Permit/Authorization

- Permit
- Authorization
- Final Adoption
- Preliminary Determination
- Final Order
- Proposal for Decision

- For Form 650-Temporary Lease, place Approval/Denial Document under this flag

Permit/ Authorization Continued

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

* * * * * * *

APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 42J 30164864 BY MATTHEW AND DANELLE STIEGELMEIER	**DRAFT PRELIMINARY DETERMINATION TO GRANT PERMIT**

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On February 12, 2025, Matthew and Danelle Stiegelmeier (Applicants) submitted Application for Beneficial Water Use Permit No. 42J 30164864 to the Billings Regional Office of the Department of Natural Resources and Conservation (Department or DNRC) for 35.6 CFS flow rate and 928 AF volume for irrigation of 232 acres. The Department published receipt of the application on its website. A preapplication meeting was held between the Department and the Applicants on November 15, 2024. Matthew Stiegelmeier was present for the Applicants; Mark Elison, Billings Regional Manager; and Veronica Corbett and Cassey Strebeck, Water Resource Specialists were present for the Department. The Applicants designated that the technical analyses for this application would be completed by the Department. The Applicants returned the completed Preapplication Checklist on November 15, 2024. The Department delivered the completed technical analysis on December 27, 2024. The application was determined to be correct and complete as of February 27, 2024. An Environmental Assessment for this application was completed on March 18, 2025.

INFORMATION

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

Application as filed:

- Application for Beneficial Water Use Permit, Form 600
- Maps:
    - Four undated aerial images with proposed transitory points of diversion, places of use, and conveyance system drawn over them.

- Department-completed technical analyses based on information provided in the Preapplication Checklist, dated December 27, 2024

Information within the Department's Possession/Knowledge

- USGS Stream Gage No. 06324500 Powder River at Moorhead, MT with a period of record from 10/1/1929 to 08/31/2024
- DNRC Water Right Information System (WRIS)
- National Hydrography Dataset (NHD)
- USGS StreamStats for Montana Chapter G
- USGS StreamStats web application at https://streamstats.usgs.gov/ss/.
- The Department also routinely considers the following information. The following information is not included in the administrative file for this application but is available online or 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
    - Montana DNRC Permit Application Manual

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; USDA NRCS means US Department of Agriculture Natural Resources Conservation Service; CFS means cubic feet per second; GPM means gallons per minute; AF means acre-feet; AC means acres; and AF/YR means acre-feet per year.

PROPOSED APPROPRIATION

FINDINGS OF FACT

1. The Applicants propose to divert water from the Powder River. The points of diversion will be two transitory pumps. The first transitory pump will be moveable anywhere along the Powder River from the Montana-Wyoming state line in the southern end of Government Lot 8

(SESW) to the northern end of Government Lot 3 (E2E2), Sec. 36, T9S, R47E, a distance of approximately 1 mile. The second transitory pump will be moveable anywhere along the Powder River from the southeastern end of Government Lot 4 (SWNW) to the northwestern end of Government Lot 4 (SWNW), Sec. 25, T9S, R47E, a distance of approximately 0.6 mile. The period of diversion and period of use will be from January 1 through December 31 at 35.6 CFS up to 928 AF, for irrigation use from January 1 to December 31. The Applicants propose to irrigate 232 acres. The place of use is shown in Table 1.

Table 1. Place of Use

Acres	**Gov't Lot**	¼	¼	¼	**Section**	**Township**	**Range**
20	7		SW	SW	36	9S	47E
30	8		SE	SW	36	9S	47E
25	6		NW	SE	36	9S	47E
24	3		E2	E2	36	9S	47E
35			SW	NE	36	9S	47E
5		SE	SE	NW	36	9S	47E
30			NE	SW	36	9S	47E
43	4		SW	NW	25	9S	47E
18			SE	NW	25	9S	47E
2	3	E2	SE	NE	26	9S	47E
Total: 232							

2. There are no supplemental water rights that share this place of use.

3. The proposed project is located north of the Montana-Wyoming border, approximately 3-5 miles south southwest of Moorhead, MT. Figure 1 shows the proposed transitory PODs and the proposed irrigated acres along the Powder River.

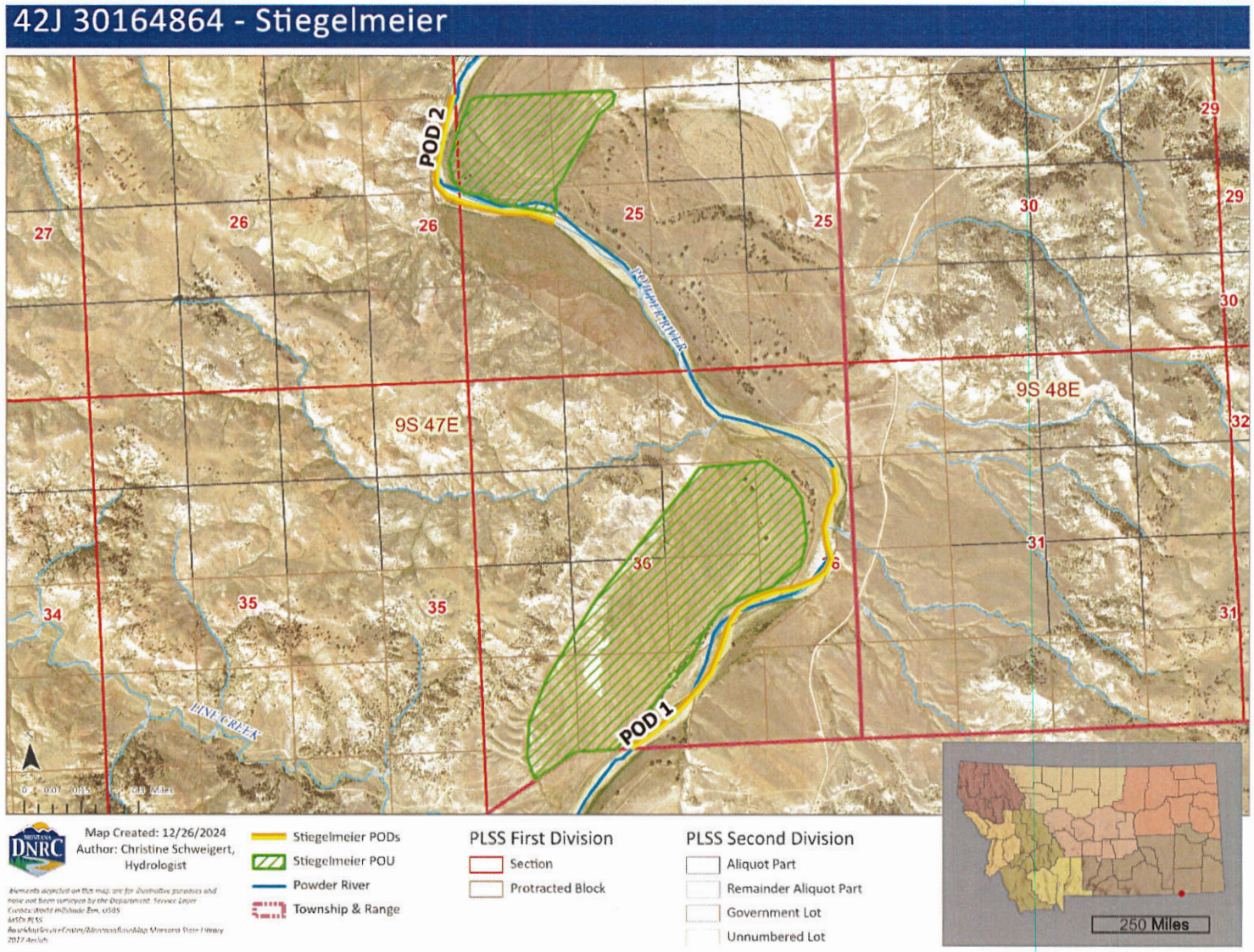


Figure 1. Map of Applicants' proposed transitory PODs and proposed place of use

§ 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. The Applicants propose to divert water using two transitory pumps. The first transitory pump will be moveable anywhere along the Powder River from the Montana-Wyoming state line in the southern end of Government Lot 8 (SESW) to the northern end of Government Lot 3 (E2E2), Sec. 36, T9S, R47E, a distance of approximately 1 mile. The second transitory pump will be moveable anywhere along the Powder River from the southeastern end of Government Lot 4 (SWNW) to the northwestern end of Government Lot 4 (SWNW), Sec. 25, T9S, R47E, a distance of approximately 0.6 mile. Water will be diverted from the Powder River at a rate of 35.6 CFS year round. A diverted volume of 928 AF of water would be used between January 1

and December 31 for irrigation on 232 acres in Sections 25 and 36, T9S, R47E, Powder River County. The full place of use descriptions are in Table 1 (FOF 1).

11. The Department analyzed physical availability of water using the USGS Gage No. 06324500 Powder River at Moorhead, MT, with a period of record from October 1, 1929, through August 31, 2024. This gage is approximately 4.5 miles downstream of the lower end of POD 2. This is the nearest gage on the Powder River, and it has a period of record spanning nearly 95 years. ARM 36.12.1702(1)(a) requires the Department to use stream gaging records when they are available. According to DNRC Technical Memorandum: Physical Availability of Surface Water with Gage Data dated November 1, 2019, when the POD is located above the gage, water rights between the gage and the POD will be added to the monthly median of the mean gage values to provide an estimate of physical availability at the POD.

12. The Department calculated the median of the mean monthly flow rate in CFS for the Powder River using USGS Gage 06324500 Powder River at Moorhead, MT records for each month in the proposed period of diversion. Those flows were converted to monthly volumes using the following conversion found on the DNRC Water Calculation Guide: median of the mean monthly flow (CFS) x 1.98 (AF/Day/1 CFS) x the number of days each month = AF/month. The median of the mean monthly flow rate and volume are shown in Table 2.

Table 2. Median of the mean monthly flow rate and volume at USGS Gage 06324500

Month	**Median of the Mean Monthly Flow at Gage 06324500 (CFS)**	**Median of the Mean Monthly Volume at Gage 06324500 (AF)**
January	150.8	9,256.1
February	209.3	11,603.6
March	509.8	31,291.5
April	450.1	26,735.9
May	916.6	56,260.9
June	1,148.8	68,191.2
July	292.4	17,947.5
August	110.8	6,800.9
September	97.8	5,809.3
October	200.4	12,300.6
November	225.9	13,418.5
December	154.8	9,501.6

13. The Department calculated the monthly flows appropriated by existing users upstream of the gage on the source by generating a list of existing water rights on the Powder River from the

uppermost proposed point of diversion to USGS Gage 06324500 Powder River at Moorhead, MT (Table 3); designating the period of diversion for each existing water right; assigning a single combined flow rate of 0.1 CFS (46 GPM) for all livestock direct from source rights without a designated flow rate; and assuming that the flow rate of each existing right is continuously diverted throughout each month of the period of diversion. This leads to overestimation of existing uses from the source. The Department finds this an appropriate measure of assessing existing rights as it protects existing water users.

