of 5.57 CFS and volume of up to 66.4 AF. The point of diversion shall be located in the NESENE Section 33, T9N, R28E, Musselshell County. The place of use shall include 66.4 acres consisting of 11.6 acres in the SENE Section 33 and 54.8 acres in the W2 Section 34, all in T9N, R28E, Musselshell County. The period of use is from May 1 through June 30 and September 1 through October 31.

The application will be subject to the following conditions, limitations or restrictions.

CONDITIONS

1. **WATER MEASUREMENT RECORDS REQUIRED:**
THE APPROPRIATOR SHALL INSTALL A DEPARTMENT-APPROVED WATER USE MEASURING DEVICE AT THE FOLLOWING POINT:

IN THE MEANS OF CONVEYANCE (PIPELINE) BETWEEN THE PUMP AND THE IRRIGATION SYSTEM, IN ORDER TO MEASURE APPROPRIATIONS FROM THE MUSSELHELL RIVER. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. THE DEVICE TYPE AND LOCATION MUST BE APPROVED BY THE DEPARTMENT BEFORE WATER IS DIVERTED UNDER THIS PERMIT. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF WATER DIVERTED, INCLUDING THE PERIOD OF TIME. RECORDS MUST ACCOUNT SEPARATELY FOR ANY APPROPRIATIONS UNDER THIS PERMIT FROM APPROPRIATIONS UNDER ANY OTHER WATER RIGHT (INCLUDING WATER ACQUIRED FROM DEADMANS BASIN).

RECORDS SHALL BE SUBMITTED BY NOVEMBER 30 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR. FAILURE TO SUBMIT

RECORDS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE WATER RESOURCES REGIONAL OFFICE LISTED BELOW. THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.

SUBMIT RECORDS TO:
LEWISTOWN WATER RESOURCES OFFICE
613 NE MAIN ST, SUITE E
LEWISTOWN, MT
PHONE: 406-538-7459

2. **IMPORTANT INFORMATION:**

THE APPROPRIATOR IS SUBJECT TO ENFORCEMENT OF WATER RIGHTS ADMINISTERED BY THE FOURTEENTH JUDICIAL DISTRICT COURT. AT TIMES WHEN THE DISTRIBUTION PROJECT IS NOT OCCURRING, THE APPROPRIATOR MUST ADHERE TO CERTAIN MINIMUM STREAM FLOW CONDITIONS PRIOR TO DIVERTING WATER. ALTHOUGH THE FOLLOWING CONDITION SPECIFIES CERTAIN STREAM FLOW LEVELS, IT IS THE APPROPRIATORS RESPONSIBILITY TO CEASE DIVERSIONS WHEN ITS WATER RIGHT IS "CALLED" BY SENIOR WATER USERS.

THE APPROPRIATOR SHALL DIVERT WATER DURING THE PERIOD OF APPROPRIATION ONLY WHEN THE FLOW RATE AT USGS GAUGING STATION NO. 06127500 (MUSSELSHELL RIVER AT MUSSELSHELL, MONTANA) INDICATES A FLOW IN EXCESS OF 80 CUBIC FEET PER SECOND. IN THE EVENT GAUGE NO. 06127500 IS NOT IN OPERATION, THE APPROPRIATOR SHALL USE USGS GAUGING STATION NO. 06126500 (MUSSELSHELL RIVER AT ROUNDUP) AS THE REFERENCE GAUGE, IN WHICH CASE THE ROUNDUP GAUGE MUST INDICATE A FLOW IN EXCESS OF 80 CUBIC FEET PER SECOND. THESE FLOWS MUST BE CHECKED DAILY WHEN APPROPRIATING WATER. THE CURRENT INTERNET ADDRESS IS: <http://waterdata.usgs.gov/mt/nwis/current?type=flow>.

NOTICE

This Department will provide public notice of this Application and the Department's Preliminary Determination to Grant pursuant to §§ 85-2-307, MCA. The Department will set a deadline for objections to this Application pursuant to §§ 85-2-307, and -308, MCA. If this

Application receives no valid objection or all valid objections are unconditionally withdrawn, the Department will grant this Application as herein approved. If this Application receives a valid objection, the application and objection will proceed to a contested case proceeding pursuant to Title 2 Chapter 4 Part 6, MCA, and § 85-2-309, MCA. If valid objections to an application are received and withdrawn with stipulated conditions and the department preliminarily determined to grant the permit or change in appropriation right, the department will grant the permit or change subject to conditions necessary to satisfy applicable criteria.

DATED this 12th day of August, 2020.

C
Scott Irvin, Regional Manager
Lewistown Water Resources Regional Office
Department of Natural Resources and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 12th day of August, 2020, by first class United States mail.

