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

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APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 43B 30156208 BY SANDERS REVOCABLE FAMILY TRUST	**)))**	**PRELIMINARY DETERMINATION TO GRANT PERMIT**

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On January 10, 2023, Sanders Revocable Family Trust (Applicant) submitted Application for Beneficial Water Use Permit No. 43B 30156208 to the Billings Water Resources Office of the Department of Natural Resources and Conservation (Department or DNRC) for no flow rate (diverted by pit), with secondary diversions using up to 5.42 CFS and 1,227.9 AF for irrigation and stock beneficial uses. The Department published receipt of the Application on its website. The Application was determined to be correct and complete as of June 12, 2023. The Department met with the Applicant's Representatives, Daniel (Dan) and Tami Sanders, on July 13, 2022. Christine Schweigert, Hydrologist; Jill Lippard, Water Resource Specialist; Evan Norman, Hydrologist; and Mark Elison, Billings Regional Manager, were present for the Department. The Applicant filed a Waiver of 120 Days Statutory Timeline for Preliminary Determination Decision on July 11, 2023. This application was processed using the Rules and Statue in effect at the time the application was received. An Environmental Assessment for this Application was completed on September 4, 2024.

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
- Attachments
- Maps:
    - Undated Aerial Image showing proposed points of diversion, conveyance and places of use.

    - Undated Aerial Image showing proposed center pivot irrigation systems
    - USGS Quadrangle showing general project location with proposed points of diversion, conveyance and places of use
    - USGS Quadrangle showing proposed reservoir
- Reservoir/Place of Storage Addendum, Form 600 SA
- Affidavit of Gary Arlian, leasee, stating that water is not always available from the Dry Creek Canal Company ditch
- Irrigation system specification work sheet from Watson Irrigation Specialists
- Pump data sheets and pump curves for Cornell 3RB-CC with ratings for different heads
- Aquifer Test data on Form 633 in electronic format – submitted by email on July 11, 2022
- Variance request from aquifer testing requirements dated January 3, 2022 (received January 2023). The request is for variance from ARM 36.12.121 2(a)(f), 3(a)(e)(h) and (k) (2023)

Information Received after Application Filed

- Response to variance request dated January 19, 2023, granting variance from ARM 36.12.121 2(a)(f), 3(a)(e)(h) and (k) (2023)
- Variance request dated March 2, 2023, requesting variance from ARM 36.12.121 3(j)
- Response to variance request dated March 2, 2023, granting variance from ARM 36.12.121 3(j) (2023)
- Email dated March 17, 2023, from Department Hydrologist Jack Landers to Christine Schweigert with his review of the interpolation method used to estimate flow at the ungaged site on the Yellowstone River
- Email chain dated from March 22, 2023, to April 3, 2023, between Dan Sanders and Christine Schweigert, discussing the Department Groundwater Permit Report dated March 3, 2023, the number of proposed secondary diversions (5 pumps rather than 2), depletions to Upper Deer Creek, the need for flow measurements each month for a year, options for continued processing of the application, a plan for a site visit, and Department measurement of the stream flow in April

- Sanders' photos of Upper Deer Creek dated March 23, 2023, showing sections of the stream with no flow – provided to the Department by the Sanders' during the April 18, 2023, site visit
- DNRC Discharge Measurement Summary from Department flow measurement on Upper Deer Creek dated April 18, 2023
- Email chain between Dan Sanders, Christine Schweigert, Mark Elison, and Jacob (Jake) Mohrmann, DNRC Water Science Bureau Chief, dated April 19, 2023, through May 17, 2023, discussing the April 18, 2023, site visit findings and questions regarding water availability analysis
- Email chain between Dan and Tami Sanders and Christine Schweigert dated May 18, 2023, through June 12, 2023, discussing the process for requesting a waiver of timelines, attaching the request for waiver of timelines form and the Technical Report issued June 16, 2023, which included a correction to the calculated total flux in the source aquifer.
- Email chain between Dan Sanders and Christine Schweigert dated June 16, 2023, through July 5, 2023, discussing the Waiver of 120 Days Statutory Timeline for Preliminary Determination Decision, and asking a question on the Technical Report regarding the number of points of diversions
- Waiver of 120 Days Statutory Timeline for Preliminary Determination Decision received July 11, 2023.
- Email from Dan Sanders to Christine Schweigert dated June 10, 2024, with Upper Deer Creek measurements from April 2023 through June 2024 attached.
- Email chain from Christine Schweigert to Melissa Brickl, Groundwater Section Supervisor, Jack Landers, Hydrologist, Todd Blythe, Surface Water Section Supervisor, and Mark Elison discussing adequacy of Applicant supplied flow measurements dated July 16, 2024, and July 17, 2024

Information within the Department's Possession/Knowledge

- Email chain dated June 30, 2022, through July 11, 2022, between Dan Sanders, Chris Schweigert and Department Hydrologist Evan Norman discussing proposed pump test
- Email dated July 11, 2022, from Dan Sanders to Christine Schweigert and Evan Norman with pump test results, Form 633, and "Sanders Drain Ditch Test Summary" (Summary)

attached. The Summary includes a narrative, objective, equipment, procedure, and results of the pump test

- Email chain dated from January 4, 2023, to January 19, 2023, between Dan Sanders and Christine Schweigert, discussing maps, variance request, and the draft application. Also, clarifying a proposed stock tank legal land description.
- Groundwater Permit Application Technical Report by Christine Schweigert, and Jake Mohrmann, dated June 12, 2023
- Groundwater Permit Report by Jake Mohrmann, dated March 3, 2023
- Data from USGS Gage No. 06214500 Yellowstone River at Billings, MT with a period of record from October 1, 1928, through February 28, 2022
- Data from USGS Gage No. 06192500 Yellowstone River near Livingston, MT with a period of record from May 1, 1897, through October 31, 2021
- Data from USGS Gage No. 06198000 East Boulder River near McLeod, MT with a period of record from August 1, 1907, through December 1909, and October 1981 through August 31, 1983, with a data gap from January 1910 through September 1981
- USGS StreamStats for Montana, Scientific Investigations Report 2015-5019-G *Methods for Estimating Streamflow Characteristics at Ungaged Sites in Western Montana Based on Data through Water Year 2009*
- *Streamflow Regionalization in Western Montana*. Donald F. Potts. School of Forestry, University of Montana. 1983
- DNRC Water Right Information System (Database or WRIS)
- Montana Bureau of Mines and Geology - Groundwater Information Center (GWIC)
- The Department also routinely considers the following information. The following information is not included in the administrative file for this application but is available upon request. Please contact the Billings Regional Office at 406-247-4415 to request copies of the following documents.
    - Department Technical Memorandum: *Physical Availability of Surface Water with Gage Data* dated November 1, 2019
    - Department Technical Memorandum: *Physical Availability of Surface Water without Gage Data* dated April 18, 2019

- Department Technical Memorandum: *Physical and Legal Availability of Groundwater* dated April 22, 2019
- Department Technical Memorandum: *Standard Practices for Net Surface Water Depletion from Ground Water Pumping* dated July 6, 2018
- Natural Resources Conservation Service (NRCS), 2003. Irrigation Water Requirement (IWR) computer program.

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).

For the purposes of this document, Department or DNRC means the Department of Natural Resources & Conservation; CFS means cubic feet per second; GPM means gallons per minute; gpd means gallons per day; T means Township; R means Range; AF means acre-feet; AC means acre(s); AF/YR means acre-feet per year; NRCS means Natural Resource Conservation Service; IWR means Irrigation Water Requirement; POU means place of use; and POD means point of diversion.