14. The Department back calculated the flow rate for livestock direct from source rights using the Department standard practice found in the DNRC water right change manual. Based on 524 animal units (AU) and year round period of diversion and use. The calculation is 524 AU * 30 GPD/AU ÷ 1440 min/day = 11 GPM. The standard practice is to add 35 GPM, so the total flow rate assigned for all livestock direct rights is 46 GPM or 0.1 CFS. For simplicity, this flow rate is assigned to the first water right in Table 3, all others are zeroed out. There are two water reservations on the Powder River. The water reservation for instream flow, owned by Montana Fish Wildlife and Parks, that was broken down into monthly flow rates based on the Order of the Board Establishing Water Reservations dated December 1978. The water reservation for the Powder River Conservation District was not considered because there are no perfected portions of the water reservation within the area of potential impact. There is one water right for a fueled pump for irrigation from April 1 to October 31. The full flow rate for that right was assigned to each month in the period of diversion. The quantification of the water rights in Table 3 are not a re-adjudication or historical use analysis. The Department method for estimating legal demands is meant to overestimate the flow rate and volume of existing legal demands to ensure that they are met.

Table 3. Legal Demands in the Area of Potential Impact

Water Right No.	Owner(s)	Purpose	Period of Diversion	Flow Rate (CFS)	Volume (AF)
42J 2790 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	01/01 to 12/31	0.10	1.50
42J 2801 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	01/01 to 12/31	0.00*	1.50

42J 2808 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	01/01 to 12/31	0.00	1.50
42J 2810 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	01/01 to 12/31	0.00	1.50
42J 30017743	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	FISHERY	01/01 to 12/31	424.00**	95,201.00
42J 30142405	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	01/01 to 12/31	0.00	1.22
42J 30142410	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	01/01 to 12/31	0.00	0.34
42J 30142414	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	01/01 to 12/31	0.00	10.68
42J 717 00	DANELLE STIEGELMEIER; MATTHEW STIEGELMEIER	STOCK	01/01 to 12/31	0.02	1.50
42J 8004 00	GAY RANCH INC; TWIN HEARTS SMILING HORSES INC; USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	01/01 to 12/31	0.04	3.50
42J 9749 00	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	01/01 to 12/31	0.02	2.25
42J 2806 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	IRRIGATION	04/01 to 10/31	10.00	140.00

*The calculated flow rate for livestock rights is explained in FOF 14.

**Flow rate varies by month, rate shown is the highest flow rate of the year.

15. Because the gage is downstream of the POD, the Department added in the flow rates of the existing rights between the gage and the uppermost POD to the median of the mean monthly gage values to determine physical availability at the uppermost POD. This method is standard practice for determining physical availability on a source with a single downstream gage. Calculating physical availability at the uppermost point of one or more transitory diversions is also standard practice. Physically available monthly flows were then converted to monthly

volumes. The flow rate and volume for the FWP instream flow right were not added to the gage data because it is not diverted from the source. Table 4 displays the amount of water physically available at the uppermost proposed point of diversion:

Table 4. Physically Available Water at the Uppermost Proposed POD on the Powder River

Month	Median of the Mean Monthly Flow at Gage 06324500 (CFS)	Median of the Mean Monthly Volume at Gage 06324500 (AF)	Existing Rights from Uppermost Proposed POD to Gage 06324500 (CFS)	Physically Available Water at Uppermost Proposed POD (CFS)	Physically Available Water at Uppermost Proposed POD (AF)
January	150.8	9,256.1	0.18	151.0	9,258.3
February	209.3	11,603.6	0.18	209.5	11,605.7
March	509.8	31,291.5	0.18	510.0	31,293.7
April	450.1	26,735.9	10.18	460.3	26,758.1
May	916.6	56,260.9	10.18	926.8	56,283.1
June	1,148.8	68,191.2	10.18	1,158.2	68,213.4
July	292.4	17,947.5	10.18	302.6	17,969.7
August	110.8	6,800.9	10.18	121.0	6,823.1
September	97.8	5,809.3	10.18	108.0	5,831.5
October	200.4	12,300.6	10.18	210.6	12,322.7
November	225.9	13,418.5	0.18	226.1	13,420.6
December	154.8	9,501.6	0.18	155.0	9,503.8

16. The Department finds that surface water is physically available in the Powder River during each month of the proposed period of diversion.

LEGAL AVAILABILITY

FINDINGS OF FACT

17. The area of potential impact was determined by considering the requested flow rate and volume, the existing legal demands, the drainage area size, significant hydrologic boundaries, and the data from the USGS gage records. The area of potential impact for this application is from the uppermost POD at the Montana-Wyoming state line to the USGS Gage 06324500 at Moorhead, MT. This reach is approximately 8.2 miles. There are six named tributaries that contribute to the Powder River drainage in this reach and an additional 167.9 square miles of

drainage area. There are 12 water rights in the area of potential impact for this application, they are shown in Table 3 (FOF 14).

18. Existing legal demands were collected from the DNRC Water Right Information System (WRIS) using the DNRC Water Right Query System Points of Diversion layer in Esri ArcPro, which has a real time connection to the DNRC WRIS. The monthly flow rate and volume were calculated as described in FOF 14. A list of the legal demands is shown in Table 3 under FOF 14. Drainage basin size above the point of diversion and above the USGS gage at Moorhead were calculated using the USGS StreamStats web application at https://streamstats.usgs.gov/ss/. Hydrologic boundaries were examined using the National Hydrography Dataset in ArcPro.

19. There are no legal demands that are unique to this area such as downstream hydropower rights or compact considerations.

20. The comparison between physically available and legally available water in the Powder River is shown in Table 5, indicating that water is legally available for the proposed appropriation.

Table 5. Comparison of Physical and Legal Availability of Water in the Powder River

Month	Physically Available Water (CFS)	Physically Available Water (AF)	Existing Legal Demands between Uppermost POD and USGS Gage at Moorhead, MT (CFS)	Existing Legal Demands between Uppermost POD and USGS Gage at Moorhead, MT (AF)	Legally Available Water (CFS)	Legally Available Water (AF)
January	151	9,258.3	32.08	1,960.17	118.9	7,298.08
February	209.5	11,605.7	71.98	3,982.74	137.5	7,623
March	510	31,293.7	29.18	1,782.17	480.8	29,511.5
April	460.3	26,758.1	357.18	20,633.95	103.1	6,124.14
May	926.8	56,283.1	434.18	26,047.27	492.6	30,235.79
June	1,158.2	68,213.4	194.18	10,951.75	964	57,261.6
July	302.6	17,969.7	80.18	4,318.75	222.4	13,650.91
August	121	6,823.1	24.68	912.16	96.3	5,910.89
September	108	5,831.5	19.05	549.03	88.93	5,282.44
October	210.6	12,322.7	19.61	600.96	190.97	11,721.74
November	226.1	13,420.6	61.78	3,661.19	164.3	9,759.42

December	155	9,503.8	61.18	3,746.33	93.8	5,757.44

Math descrepancies are due to rounding errors

21. The Department finds the proposed appropriation of 35.6 CFS and up to 928 AF to be legally available during the proposed period of use.

ADVERSE EFFECT

FINDINGS OF FACT

22. The Applicants' plan to prevent adverse effect to water rights of a prior appropriator is to shut down pumps, or slow the pumps down to a lower flow rate.

23. The Applicants have proven that enough water remains in the Powder River, between the Montana-Wyoming state line (uppermost POD) and the USGS gage at Moorhead, MT (bottom of the area of potential impact), to meet both the existing legal demands within the area of potential impact and the proposed appropriation of 35.6 CFS and 928 AF.

24. The Department finds that the flow rate and volume proposed for appropriation will not have an adverse effect on existing water users.

ADEQUATE MEANS OF DIVERSION

FINDINGS OF FACT

25. The proposed means of diversion are two moveable, trailer-mounted, 16-inch Crisafulli pumps with 15 to 20 feet of hydraulic head. The full capacity of each pump is 8,000 GPM (17.8 CFS). Each pump will divert water either directly onto the fields or through a 15-inch pipe to a main level ditch. Water will be spread across the fields using a system of ditches and dykes with culverts and drains. The system is estimated to be 45 percent efficient.

26. The flow rate can be controlled by speeding up or slowing down the power sources. One pump will be powered with it's own dedicated engine, the other will be powered using the power take off from the Applicants' tractor.

27. The Department finds that the proposed means of diversion and conveyance are capable of diverting the proposed volume and flow rate.

BENEFICIAL USE

FINDINGS OF FACT

28. The Applicants propose to divert 35.6 CFS up to 928 AF from the Powder River using two transitory pumps, one in Government Lots 3, 6, and 8, in Sec. 36; and one in Government Lot 4 in Sec. 25, and Government Lot 3 in Sec. 26, T9S, R47E, Powder River County. Water will be diverted and used between January 1 and December 31 for irrigation on 232 acres in Sections 25 and 36, T9S, R47E, Powder River County. The full place of use descriptions are in Table 1 (FOF 1).

29. The requested flow rate is based on the capacity of the pumps. The Applicants are proposing to use two 16-inch high-capacity Crisafulli pumps. These pumps are commonly used for flood irrigation in southeastern Montana, especially on the Powder River.

30. The requested volume is based on the Department standard for 45 percent efficient irrigation in USDA NRCS climatic area 2 found in ARM 36.12.115(2)(e).

31. The requested period of diversion is outside the DNRC standard in ARM 36.12.112 and is based on the nature of the Powder River. The Powder River is well known for having high salinity. Irrigation from the Powder River is often done using water spreading systems, which take water whenever it is available, especially during high spring flows originating from snowmelt and rain events. The higher flows equate with lower salinity, which is more beneficial to the crops. The proposed method of irrigation is very similar to water spreading but is more efficient and allows the Applicant to have more control over the flow rate, volume, and timing of irrigation water. It is not uncommon for people to irrigate in the winter months if the ground and river are not frozen. The application of water in the winter months is beneficial because there are some crops that stand over winter and the water helps fill the soil profile.

32. The Department finds that the purpose, flow rate, volume, period of diversion, and period of use proposed for appropriation are a beneficial use of water and that the requested flow rate of 35.6 CFS and annual volume of 928 AF are reasonably justified per ARM 36.12.1801(3).

POSSESSORY INTEREST

FINDINGS OF FACT

33. The Applicants signed the application form affirming the Applicants have 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

34. 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."

35. 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).

36. 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).

37. The Applicants have 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 10-16)

LEGAL AVAILABILITY

38. 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).

39. 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.

40. Use of published upstream gauge data minus rights of record between gauge and point of diversion adjusted to remove possible duplicated rights shows water physically available. Using same methodology and adding rights of record downstream of point of diversion to the mouth of the stream shows water legally available. *In the Matter of Application for Beneficial Water Use Permit No. 41P-105759 by Sunny Brook Colony* (DNRC Final Order 2001); *In the Matter of Application for Beneficial Water Use Permit No. 81705-g76F by Hanson* (DNRC Final Order 1992);

41. Applicants have proven by a preponderance of the evidence that water can reasonably be considered legally available during the period in which the Applicants 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 17-21.)

ADVERSE EFFECT

42. 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.

43. 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).

44. 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).

45. 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).

46. 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.

47. 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).

48. The Applicants have 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 22-24)

ADEQUATE DIVERSION

49. 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.

50. 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.

51. Applicants have 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 25-27).

BENEFICIAL USE

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

53. 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).

54. 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).

55. It is the Applicant's burden to produce the required evidence. *Bostwick Properties, Inc. v. DNRC*, 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*.

56. Applicants propose to use water for irrigation which is a recognized beneficial use. Section 85-2-102(5), MCA. Applicants have proven by a preponderance of the evidence irrigation is a beneficial use and that 928 AF of diverted volume and 35.6 CFS is the amount needed to sustain the beneficial use. Section 85-2-311(1)(d), MCA. (FOF 28-32)

POSSESSORY INTEREST

57. 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.

58. 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.

59. The Applicants have 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 33s)

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. 42J 30164864 should be GRANTED.