KITE CATTLE CO.
664 FATTIG CREEK RD
ROUNDUP, MT 59072

JOHN BEDFORD
5927 SCHULZ PLACE
SHEPHERD, MT 59079

NAME

DATE

Appendix A1

USGS 06127500 Musselshell River at Musselshell MT

Musselshell County, Montana

Hydrologic Unit Code 10040202

Latitude 46°31'20.73", Longitude 108°06'31.94" NAD83

Drainage area 4,534 square miles

Gage datum 2,984.72 feet above NGVD29

Discharge, cubic feet per second,

Monthly mean in ft³/s (Calculation Period: 1928-09-01 -> 2019-09-30)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1928									54.9	153.1	183	140
1929	100	70	281	320.1	296.2	323.4	27	1.19	0.073	0.481	10	
1930			245.2	274.9	256.8	1.45	0	114	6.25	9.16	30	
1931			20	10.6	0.361	0.493	0	0	0	0	0	0
1932	0	0.041	12.7	18.1	42.9	500.6	35.7	17.3				
1945								65	13.3	19.3	53.7	43.6
1946	69.6	80.9	157.7	183.2	98.6	228.2	190.5	21.4	53	61.2	47.8	163.1
1947	104.7	125.7	542.6	388.5	713	563.4	109.4	89.3	36.4	42.7	63.1	112.1
1948	85.8	92.8	183.2	261.6	643.7	1,991	992.4	174.2	77.7	62.6	101.5	77.9
1949	46.3	43.5	663.9	701.6	665.9	425	90.3	43	43.3	33.2	40.6	47.4
1950	47.1	100	240.5	272.8	702.9	1,066	336.2	155.2	111.7	79.2	89.5	228.7
1951	131.9	146.4	498.7	371.6	495.1	446.3	116	204.2	231.5	193.9	184	117.7
1952	97.1	122.8	232.4	643.5	1,066	414.3	227.4	114.3	63.1	39.1	42.8	51.2
1953	60.2	49.6	77	34.1	29.6	787.8	80.2	91.1	50.8	12.1	28.9	22.3
1954	24.9	98.8	56.2	44.5	90	44.2	81.4	143.7	29.5	25.7	31.1	18.2
1955	11.8	14.5	32.8	159.8	74.3	100.8	96	50.7	31.9	12.5	15.5	38.3
1956	37.7	27.5	295.7	134.5	470.9	406.2	97.1	110.5	49	11	46.5	32.9
1957	19.8	27.1	63.7	38.9	308.8	1,039	326	82.3	180.4	113.6	158.3	100.8
1958	90.6	91.1	123.9	109.8	159.9	183.7	152.4	95.1	109	45.5	63.7	40.4
1959	35.3	50.5	748.9	88	106.1	525.5	168.6	135	99.3	59.5	50.1	55
1960	38.8	74.2	155.3	115.4	148.7	118.2	138.2	110.2	45.8	23.8	28.7	25.8
1961	22.1	28.5	18.8	41	39.8	90.8	59.2	25.2	5.9	8.53	16	12.4
1962	8.58	46.4	107.5	35.6	230.8	617.7	175.3	81.7	86.7	62.2	75.4	58.2
1963	19.3	132.6	63.7	39.1	129.2	535.5	169.8	144.7	58.9	48	45.2	25.6
1964	26.7	29.4	35.3	40	96.5	973.5	301.6	211.4	116.4	46.2	43.3	32.6
1965	138.8	219.8	134.5	315.1	325.9	688.5	349.1	190.7	335.6	229.4	126.2	133.1
1966	109.7	99.6	285.8	260.3	309.8	164.6	191.3	151.9	111	59.4	38.1	52.7
1967	53.4	54.1	106.5	91.1	385.7	4,223	821	263.7	183.4	124	110.3	67.4
1968	97.5	223.3	303.1	286	370.9	974	321.4	266.8	177	96.7	140.1	111.7
1969	102.6	130.4	600.9	593.7	219.6	368.4	243	154.8	150.1	107.1	72.9	65.8
1970	43.5	74.6	144.8	155.1	1,138	1,038	248.6	190.5	151.3	82.4	65.8	66.4
1971	53.7	459.5	183.6	296.5	404.6	288.5	213.7	144.3	199.4	95.2	83.1	50.5
1972	54.4	225.6	500	122.4	328.1	272.5	187.2	235.3	168.9	82.3	64.6	36.4
1973	35	56.9	104.1	74.1	179.6	114.4	116.2	66.6	61.9	45.5	58.6	51
1974	116.6	96.8	87.5	73.5	142.9	429.6	156.9	251.4	148.1	77.6	90.7	60.5
1975	48.3	63.7	205.8	859.3	1,481	2,299	1,376	447.8	277	259.9	236.4	268.5
1976	222.4	246.2	268.7	273	1,670	716.1	296	234.3	210.5	100.9	140.6	154.7
1977	117.9	159.3	117.8	84.3	148.5	101.7	49.9	81.3	60.5	35.6	38	53.9
1978	62.6	69.7	1,256	554.2	1,143	955.8	660.5	235.8	252.1	183.1	170.2	148.9
1979	119.6	147.1	1,356	784.9	824.4	1,038	321.9	272.8	161.2			
1982										176.8	98.9	101.1
1983	171.8	206.3	150.1	126.8	296.5	206.3	177.6	189.5	148.8	99.3		
1984				111.3	155.1	258	126.9	147.9	177.5	57.2		
1985				65.4	91.9	69.5	25.2	33.3	19.8	37		
1986				67	112.1	224	159.4	121.2	155.7	98.8		
1987				38.9	83.8	73.9	176.6	115.1	55.7	65.3		
1988				30.7	64.9	84.1	18	26.1	3.78	4.05		
1989				83	115.9	56.6	75	17	48.2	45.7		
1990				29.1	72	110.5	135.4	235.4	44.8	29.9		
1991				72	817.4	1,108	275.6	195.8	131.3	63.5		
1992				34	94.5	231.4	82.5	87.2	47.9	50.3		
1993				55.6	109.1	215.8	637.2	533.7	477.5	328.1		
1994				188.7	421.6	147.9	196.3	105.8	100.9	99.4		
1995				60	427.9	1,058	360.9	138.9	191.5	162.7		
1996				466.7	611.6	752.9	160.1	137.2	124	70.4		
1997				292.3	838.5	3,161	1,206	370.6	268.4	163.3		

1998	157.4	123.1	388	242.1	196.1	130.3	93					
1999	56.7	114.4	171.5	109.8	151.7	105.5	58					
2000	13.2	97.6	85.8	80.1	9.78	3.22	6.85					
2001	1.22	75.6	25.2	23.4	0.435	0	0					
2002	4.33	6.18	75.7	8.66	0.901	0	11.3					
2003	15.3	54.8	124.9	83	11.2	2.95	2.89					
2004	1.05	63.3	36.9	27.7	4.09	1.76	27.5					
2005	11.3	217.9	332.1	194.1	86.9	45.4	99.8					
2006	106	95.4	158.9	106.3	71.1	40.4						
2007	30.6	132.2	174.4	132	43.8	21	37.4					
2008	11.6	143.3	234.3	115.4	76.4	82	85.9					
2009	48.3	105.5	168.2	216.1	290.7	246.9	148.4					
2010	41.8	88	637.3	213.3	204.5	208.5	70.2					
2011	342.7	2,578	5,519	1,211	274.6	180.9	122					
2012	187.1	165.5	152	143.9	58	33.9	36.3					
2013	35.4	100.4	207.8	116.5	106.9	70.5	71.9					
2014	162.6	569.4	597.8	217.5	320.2	136.9	83.3					
2015	65.8	400.3	817.1	156.9	156.5	75.6	75.8					
2016	43.7	110.6	102.3	130.4	66.1	51.8	55.9					
2017	73.1	152.8	171.4	135.7	86	62	33					
2018	762.8	3,010	2,893	998.7	315.5	249.9	295.1					
2019	1,103	1,502	1,859	699.9	284.8	355.6						
Mean Monthly Discharge	Jan 71	Feb 108	Mar 273	Apr 189	May 402	Jun 637	Jul 249	Aug 141	Sep 109	Oct 77	Nov 76	Dec 77
Median Flow (CFS)					May 159.9	Jun 288.5			Sep 79.9	Oct 61.7		
Legal Demands (CFS) Between Gage & POD (No FWP)*					49.6	49.5			49.5	41.5		
Water Physically Available at POD (CFS)					209.5	338.0			129.4	103.2		
Median Volume (AF)					9831.9	17166.9			4751.4	3793.8		
Legal Demands (AF) Between Gage & POD (No FWP)*					3012.3	2945.3			2945.3	2071.4		
Water Physically Available at POD (AF)					12844.2	20112.2			7696.7	5865.2		
* Legal Demands shown in Appendices A2 - A5												
Years with Mean Monthly Flow Below 80 CFS FWP Reservation					May 011/73 15%	Jun 009/73 12%			Sep 38/74 51%	Oct 47/73 64%		