PROPOSED APPROPRIATION

FINDINGS OF FACT

1. The Applicant proposes to divert groundwater, by means of a pit, from January 1 to December 31 for livestock use and from April 1 to October 31 for irrigation use. The Applicant proposes to divert up to 5.42 CFS from the pit, up to 1,227.9 AF. This includes 7.65 AF for stock, up to 1,185.61 AF for irrigation of 443 AC, up to 10.3 AF for evaporation from the surface of the pit (approximately 4.86 AC surface area), and up to 24.3 AF for the initial fill of the pit. The proposed pit is located in the N2 and N2N2NESW Sec. 34, T1N, R15E, Sweet Grass County. The Applicant proposes to irrigate 443 AC, including 8 AC in Government Lot 9 (SESW) Sec. 27 and 435 AC in Sec. 34, T1N, R15E, Sweet Grass County. The place of use for livestock is directly from the pit in the N2 and N2N2NESW, ditches in the N2 and N2N2NESW, and at ten tanks in Sec. 34, T1N, R15E, Sweet Grass County. The tank locations are listed in Table 1.

Table 1. Stock Tank Locations

QTR SECTION	SECTION	TOWNSHIP	RANGE
NWSENE	34	1N	15E
SESENE	34	1N	15E
N2NENW	34	1N	15E
NENENW	34	1N	15E
NWNWNW	34	1N	15E
SENWNW	34	1N	15E
SWNWSWNW	34	1N	15E
SESWSWSE	34	1N	15E
NWNESW	34	1N	15E
SWSENW	34	1N	15E

2. The point of diversion is a T-shaped pit that functions as a drain ditch. The pit is shown on Figure 1 as a dark blue line with light blue hash marks in the north half of the proposed place of use. There is a headgate structure on the east end of the pit which allows the pit to be drained to the Yellowstone River. The unnamed pit has existed since at least 1955 as evidenced by its appearance on the Greycliff, MT 7.5-minute USGS Quadrangle. This application is for water to supplement irrigation from the Dry Creek Canal Company and to water 450 AU of cattle and sheep.

3. This project is located approximately 5 miles southeast of Big Timber with the Yellowstone River and Interstate-90 to the north, Hwy 10 E to the south, and Upper Deer Creek to the east.

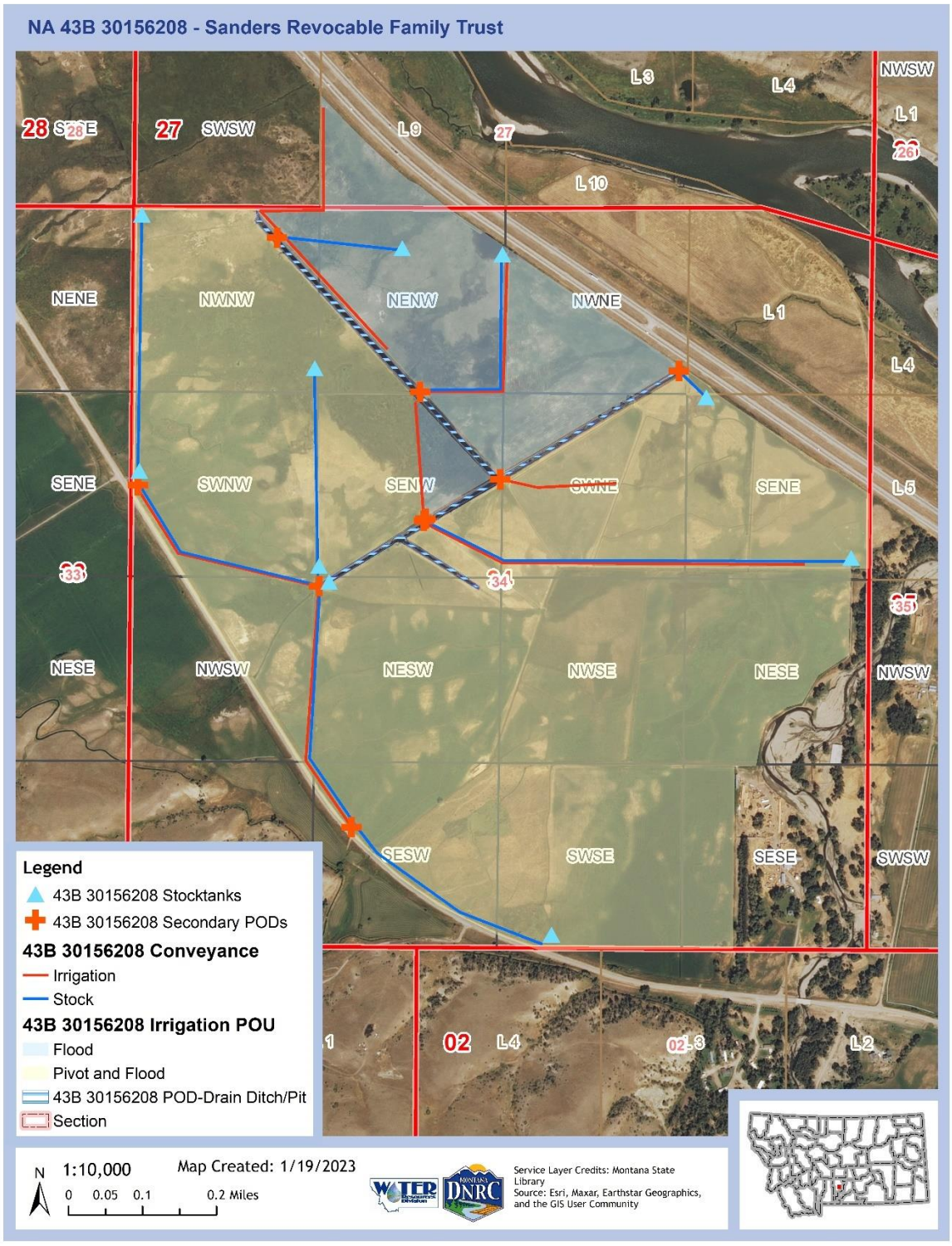

Figure 1. Proposed appropriation

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

GENERAL CONCLUSIONS OF LAW

4. 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 . . .

5. 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." Section 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, 357 Mont. 438, 240 P.3d 628.

6. 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.

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

8. 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. Section 85-2-311(6), MCA.

9. 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

10. DNRC Water Science Bureau Chief, Jake Mohrmann, completed a Groundwater Permit Report (DNRC Report), dated March 3, 2023. A copy of the report is in the file under the Processing Information and Correspondence flag. The Applicant conducted an 8-hour pump test at an average discharge rate of 2,530 GPM. The Applicant developed the pump test procedure with the assistance of Department Hydrologist Evan Norman as discussed in the email chain dated June 20, 2022, through July 11, 2022. The Applicant requested and was granted variances from the requirements of ARM 36.12.121 sections (2)(a)(f), (3)(a)(e)(h)(j) and (k) (2/24/2018-

1/1/2024 rules) which generally describes aquifer test requirements. The variances centered around the fact that the groundwater source is a surface pit and not a well and thus, does not conform to a typical aquifer testing regiment.

11. The Department used AQTESOLV® to model predicted drawdown in the surrounding aquifer. The Department used published hydraulic conductivity values and saturated thicknesses from local well log descriptions to derive transmissivity (T), and table values for specific yield (Sy). An aquifer transmissivity of 2,600 ft^2/day (19,450 gallons per day per ft), used to delineate the zone of influence (ZOI), was calculated from an estimated hydraulic conductivity of 100 ft/day for sand and gravel sediments and a saturated thickness of 26 ft. The aquifer T of 2,600 ft^2/day, and a specific yield value of 0.1 were used in evaluating physical availability and adverse effect (DNRC Report).