The Department determines the Applicants may divert and use water from the Powder River, by means of two transitory pumps, from January 1 to December 31 at 35.6 CFS up to 928 AF. The first transitory pump will be moveable anywhere along the Powder River from the Montana-Wyoming state line in the southern end of Government Lot 8 (SESW) to the northern end of Government Lot 3 (E2E2), Sec. 36, T9S, R47E, a distance of approximately 1 mile. The second transitory pump will be moveable anywhere along the Powder River from the southeastern end of Government Lot 4 (SWNW) to the northwestern end of Government Lot 4 (SWNW), Sec. 25, T9S, R47E, a distance of approximately 0.6 mile. The Applicants may irrigate 232 acres. The proposed place of use is located as shown in Table 5.

Table 5. Proposed Place of Use

Acres	Gov't Lot	¼	¼	¼	Section	Township	Range
20	7		SW	SW	36	9S	47E
30	8		SE	SW	36	9S	47E
25	6		NW	SE	36	9S	47E
24	3		E2	E2	36	9S	47E
35			SW	NE	36	9S	47E
5		SE	SE	NW	36	9S	47E
30			NE	SW	36	9S	47E
43	4		SW	NW	25	9S	47E
18			SE	NW	25	9S	47E
2	3	E2	SE	NE	26	9S	47E

Total: 232							

NOTICE

The Department will provide a notice of opportunity for public comment on this application and the Department's Draft Preliminary Determination to Grant pursuant to § 85-2-307, MCA. The Department will set a deadline for public comments to this application pursuant to §§ 85-2-307, and -308, MCA. If this application receives public comment pursuant to § 85-2-307(4), the Department shall consider the public comments, respond to the public comments, and issue a preliminary determination to grant the application, grant the application in modified form, or deny the application. If no public comments are received pursuant to § 85-2-307(4), MCA, the Department's preliminary determination will be adopted as the final determination.

Dated this 21st day of March 2025.

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 DRAFT PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 21st day of March, 2025, by first class United States mail.

MATTHEW AND DANELLE STIEGELMEIER
44 BLISS RD
OTTER, MT 59062
DACHICKEN45@HOTMAIL.COM

Billings Regional Office, (406) 247-4419

February 27, 2025

Matthew and Danelle Stiegelmeier
44 Bliss Rd.
Otter, MT 59062

Subject: Correct and Complete Application for Beneficial Water Use Permit No. 42J 30164864

Dear Applicant,

The Department of Natural Resources and Conservation (Department) has determined that your application is correct and complete pursuant to ARM 36.12.1601. Please remember that correct and complete **does not mean that your application will be granted.** The purpose of this letter is to indicate that the Department has enough information to analyze your water right application.

The Department will issue a Draft Preliminary Determination within 60 days of the date of this letter per §85-2-307(2)(b), MCA.

Following issuance of the Draft Preliminary Determination, you (Applicant) will have 15 business days to request an extension of time to submit additional information, if desired pursuant to §85-2-307(3)(a), MCA.

If no extension of time is requested and the Draft Preliminary Determination decision is to grant your application or grant your application in modified form, the Department will prepare a notice of opportunity to provide public comment, per §85-2-307(4)(a), MCA.

If no extension of time is requested and the Draft Preliminary Determination decision is to deny your application, the Department will adopt the Draft Preliminary Determination as the final determination per §85-2-307(3)(d)(ii), MCA.

If you have any questions or concerns about the application process, please contact me.

Sincerely,

Christine Schweigert
Hydrologist
Billings Regional Office
cschweigert@mt.gov
406-247-4419
1371 Rimtop Drive, Billings, MT 59105

Application Materials

- Work Copy
- Application
- Any information submitted with Application including maps

Application Materials

APPLICATION FOR
BENEFICIAL WATER USE PERMIT
§ 85-2-302
Form No. 600 *(04/2024)*

For Department Use Only

RECEIVED
FEB 12 2025
DNRC-WRD-BILLINGS

Application 30164864 Basin 42J
Priority Date 2/12/25 Time 15:38 AM/PM
Rec'd By HW
Fee Rec'd $ 700.00 Check # 1193
Deposit Receipt # BLS25151120
Payor Stiegelmeier Danelle & Matthew
Refund $ _____ Date _____

FILING FEE

$2900/$1600 – Inside a Basin Closure Area, Controlled Groundwater Area or Compact Closure; without/with filing fee reduction.
$2500/$1200 – Outside a Basin Closure Area; Controlled Groundwater Area or Compact Closure; without/with filing fee reduction.

INFORMATION

An application will be eligible for a filing fee reduction and expedited timelines if the applicant completes a preapplication meeting with the Department (ARM 36.12.1302(1)), which includes submitting any follow-up information identified by the Department (ARM 36.12.1302(3)(c)) and receiving either Department-completed technical analyses or Department review of applicant-submitted technical analyses (ARM 36.12.1302(4) and (5)). An application for the proposed project also must be submitted within 180 days of delivery of Department technical analyses or scientific credibility review and no element on the submitted application can be changed from the completed preapplication meeting form (ARM 36.12.1302(6)).

Applicant Information: ***Add more as necessary.***

Applicant Name Matthew + Danelle Stiegelmeier
Mailing Address 44 Bliss Rd City Otter State MT Zip 59062
Phone Numbers: Home 406-284-2484 Work _____ Cell 605-845-4864
Email Address dachicken45@hotmail.com

Applicant Name _____
Mailing Address _____ City _____ State _____ Zip _____
Phone Numbers: Home _____ Work _____ Cell _____
Email Address _____

Applicant Name _____
Mailing Address _____ City _____ State _____ Zip _____
Phone Numbers: Home _____ Work _____ Cell _____
Email Address _____

Contact/Representative Information: ***Add more as necessary.***

Contact/Representative is: ___ Applicant ___ Consultant ___ Attorney ___ Other
Contact/Representative Name _____
Mailing Address _____ City _____ State _____ Zip _____
Phone Numbers: Home _____ Work _____ Cell _____
Email Address _____

NOTE: *If a contact person is identified as an attorney, all communication will be sent only to the attorney unless the attorney provides written instruction to the contrary. If a contact person is identified as a consultant, employee, or lessee, the individual filing the water right form or objection form will receive all correspondence and a copy may be sent to the contact person.*

Answer every question and applicable follow-up questions. Use the checkboxes to denote yes ("Y"), no ("N"), or not applicable ("NA"). Questions that require items to be submitted to the Department have a submitted ("S") checkbox, which is checked when the required item is attached to the Application. Label all submitted items with the question number for which they were submitted. Narrative responses that are larger than the space provided can be answered in an attachment. If an attachment is used, specify "see attachment" on this form, and label the attachment with the question number. Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Label units in narrative responses. Responses in the form of a table may be entered into the table provided on this form or in an attachment. Responses in the form of a table that are larger than the table provided on this form should be placed in an attachment. If an attachment is used, the table must have the exact headings found on this form, and "see attachment" must be placed on this form. For tables on this form, circle correct unit at header of column when table has unit options. For tables in attachments, label all units.

PREAPPLICATION AND TECHNICAL ANALYSIS INFORMATION

1. ☒ **Y** ☐ **N** Did you have a preapplication meeting AND complete a Form 600P Permit Preapplication Meeting Form?

IF QUESTION 1 IS YES,

2. ☒ **Y** ☐ **N** Did you elect on Form 600P to have the Department conduct Technical Analysis?

3. ☐ **Y** ☒ **N** Has any element of the application changed from Form 600P or the Technical Analysis conducted as part of the preapplication process? A Technical Analysis Addendum (Form 600-TAA) is required if changes have occurred.

4. Submit the following items:

4.1. ☒ **S** Technical Analysis you would like the Department to use to conduct criteria assessment.

4.2. ☐ **S** ☒ **NA** Scientific Credibility Review, if applicable.

4.3. ☐ **S** ☒ **NA** Technical Analysis Addendum (Form 600-TAA), if applicable, per question 3.

IF QUESTION 1 IS NO,

5. ☐ **S** Submit the Technical Analysis Addendum (Form 600-TAA).

6. ☐ **Y** ☐ **N** Do you elect to have the Department conduct Technical Analysis?

6.1. ☐ **S** If no, submit all the required Technical Analyses. See the Technical Analysis Guide for more information.

APPLICATION ADDENDA AND REVIEW

7. ☐ **S** ☒ **NA** If your application is for groundwater and one or more of your points of diversion are in a Basin Closure Area, then submit the Basin Closure Area Addendum (Form 600-BCA).

8. ☐ **S** ☒ **NA** If your application is for groundwater and one or more of your points of diversion are in a Basin Closure Area, then you must comply with the requirements of §85-2-360. If you elected to conduct Technical Analysis, you must submit the Hydrogeologic Report Addendum (Form 600-HRA). If you did not have a preapplication meeting AND complete a Form 600P Permit Preapplication Meeting Form, you must submit the Hydrogeologic Report Addendum (Form 600-HRA). If you had a preapplication

meeting, completed a Form 600P Permit Preapplication Meeting Form, and elected DNRC to conduct Technical Analysis, you do not need to submit Form 600-HRA because the Department's Technical Analysis, which you must submit along with this application, meets the requirements of §85-2-360.

9. ☐ **S** ☒ **NA** If one or more of your points of diversion are in a Controlled Groundwater Area, then submit the Controlled Groundwater Area Addendum (Form 600-CGWA) and all its required attachments.

10. ☐ **S** ☒ **NA** If the project involves an appropriation that is greater than 5.5 CFS and 4,000 acre-feet, then submit a Criteria Addendum Application for Beneficial Water Use Permit for Appropriations Greater than 5.5 CFS and 4,000 AC-FT (Form 600-B).

11. ☐ **S** ☒ **NA** If the project involves out-of-state water use, then submit the Out-of-State Use Addendum (Form 600/606-OSA).

12. ☐ **S** ☒ **NA** If you require mitigation water to meet the criteria of issuance, then submit a Mitigation Purpose Addendum (Form 600/606-MIT).

13. ☐ **S** ☒ **NA** If the proposed purposes include marketing or selling water, then submit the Water Marketing Purpose Addendum (Form 600/606-WMA).

14. ☐ **S** ☒ **NA** If the project is in designated sage grouse habitat, then submit a review letter from the Montana Sage Grouse Habitat Conservation Program (https://sagegrouse.mt.gov).

15. ☐ **Y** ☐ **N** ☒ **NA** You must provide a written notice of the application to each owner of an appropriation right sharing the point of diversion or means of conveyance (e.g., canal, ditch, flume, pipeline, or constructed waterway). Have you sent this notice to all applicable parties? Your application cannot be deemed correct and complete until you have sent this notice pursuant to §85-2-302(4)(c), MCA.

PURPOSE AND DIVERSION INFORMATION

16. ☐ **Y** ☒ **N** Is the proposed use temporary?

16.1. If yes, when will the appropriation cease? _____

17. Is the proposed source surface water or groundwater? Surface

18. What is the source name? Powder River

19. ☒ **S** Attach a map utilizing an aerial photograph or topographic map that shows the following: section corners, township and range, a north arrow, all proposed points of diversion labeled with a unique POD ID number, all proposed places of use, all proposed conveyance facilities and or routes, all proposed places of storage, and places of use for all overlapping water rights.

20. Fill out the table below. Means of diversion for surface water includes headgate, pump, dam, and others. Means of diversion for groundwater includes well, developed spring, pit pond, and others.