Appendix A2 - May Legal Demands

WR_NUMBER	WRTE_DESCR	VERS_TYPE	ENF_PRTY	SOURCE_NAME	MODV_DESCR	PURT_DESCR	OWNER	MAX_FLOW	Unit	CFS	VOLUME	MAX_VOL	MAX_ACR	TR	SCTN	QTR	Period	of	Diversion	Days	Monthly Vol
40C 126087 00	STATEMENT OF CLAIM	POST DECREE	18920113	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	C RANCH LLC; COOLEY DARREN B; COOLEY MARY	5.35	CFS	5.35	328.96	2101.09	141.1	9N28E	26	SWSWNW	1-Apr	to	15-Oct	198	329.0
40C 201427 00	STATEMENT OF CLAIM	REEXAMINED	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	LAZY AM LLC; MEYER JAY	4.01	CFS	4.01	246.57	1216.92	90	9N28E	26	NWNWSW	1-May	to	30-Sep	153	246.6
40C 204168 00	STATEMENT OF CLAIM	REEXAMINED	18920130	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	395	GPM	0.88	54.12	321.21	40	9N28E	26	SWSWNW	15-Apr	to	15-Oct	184	54.1
40C 206662 00	STATEMENT OF CLAIM	REEXAMINED	19361231	MUSSELSHELL RIVER	LIVESTOCK DIRECT	STOCK	BRAY EDWIN R; BRAY GEORGIA K	35	GPM	0.08	4.64	32.79		9N28E	26	S2N2	1-Nov	to	30-May	212	4.6
40C 208368 00	STATEMENT OF CLAIM	REEXAMINED	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	4.01	CFS	4.01	246.57	1216.92	130	9N28E	25	NWNESW	1-May	to	30-Sep	153	246.6
40C 208369 00	STATEMENT OF CLAIM	POST DECREE	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	561	GPM	1.25	39.67	347.11	33	9N28E	25	NWNESW	15-May	to	1-Oct	140	39.7
40C 208681 00	STATEMENT OF CLAIM	REEXAMINED	18911114	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	22.43	CFS	22.43	1379.17	9520.70	282.9	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	1379.2
40C 214230 00	STATEMENT OF CLAIM	REEXAMINED	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	5.57	CFS	5.57	342.49	2065.96	85	9N28E	26	NWNWSW	12-Apr	to	15-Oct	187	342.5
40C 214315 00	STATEMENT OF CLAIM	REEXAMINED	19500826	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	1.94	CFS	1.94	119.29	823.46	24.5	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	119.3
40C 215305 00	STATEMENT OF CLAIM	POST DECREE	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	MONTANA, STATE BOARD OF LAND COMMISSIONERS	425	GPM	0.95	58.23	371.90	25	9N28E	26	NWNWSW	1-Apr	to	15-Oct	198	58.2
40C 188797 00	STATEMENT OF CLAIM	REEXAMINED	19600501	MUSSELSHELL RIVER	PUMP	IRRIGATION	GIEBEL RAY E; GIEBEL CARMOLEDA H	1.44	CFS	1.44	88.54	574.10	38	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	88.5
40C 188798 00	STATEMENT OF CLAIM	REEXAMINED	19500501	MUSSELSHELL RIVER	PUMP	IRRIGATION	RINTALA MEL; RINTALA LOU ANN	1.67	CFS	1.67	102.68	665.79	44	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	102.7
40C 188993 00	STATEMENT OF CLAIM	REEXAMINED	19500501	MUSSELSHELL RIVER	PUMP	STOCK	RINTALA MEL; RINTALA LOU ANN	10	GPM	0.02	1.37	10.78		9N29E	30	E2	1-Oct	to	31-May	244	1.4
40C 30008849	WATER RESERVATION	ORIGINAL RIGHT	19850701	MUSSELSHELL RIVER	INSTREAM	FISHERY	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	80	CFS	80.00	4919.01	57917.36		9N29E	29		1-Jan	to	31-Dec	365	4919.0

129.6 CFS

7931.3 AF

No FWP 49.6 CFS

No FWP 3012.3 AF

Appendix A3 - June Legal Demands

WR_NUMBER	WRTE_DESCR	VERS_TYPE	ENF_PRTY	SOURCE_NAME	MODV_DES	PURT_DESCR	OWNER	FLOW	Unit	CFS	VOLUME	MAX_VOL	MAX_ACF	TR	SCTN	QTR	Period	of	Diversion	Days	Monthly Vol
40C 126087 00	STATEMENT OF CLAIM	POST DECREE	18920113	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	C RANCH LLC; COOLEY DARREN B; COOLEY MARY T; RECH CALLIE A	5.35	CFS	5.35	318.35	2101.09	141.1	9N28E	26	SWSWNW	1-Apr	to	15-Oct	198	318.3
40C 201427 00	STATEMENT OF CLAIM	REEXAMINED	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	LAZY AM LLC; MEYER JAY	4.01	CFS	4.01	238.61	1216.92	90	9N28E	26	NWNWSW	1-May	to	30-Sep	153	238.6
40C 204168 00	STATEMENT OF CLAIM	REEXAMINED	18920130	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	395	GPM	0.88	52.37	321.21	40	9N28E	26	SWSWNW	15-Apr	to	15-Oct	184	52.4
40C 208368 00	STATEMENT OF CLAIM	REEXAMINED	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	4.01	CFS	4.01	238.61	1216.92	130	9N28E	25	NWNESW	1-May	to	30-Sep	153	238.6
40C 208369 00	STATEMENT OF CLAIM	POST DECREE	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	561	GPM	1.25	74.38	347.11	33	9N28E	25	NWNESW	15-May	to	1-Oct	140	74.4
40C 208681 00	STATEMENT OF CLAIM	REEXAMINED	18911114	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	22.43	CFS	22.43	1334.68	9520.70	282.9	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	1334.7
40C 214230 00	STATEMENT OF CLAIM	REEXAMINED	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	5.57	CFS	5.57	331.44	2065.96	85	9N28E	26	NWNWSW	12-Apr	to	15-Oct	187	331.4
40C 214315 00	STATEMENT OF CLAIM	REEXAMINED	19500826	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	1.94	CFS	1.94	115.44	823.46	24.5	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	115.4
40C 215305 00	STATEMENT OF CLAIM	POST DECREE	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	MONTANA, STATE BOARD OF LAND COMMISSIONERS	425	GPM	0.95	56.35	371.90	25	9N28E	26	NWNWSW	1-Apr	to	15-Oct	198	56.3
40C 188797 00	STATEMENT OF CLAIM	REEXAMINED	19600501	MUSSELSHELL RIVER	PUMP	IRRIGATION	GIEBEL RAY E; GIEBEL CARMOLEDA H	1.44	CFS	1.44	85.69	574.10	38	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	85.7
40C 188798 00	STATEMENT OF CLAIM	REEXAMINED	19500501	MUSSELSHELL RIVER	PUMP	IRRIGATION	RINTALA MEL; RINTALA LOU ANN	1.67	CFS	1.67	99.37	665.79	44	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	99.4
40C 30008849	WATER RESERVATION	ORIGINAL RIGHT	19850701	MUSSELSHELL RIVER	INSTREAM	FISHERY	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	80	CFS	80.00	4760.33	57917.36		9N29E	29		1-Jan	to	31-Dec	365	4760.3