12. The physical availability of groundwater was evaluated by calculating groundwater flux through the ZOI corresponding to the 0.01-ft drawdown contour. A distance-drawdown plot was generated using the Theis (1935) unconfined solution, a constant pumping rate of 761.7 GPM (flow rate required to produce the requested volume over the proposed period of diversion), T = 2,600 ft^2/day, and Sy = 0.1. The 0.01-ft drawdown contour occurs at 13,800 ft from the center point of the Applicant's pit. As identified in Figure 2, the 0.01-ft drawdown contour extends past the Yellowstone River (Qat1) aquifer boundaries; therefore, the radius was truncated by the Yellowstone River to the north and the bedrock contact to the south. The calculation for groundwater flux (Q) through the delineated area is given by the equation Q = TWi where T = Transmissivity = 2,600 ft^2/day, W = Width of ZOI = 27,600 ft and i = groundwater gradient (DNRC Report) = 0.007 ft/ft and is 502,320 ft^3/day or 4,209 AF/YR.

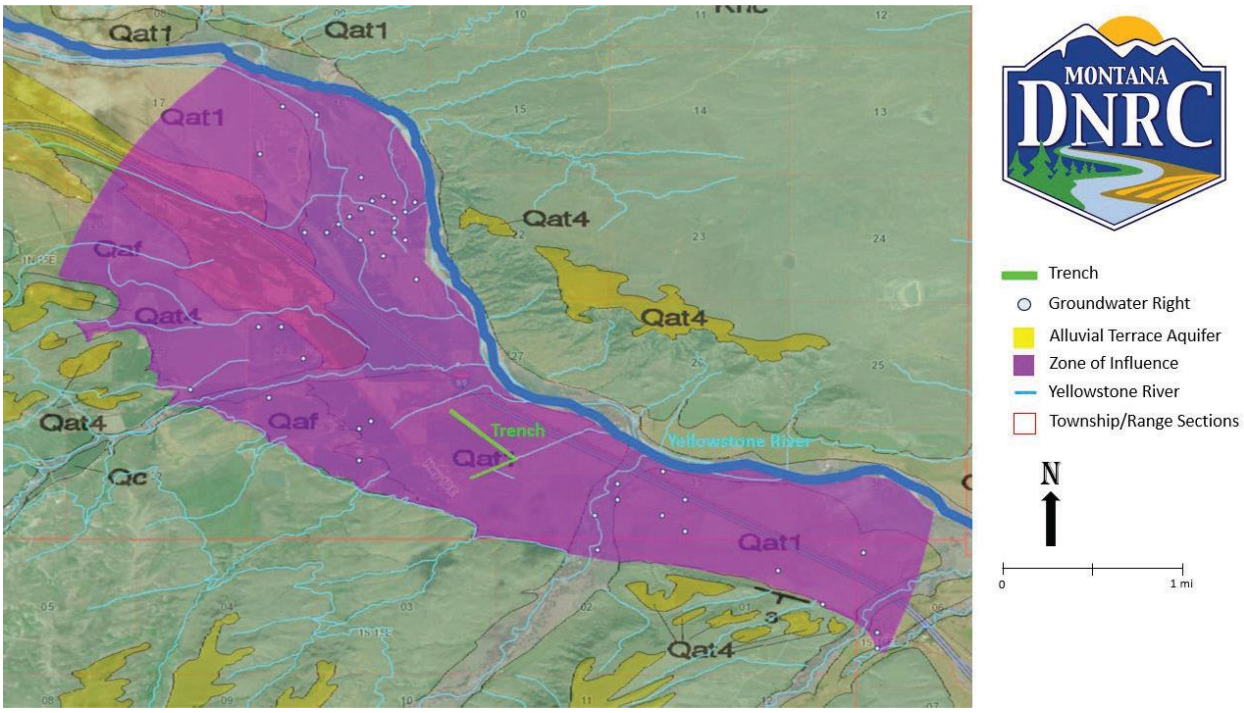

Figure 2. Predicted Zone of Influence

13. The Department finds that the total volume of water physically available at the proposed point of diversion is 4,209 AF/YR.

LEGAL AVAILABILITY

FINDINGS OF FACT

14. Based on the 0.01-foot drawdown contour at 13,800 ft from the pit center point truncated at the edge of the Yellowstone River to the north and the bedrock contact to the south, a Department hydrologist determined there are 66 active groundwater rights located in the ZOI. Of these rights, 44 are groundwater certificates, one is an exempt right, and 21 are statements of claim. There are six groundwater certificates for which no volume is recorded in the database. The legal demand for five of these rights was taken as 2.99 AF representing the average volume of the 38 groundwater certificates for which volumes are recorded. For groundwater certificate no. 43B 30019171, a volume of 2 AF was assigned based on the DNRC standard of 1 AF for domestic use and the scanned documents showing the water is used for 2 households year-round. Statements of claim with no listed volume were assigned volumes based on the claim filings and

DNRC adjudication standards. Stock claims were assigned a volume based on 30 gallons per day per animal unit and irrigation claims were assigned a volume of 3.58 AF/AC which is the low end of the DNRC standard for 45% efficient irrigation in climate area two. The total annual legal demand on groundwater within the zone of influence is 707.4 AF/YR. The following is a list of the existing legal demands for groundwater that are within the Department's identified ZOI.

Table 2. Existing legal demands for groundwater within the ZOI

Water Right No.	Water Right No.	Water Right No.	Water Right No.	Water Right No.	Water Right No.
43B 10348 00	43B 18205 00	43B 30044388	43B 30122012	43B 30153983	43B 84469 00
43B 105056 00	43B 183218 00	43B 30044774	43B 30137500	43B 30154216	43B 84470 00
43B 114551 00	43B 185383 00	43B 30045212	43B 30137606	43B 33437 00	43B 86246 00
43B 15337 00	43B 30008037	43B 30045214	43B 30137777	43B 35025 00	43B 88871 00
43B 179981 00	43B 30016031	43B 30045807	43B 30137789	43B 35032 00	43B 88878 00
43B 179982 00	43B 30019171	43B 30050799	43B 30137808	43B 47582 00	43B 90706 00
43B 179983 00	43B 30022415	43B 30108421	43B 30137810	43B 57890 00	43B 90943 00
43B 179984 00	43B 30030060	43B 30110086	43B 30137811	43B 60402 00	43B 92958 00
43B 179985 00	43B 30030660	43B 30113506	43B 30137825	43B 6329 00	43BV 112058 00
43B 179986 00	43B 30030697	43B 30116994	43B 30142 00	43B 6330 00	43BV 113987 00
43B 179987 00	43B 30044190	43B 30118056	43B 30151646	43B 64436 00	43BV 115408 00

15. Table 3 is a comparison of the water supply and current legal demands for groundwater that could be reduced by any amount due to the proposed appropriation.

Table 3. Comparison of physically available groundwater to legal demands

Physically Available (AF/YR)	Existing Legal Demands (AF/YR)	Physically Available minus Existing Legal Demands (AF/YR)
4,209	707.4	3,501.6

16. The amount of groundwater available is 4,209 AF/YR and existing legal demands of groundwater total 707.4 AF/YR. The Department finds that the comparison shows that groundwater is legally available (4,209 – 707.4 = 3,501.6 AF). The Applicant is requesting 1,227.9 AF. The amount of water legally available exceeds the amount requested by the Applicant.

17. The Department's Groundwater Permit Report concludes that surface water depletions from pumping the proposed pit will be to the Yellowstone River downstream of the NESW Sec.