Purpose	Means of Diversion	Acres Irrigated (if appl.)	Period of Diversion (Month/Day - Month/Day)	Period of Use (Month/Day - Month/Day)	Flow Rate (GPM or CFS)	Volume (Acre-Feet)
Irrigation	pumps	232	1-1 — 12-31	1-1 — 12-31	35.6	928
				Total Flow Rate and Volume Required		

WORK COPY

POINT(S) OF DIVERSION

21. Describe the proposed location of the point(s) diversion to the nearest ¼ ¼ ¼ Section. Label each POD with the POD ID number used for the project map (question 19).

POD #	¼	¼	¼	Sec.	Twp.	Rge.	County	Lot	Block	Tract	Subdivision	Gov. Lot
1				36	9S	47E	Powder River				Transitory	8&3 ~~SW~~
2				25	9S	47E	powder River				Transitory	4 SW NW
2				26	9S	47E	Powder River				Transitory	3 E2SENE

Lot 8 SESW
Lot 6 NWSE
Lot 3 E2E2

per GIS and applicant map. cs 2/14/25

PLACE OF USE

22. What are the geocodes of the place of use?

- 09-0216-36-1-03-01-0000	-
- 09-0216-25-2-03-01-0000	-
-09-0216-26-4-04-04-0000	-
-	-

23. Describe the legal land description of the proposed place of use and, if an irrigation or lawn and garden purpose, list the number of irrigated acres. see Atachment 412J30164864 Stregchecks

Acres	Gov. Lot	Block	¼	¼	¼	Sec.	Twp.	Rge.	County
									Powder River

20. Fill out the table below. Means of diversion for surface water includes headgate, pump, dam, and others. Means of diversion for groundwater includes well, developed spring, pit pond, and others.

Purpose	Means of Diversion	Acres Irrigated (if appl.)	Period of Diversion (Month/Day - Month/Day)	Period of Use (Month/Day - Month/Day)	Flow Rate (GPM or CFS)	Volume (Acre-Feet)
Irrigation	pumps	232	1-1 — 12-31	1-1 — 12-31	35.6	928
				Total Flow Rate and Volume Required		

POINT(S) OF DIVERSION

21. Describe the proposed location of the point(s) diversion to the nearest ¼ ¼ ¼ Section. Label each POD with the POD ID number used for the project map (question 19).

POD #	¼	¼	¼	Sec.	Twp.	Rge.	County	Lot	Block	Tract	Subdivision	Gov. Lot	
1				36	9S	47E	Powder River				Transitory	8&3	SW
2				25	9S	47E	powder River				Transitory	4	SW

PLACE OF USE

22. What are the geocodes of the place of use?

-09-0216-36-1-03-01-0000	-
-09-0216-25-2-03-01-0000	-
-09-0216-26-4-09-04-0000	-
-	-

23. Describe the legal land description of the proposed place of use and, if an irrigation or lawn and garden purpose, list the number of irrigated acres. see Atachment 412J30164864 Stregchmeier

Acres	Gov. Lot	Block	¼	¼	¼	Sec.	Twp.	Rge.	County
									Powder River

SUPPLEMENTAL AND OVERLAPPING WATER RIGHTS

24. ☐ **Y** ☒ **N** Will other water rights supplement or overlap the place of use to contribute to the purpose(s)?

24.1. If yes, summarize how the water rights will be operated as a whole to serve the purpose(s).

25. For each supplemental or overlapping water right, please list the water right number, purpose, typical period of diversion and use (MM/DD-MM/DD), flow rate (GPM or CFS), and the volume of water (AF) contributed to the shared place of use.

Water Right #	Average Period of Diversion	Average Period of Use	Flow Rate	Volume Contributed

26. ☐ **Y** ☒ **N** Will this application supplement contract water from a Federal Project, ditch company, or other source?

26.1. If yes, explain.

OWNERSHIP AND POSSESSORY INTEREST

27. ☒ **Y** ☐ **N** Does the Applicant have ownership of all proposed points of diversion and places of use?

27.1. If no, explain.

28. ☐ Y ☒ N Do you meet one of the exceptions to possessory interest requirements, pursuant to ARM 36.12.1802? Exceptions include cases 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.

28.1. If yes, explain.

ADVERSE EFFECT

29. ☐ Y ☒ N Do you have evidence that water is physically and/or legally available in the amount required for the proposed flow rate and volume of your project?

29.1. If yes, explain.

30. ☒ Y ☐ N If the legal availability criteria assessment finds that water is not legally available throughout the entire proposed period of diversion, do you have a contingency plan to address this?

30.1. If yes, explain.

pumps can be shut off to shorten period of Diversion or slowed down to Lower flow Rate

31. ☐ Y ☒ N Are there any factors that would limit your ability to turn off your appropriation in response to a call?

31.1. If yes, explain.

32. Explain how you can control your diversion in response to a call being made.

Pumps Can Be Shut off

33. ☐ Y ☒ N Are you aware of any calls that have been made on the source of supply or depleted surface water source?

33.1. If yes, explain.

34. ☐ Y ☒ N Does a water commissioner distribute water or oversee water distribution on your proposed source or any identified depleted surface water sources?

34.1. If yes, list the source(s).

35. Describe your plan to ensure existing water rights will be satisfied during times of water shortage.

pumps Can Be shut off if a Valid call is made

36. ☐ Y ☒ N Do other water rights share any of the proposed points of diversion?

36.1. If yes, describe how the proposed project will not adversely affect these water rights.

37. ☐ Y ☒ N Do other water rights share any conveyance ditch associated with the proposed project? See the list of water rights that share the conveyance ditches in either the Preapplication Meeting Form (Form 600P) or the Technical Analysis Addendum (Form 600-TAA).

37.1. If yes, describe how the proposed project will not adversely affect these water rights.

ADEQUATE MEANS OF DIVERSION AND OPERATION

38. ☒ S Provide a diagram of how you will operate your system from all proposed points of diversion to all proposed places of use.

39. Describe specific information about the capacity of all proposed diversionary structures. This may include, where applicable: pump curves and total dynamic head calculations, headgate design specifications, and dike or dam height and length.

16" centrifugal Pumps 15'-20 ft Head full capp 8000 gal/min Each

40. ☒ Y ☒ N Is the diversion capable of providing the full amount of water requested through the period of diversion?

40.1. If no, explain.

only when there is Lots of Deep Water in the River

41. Describe the size and configuration of infrastructure to convey water from all proposed points of diversion to all proposed places of use. This may include, where applicable: ditch capacity and/or pipeline size and configuration.

16" pump to a series of 2' high Dykes with calverts to Let water through
15" pipe from pump to Main Level Ditch
45% efficient System

42. Describe any losses related to the proposed conveyance.

none

43. ☒ **Y** ☐ **N** ☐ **NA** Is the proposed conveyance infrastructure capable of providing the required flow and volume, plus any conveyance losses?

43.1. If no, explain.

44. ☐ **Y** ☒ **N** Does the proposed conveyance require easements?

44.1. If yes, explain.

45. Describe specific information about how water is delivered within the place of use. This may include, where applicable, the range of flow rates needed for a pivot, output and configuration of sprinkler heads and pipelines within the place of use.

Water Spread By ditches and dykes with Calverts and Drains

46. ☐ Y ☒ N Will your system be designed to discharge water from the project?

46.1. If yes, explain the way water will be discharged and the disposal method.

46.2. ☐ Y ☐ N ☐ Y Have the necessary permits been obtained to comply with §§ 75-5-410 and 85-2-364, MCA?

47. ☐ Y ☒ N Is the means of diversion for any proposed point of diversion a well?

IF YES,

47.1. ☐ Y ☐ N Have all wells already been drilled?

47.2. For all wells that have been drilled, what is the name of the well driller and, if available, what is their license number?

47.3. ☐ Y ☐ N For all wells yet to be drilled, will a licensed well driller construct the wells?

47.4. ☐ S ☐ NA Submit any additional well logs for wells drilled after submittal of Form 600P.

BENEFICIAL USE

48. Why is the requested flow rate and volume the amount needed for the purpose(s)?

Flow Rate Based on 16" crissufulli pump needed to Move Water for flood irigation Volume per Clonature area 2.5 ft and @ 45% efficiency

49. ☒ **Y** ☐ **N** Does the Department have a standard for the purposes for which water is proposed? Department standards can be found in the DNRC Water Calculation Guide, ARM 36.12.112, and ARM 36.12.115.

49.1. ☒ **Y** ☒ **N** If yes, does the proposed beneficial use fall within Department standards?

49.2. If no Department standard exists, or if proposed beneficial use falls outside of Department standards, explain how the use is reasonable for the purpose.

Volume falls within Standard for 45% effient flood irrigation year Round use Do not but the Powder River's poor water quality dictates the need to pump when water is available and good - this may be outside the standard growing Season timeframe but still good for irrigation
poor Water ie. High in salts - Spring Water
good Water ie. Low in salts - Runoff - Snow melt water

50. ☐ **Y** ☒ **N** Will your proposed project be subject to DEQ requirements for a public water supply (PWS) system or Certificate of Subdivision Approval (COSA)?

50.1. ☐ **Y** ☐ **N** If yes, have you researched or consulted with DEQ regarding those requirements?

51. ☐ **Y** ☒ **N** Are you proposing to use surface water for in-house domestic use?

51.1. ☐ **Y** ☐ **N** If yes, does a COSA exist for the proposed place of use?

51.1.1. ☐ **S** ☐ **NA** If yes, please submit the COSA.

51.1.2. ☐ **Y** ☐ **N** If no, have you researched or consulted with DEQ regarding their requirements?

PROPOSED COMPLETION PERIOD

52. How many years will be needed to complete this project and to submit to the DNRC a Project Completion Notice (Form 617)? 10 years

53. Why is this amount of time needed?

Because that is as fast as time and Money allow.

AFFIDAVIT & CERTIFICATION

Read carefully before you sign and review with legal counsel if you have any questions. All owners (or trustees) must sign the form. ***If the owner is a business or trust, include the title of the representative(s) signing the form (i.e., president, trustee, managing partner, etc.) and provide documentation that establishes the authority of the representative to sign the application.*

I affirm the information provided for this application is to the best of my knowledge true and correct. I am aware that my application for this project will not qualify for a discounted filing fee and expedited timelines if upon submittal of the application to the department, I changed any element of the proposed application from the preapplication meeting form and follow-up materials (ARM 36.12.1302(6)(a)).

I affirm I have 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, unless this application meets an exception to the possessory interest requirements in ARM 36.12.1802(1)(b).

I understand that making a false statement under oath or affirmation in this application and official proceedings throughout the examination of my application may subject me to prosecution under §45-7-202, MCA, a misdemeanor punishable by a jail term not to exceed 6 months or a fine not to exceed $500, or both. I have read this Affidavit and understand the terms and conditions.

I declare under penalty of perjury and under the laws of the state of Montana that the foregoing is true and correct.