129.5 CFS

7705.6 AF

No FWP 49.5 CFS

No FWP 2945.3 AF

Appendix A4 - September Legal Demands

WR_NUMBER	WRTE_DESCR	VERS_TYPE	PRTY_DT	SOURCE_NAME	MODV_DESCR	PURT_DESCR	OWNER	FLOW	Unit	CFS	VOLUME	MAX_VOL	MAX_ACRE	TR	SCTN	QTR	Period	of	Diversion	Days	Monthly Vol
40C 126087 00	STATEMENT OF CLAIM	POST DECREE	18920113	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	C RANCH LLC; COOLEY DARREN B; COOLEY MARY T; RECH CALLIE A	5.35	CFS	5.35	318.35	2101.09	141.1	9N28E	26	SWSWNW	1-Apr	to	15-Oct	198	318.3
40C 201427 00	STATEMENT OF CLAIM	REEXAMINED	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	LAZY AM LLC; MEYER JAY	4.01	CFS	4.01	238.61	1216.92	90	9N28E	26	NWNWSW	1-May	to	30-Sep	153	238.6
40C 204168 00	STATEMENT OF CLAIM	REEXAMINED	18920130	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	395	GPM	0.88	52.37	321.21	40	9N28E	26	SWSWNW	15-Apr	to	15-Oct	184	52.4
40C 208368 00	STATEMENT OF CLAIM	REEXAMINED	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	4.01	CFS	4.01	238.61	1216.92	130	9N28E	25	NWNESW	1-May	to	30-Sep	153	238.6
40C 208369 00	STATEMENT OF CLAIM	POST DECREE	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	561	GPM	1.25	74.38	347.11	33	9N28E	25	NWNESW	15-May	to	1-Oct	140	74.4
40C 208681 00	STATEMENT OF CLAIM	REEXAMINED	18911114	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	22.43	CFS	22.43	1334.68	9520.70	282.9	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	1334.7
40C 214230 00	STATEMENT OF CLAIM	REEXAMINED	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	5.57	CFS	5.57	331.44	2065.96	85	9N28E	26	NWNWSW	12-Apr	to	15-Oct	187	331.4
40C 214315 00	STATEMENT OF CLAIM	REEXAMINED	19500826	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	1.94	CFS	1.94	115.44	823.46	24.5	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	115.4
40C 215305 00	STATEMENT OF CLAIM	POST DECREE	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	MONTANA, STATE BOARD OF LAND COMMISSIONERS	425	GPM	0.95	56.35	371.90	25	9N28E	26	NWNWSW	1-Apr	to	15-Oct	198	56.3
40C 188797 00	STATEMENT OF CLAIM	REEXAMINED	19600501	MUSSELSHELL RIVER	PUMP	IRRIGATION	GIEBEL RAY E; GIEBEL CARMOLEDA H	1.44	CFS	1.44	85.69	574.10	38	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	85.7
40C 188798 00	STATEMENT OF CLAIM	REEXAMINED	19500501	MUSSELSHELL RIVER	PUMP	IRRIGATION	RINTALA MEL; RINTALA LOU ANN	1.67	CFS	1.67	99.37	665.79	44	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	99.4
40C 30008849	WATER RESERVATION	ORIGINAL RIGHT	19850701	MUSSELSHELL RIVER	INSTREAM	FISHERY	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	80	CFS	80.00	4760.33	57917.36		9N29E	29		1-Jan	to	31-Dec	365	4760.3

129.5 CFS

7705.6 AF

No FWP

49.5 CFS

No FWP

2945.3 AF

Appendix A5 - October Legal Demands

WR_NUMBER	WRTE_DESCR	VERS_TYPE	PRTY_DT	SOURCE_NAME	MODV_DESCR	PURT_DESCR	OWNER	FLOW	Unit	CFS	VOLUME	MAX_VOL	ACRES	TR	SCTN	QTR	Period	of	Diversion	Days	Monthly Vol
40C 126087 00	STATEMENT OF CLAIM	POST DECREE	18920113	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	C RANCH LLC; COOLEY DARREN B; COOLEY MARY T; RECH CALLIE A	5.35	CFS	5.35	159.17	2101.09	141.1	9N28E	26	SWSWNW	1-Apr	to	15-Oct	198	159.2
40C 204168 00	STATEMENT OF CLAIM	REEXAMINED	18920130	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	395	GPM	0.88	26.19	321.21	40	9N28E	26	SWSWNW	15-Apr	to	15-Oct	184	26.2
40C 208369 00	STATEMENT OF CLAIM	POST DECREE	18981231	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	561	GPM	1.25	2.48	347.11	33	9N28E	25	NWNESW	15-May	to	1-Oct	140	2.5
40C 208681 00	STATEMENT OF CLAIM	REEXAMINED	18911114	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	22.43	CFS	22.43	1379.17	9520.70	282.9	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	1379.2
40C 214230 00	STATEMENT OF CLAIM	REEXAMINED	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	BRAY EDWIN R; BRAY GEORGIA K	5.57	CFS	5.57	165.72	2065.96	85	9N28E	26	NWNWSW	12-Apr	to	15-Oct	187	165.7
40C 214315 00	STATEMENT OF CLAIM	REEXAMINED	19500826	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	MUSSELSHELL RANCH CO	1.94	CFS	1.94	119.29	823.46	24.5	9N28E	26	SWSWNW	1-Apr	to	31-Oct	214	119.3
40C 215305 00	STATEMENT OF CLAIM	POST DECREE	19730630	MUSSELSHELL RIVER	PUMP	IRRIGATION	MONTANA, STATE BOARD OF LAND COMMISSIONERS	425	GPM	0.95	28.17	371.90	25	9N28E	26	NWNWSW	1-Apr	to	15-Oct	198	28.2
40C 188797 00	STATEMENT OF CLAIM	REEXAMINED	19600501	MUSSELSHELL RIVER	PUMP	IRRIGATION	GIEBEL RAY E; GIEBEL CARMOLEDA H	1.44	CFS	1.44	88.54	574.10	38	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	88.5
40C 188798 00	STATEMENT OF CLAIM	REEXAMINED	19500501	MUSSELSHELL RIVER	PUMP	IRRIGATION	RINTALA MEL; RINTALA LOU ANN	1.67	CFS	1.67	102.68	665.79	44	9N29E	29	SWNWNW	15-Apr	to	1-Nov	201	102.7
40C 30008849	WATER RESERVATION	ORIGINAL RIGHT	19850701	MUSSELSHELL RIVER	INSTREAM	FISHERY	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	80	CFS	80.00	4919.01	57917.36		9N29E	29		1-Jan	to	31-Dec	365	4919.0