27, T1N, R15E, and to Upper Deer Creek downstream of the NESESE Sec. 34, T1N, R15E, Sweet Grass County.

Table 4. Modeled monthly depletions to the Yellowstone River and Upper Deer Creek

Month	Total Consumptive Volume (AF)	Yellowstone River Net Depletion (AF)	Yellowstone River Net Depletion (GPM)	Upper Deer Creek Net Depletion (AF)	Upper Deer Creek Net Depletion (GPM)	Upper Deer Creek Net Depletion (CFS)
January	1.0	31.1	226.7	22.27	162.6	0.36
February	0.9	26.5	214.6	19.59	158.3	0.35
March	1.2	23.5	171.4	17.48	127.6	0.28
April	38.4	23.6	177.9	15.85	119.5	0.27
May	100.5	31.4	229.1	14.64	106.9	0.24
June	153.8	46.2	348.1	14.56	109.9	0.24
July	194.3	63.4	463.1	16.25	118.7	0.26
August	165.7	75.9	554.0	19.55	142.7	0.32
September	89.6	75.6	570.2	23.51	177.3	0.4
October	45.2	64.6	471.8	26.34	192.3	0.43
November	1.1	50.9	383.8	26.69	201.3	0.45
December	0.9	38.3	279.5	25.04	182.8	0.41
Total	**792.7**	**550.9**	-	**241.8**	-	-

18. The area of potential impact is the depleted reach. For the Yellowstone River it is approximately 1.3 miles downstream from the top of the depleted reach to the confluence of the Yellowstone River and Upper Deer Creek. The area of potential impact for Upper Deer Creek is approximately half a mile from the top of the depleted reach to the confluence with the Yellowstone River. The confluence of the Yellowstone River at Upper Deer Creek is a significant hydrologic boundary.

19. For the Yellowstone River, the Department estimated the available flow at the top of the depleted reach (ungaged site) using the Between Gages: Interpolation method, as outlined in the Department's Technical Memorandum: *Physical Availability of Surface Water with Gage Data*, dated November 1, 2019. The results were compared with the data from the upstream gage at Livingston (06192500) and the downstream gage at Billings (06214500). After consultation with Water Sciences Bureau staff, it was decided that the results from the interpolation method were reasonable although the ungaged area is outside of the suggested parameters of $0.5A_g$ - $1.5A_g$ with the ungaged area being 0.51 of the Billings gaged area and 1.63 of the Livingston gaged area. Where there is both an upstream and downstream gaging station relative to the

depleted reach on the same source, the equation (equation 11) from USGS (2015) Stream Stats, Chapter G, p. 13 for Montana can be used to make a logarithmic linear interpolation between the two gages: $logQ_u = logQ_{g1} + (logQ_{g2} - logQ_{g1}/logA_{g2} - logA_{g1})$ x $(logA_u - logA_{g1})$ where Q_u is the streamflow characteristic, A is the contributing drainage area, and subscripts u, g1 and g2 refer to the ungaged site and the gaged sites 1 and 2, respectively.

20. Tables 5 and 6 show the estimated median of the mean monthly flow rates and volumes used to quantify physical availability of surface water at the top of the Yellowstone River depleted reach. Volume was calculated by multiplying the median of the mean monthly flow by 1.98 and by the number of days in each month.

Table 5. Flow at ungaged site (top of depleted reach)– using USGS gages at Livingston (06192500) and Billings (06214500)(CFS)

	Median of the mean at gage 1 (Livingston 06192500 – upstream)	**Median of the mean at gage 2 (Billings 06214500– downstream)**	**Interpolated flow at ungaged site***
January	1,194	2,514	1,629
February	1,187	2,523	1,625
March	1,297	2,895	1,813
April	1,909	3,962	2,588
May	7,207	12,890	9,184
June	13,130	23,740	16,808
July	7,408	12,450	9,198
August	3,348	4,578	3,815
September	2,278	3,721	2,795
October	1,917	3,917	2,582
November	1,644	3,572	2,272
December	1,363	2,788	1,837

*Interpolated flow was rounded to the nearest whole number

Table 6. Volume at ungaged site – using USGS gages at Livingston and Billings (AF)

	Median of the mean at gage 1 (Livingston 06192500– upstream)	**Median of the mean at gage 2 (Billings 06214500– downstream)**	**Interpolated volume at ungaged site***
January	73,288	154,279	99,967
February	65,807	139,875	90,118
March	79,579	177,695	111,266

April	113,395	235,343	153,749
May	442,366	791,188	563,717
June	779,922	1,410,156	998,384
July	454,703	764,181	564,595
August	205,470	280,998	234,138
September	135,313	221,027	166,033
October	117,635	240,425	158,505
November	97,654	212,177	134,960
December	83,661	171,097	112,748

*Interpolated volume was rounded to the nearest whole number

21. Table 7 lists the water rights located in the depleted reach of the Yellowstone River. The cumulative flow rate (CFS) and volume (AF) of those water rights are shown in Table 8.

Table 7. Existing water rights in the depleted reach of the Yellowstone River

Water Right No.	Water Right No.	Water Right No.	Water Right No.	Water Right No.
43B 179978 00	43B 191340 00	43B 191341 00	43B 191342 00	43B 191343 00

Table 8. Flow rate and volume of existing water rights in the depleted reach of the Yellowstone River

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flow Rate (CFS)	1,300.1	1,300.1	1,300.1	1,800.1	2,200.1	2,200.1	2,200.1	1,800.1	1,800.1	1,800.1	1,300.1	1,300.1
Volume (AF)	79,799	72,076	79,799	106,925*	135,041	130,685	135,041	110,489	106,925	110,489	77,225	79,799

*overestimated, 1,800.08 CFS is for 15 days of the month, calculated for 30 days

The existing water rights in the depleted reach were subtracted from the estimated available flow and volume to determine the amount of water legally available, as shown in Table 9.

Table 9. Comparison of physically available water and legal demands on Yellowstone River

Month	Physical Availability (CFS)	Existing Legal Demands (CFS)	Physical – Legal (CFS)	Physical Availability (AF)	Existing Legal Demands (AF)	Physical – Legal (AF)
January	1,473.25	1,200.24	273.01	99,967.09	79,799	20,168.09
February	1467.19	1,200.24	266.95	90,118.01	72,076	18,042.01
March	1,623.24	1,200.24	423	111,265.73	79,799	31,466.73
April	2,335.79	2,000.24	335.55	153,748.63	106,925	46,823.63
May	8,489.38	2,007.94	6,481.44	563,716.82	135,041	428,675.82
June	15,522.93	2,009.46	13,513.47	998,384.36	130,685	867,699.36
July	8,659.79	2,009.46	6,650.33	564,595.28	135,041	429,554.28
August	3,676.38	2,009.46	1,666.92	234,138.06	110,489	123,649.06
September	2,347.30	2,006.35	340.95	166,033.23	106,925	59,108.23
October	2,341.01	2,004.24	336.77	158,504.71	110,489	48,045.71

November	2,044.96	1,200.24	844.72	134,959.96	77,225	57,734.96
December	1,668.23	1,200.24	467.99	112,748.3	79,799	32,949.30

22. Physically available water minus legal demands within the depleted reach of the Yellowstone River exceeds the flow rate and volume of monthly modeled depletions (Table 4, FOF 17) resulting from the Applicant's request in all months.