Applicant Signature Matthew Stiegelmeier Date: 1-22-25

Printed Name Matthew Stiegelmeier

Title _____

Applicant Signature Danelle Stiegelmeier Date: 1-22-25

Printed Name Danelle Stiegelmeier

Title _____

Applicant Signature _____ Date: _____

Printed Name _____

Title _____

question 23

WORK COPY

42J 30164864 - STIEGELMEIER

PLACE OF USE ATTACHMENT, QUESTION 8

Acres	Gov't Lot	Block	¼	¼	¼	Section	Township	Range	County
20	7			SW	SW	36	9S	47E	Powder River
30	8			SE	SW	36	9S	47E	Powder River
25	6			NW	SE	36	9S	47E	Powder River
24	3			E2	E2	36	9S	47E	Powder River
35				SW	NE	36	9S	47E	Powder River
5			SE	SE	NW	36	9S	47E	Powder River
30				NE	SW	36	9S	47E	Powder River
43	4			SW	NW	25	9S	47E	Powder River
18				SE	NW	25	9S	47E	Powder River
2	3 ~~3~~		E2	SE	NE	26	9S	47E	Powder River
TOTAL: 232									

was correct

per map cs 2/14/2025

question 23

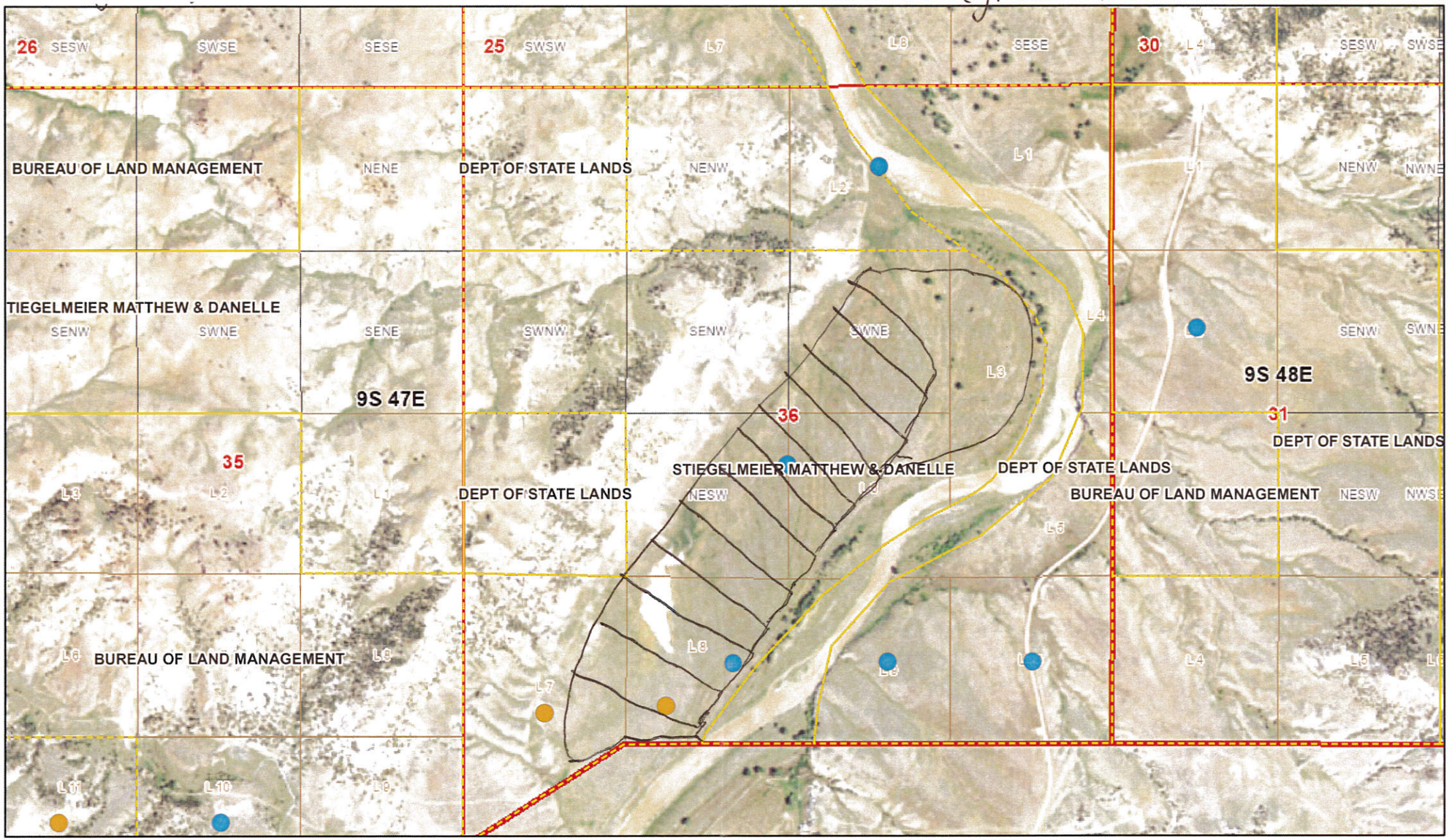
42J 30164864 - STIEGELMEIER

PLACE OF USE ATTACHMENT, QUESTION 8

Acres	Gov't Lot	Block	¼	¼	¼	Section	Township	Range	County
20	7					36	9S	47E	Powder River
30	8					36	9S	47E	Powder River
25	6					36	9S	47E	Powder River
24	3					36	9S	47E	Powder River
35				SW	NE	36	9S	47E	Powder River
5				SE	NW	36	9S	47E	Powder River
30				NE	SW	36	9S	47E	Powder River
43	4					25	9S	47E	Powder River
18				SE	NW	25	9S	47E	Powder River
2	3					26	9S	47E	Powder River
TOTAL: 232									

Stiegelmeier Map

Diagram of Ditches



11/15/2024, 9:42:30 AM

Active Water Rights (Points of Diversion)
- SURFACE
- GROUNDWATER
- Parcels

PLSS Second Division
- Aliquot Part
- Government Lot

PLSS First Division
- Section

PLSS Township

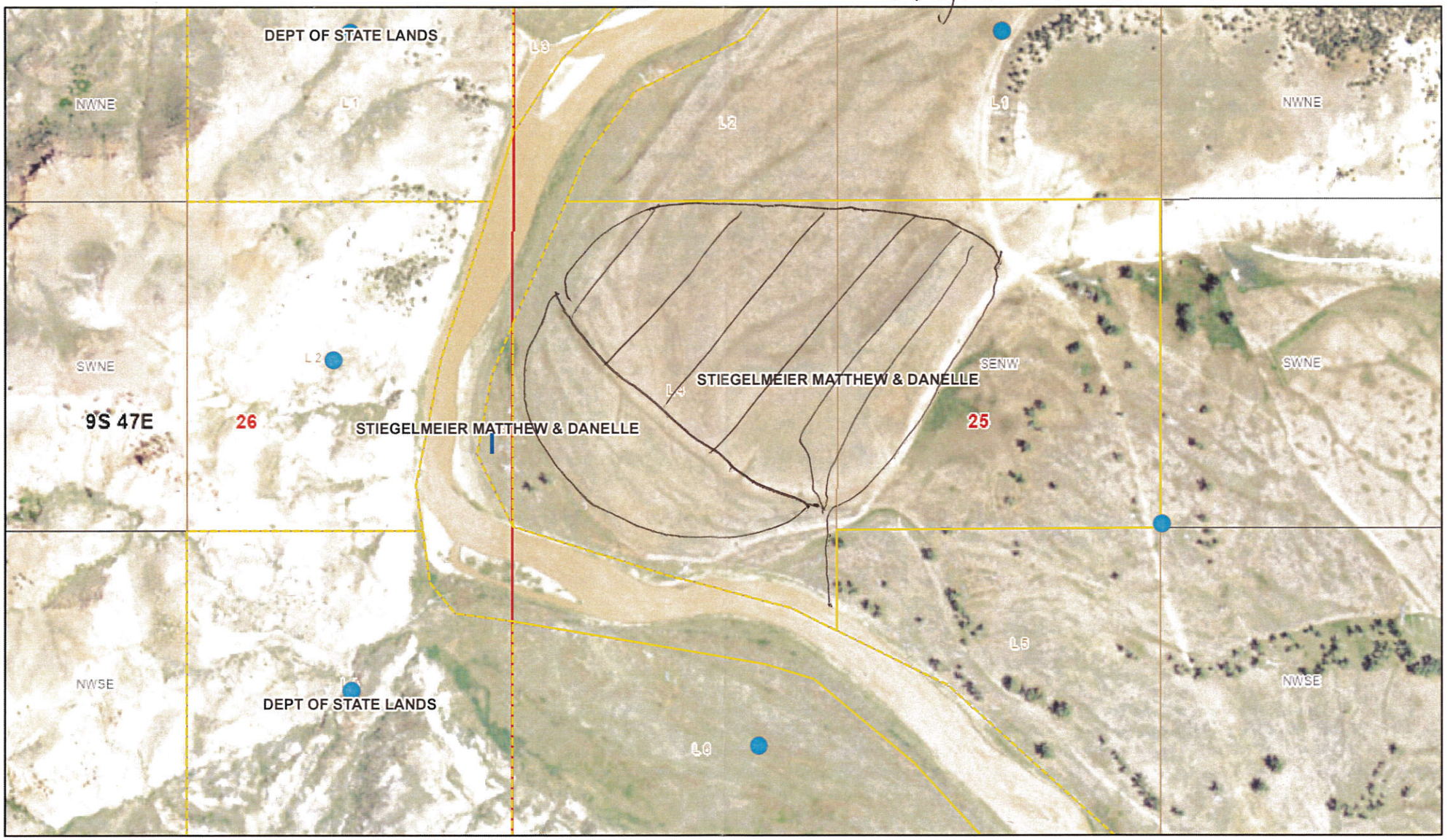
2021 Aerial Photos
- Red: Band_1
- Green: Band_2
- Blue: Band_3

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Stiegelmeier Map 2 Diagram of Ditches



11/15/2024, 10:33:54 AM

Active Water Rights (Points of Diversion)
- SURFACE
- GROUNDWATER
- Parcels

Controlled Groundwater Areas
- ACTIVE PERMANENT

PLSS Second Division
- Aliquot Part

- Government Lot

PLSS First Division
- Section
- PLSS Township

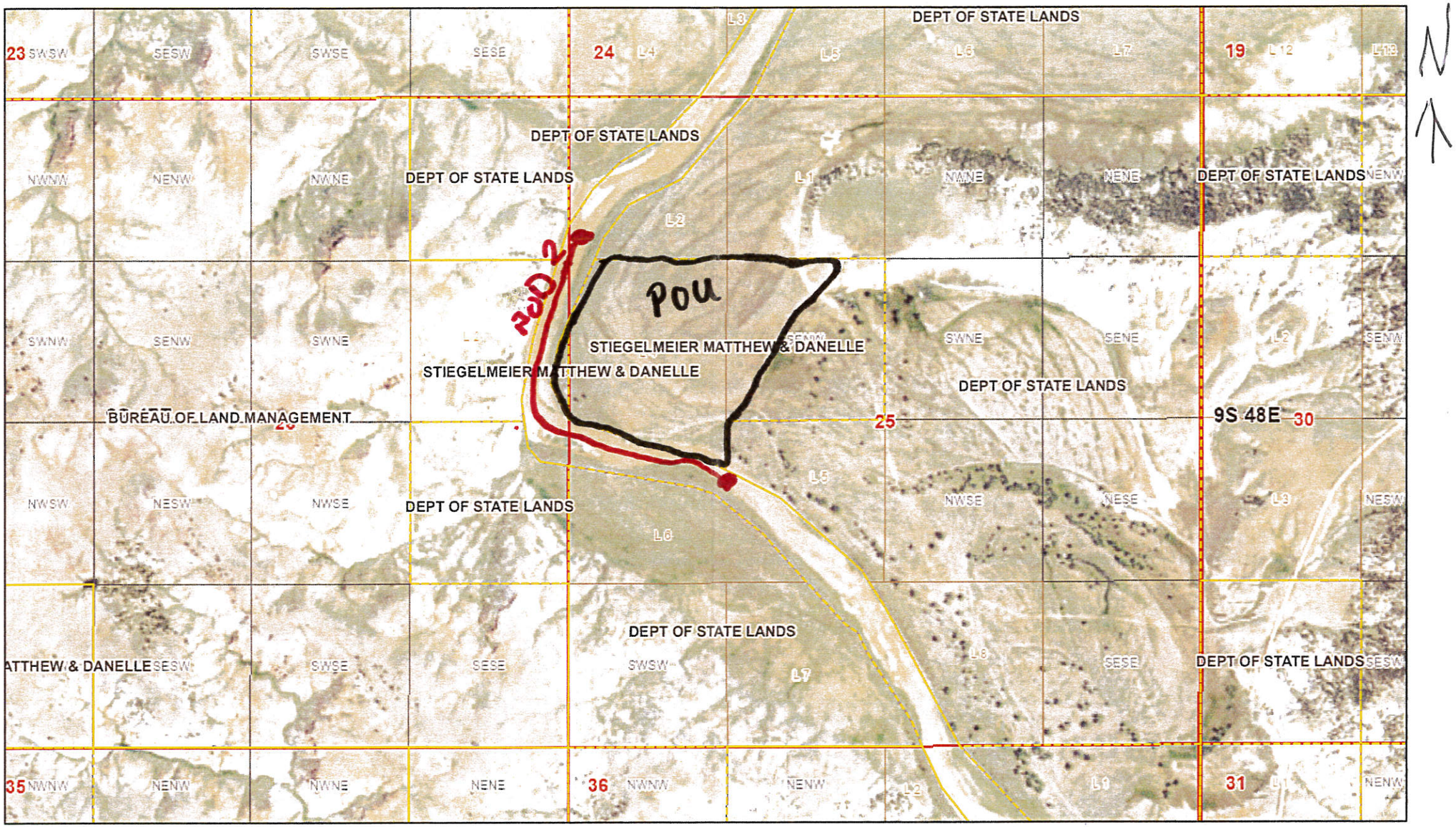
2021 Aerial Photos
- Red: Band_1
- Green: Band_2
- Blue: Band_3