121.5 CFS

6990.4 AF

No FWP 41.5 CFS

No FWP 2071.4 AF

Musselshell

RIVER BASIN WATER MANAGEMENT STUDY

U.S. Bureau of Reclamation
Billings, Montana

Montana Department of Natural
Resources and Conservation
Helena, Montana

Upper Musselshell Water
Users Association
Harlowton, Montana

Deadman's Basin Water
Users Association
Roundup, Montana

June 1998

Appendix 10

MODEL RUNS SHOWING
WATER AVAILABILITY

sta 006000 MUSSELSHELL RIVER AT ROUNDUP

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1929	509	634	5539	5299	11704	40170				4530	6062	4728	79178
1930		269	5688	25843	9432								41234
1931													
1932				2411	9001	39790							51203
1933				12449	49651	29828							91928
1934			1664	12101		43084							56850
1935				3939	3787								7727
1936			3778	14046	14155	2900							34880
1937				11500		12260							23760
1938			1103	8370	65041	56691	24933				2383		158523
1939			11733	13017	8401	23708							56860
1940			681	6239							779		7700
1941				824		31100			1620	7972	4858	4738	51114
1942	1487	1113	6428	27994	80363	90185				3152	2564	4245	217535
1943	1872	6507	15601	57075	67938	110461	4160			2491	2639	3699	272447
1944	466		1599	1830	3738	89921	15911			2193	1618	3395	120675
1945	1986	16	3680	1297	7000	47504					1320		62805
1946			6144	16957	19999	5125				2773	2286	6331	59618
1947	621	2395	19922	29500	58476	52753				4351	3204	4177	175403
1948	3150	318	4674	26612	86647	124627	23050			2435	2501	929	274947
1949			6555	27188	45290	25029				1068	572		105705
1950		4800	3665	14200	45544	77726	4977			4038	2610	1844	159408
1951		1975	12797	14717	53895	33714				4062	2631	911	124707
1952		1050	4713	34335	101023	22900							164024
1953			2003	4809	22750	104632							134196
1954		485		5995	5473	10754							22709
1955				10313	7201	17141							34656
1956			8037	14272	54977	9174							86461
1957				4174	44624	61884				1474	659		112817
1958			4228	7979		8333							20541
1959			14487	9249	29726	67653				2000	1496		124614
1960			9885	11841	15791	2019							39538
1961													
1962			483	8283	40944	49196				1124			100030
1963		2264	2369	4837	37226	37954							84652
1964				4926	39559	80418						3	124908
1965	231	1277	760	25126	48595	70946	2199		12373	10173	4242	1747	177674
1966			11063	15300	35075								61440
1967			1465	11488	69464	265705	7881			4010	2923	448	363387
1968	984	5450	9422	10311	37457	74597	365			4594	2991	946	147121
1969	291	624	17209	30258	11530	19230	1387			1742	934		83210
1970		221	1748	9642	109880	86568				3335	965	425	212786
1971	1293	7065	7194	20731	43925	32039				3785	1727		117763
1972		5794	21904	15003	41774	34261				4771	2397		125907
1973			1239	6135						1002	2537	471	11385
1974	3351	541	6881	19894	44609	59726				2293	3444	591	141335
1975			2942	20318	98430	233338	55218			9013	9624	7838	436722
1976	3513	3364	10337	23615	134195	54477				5364	3608	2026	240504
1977	579	1981	2036	11691	8824					1100	936	244	27394
1978		175	35286	35338	118865	81837	27595		4131	6324	3745	2754	316055
1979		1084	37679	19210	90160	112309	2108			2503	963	640	266660
1980		1438	4489	13706	43517	86829				4489	3071	2018	159561
1981	436	1652	6368	15978	112038	76017	1483			3180	2484	1954	221596
1982	508	3517	10884	21547	62146	121147	25532			7929	5035	3144	261394
1983	4160	2892	8256	29631	31950	12285				4938	2089	226	96429
1984	4858	2194	5169	13137	15700	30819				3958	2255		78092
1985			2003	6673						4697	4872	843	19090
1986		3739	15027	8962	25679	26315			7906	4124	3249	1326	96331
1987			2815		8337					2623	708		14484
1988													
1989			6910	7782	15865					2790	6294	1769	41412
Mean	496	1063	6337	13867	36842	47329	3226		426	2334	1791	1056	114772
Median			4228	11841	31950	33714				2000	1320		96331

The Maximum Value 265705 Occurred In Jun Of 1967
 The Minimum Value Occurred In Jul Of 1929