23. The Department used the Orsborn method (Potts, 1983) to estimate the total annual amount of water available at the top of the depleted reach of Upper Deer Creek. This method uses drainage area and precipitation to estimate the mean annual flow in a stream. For northern Sweet Grass County (region 4), the equation is: $QAA=0.411(PxA)^{0.9954}$, where 0.0411 is a constant, P is average annual precipitation in inches, A is drainage area in square miles, and exponent 0.9954 is constant. The basin area was taken from the USGS StreamStats online application and is 59.5 square miles. Average annual precipitation was taken from the National Weather Service (NWS) Big Timber climate station for the period of record (1894-2012) and is 15.36 inches. The estimate of mean annual flow is 36.4 CFS ($0.0411 \times (15.36 \text{ in.} * 59.5 \text{ sq. mi.})^{0.9954} = 36.4$ CFS). Mean monthly flow was estimated by comparing the percentage of annual flow in each month at a similar gaged source. The USGS Gage no. 06198000, East Boulder River nr Mcleod, was used to determine the percentage of mean annual flow that occurs in any given month. Those percentages were applied to the mean annual flow estimated in Upper Deer Creek. Estimates of the monthly volume were calculated as flow rate in CFS times 1.98 times the number of days in the month.

Table 10. Estimated flow rate and volume for Upper Deer Creek at the top of the depleted reach

Month	Median flow at East Boulder River Gage (06198000) (CFS)	Percent of Mean Annual Flow (80.13 CFS)	Predicted Flow on Upper Deer Creek Based on the Percent of Mean Annual Flow for East Boulder River (CFS)	Predicted Volume on Upper Deer Creek (AF)
January	16	19.97%	7.27	446.18
February	15	18.72%	6.81	377.77
March	14	17.47%	6.36	390.32
April	19	23.71%	8.63	512.65
May	94	117.32%	42.7	2,621.2
June	442	551.64%	200.8	11,927.34
July	209	260.84%	94.95	5,827.77

August	48	59.91%	21.81	1,338.53
September	39	48.67%	17.72	1,052.32
October	35	43.68%	15.9	975.91
November	27	33.7%	12.27	728.65
December	21	26.21%	9.54	585.59

24. The existing legal demands between the headwaters and the top of the depleted reach were subtracted from the estimated monthly flow and volume to refine the estimated amount of water available at the top of the depleted reach. Table 11 is a list of the upstream legal demands.

Table 11. Existing water rights between headwaters and top of depleted reach on Upper Deer Creek

Water Right No.	Water Right No.	Water Right No.	Water Right No.
43B 30142853	43B 31140 00	43B 179976 00	43B 12632 00
43B 12631 00	43B 194756 00	43B 179975 00	43B 192761 00
43B 31145 00	43B 194755 00	43B 194754 00	43B 27173 00
43B 136137 00	43B 106346 00	43B 194753 00	43B 31144 00
43B 136159 00	43B 106345 00	43B 194752 00	43B 31143 00
43B 13698 00	43B 39506 00	43B 13702 00	43B 60147 00
43B 185587 00	43B 215278 00	43B 13701 00	43B 60148 00
43B 30145018	43B 179977 00	43B 13700 00	43B 60152 00

25. This estimation technique shows that flow rate is not physically available in some months of the year on Upper Deer Creek, as shown in Table 12. The Department provided its analysis to the Applicant in a Technical Report dated June 12, 2023.

Table 12. Predicted flow rate and volume minus upstream demands on Upper Deer Creek

Month	Predicted Flow (CFS)	Upstream Demands (CFS)	Remaining Flow at the Top of the Depleted Reach (CFS)	Predicted Volume (AF)	Upstream Demands (AF)	Remaining Volume at the Top of the Depleted Reach (AF)
January	7.27	5.21	**2.06**	446.18	14.42	**431.76**
February	6.81	5.21	**1.6**	377.77	14.42	**363.35**
March	6.36	12.08	**-5.72**	390.32	47.15	**343.17**
April	8.63	45.95	**-37.32**	512.65	358.22	**154.43**
May	42.7	51.67	**-8.97**	2,621.2	405.59	**2,215.61**
June	200.8	51.67	**149.13**	11,927.34	405.59	**11,521.75**
July	94.95	51.14	**43.81**	5,827.77	399.26	**5,428.51**

August	21.81	51.14	**-29.33**	1,338.53	399.26	**939.27**
September	17.72	51.14	**-33.42**	1,052.32	399.26	**653.06**
October	15.9	38.77	**-22.87**	975.91	320.72	**653.19**
November	12.27	5.21	**7.06**	728.65	14.42	**714.23**
December	9.54	5.21	**4.33**	585.59	14.42	**571.17**

26. Because the estimation technique showed negative numbers for water availability six months of the year on Upper Deer creek, the Applicant submitted a Waiver of 120 days Statutory Timeline for Preliminary Determination Decision on July 11, 2023, in order to measure flow in Upper Deer Creek each month for a year. The Department made a site visit on April 18, 2023. While on site, Christine Schweigert measured flow in Upper Deer Creek using a Flow Tracker2 flow meter. The Applicant was instructed on the method and measured the flow using the Float Area Method from May 2023, through March of 2024. A Department hydrologist evaluated the Applicant's flow measurements and determined they are adequate. Volume was calculated by multiplying the flow rate in CFS by 1.98 and by the number of days in each month.

Table 13. Measured flow and calculated volume on Upper Deer Creek

Month	DNRC Measurement (CFS)	Applicant Measurement (CFS)	Volume (AF)
January		6.45	395.90
February		6.56	363.69
March		20.76	1,274.25
April	84.2		5,001.66
May		155.23	9,528.02
June		546.88	32,484.67
July		173.45	10,646.36
August		71.59	4,394.19
September		32.82	1,949.51
October		46.03	2,825.32
November		18.05	1,072.17
December		8.17	501.47

27. The measurements demonstrate that the estimation technique was not an accurate depiction of physically available water. The measurements show a similar hydrograph (Figure 3) to the USGS gage on the East Boulder River which is a similar gaged source and the one that was used for the Department estimation technique of physical availability on Upper Deer Creek. The Applicant measurements were reviewed by Department hydrologist Jack Landers on July 17,

2024, and were found to be acceptable for the evaluation of physical and legal availability of water on Upper Deer Creek.