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Stiegelmeier Map 2



11/15/2024, 9:47:01 AM

Parcels
Government Lot
PLSS Township
Green: Band_2
PLSS Second Division
PLSS First Division
2021 Aerial Photos
Blue: Band_3
Aliquot Part
Section
Red: Band_1

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

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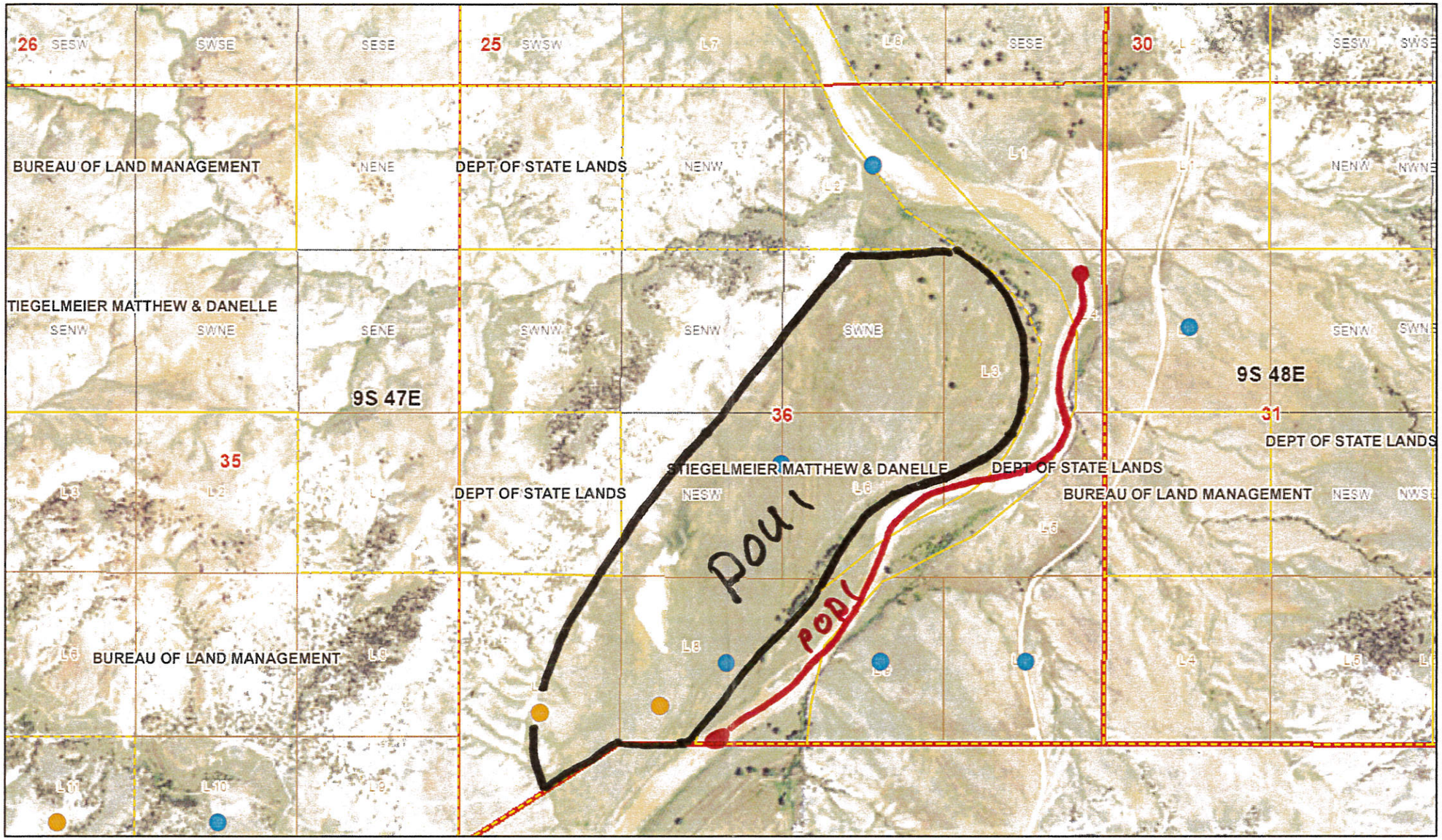
ArcGIS Web AppBuilder

Stiegelmeier Map



11/15/2024, 9:42:30 AM

Active Water Rights (Points of Diversion)
- SURFACE
- GROUNDWATER
- Parcels

PLSS Second Division
- Aliquot Part
- Government Lot

PLSS First Division
- Section

PLSS Township

2021 Aerial Photos
- Red: Band_1
- Green: Band_2
- Blue: Band_3

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Esri, NASA, NGA, USGS, FEMA, Esri Community Maps Contributors, Montana State Library, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

ArcGIS Web AppBuilder

Processing Information
&
Correspondence

- Correct & Complete Letter & Technical Report
- Materials Developed by DNRC for Analysis
  - Permit: Physical & Legal Availability
  - Change: Historic Use & Adverse Effect
  - Hydrologist Reviews
- Response to Deficiency Letter
- Deficiency Letter
- Additional Documentation
- Emails
- Any other Correspondence

Processing Info & Correspondence

December 27, 2024

Matthew and Danelle Stiegelmeier
44 Bliss Rd.
Otter, MT 59062

Subject: Complete Preapplication Form for Beneficial Water Use Permit Application No. 42J 30164864

Dear Applicant,

The Billings Regional Office of the Department of Natural Resources and Conservation (DNRC or Department) received your Preapplication Meeting Form and preapplication meeting fee on November 15, 2024, and the Department deems the submitted Preapplication Meeting Form to be successfully completed per ARM 36.12.1302.

As designated on the submitted Preapplication Meeting Form per §85-2-302(3)(b), MCA, the Department will produce the technical analyses based on the parameters included in the Preapplication Meeting Form (ARM 36.12.1302(4)) within 45 days of November 15, 2024.

Please let me know if you have any questions.

Sincerely,

Christine Schweigert
Hydrologist
Billings Regional Office
cschweigert@mt.gov
406-247-4419
1371 Rimtop Drive, Billings, MT 59105

December 27, 2024

Matthew and Danelle Stiegelmeier
44 Bliss Rd.
Otter, MT 59062

Subject: Completed Technical Analyses Report for Beneficial Water Use Permit Preapplication No. 42J 30164864

Dear Applicant,

As designated on the submitted Preapplication Meeting Form per §85-2-302(3)(b), MCA, the Department of Natural Resources and Conservation (DNRC or Department) has completed the technical analyses for Beneficial Water Use Permit Preapplication No. 42J 30164864 based on the information provided in your Preapplication Meeting Form submitted to the Department on November 15, 2024. The technical analyses can be found in the attached report.

This Technical Analyses Report **IS**: A collection of facts that the DNRC has gathered, including content provided in the Preapplication Meeting Form materials. The Department will use these data to analyze the criteria in §85-2- 311, MCA if you submit an application for the project described in the completed Preapplication Meeting Form.

This Technical Analyses Report **IS NOT**: An analysis or discussion of whether the Preapplication Meeting Form as filed meets the criteria (§85-2- 311, MCA).

You have 180 days to submit the Beneficial Water Use Permit Application Form 600 considering the information provided in the technical analyses and Preapplication Meeting Form. If the Application Form is not submitted to the Billings Regional Office by June 25, 2025, a new preapplication meeting will be required to process the Application with expedited timelines (ARM 36.12.1302(6)(b)). If any elements described in the submitted Application are changed from that of the submitted Preapplication Meeting Form, the discounted filing fee and expedited timelines will not apply (ARM 36.12.1302(6)(a)). Please note that the technical analyses will expire one year from the date of this letter (ARM 36.12.1302(8)).

Please let me know if you have any questions.

Sincerely,

Christine Schweigert
Hydrologist
Billings Regional Office
cschweigert@mt.gov
406-247-4419
1371 Rimtop Drive, Billings, MT 59105

Surface Water Permit Technical Analyses Report

Department of Natural Resources and Conservation (DNRC or Department)
Water Resources Division
Christine Schweigert, Hydrologist, Billings Regional Office

Application No.	42J 30164864	**Proposed Point of Diversion**	Transitory Pump which can be moved anywhere along the Powder River in Government Lots 3, 6, and 8, Sec. 36; and Government Lot 4, Sec. 25, T9S, R47E, Powder River County
Applicant	Matthew and Danelle Stiegelmeier		

Overview

This report analyzes data submitted by the Applicant in support of the above-mentioned water right application. This report provides technical analyses as required under the Administrative Rules of Montana (ARM) 36.12.1303 in support of the water rights criteria assessment as required in §85-2-311, Montana Code Annotated (MCA).

This Surface Water Permit Technical Analyses Report contains the following sections:

1.0 Application Details

The Applicant proposes to divert water using a transitory pump in Government Lots 3, 6, and 8, in Sec. 36, and Government Lot 4 in Sec. 25, T9S, R47E, Powder River County from the Powder River at a rate of 35.6 CFS. A diverted volume of 928 AF of water would be used between January 1 and December 31 for irrigation on 232 acres in Sections 25 and 36, T9S, R47E, Powder River County. The full place of use descriptions are in Table 1.