sta 007000 MUSSELSHELL RIVER AT MUSSELSHELL
 Avail Flow Units-as of option =Plan

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1929	603	947	7141	6493	11704	40170				4535	6091	4832	82520
1930		819	7204	26477	9432						203		44138
1931			195										193
1932				2411	9001	39790					203		51407
1933				13238	49651	29828						183	92901
1934		63	2331	12101		43084							57580
1935				4648	3787								8436
1936			5594	14163	14155	2900							36814
1937				11500		12260				500			24261
1938			2050	8370	65041	56691	24933				3061	450	160599
1939			13649	13017	8401	23708							58777
1940			1461	6389							1368		9219
1941				824		31100			2429	8586	5475	5550	53968
1942	2159	1986	8338	28947	83685	91930				3997	3357	5127	229529
1943	2604	7659	18410	58194	67938	112297	4160			3483	1462	4581	282792
1944	1167		3159	1830	3738	91529	15911			3066	2394	4288	127086
1945	2727	638	5240	2169	7000	47504				94	1995		67371
1946	89		7254	16957	19999	5125				3519	3011	7133	63091
1947	1333	3377	22832	31482	58476	52753				5005	3915	5329	184506
1948	4871	891	6484	26622	86647	124627	23050			3327	3319	1832	281674
1949	201		7165	27319	45290	25029				1859	1243		108109
1950			6748	4980	15277	45544	4977			4728	3301	2541	165827
1951	793	2983	15302	15695	53895	33714				4779	3260	1558	131983
1952	622	2048	6118	34643	101023	22900				563	120		168042
1953			2658	5496	22750	104632							135538
1954		1173		6772	5473	10754							24174
1955				11890	7201	17141						347	36580
1956		25	9942	15149	54977	9174							89269
1957				4891	44624	61884				2372	1418	522	115713
1958		506	5063	7979		8333							21882
1959			17692	10126	29726	67653				2694	2162	114	130169
1960			11086	12715	15791	2019							41613
1961													
1962			1664	8283	40944	49196				1967	529	638	103224
1963		3149	3070	5560	37226	37954					47		87009
1964				5177	39559	80418						618	125774
1965	875	1932	1621	26499	48595	70946	2199		12384	10779	4933	2391	183159
1966	406	171	12965	16266	35075								64885
1967			2058	12261	69464	275478	7881			4926	3691	1152	376913
1968	1658	6995	10723	11684	37457	75473	365			5448	3745	1680	155232
1969	964	1459	21910	30737	11530	19230	1387			2549	1635		91406
1970		968	2842	10518	111153	86568				4150	1698	1151	219052
1971	1999	9012	8698	21169	43925	32039				4574	2408		123829
1972	44	8141	24108	15450	41774	34261				5685	3176		132642
1973			2063	7211						1722	3234	1158	15389
1974	3977	1418	7885	19894	44609	59726				3023	4246	1317	146100
1975			4006	22494	100545	233338	56445			10046	10731	8834	446443
1976	4179	4162	12441	23858	134195	54477				6204	4386	2903	246808
1977	1285	2928	2860	11691	8824					1829	1615	950	31987
1978	161	772	37290	36511	122888	81837	27595		4918	7117	4532	3541	327167
1979		1821	40783	20486	90165	112309	2108			3420	1720	1257	274072
1980	207	2393	5991	13706	43517	86829				5369	3784	2732	164531
1981	1139	2527	7269	15978	116862	76017	1483			4103	3217	2628	231228
1982	1141	4602	12686	22917	62146	121147	25532			8927	5792	3838	268733
1983	4813	4167	9257	30500	31950	12285				5766	2784	839	102364
1984	5481	3178	6071	13251	15700	30819				4730	2941	93	82268
1985			2724	6673						5430	5546	1437	21811
1986	436	5164	16228	9831	25679	26315			9014	4841	3937	2100	103549
1987			3536		8337					3467	1409	145	16896
1988			61								353		415
1989			7612	8724	15865					3616	7002	2433	45255
Mean	753	1554	7537	14444	37097	47589	3246		471	2833	2270	1446	119244
Median		171	5594	12261	31950	33714				2694	1995	522	102364

The Maximum Value 275478 Occurred In Jun Of 1967
 The Minimum Value Occurred In Jul Of 1929

Appendix B2 - Legal Demands Issued above Roundup Gage since 1989

WR_NUMBER	WRTE_DESCR	_PRTY_DT_I	SOURCE_NAME	MODV_DESCR	PURT_DESCR	LST_NM_OR_BUSN_NM	MAX_FLOW	MAX_VOL	MON-VOR	ACR	TR	SCTN	QTR	CNTY_CD	_OF_DIVERSIONS	
May Demands																
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7				6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5				7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2				8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, NORTH FORK	PIT	STOCK	MARTINSDALE LAND & CATTLE LLC		6.2				9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6				7N16E	36	SWNE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9				8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9				8N17E	36	NESWSW	WH	01/01 to 12/31
40A 30065818	PROVISIONAL PERMIT	20130322	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	LEHFELDT INC	1.96 CFS	120.5	120.5	87	6N22E	5	NENWSW	GV	03/01 to 06/30; 09/01 to 10/01	
40A 115059 00	PROVISIONAL PERMIT	20010222	MUSSELSHELL RIVER	PUMP	IRRIGATION	BALLARD RANCH INC	5.46 CFS	51	335.7	126	6N23E	8	NESWNW	GV	03/15 to 06/30	
40A 30028082	PROVISIONAL PERMIT	20080219	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	J C JENSEN INC	2.97 CFS	175	182.6	137.7	6N22E	5	NENWSW	GV	10/01 to 10/31; 04/01 to 06/30	
40A 30002276	PROVISIONAL PERMIT	20020529	MUSSELSHELL RIVER	PUMP	IRRIGATION	WALLIS	1500 GPM	205.5	205.5	183.7	6N23E	14	NESWNW	GV	04/01 to 06/30	
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE		MINING	GEORDE	23 GPM	1.53	3.2		10N9E	29	NESWSW	ME	04/01 to 10/31	
40A 30026429	STOCKWATER PERMIT	20070202	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	ANDERSON FAMILY TRUST		4.8				7N16E	18	SESWNE	WH	04/15 to 08/31
40A 84265 00	PROVISIONAL PERMIT	19921123	MUSSELSHELL RIVER, SOUTH FORK	DAM	FISH AND WILDLIFE	BREKKE TRUST	1.9 CFS	25.72	116.8			7N9E	30	NWNENW	ME	10/01 to 06/30
								Total May Demands Appropriated since 1989		617.9 AF						
Jun Demands																
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7				6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5				7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2				8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, NORTH FORK	PIT	STOCK	MARTINSDALE LAND & CATTLE LLC		6.2				9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6				7N16E	36	SWNE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9				8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9				8N17E	36	NESWSW	WH	01/01 to 12/31
40A 30065818	PROVISIONAL PERMIT	20130322	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	LEHFELDT INC	1.96 CFS	116.6	116.6	87	6N22E	5	NENWSW	GV	03/01 to 06/30; 09/01 to 10/01	
40A 115059 00	PROVISIONAL PERMIT	20010222	MUSSELSHELL RIVER	PUMP	IRRIGATION	BALLARD RANCH INC	5.46 CFS	51	324.9	126	6N23E	8	NESWNW	GV	03/15 to 06/30	
40A 30028082	PROVISIONAL PERMIT	20080219	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	J C JENSEN INC	2.97 CFS	175	176.7	137.7	6N22E	5	NENWSW	GV	10/01 to 10/31; 04/01 to 06/30	
40A 30002276	PROVISIONAL PERMIT	20020529	MUSSELSHELL RIVER	PUMP	IRRIGATION	WALLIS	1500 GPM	198.9	198.9	183.7	6N23E	14	NESWNW	GV	04/01 to 06/30	
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE		MINING	GEORDE	23 GPM	1.53	3.0		10N9E	29	NESWSW	ME	04/01 to 10/31	
40A 30026429	STOCKWATER PERMIT	20070202	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	ANDERSON FAMILY TRUST		4.8				7N16E	18	SESWNE	WH	04/15 to 08/31
40A 84265 00	PROVISIONAL PERMIT	19921123	MUSSELSHELL RIVER, SOUTH FORK	DAM	FISH AND WILDLIFE	BREKKE TRUST	1.9 CFS	25.72	113.1			7N9E	30	NWNENW	ME	10/01 to 06/30
								Total June Demands Appropriated since 1989		607.4 AF						
Sep Demands																
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7				6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5				7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2				8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, NORTH FORK	PIT	STOCK	MARTINSDALE LAND & CATTLE LLC		6.2				9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6				7N16E	36	SWNE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9				8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9				8N17E	36	NESWSW	WH	01/01 to 12/31
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE		MINING	GEORDE	23 GPM	1.53			10N9E	29	NESWSW	ME	04/01 to 10/31	
40A 30065818	PROVISIONAL PERMIT	20130322	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	LEHFELDT INC	1.96 CFS	116.6	116.6	87	6N22E	5	NENWSW	GV	03/01 to 06/30; 09/01 to 10/01	
								Total September Demands Appropriated since 1989		151.9 AF						
Oct Demands																
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7				6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5				7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2				8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER, NORTH FORK	PIT	STOCK	MARTINSDALE LAND & CATTLE LLC		6.2				9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6				7N16E	36	SWNE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9				8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELSHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9				8N17E	36	NESWSW	WH	01/01 to 12/31
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE		MINING	GEORDE	23 GPM	1.53			10N9E	29	NESWSW	ME	04/01 to 10/31	
40A 90380 00	PROVISIONAL PERMIT	19940822	MUSSELSHELL RIVER	PUMP	IRRIGATION	CHISHOLM	4.5 CFS	54	276.7	36	6N23E	8	NWSENE	GV	10/01 to 11/01; 03/15 to 04/30	
40A 30028082	PROVISIONAL PERMIT	20080219	MUSSELSHELL RIVER	HEADGATE	IRRIGATION	J C JENSEN INC	2.97 CFS	175	182.6	137.7	6N22E	5	NENWSW	GV	10/01 to 10/31; 04/01 to 06/30	
								Total October Demands Appropriated since 1989		264.3 AF						