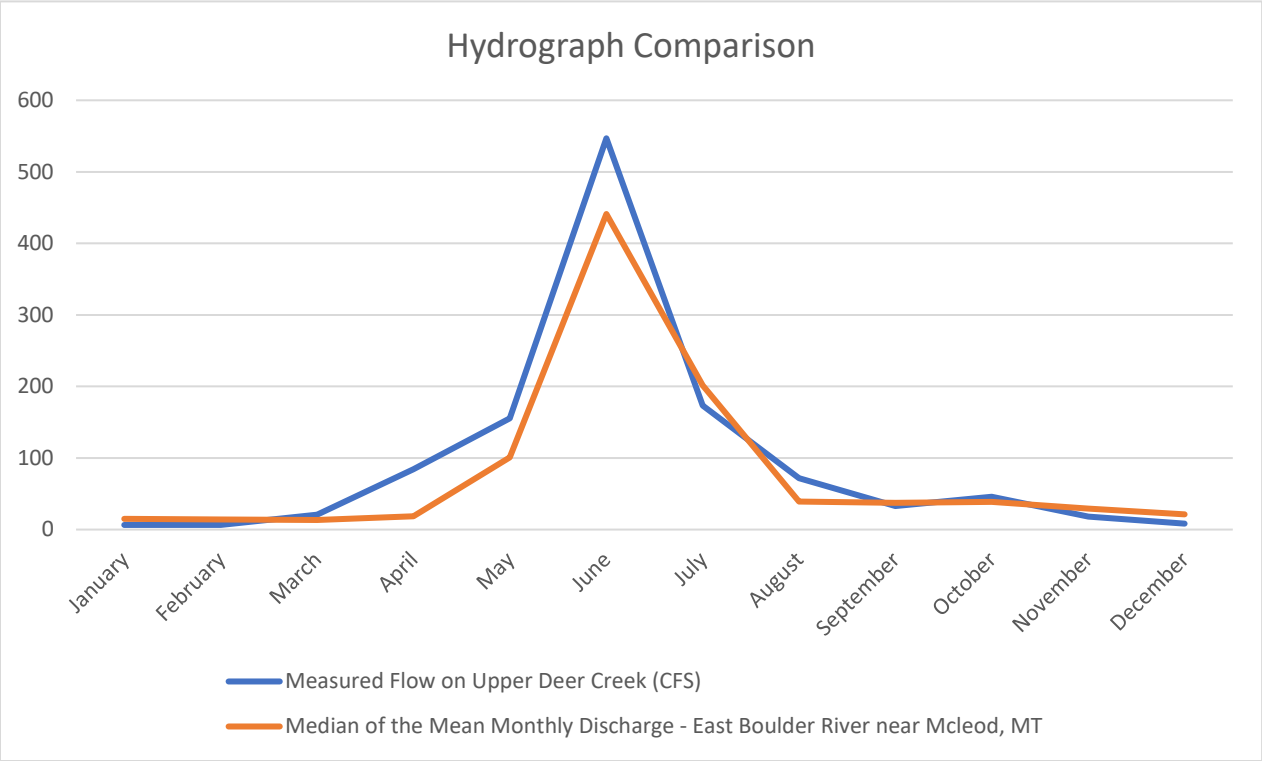

Figure 3. Hydrograph of USGS Gage no. 06198000- East Boulder River near Mcleod, MT

28. There are five legal demands within the depleted reach of Upper Deer Creek; two are for livestock drinking directly from the source and three are for irrigation. The volume for livestock direct from source is based on the number of animal units at a rate of 30 gpd/AU. The flow rate was back calculated using the Department method of dividing the annual volume by 365 days and by 1.98 and adding 0.08 CFS to arrive at a flow rate in CFS. The volume for irrigation was calculated by multiplying the max acres by 3.58 AF/AC which is the DNRC standard for 45% efficient irrigation in climate area two.

Table 14. Existing water rights in the depleted reach of Upper Deer Creek

Water Right No.	**Water Right No.**	**Water Right No.**	**Water Right No.**	**Water Right No.**
43B 179977-00	43B 179976-00	43B 179975-00	43B 179979-00	43B 30137793

29. The monthly flow rate and volume for the legal demands in the depleted reach are shown in Table 15.

Table 15. Monthly flow rate and volume for the existing water rights in the depleted reach of Upper Deer Creek*

Month	Flow Rate (CFS)	Volume (AF)
January	0.2	1.2
February	0.2	1.2
March	0.2	1.2
April	24.3	236.0
May	24.3	236.0
June	24.3	236.0
July	24.3	236.0
August	24.3	236.0
September	24.3	236.0
October	24.3	236.0
November	0.2	1.2
December	0.2	1.2

*Rounded to the nearest 1/10

30. Table 16 is a comparison of the measured monthly flow rate and volume to the existing legal demands in the depleted reach.

Table 16. Comparison of physically available water and legal demands on Upper Deer Creek*

Month	Physical Availability (CFS)	Existing Legal Demands (CFS)	Physical – Legal (CFS)	Physical Availability (AF)	Existing Legal Demands (AF)	Physical – Legal (AF)
January	6.5	0.2	**6.3**	396.0	1.2	**394.7**
February	6.6	0.2	**6.4**	363.7	1.2	**362.5**
March	20.8	0.2	**20.6**	1,274.3	1.2	**1,273.0**
April	84.2	24.3	**60.0**	5,001.7	236.0	**4,765.7**
May	155.2	24.3	**131.0**	9,528.0	236.0	**9,292.1**
June	546.9	24.3	**522.6**	32,484.7	236.0	**32,248.7**
July	173.5	24.3	**149.2**	10,646.4	236.0	**10,410.4**
August	71.6	24.3	**47.3**	4,394.2	236.0	**4,158.2**
September	32.8	24.3	**8.5**	1,949.5	236.0	**1,713.6**
October	46.0	24.3	**21.7**	2,825.3	236.0	**2,589.4**
November	18.1	0.2	**17.9**	1,072.2	1.2	**1,071.0**
December	8.2	0.2	**8.0**	501.5	1.2	**500.3**

*Rounded to the nearest 1/10

31. Physically available water minus legal demands within the depleted reach of Upper Deer Creek exceeds the flow rate and volume of monthly modeled depletions (Table 4, FOF 17) resulting from the Applicant's request in all months.

ADVERSE EFFECT

FINDINGS OF FACT

32. The Applicant's plan to prevent adverse effect is to cease pumping from the pit if call is made. Water from the pit can be released to the Yellowstone River using an existing headgate and ditch.

33. Jake Mohrmann modeled drawdown in nearby wells using the aquifer properties above (FOF 12) and a monthly pumping schedule (Table 17) accounting for irrigation and livestock uses. Modeled drawdown was greatest at the end of July of the fifth year of pumping. Drawdown equal to or greater than 1 foot will occur in the source aquifer within 8,200 ft of the pit and may impact 11 wells. Maximum drawdown is limited by the depth of the pit, at about 10 ft. The nearest well is 2,377 ft to the closest point of the pit and may experience about 7.4 ft of drawdown.

Table 17. Assumed monthly pumping schedule for the pit

Month	Irrigation (AF)	Irrigation (GPM)	Net Evap. (AF)	Net Evap. (GPM)	Stock (AF)	Stock (GPM)	Total Diversion (GPM)	Total Diversion (AF)
January	0	0	0.3	2.3	0.6	4.7	7.1	0.9
February	0	0	0.4	2.8	0.6	4.7	7.6	1
March	0	0	0.6	4.3	0.6	4.7	9.1	1.2
April	57.2	431.7	0.3	2.6	0.6	4.7	439.1	58.1
May	152.1	1,110.6	0.4	3.1	0.6	4.7	1118.5	153.1
June	232.9	1,757.0	1	7.4	0.6	4.7	1769.2	234.5
July	293.1	2,139.3	2.1	15.4	0.6	4.7	2159.5	295.8
August	249.2	1,819.3	2.2	16	0.6	4.7	1840.1	252
September	134	1,011.0	1.4	10.8	0.6	4.7	1026.6	136
October	67	489.2	0.7	5.4	0.6	4.7	499.4	68.3
November	0	0	0.5	3.9	0.6	4.7	8.6	1.1
December	0	0	0.3	2.1	0.6	4.7	6.9	0.9
Total	**1,185.6**		**10.3**		**7.7**			**1203.6**

Table 18. Groundwater appropriations predicted to experience greater than 1-foot of drawdown

Water Right No.	Distance from Pit (ft)	Total Well Depth (ft)	Static Water Level (ft)	Modeled Potential Drawdown (ft)	Remaining Water Column (ft)
43B 30050799	2,377	40	8.5	7.4	24.1

43B 84469-00	4,862	60	23	4.7	32.3
43B 84470-00	4,862	43	19	4.7	19.3
43BV 115408-00	5,606			3.8	
43B 30022415	6,640			2.7	
43B 33437-00	6,803	50	27	2.5	20.5
43B 57890-00	6,803			2.5	
43B 47852-00	7,287	32	19	2.0	11.0
43B 88878-00	7,595	41	17	1.7	22.3
43B 64436-00	7,630	52	16	1.6	34.4
43B 88871-00	7,801	43	19	1.4	22.6

34. Based on water being available in excess of legal demands on the depleted surface water sources (FOF 14-31), groundwater modeling indicating that existing water rights for which well depth and static water level are recorded would have remaining water columns in excess of 11 ft (Table 18, FOF 33), and the Applicant's plan to prevent adverse effect from the proposed groundwater appropriation (FOF 32), the Department finds that the proposed appropriation will not cause adverse effect to existing water rights or reservations.