Table 1. Place of use

Acres	Gov't Lot	¼	¼	Section	Township	Range	County
20	7			36	9S	47E	Powder River
30	8			36	9S	47E	Powder River
25	6			36	9S	47E	Powder River
24	3			36	9S	47E	Powder River
35		SW	NE	36	9S	47E	Powder River
5		SE	NW	36	9S	47E	Powder River
30		NE	SW	36	9S	47E	Powder River
43	4			25	9S	47E	Powder River
18		SE	NW	25	9S	47E	Powder River
2	3			26	9S	47E	Powder River
TOTAL: 232							

2.0 Surface Water Analysis

2.1 Source Description

Proposed Source of Water: Powder River

Proposed Source Type: Perennial

Proposed Point of Diversion (POD): The proposed PODs are transitory pumps. Proposed POD number 1 will be moveble anywhere in Government Lots 3, 6, and 8 (S2 and S2NE) Sec. 36, T9S, R47E. Proposed POD number 2 will be moveable anywhere in Government Lot 4 (N2SW and S2NW) Sec. 25, and Governement Lot 3 (SENE) Sec. 26, T9S, R47E, Powder River County.

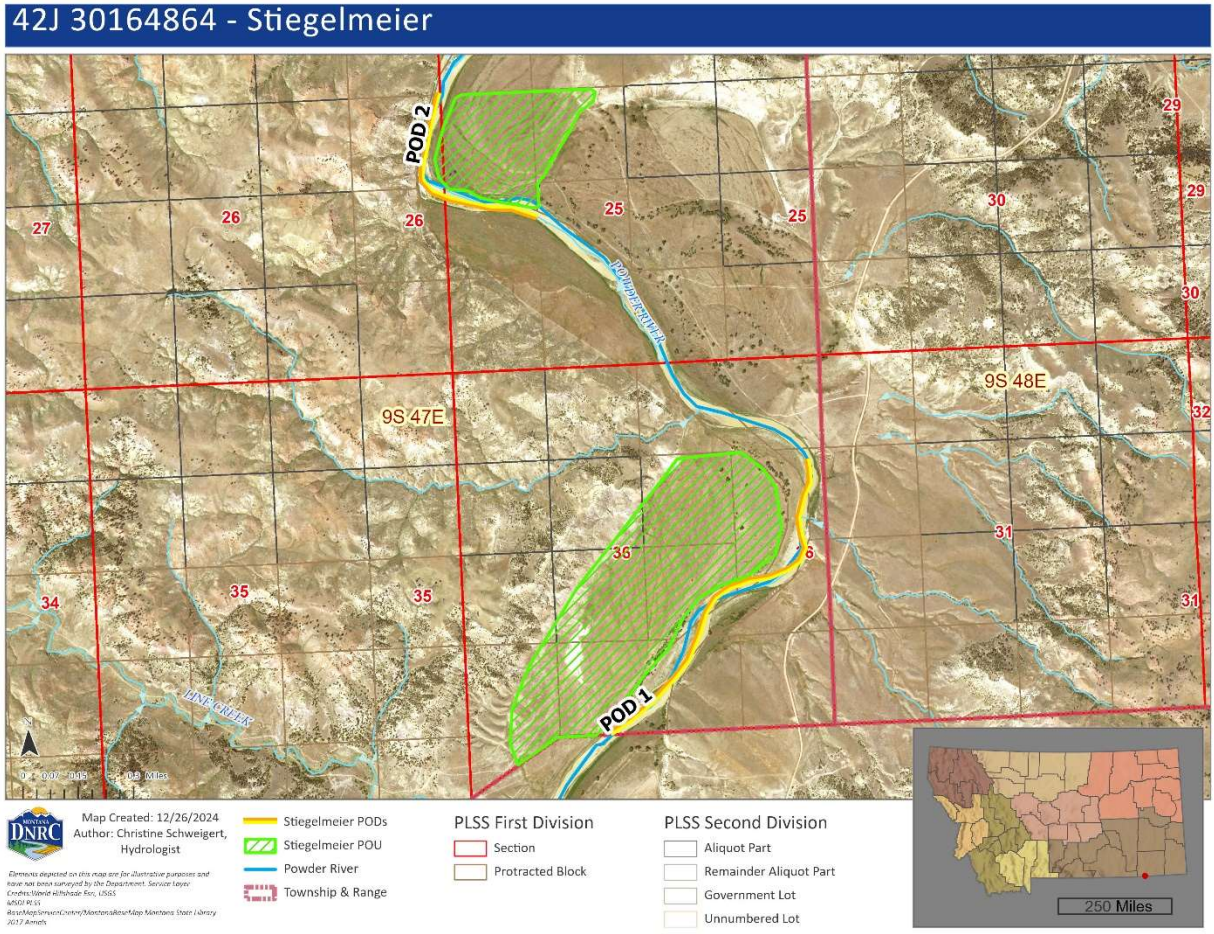


Figure 1: Map of the Applicant's proposed PODs and proposed place of use.

2.2 Method of Estimation

Gage Name: Powder River at Moorhead, MT

Gage Number: 06324500

Period of Record: 10/01/1929 – 08/31/2024

Why this gage is considered an appropriate data source: The USGS Gage on the Powder River at Moorhead is approximately 4.5 miles downstream of the lower end of POD 2 and approximately 6 miles downstream of the lower end of POD 1. This is the nearest gage on the Powder River. The period of record is nearly 95 years. ARM 36.12.1702(1)(a) requires the Department to use stream gaging records when they are available. According to the DNRC Technical Memorandum: Physical Availability of Surface Water with Gage Data dated November 1, 2019, when the POD is located above the gage, water rights between the gage and

the POD will be added to the monthly median of the mean gage values to provide an estimate of physical availability at the POD.

2.3 Monthly Flow Rate and Volume

Methodology: USGS Gage 06324500 is the nearest gage to the proposed POD from the Powder River. The point of diversion for this application is upstream of the gaging station. The date range used includes the entire period of record for this gage.

Physical availability of Powder River water at the POD will be quantified monthly. Department practice for physical availability analyses where the gage used is downstream of the POD is to add the monthly flow rates of existing water rights between the gage and the POD to the median of the mean monthly flows at the gage. The DNRC used the method below to quantify physically available monthly flows and volumes at the POD during the proposed period of diversion:

1. The Department calculated median of the mean monthly flow rates in cubic feet per second (CFS) for the Powder River using USGS Gage 06324500 Powder River at Moorhead, MT records for each month of the proposed period of diversion (Table 2, column B). Those flows were converted to monthly volumes in AF (Table 2, column C) using the following conversion found on the DNRC Water Calculation Guide: median of the mean monthly flow (CFS) × 1.98 (AF/day/1 CFS) × days per month = AF/month.
2. The Department calculated the monthly flows appropriated by existing users upstream of the gage on the source (Table 2, column D) by:
    i. Generating a list of existing water rights from the Powder River at the uppermost proposed point of diversion to USGS Gage 06324500 Powder River at Moorhead, MT (Table 3);
    ii. Designating irrigation and lawn and garden uses as occurring from April 1 to October 31;
    iii. Designating all other water uses as year-round uses;
    iv. Assigning a single combined flow rate of 0.1 CFS (46 GPM) to all livestock direct from source rights without a designated flow rate; and,
    v. Assuming that the flow rate of each existing right is continuously diverted throughout each month of the period of diversion. This assumption is necessary due to the difficulty of differentiating the distribution of appropriated volume over the period of diversion. This leads to an overestimation of existing uses from the source. The Department finds this an appropriate measure of assessing existing rights as it protects existing water users.
3. Since the gage used is downstream of the POD, the Department added in the flow rates of the existing rights between USGS Gage 06324500 Powder River at Moorhead, MT and the uppermost POD (Table 2, column D) to the median of the mean monthly gage values (Table 2, column B) to determine physical availability at the POD (Table 2, column E). Physically available monthly flows were then converted to monthly volumes (Table 2, column F). The

flow rate and volume for the FWP instream flow right was not added to the gage data because it is not diverted from the source.

Table 2. Physical Availability at the Uppermost Proposed Point of Diversion on the Powder River

A	B	C	D	E	F
Month	**Median of the Mean Monthly Flow at Gage 06324500 (CFS)**	**Median of the Mean Monthly Volume at Gage 06324500 (AF)**	**Existing Rights from Uppermost Proposed POD to Gage 06324500 (CFS)**	**Physically Available Water at Uppermost Proposed POD (CFS)**	**Physically Available Water at Uppermost Proposed POD (AF)**
January	150.8	9,256.1	0.18	151.0	9,258.3
February	209.3	11,603.6	0.18	209.5	11,605.7
March	509.8	31,291.5	0.18	510.0	31,293.7
April	450.1	26,735.9	10.18	460.3	26,758.1
May	916.6	56,260.9	10.18	926.8	56,283.1
June	1,148.8	68,191.2	10.18	1,158.2	68,213.4
July	292.4	17,947.5	10.18	302.6	17,969.7
August	110.8	6,800.9	10.18	121.0	6,823.1
September	97.8	5,809.3	10.18	108.0	5,831.5
October	200.4	12,300.6	10.18	210.6	12,322.7
November	225.9	13,418.5	0.18	226.1	13,420.6
December	154.8	9,501.6	0.18	155.0	9,503.8

3.0 Area of Potential Impact Analysis

The Area of Potential Impact for this application is: The area of potential impact for this application is from the uppermost proposed POD (at the Montana-Wyoming state line) to the USGS Gage 06324500 at Moorhead, MT.

Table 3 Legal Demands In The Area Of Potential Impact

Water Right No.	Owner(s)	Period of Diversion	Flow Rate (CFS)	Volume (AF)
42J 2790 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	01/01 to 12/31	0.10	1.50
42J 2801 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	01/01 to 12/31	0.00	1.50
42J 2808 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	01/01 to 12/31	0.00	1.50
42J 2810 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	01/01 to 12/31	0.00	1.50
42J 30017743	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	01/01 to 12/31	424.00*	95,201.00
42J 30142405	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	01/01 to 12/31	0.00	1.22
42J 30142410	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	01/01 to 12/31	0.00	0.34
42J 30142414	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	01/01 to 12/31	0.00	10.68
42J 717 00	DANELLE STIEGELMEIER; MATTHEW STIEGELMEIER	01/01 to 12/31	0.02	1.50
42J 8004 00	GAY RANCH INC; TWIN HEARTS SMILING HORSES INC; USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	01/01 to 12/31	0.04	3.50

42J 9749 00	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	01/01 to 12/31	0.02	2.25
42J 2806 00	MONTANA STATE BOARD OF LAND COMMISSIONERS	04/01 to 10/31	10.00	140.00

*Flow rate varies by month, rate shown is the highest flow rate of the year

Why this is an appropriate Area of Potential Impact: This reach is approximately 8.2 miles. There are 6 named tributaries that contribute to the Powder River in this reach and an additional 167.9 square miles of drainage area. There are 12 water rights in the area of potential impact for this application, they are shown in Table 3.

Methodology: The area of potential impact was determined by considering the requested flow rate and volume, the existing legal demands, the drainage area size, significant hydrologic boundaries, and the data from the USGS gage records. Existing legal demands were collected from the DNRC Water Right Information System and the DNRC Water Right Query System Points of Diversion layer in ArcPro. Drainage basin size above the point of diversion and above the USGS Gage at Moorhead were calculated using the USGS StreamStats web application at https://streamstats.usgs.gov/ss/. Hydrologic boundaries were examined using the National Hydrography Dataset in ArcPro.

Review

This document has been reviewed by the Department on December 26, 2024.