Appendix B3 - Legal Demands Issued above Musselshell Gage since 1989

WR_NUMBER	WRTE_DESCR	_PRTY_DT_I	SOURCE_NAME	MODV_DESCR	PURT_DESCR	LST_NM_OR_BUSN_NM	MAX_FLOW	MAX_VOL	MON-VOL	MAX_ACRE	TR	SCTN	QTR	NTY_C	PERIOD_OF_DIVERSIONS
May Demands															
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7			6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5			7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2			8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, NORTH FORK	PIT	STOCK	MARTINDALE LAND & CATTLE LLC		6.2			9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6			7N16E	36	SWNENE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9			8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9			8N17E	36	NESWSW	WH	01/01 to 12/31
40A 30065818	PROVISIONAL PERMIT	20130322	MUSSELHELL RIVER	HEADGATE	IRRIGATION	LEHFELDT INC	1.96 CFS	120.5	120.5	87	6N22E	5	NENWSW	GV	03/01 to 06/30; 09/01 to 10/01
40A 115059 00	PROVISIONAL PERMIT	20010222	MUSSELHELL RIVER	PUMP	IRRIGATION	BALLARD RANCH INC	5.46 CFS	51	335.7	126	6N23E	8	NESWNW	GV	03/15 to 06/30
40A 30028082	PROVISIONAL PERMIT	20080219	MUSSELHELL RIVER	HEADGATE	IRRIGATION	J C JENSEN INC	2.97 CFS	175	182.6	137.7	6N22E	5	NENWSW	GV	10/01 to 10/31; 04/01 to 06/30
40A 30002276	PROVISIONAL PERMIT	20020529	MUSSELHELL RIVER	PUMP	IRRIGATION	WALLIS	1500 GPM	205.5	205.5	183.7	6N23E	14	NESWNW	GV	04/01 to 06/30
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE	MINING		GEORDGE	23 GPM	1.53	3.2		10N9E	29	NESWSW	ME	04/01 to 10/31
40A 30026429	STOCKWATER PERMIT	20070202	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	ANDERSON FAMILY TRUST		4.8			7N16E	18	SESWNE	WH	04/15 to 08/31
40A 84265 00	PROVISIONAL PERMIT	19921123	MUSSELHELL RIVER, SOUTH FORK	DAM	FISH AND WILDLIFE	BREKKE TRUST	1.9 CFS	25.72	116.8		7N9E	30	NWNENW	ME	10/01 to 06/30
40C 30107115	STOCKWATER PERMIT	20160606	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	NORRIS		2			8N26E	25	NENWNW	MU	01/01 to 12/31
40C 84312 00	PROVISIONAL PERMIT	19930218	MUSSELHELL RIVER	PUMP	IRRIGATION	KILBY BUTTE HUTTERIAN BRETHERN INC	4000 GPM	160	548.0	94	8N26E	9	SWNWSE	MU	04/01 to 06/30
40C 30044944	PROVISIONAL PERMIT	20090126	MUSSELHELL RIVER	PUMP	IRRIGATION	KILBY BUTTE COLONY INC	11.14 CFS	334.2	685.0	167.1	8N27E	8	NENENE	MU	03/15 to 06/30
40C 96876 00	PROVISIONAL PERMIT	19960617	MUSSELHELL RIVER	PUMP	IRRIGATION	DEMAIO, VICTOR R TRUST	950 GPM	39.2	130.2	34.9	8N27E	7	NWNENW	MU	04/01 to 06/30
40C 30047744	PROVISIONAL PERMIT	20100923	MUSSELHELL RIVER	HEADGATE	WATER MARKETING	PETROLEUM CO CONSERVATION DISTRICT	90 CFS	3950	5533.9		9N29E	28	SWNWNW	MU	10/01 to 10/31; 11/01 to 11/15; 03/01 to 03/31; 04/01 to 04/30; 05/01 to 06/30
								Total May Demands Appropriated since 1989							
								5103.3 AF							
Jun Demands															
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7			6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5			7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2			8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, NORTH FORK	PIT	STOCK	MARTINDALE LAND & CATTLE LLC		6.2			9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6			7N16E	36	SWNENE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9			8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9			8N17E	36	NESWSW	WH	01/01 to 12/31
40A 30065818	PROVISIONAL PERMIT	20130322	MUSSELHELL RIVER	HEADGATE	IRRIGATION	LEHFELDT INC	1.96 CFS	116.6	116.6	87	6N22E	5	NENWSW	GV	03/01 to 06/30; 09/01 to 10/01
40A 115059 00	PROVISIONAL PERMIT	20010222	MUSSELHELL RIVER	PUMP	IRRIGATION	BALLARD RANCH INC	5.46 CFS	51	324.9	126	6N23E	8	NESWNW	GV	03/15 to 06/30
40A 30028082	PROVISIONAL PERMIT	20080219	MUSSELHELL RIVER	HEADGATE	IRRIGATION	J C JENSEN INC	2.97 CFS	175	176.7	137.7	6N22E	5	NENWSW	GV	10/01 to 10/31; 04/01 to 06/30
40A 30002276	PROVISIONAL PERMIT	20020529	MUSSELHELL RIVER	PUMP	IRRIGATION	WALLIS	1500 GPM	198.9	198.9	183.7	6N23E	14	NESWNW	GV	04/01 to 06/30
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE	MINING		GEORDGE	23 GPM	1.53	3.0		10N9E	29	NESWSW	ME	04/01 to 10/31
40A 30026429	STOCKWATER PERMIT	20070202	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	ANDERSON FAMILY TRUST		4.8			7N16E	18	SESWNE	WH	04/15 to 08/31