ADEQUATE MEANS OF DIVERSION

FINDINGS OF FACT

35. The 8-hour pumping test resulted in a total pumped volume of 1,210,000 gallons. Of the total volume pumped, approximately 659,000 gallons were pumped from the storage pit, the remaining 551,000 gallons were from induced flow from the surrounding aquifer. After pumping ceased, water from the pit returned to the pre-test level after approximately 4 hours suggesting a recharge rate of 2,745 GPM. According to the assumed pumping schedule shown in Table 17, the highest pumping rate would occur in July and would be approximately 2,159.5 GPM. Inflow into the pit would be adequate to supply the diversion schedule.

36. The Applicant proposes to divert water from the pit using pumps, syphons, or headgates to a series of ditches and tanks for stock watering and irrigation. The place of use is currently irrigated using water from Dry Creek Canal Company and stock are currently watering from the pit. The Applicant proposes to use existing irrigation ditches to water cattle and may install transitory stock tanks. Water will be delivered to the tanks using pumps and pipelines. The Applicant has provided design drawings showing the locations of proposed diversion and conveyance facilities as well as pump curves for the proposed secondary diversions. The Applicant has also provided design plans from Watson Irrigation Specialists for three center

pivot irrigation systems, one full circle and two partial circles. Land outside of the pivots will continue to be flood irrigated using existing ditches. Two of the pivots will use Cornell 4RB pumps to divert up to 980 GPM and 550 GPM through 1,580 ft of 10-inch PVC pipe. The third pivot will use a Cornell 3RB pump to divert up to 325 GPM. Additional ditches will be constructed using a ditching machine. Approximate ditch dimensions will be trapezoidal with 8–12-inch bottom width, 36-48-inch top width and a height of 12-16-inches. Headgates will be sized to fit the ditches after they are constructed. When gravity is not feasible to move water through the ditches, the Applicants propose to use a Cornell 3RB pump to pump water into the ditches.

37. The Department finds the means of diversion, construction, and operation of the appropriation works are adequate for the beneficial use.

BENEFICIAL USE

FINDINGS OF FACT

38. The Applicant is requesting to use a groundwater pit with a capacity of 24.3 AF with secondary diversions using up to 5.42 CFS (2,428 GPM) up to 1,227.9 AF. The volume requested includes 1,185.6 AF for irrigation of 443 acres; 7.7 AF for 450 AU of stock water; 10.3 AF for evaporation from the pit surface; and 24.3 AF for one fill of the pit (1,185.6 + 7.7 + 10.3 + 24.3 = 1, 227.9). Irrigation and stock are recognized beneficial uses under the Montana Water Use Act. One fill of the reservoir is required in order for secondary diversions to operate adequately. Evaporation from the water surface must also be accounted for and is assigned to the beneficial use volume. The volume for one fill and evaporation are divided proportionately between the beneficial uses. For this application, irrigation accounts for 99.4 percent of the beneficial use and stock accounts for 0.6 percent. The 24.3 AF required to fill the pit is divided according to the percentages above and 24.2 AF are attributed to the irrigation use and 0.1 AF is attributed to the stock use. The same percentages are applied to the evaporation losses and 10.2 AF are attributed to irrigation and 0.1 AF is attributed to the stock use. The total volume for irrigation, including the initial fill of the pit and evaporation is 1,220 AF (1,185.6 AF for irrigation + 24.2 AF for pit fill + 10.2 AF for evaporation = 1,220 AF). The total volume for stock, including the initial fill of the pit and evaporation is 7.9 AF (7.7 AF for stock + 0.1 AF for

pit fill + 0.1 AF for evaporation = 7.9 AF). The total volume for beneficial use including one fill and evaporation is 1,227.9 AF.

39. The Department does not assign a flow rate for groundwater pits. The secondary diversion flow rate of 5.42 CFS is based on the vendor calculated flow rate of 3.41 CFS needed to run two of the three proposed center pivots simultaneously, 2 CFS for flood irrigation of the remaining acres outside of the pivots, and 0.01 CFS for stock drinking from the ditches. The 2 CFS for flood irrigation was calculated based on running two ditches at 1 CFS each. The stock use is estimated, by the Applicant, to require up to 5 GPM (0.01 CFS) and is based on 450 AU drinking from the pit and ditches. The requested volume for irrigation and stock were calculated using DNRC standards. The volume for irrigation of 254 acres under the center pivots was calculated at 2.495 AF/AC in climate area 2, which is the midpoint of the range identified for sprinkler irrigation in ARM 36.12.115 for a total of 633.7 AF (254 * 2.495 = 633.7 AF). The volume for irrigation of the remaining 189 acres was calculated at 2.92 AF/AC in climate area two, which is the midpoint of the range for contour ditch irrigation in ARM 36.12.115 for a total of 551.9 AF (189 * 2.92 = 551.9). The total irrigation volume requirement is 1,185.6 AF (633.7 + 551.9 = 1,185.6). The volume for stock was calculated using the DNRC standard of 15 gpd/AU (0.017 AF/YR) and 450 AU for a total of 7.7 AF (450 * 0.017 = 7.7).

40. Beneficial use for a pit or reservoir is calculated as the beneficial use plus one fill and evaporation. The Department Water Science Bureau calculated evaporation from the pit to be 10.3 AF/YR. The capacity of the pit was calculated to be 24.3 AF based on the surface area of 4.86 AC, maximum depth of 10 ft, and a slope factor of 0.5 (4.86 * 10 * 0.5 = 24.3).

41. The Applicant provided an affidavit from Gary Arlian, who has leased the Applicant's ranch since 2006, owns the neighboring property, and leased that property - prior to owning it, since 1985. Mr. Arlian attests that he has witnessed several occasions where water availability from Dry Creek Canal Company (DCCC) has become limited and the Applicant's did not receive their allotted DCCC shares. This occurrence has significantly limited the ability to irrigate the property. Additionally, the topography of the ranch makes it challenging to irrigate the entire place of use. The Applicant is therefore requesting enough water for full-service irrigation.

42. The Department finds the proposed appropriation to be a beneficial use of water.

POSSESSORY INTEREST

FINDINGS OF FACT

43. The Applicant signed the application form 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

PHYSICAL AVAILABILITY

44. 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."

45. It is the Applicant's burden to produce the required evidence. *In the Matter of Application for Beneficial Water Use Permit No. 27665-41I 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).

46. 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).

47. The Applicant has proven that water is physically available at the proposed point of diversion in the amount Applicant seeks to appropriate. Section 85-2-311(1)(a)(i), MCA. (FOF 10-13)

LEGAL AVAILABILITY

48. 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).

49. 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.