40A 84265 00	PROVISIONAL PERMIT	19921123	MUSSELHELL RIVER, SOUTH FORK	DAM	FISH AND WILDLIFE	BREKKE TRUST	1.9 CFS	25.72	113.1		7N9E	30	NWNENW	ME	10/01 to 06/30
40C 30107115	STOCKWATER PERMIT	20160606	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	NORRIS		2			8N26E	25	NENWNW	MU	01/01 to 12/31
40C 84312 00	PROVISIONAL PERMIT	19930218	MUSSELHELL RIVER	PUMP	IRRIGATION	KILBY BUTTE HUTTERIAN BRETHERN INC	4000 GPM	160	530.3	94	8N26E	9	SWNWSE	MU	04/01 to 06/30
40C 30044944	PROVISIONAL PERMIT	20090126	MUSSELHELL RIVER	PUMP	IRRIGATION	KILBY BUTTE COLONY INC	11.14 CFS	334.2	662.9	167.1	8N27E	8	NENENE	MU	03/15 to 06/30
40C 96876 00	PROVISIONAL PERMIT	19960617	MUSSELHELL RIVER	PUMP	IRRIGATION	DEMAIO, VICTOR R TRUST	950 GPM	39.2	126.0	34.9	8N27E	7	NWNENW	MU	04/01 to 06/30
40C 30047744	PROVISIONAL PERMIT	20100923	MUSSELHELL RIVER	HEADGATE	WATER MARKETING	PETROLEUM CO CONSERVATION DISTRICT	90 CFS	3950	5355.4		9N29E	28	SWNWNW	MU	10/01 to 10/31; 11/01 to 11/15; 03/01 to 03/31; 04/01 to 04/30; 05/01 to 06/30
								Total June Demands Appropriated since 1989							
								5092.8 AF							
Sep Demands															
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7			6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5			7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2			8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, NORTH FORK	PIT	STOCK	MARTINDALE LAND & CATTLE LLC		6.2			9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6			7N16E	36	SWNENE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9			8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9			8N17E	36	NESWSW	WH	01/01 to 12/31
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE	MINING		GEORDGE	23 GPM	1.53			10N9E	29	NESWSW	ME	04/01 to 10/31
40A 30065818	PROVISIONAL PERMIT	20130322	MUSSELHELL RIVER	HEADGATE	IRRIGATION	LEHFELDT INC	1.96 CFS	116.6	116.6	87	6N22E	5	NENWSW	GV	03/01 to 06/30; 09/01 to 10/01
40C 30107115	STOCKWATER PERMIT	20160606	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	NORRIS		2			8N26E	25	NENWNW	MU	01/01 to 12/31
								Total September Demands Appropriated since 1989							
								153.9 AF							
Oct Demands															
40A 30105742	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		5.7			6N19E	2	NENWNE	GV	01/01 to 12/31
40A 30105744	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.5			7N10E	16	SESESW	ME	01/01 to 12/31
40A 30105747	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, SOUTH FORK	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		2			8N10E	34	SWSWNE	ME	01/01 to 12/31
40A 30066266	STOCKWATER PERMIT	20130506	UNNAMED TRIBUTARY OF MUSSELHELL RIVER, NORTH FORK	PIT	STOCK	MARTINDALE LAND & CATTLE LLC		6.2			9N11E	28	SESWSW	ME	01/01 to 12/31
40A 30105743	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	PIT/DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		0.6			7N16E	36	SWNENE	WH	01/01 to 12/31
40A 30105748	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		8.9			8N16E	20	SESESW	WH	01/01 to 12/31
40A 30105749	STOCKWATER PERMIT	20160302	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	MONTANA, STATE BOARD OF LAND COMMISSIONERS		9.9			8N17E	36	NESWSW	WH	01/01 to 12/31
40A 101613 00	PROVISIONAL PERMIT	19970908	UNNAMED TRIBUTARY OF UNNAMED TRIBUTARY OF NORTH FORK MU PIPELINE	MINING		GEORDGE	23 GPM	1.53			10N9E	29	NESWSW	ME	04/01 to 10/31
40C 30107115	STOCKWATER PERMIT	20160606	UNNAMED TRIBUTARY OF MUSSELHELL RIVER	DAM	STOCK	NORRIS		2			8N26E	25	NENWNW	MU	01/01 to 12/31
40A 90380 00	PROVISIONAL PERMIT	19940822	MUSSELHELL RIVER	PUMP	IRRIGATION	CHISHOLM	4.5 CFS	54	276.7	36	6N23E	8	NWSENE	GV	10/01 to 11/01; 03/15 to 04/30
40A 30028082	PROVISIONAL PERMIT	20080219	MUSSELHELL RIVER	HEADGATE	IRRIGATION	J C JENSEN INC	2.97 CFS	175	182.6	137.7	6N22E	5	NENWSW	GV	10/01 to 10/31; 04/01 to 06/30
40C 30047744	PROVISIONAL PERMIT	20100923	MUSSELHELL RIVER	HEADGATE	WATER MARKETING	PETROLEUM CO CONSERVATION DISTRICT	50 CFS	3074.4	3074.4		9N29E	28	SWNWNW	MU	10/01 to 10/31; 11/01 to 11/15; 03/01 to 03/31; 04/01 to 04/30; 05/01 to 06/30
								Total October Demands Appropriated since 1989							
								3340.7 AF							