50. Pursuant to *Montana Trout Unlimited v. DNRC*, 2006 MT 72, 331 Mont. 483, 133 P.3d 224, the Department recognizes the connectivity between surface water and ground water and the effect of pre-stream capture on surface water. *E.g., Wesmont Developers v. DNRC*, CDV-2009-823, Montana First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 7-8; *In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility Solutions LLC* (DNRC Final Order 2006) (mitigation of depletion required), *affirmed, Faust v. DNRC et al.*, Cause No. CDV-2006-886, Montana First Judicial District (2008); *see also Robert and Marlene Takle v. DNRC et al.*, Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994) (affirming DNRC denial of Applications for Beneficial Water Use Permit Nos. 76691-76H, 72842-76H, 76692-76H and 76070-76H; underground tributary flow cannot be taken to the detriment of other appropriators including surface appropriators and ground

water appropriators must prove unappropriated surface water, *citing Smith v. Duff*, 39 Mont. 382, 102 P. 984 (1909), and *Perkins v. Kramer*, 148 Mont. 355, 423 P.2d 587 (1966)); *In the Matter of Beneficial Water Use Permit No. 80175-s76H by Tintzman* (DNRC Final Order 1993)(prior appropriators on a stream gain right to natural flows of all tributaries in so far as may be necessary to afford the amount of water to which they are entitled, *citing Loyning v. Rankin* (1946), 118 Mont. 235, 165 P.2d 1006; *Granite Ditch Co. v. Anderson* (1983), 204 Mont. 10, 662 P.2d 1312; *Beaverhead Canal Co. v. Dillon Electric Light & Power Co.* (1906), 34 Mont. 135, 85 P. 880); *In the Matter of Beneficial Water Use Permit No.* 63997-*42M by Joseph F. Crisafulli* (DNRC Final Order 1990) (since there is a relationship between surface flows and the ground water source proposed for appropriation, and since diversion by Applicant's well appears to influence surface flows, the ranking of the proposed appropriation in priority must be as against all rights to surface water as well as against all groundwater rights in the drainage).

51. Because the Applicant bears the burden of proof as to legal availability, the Applicant must prove that the proposed appropriation will not result in prestream capture or induced infiltration and cannot limit its analysis to ground water. Section 85-2-311(a)(ii), MCA. Absent such proof, the Applicant must analyze the legal availability of surface water in light of the proposed ground water appropriation. *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 By Utility Solutions LLC* (DNRC Final Order 2007) (permit denied); *In the Matter of Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer* (DNRC Final Order 2009); *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 ; *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12.

52. Where a proposed ground water appropriation depletes surface water, Applicant must prove legal availability of amount of depletion of surface water throughout the period of diversion either through a mitigation /aquifer recharge plan to offset depletions or by analysis of the legal demands on, and availability of, water in the surface water source. *Robert and Marlene Takle v. DNRC*, Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994); *In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility Solutions LLC* (DNRC Final Order 2006) (permits granted), *affirmed, Faust v. DNRC et al.*, Cause No. CDV-2006-886, Montana First Judicial District (2008); *In the Matter*

of Application for Beneficial Water Use Permit 41H 30019215 by Utility Solutions LLC (DNRC Final Order 2007)(permit granted), *affirmed, Montana River Action Network et al. v. DNRC*, Cause No. CDV-2007-602, Montana First Judicial District (2008); *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 analyze legal availability outside of irrigation season (where mitigation applied)); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30026244 by Utility Solutions LLC* (DNRC Final Order 2008); *In the Matter of Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer* (DNRC Final Order 2009)(permit denied in part for failure to analyze legal availability for surface water depletion); *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 (Court affirmed denial of permit in part for failure to prove legal availability of stream depletion to slough and Beaverhead River); *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12 ("DNRC properly determined that Wesmont cannot be authorized to divert, either directly or indirectly, 205.09 acre-feet from the Bitterroot River without establishing that the water does not belong to a senior appropriator"; Applicant failed to analyze legal availability of surface water where projected surface water depletion from groundwater pumping); *In the Matter of Application for Beneficial Water Use Permit No. 76D-30045578 by GBCI Other Real Estate, LLC* (DNRC Final Order 2011) (in an open basin, Applicant for a new water right can show legal availability by using a mitigation/aquifer recharge plan or by showing that any depletion to surface water by groundwater pumping will not take water already appropriated; development next to Lake Koocanusa will not take previously appropriated water). Applicant may use water right claims of potentially affected appropriators as a substitute for "historic beneficial use" in analyzing legal availability of surface water under § 85-2-360(5), MCA. *Royston, supra*.

53. In analyzing legal availability for surface water, Applicant was required to evaluate legal demands on the source of supply throughout the "area of potential impact" by the proposed use under § 85-2-311(1)(a)(ii), MCA, not just within the "zone of influence." *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 6.

54. Applicant has proven by a preponderance of the evidence that 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. Section 85-2-311(1)(a)(ii), MCA. (FOF 14-31)

ADVERSE EFFECT

55. 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.*, 211 Mont. 91, 685 P.2d 336 (1984) (purpose of the Water Use Act is to protect senior appropriators from encroachment by junior users); *Bostwick Properties, Inc.*, ¶ 21.

56. 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).

57. 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*, 4 (2011).

58. 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*, 249 Mont. 425, 816 P.2d 1054 (1991).

59. 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*, 7 (2011) (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). 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.

60. 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*, 8 (2011).

61. 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. Section 85-2-311(1)(b), MCA. (FOF 32-34)

ADEQUATE DIVERSION

62. 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.

63. 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.

64. Information needed to prove that proposed means of diversion, construction, and operation of the appropriation works are adequate varies, based upon project complexity design by licensed engineer adequate. *In the Matter of Application for Beneficial Water Use Permit No. 41C-11339900 by Three Creeks Ranch of Wyoming LLC* (DNRC Final Order 2002).

65. 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. Section 85-2-311(1)(c), MCA (FOF 35-37).

BENEFICIAL USE

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

67. 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*; *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* , 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).

68. 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*, 3 (2011) (citing *BRPA v. Siebel*, 2005 MT 60, and rejecting Applicant's argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet).

69. It is the Applicant's burden to produce the required evidence. <u>*Bostwick Properties, Inc. v. DNRC*</u>, 2013 MT 48, ¶ 22, 369 Mont. 150, 296 P.3d 1154 ("issuance of the water permit itself does not become a clear, legal duty until [the applicant] proves, by a preponderance of the evidence, that the required criteria have been satisfied"); *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*.

70. Applicant proposes to use water for irrigation and stock which are recognized beneficial uses. Section 85-2-102(5), MCA. Applicant has proven by a preponderance of the evidence that irrigation and stock are beneficial uses and that 1,227.9 AF of diverted volume and secondary diversion flow rate of 5.42 CFS are the amounts needed to sustain the beneficial uses. Section 85-2-311(1)(d), MCA. (FOF 38-42)

<u>POSSESSORY INTEREST</u>

71. 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.

72. 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.

73. 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. Section 85-2-311(1)(e), MCA. (FOF 43)

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. 43B 30156208 should be GRANTED.

The Department determines the Applicant may divert groundwater, by means of a pit with a capacity of 24.3 AF and evaporation rate of 10.3 AF, from January 1 through December 31 up to 1,227.9 AF, from the N2 and N2N2NESW Sec. 34, T1N, R15E, Sweet Grass County, for

stock use up to 7.7 AF from January 1 through December 31, and for irrigation use up to 1,185.6 AF from April 1 through October 31 on 443 AC. The beneficial use volume also includes 24.3 AF for one fill of the pit separated as 24.2 AF for irrigation and 0.1 AF for stock; and 10.3 AF for evaporation from the pit surface separated as 10.2 AF for irrigation and 0.1 AF for stock. The place of use is located in Sec. 34, T1N, R15E, and Government Lot 9 in the SESW Sec. 27, T1N, R15E, Sweet Grass County.

NOTICE

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

DATED this 20th day of September, 2024.

/Original signed by Mark Elison/
Mark Elison, Manager
Billings Regional Office
Montana Department of Natural Resources and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 20th day of September, 2024, by first class United States mail.

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CHRISTINE SCHWEIGERT DATE