References

Department Standard Practice for Determining Physical Availability of Surface Water
Department Standard Practice for Determining Area of Potential Impact
DNRC Technical Memorandum: Physical Availability of Surface Water with Gage Data dated November 1, 2019
DNRC Water Calculation Guide
USGS Gage 06324500 Powder River at Moorhead MT – period of record 10/1/1929 to 08/31/2024
USGS StreamStats
DNRC Water Right Information System
DNRC Water Right Query System.
DNRC Permit Manual

Legal demands between gage and POD by flow rate (CFS)

WR_NUMBER	WR_TYPE	ENF_PRTY_1	OWNERS	PURPOSES	SOURCE_NAM	MEANS_OF_D	GOVT_LOT	TRS_QQQQ	Max Flow CFS	Max Flow GPM	MAX_VOL	MAX_ACRES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	No/Mos.	Vol/Mo.	PERIOD_OF_	AUM_SUM	
42J 2790 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	11	T9S R48E Sec. 19	0.10	46.00	1.50	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	12.00	0.13	01/01 to 12/31	39.00	
42J 2801 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE		T9S R47E Sec. 24	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.13	01/01 to 12/31	57.00	
42J 2808 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	4	T9S R47E Sec. 26	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.13	01/01 to 12/31	13.00	
42J 2810 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	9	T9S R47E Sec. 36	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.13	01/01 to 12/31	55.00	
42J 30017743	WATER RESERVATION	1978/12/15	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	FISHERY	POWDER RIVER	INSTREAM		T9S R47E Sec. 25	424.00		95,201.00	0.00	31.90	71.80	29.00	347.00	424.00	184.00	70.00	14.50	8.87	9.43	61.60	61.00	12.00	7,933.42	01/01 to 12/31	0.00	
42J 30142405	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	7	T9S R48E Sec. 19	0.00	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.10	01/01 to 12/31	36.00	
42J 30142410	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.03	01/01 to 12/31	10.00	
42J 30142414	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	10.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.89	01/01 to 12/31	314.00	
42J 717 00	POWDER RIVER DECLARATION	1883/10/01	DANELLE STIEGELMEIER; MATTHEW STIEGELMEIER	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	8	T9S R47E Sec. 36	0.02	10.00	1.50	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	12.00	0.13	01/01 to 12/31	0.00	
42J 8004 00	POWDER RIVER DECLARATION	1883/10/01	GAY RANCH INC; TWIN HEARTS SMILING HORSES INC; USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 26	0.04	20.00	3.50	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	12.00	0.29	01/01 to 12/31	0.00	
42J 9749 00	POWDER RIVER DECLARATION	1883/10/01	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	10	T9S R48E Sec. 19	0.02	10.00	2.25	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	12.00	0.19	01/01 to 12/31	0.00	
42J 2806 00	POWDER RIVER DECLARATION	1909/07/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	IRRIGATION	POWDER RIVER	FUELED PUMP	1	T9S R47E Sec. 25	10.00		140.00	70.00				10.00	10.00	10.00	10.00	10.00	10.00	10.00			7.00	20.00	04/01 to 10/31	0.00	
												Total Legal Demands ->	32.08	71.98	29.18	357.18	434.18	194.18	80.18	24.68	19.05	19.61	61.78	61.18				524.00	17.8 AF (524 * 0.034 = 17.8)
												Total Diverted ->	0.18	0.18	0.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	0.18	0.18				0.10	

Legal demands between gage and POD by volume (AF)

WR_NUMBER	WR_TYPE	ENF_PRTY_1	OWNERS	PURPOSES	SOURCE_NAM	MEANS_OF_D	GOVT_LOT	TRS_QQQQ	Max Flow CFS	Max Flow GPM	MAX_VOL	MAX_ACRES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	No/Mos.	Vol/Mo.	PERIOD_OF_	AUM_SUM	
42J 2790 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	11	T9S R48E Sec. 19	0.10	46.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	39.00	
42J 2801 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE		T9S R47E Sec. 24	0.00	0.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	57.00	
42J 2808 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	4	T9S R47E Sec. 26	0.00	0.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	13.00	
42J 2810 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	9	T9S R47E Sec. 36	0.00	0.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	55.00	
42J 30017743	WATER RESERVATION	1978/12/15	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	FISHERY	POWDER RIVER	INSTREAM		T9S R47E Sec. 25	424.00		95,201.00	0.00	1,958.02	3,980.59	1,780.02	20,611.80	26,025.12	10,929.60	4,296.60	890.01	526.88	578.81	3,659.04	3,744.18	12.00	7,933.42	01/01 to 12/31	0.00	
42J 30142405	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	7	T9S R48E Sec. 19	0.00	0.00	1.22	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	12.00	0.10	01/01 to 12/31	36.00	
42J 30142410	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	0.34	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	12.00	0.03	01/01 to 12/31	10.00	
42J 30142414	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	10.68	0.00	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	12.00	0.89	01/01 to 12/31	314.00	
42J 717 00	POWDER RIVER DECLARATION	1883/10/01	DANELLE STIEGELMEIER; MATTHEW STIEGELMEIER	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	8	T9S R47E Sec. 36	0.02	10.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	0.00	
42J 8004 00	POWDER RIVER DECLARATION	1883/10/01	GAY RANCH INC; TWIN HEARTS SMILING HORSES INC; USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 26	0.04	20.00	3.50	0.00	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	12.00	0.29	01/01 to 12/31	0.00	
42J 9749 00	POWDER RIVER DECLARATION	1883/10/01	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	10	T9S R48E Sec. 19	0.02	10.00	2.25	0.00	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	12.00	0.19	01/01 to 12/31	0.00	
42J 2806 00	POWDER RIVER DECLARATION	1909/07/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	IRRIGATION	POWDER RIVER	FUELED PUMP	1	T9S R47E Sec. 25	10.00		140.00	70.00				20.00	20.00	20.00	20.00	20.00	20.00	20.00			7.00	20.00	04/01 to 10/31	0.00	
												Total Legal Demands ->	1,960.17	3,982.74	1,782.17	20,633.95	26,047.27	10,951.75	4,318.75	912.16	549.03	600.96	3,661.19	3,746.33				524.00	17.8 AF (524 * 0.034 = 17.8)
												Total Diverted ->	2.15	2.15	2.15	22.15	22.15	22.15	22.15	22.15	22.15	22.15	2.15	2.15				7.32	
												no. days/ mo	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00					

Legal demands between POD and USGS Gage on Powder River at Moorhead

USGS 06324500 Powder River at Moorhead MT

Powder River County, Montana

Hydrologic Unit Code 10090207

Latitude 45°03'25.91", Longitude 105°52'42.16" NAD83

Drainage area 8,029 square miles

Gage datum 3,350.60 feet above NGVD29

00060, Discharge, cubic feet per second,

Monthly mean in ft3/s (Calculation Period: 1929-10-01 -> 2024-08-31)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1929										318.9	490.9	250.0
1930	200.0	1,200.0	611.8	671.2	738.8	246.5	296.5	569.9	188.7	391.6	241.1	250.0
1931	100.0	150.0	340.0	273.9	1,019.0	533.3	127.5	309.9	69.6	121.8	135.8	100.0
1932	100.0	197.5	537.7	402.3	1,452.0	1,316.0	203.7	6.8	23.1	102.0	163.7	56.2
1933	88.6	20.9	420.5	764.4	2,815.0	2,067.0	51.3	448.5	450.0	179.5	235.9	200.0
1934	250.0	350.0	309.4	405.9	82.6	283.0	209.2	49.7	78.1	148.8	103.8	70.0
1935	82.0	214.8	210.3	217.5	429.6	1,885.0	258.7	101.4	48.5	70.7	80.0	100.0
1936	100.0	300.0	1,526.0	375.9	124.6	575.9	958.7	37.7	16.8	100.0	166.8	89.9
1937	46.4	34.6	649.8	545.8	725.6	1,862.0	2,500.0	83.2	97.8	195.4	205.7	140.4
1938	201.2	224.5	350.0	377.2	1,202.0	1,314.0	1,011.0	72.1	158.3	111.4	200.4	200.1
1939	159.4	95.5	1,166.0	374.0	590.3	1,121.0	101.4	42.2	38.9	98.0	114.1	214.5
1940	124.5	117.2	395.4	450.3	394.5	601.0	215.3	20.2	143.1	700.1	161.0	205.8
1941	166.1	206.8	298.0	1,193.0	2,357.0	852.8	909.5	1,219.0	465.5	471.5	403.2	271.2
1942	104.8	172.5	621.9	784.3	1,435.0	1,002.0	123.4	153.2	42.9	207.5	185.2	200.0
1943	171.9	441.1	1,055.0	1,015.0	1,115.0	2,266.0	497.9	79.4	100.1	99.7	173.7	107.1
1944	76.1	88.1	615.2	954.5	3,051.0	3,984.0	1,131.0	84.6	51.1	143.9	160.7	151.6
1945	119.4	201.8	735.0	643.8	835.4	2,549.0	872.3	359.3	287.9	271.3	290.7	154.8
1946	251.0	478.9	644.8	799.3	939.9	1,573.0	699.1	53.4	311.0	281.8	314.2	225.6
1947	169.5	344.3	2,290.0	649.4	2,307.0	1,622.0	748.0	35.7	75.9	162.9	279.8	255.3
1948	175.2	531.2	1,595.0	570.9	1,197.0	2,059.0	744.9	163.0	129.6	225.0	226.4	188.0
1949	140.0	139.6	1,296.0	611.3	1,120.0	1,467.0	194.0	37.5	52.8	181.5	231.7	73.1
1950	27.2	70.5	397.4	648.9	1,382.0	949.0	188.5	42.4	74.5	240.8	214.1	178.5
1951	147.5	152.9	362.5	266.5	509.8	270.8	292.4	138.1	461.6	256.0	302.0	199.5
1952	96.7	178.6	432.3	801.3	1,813.0	785.6	450.4	137.7	76.6	79.5	133.0	105.0
1953	140.3	199.6	445.7	277.9	412.0	1,448.0	121.7	310.1	13.3	31.2	107.4	136.6
1954	137.1	296.4	291.4	361.2	515.5	39.5	79.4	283.0	4.9	16.1	111.1	106.3
1955	90.6	97.3	568.6	1,112.0	651.7	987.6	206.6	205.4	9.1	41.2	91.2	196.0
1956	150.8	161.0	882.1	401.2	815.7	740.7	182.6	89.7	9.3	19.4	148.0	113.5
1957	91.9	92.9	336.9	264.0	533.0	2,205.0	467.6	79.1	102.8	181.5	241.8	199.7
1958	150.0	188.4	279.0	390.2	1,004.0	704.5	743.5	156.7	25.5	50.7	104.0	139.5
1959	110.8	140.2	845.3	379.3	588.0	722.7	336.2	9.8	19.1	107.4	115.2	172.9
1960	109.0	160.9	744.8	281.2	118.8	159.7	61.3	19.1	1.3	23.1	101.3	81.6
1961	79.7	91.8	308.0	116.7	275.9	133.8	33.9	15.4	49.8	195.8	228.8	99.4
1962	98.4	720.7	518.2	621.8	1,939.0	4,024.0	1,192.0	293.7	231.3	451.9	293.6	269.4
1963	225.2	533.2	337.7	329.9	1,063.0	2,710.0	339.3	29.2	213.8	109.2	200.2	116.6
1964	172.3	173.6	285.5	504.7	817.8	2,734.0	763.5	37.7	52.6	95.1	192.8	191.5
1965	270.3	471.8	790.6	1,313.0	1,071.0	1,766.0	512.7	229.8	169.8	235.6	200.6	154.6
1966	136.3	170.9	509.8	376.4	416.9	124.3	51.6	0.6	122.5	120.6	172.1	125.5
1967	129.4	198.9	377.1	263.1	795.5	4,131.0	1,377.0	110.8	288.3	242.7	270.1	125.8
1968	119.4	371.7	812.8	464.2	916.6	3,024.0	553.4	515.3	497.1	277.1	265.6	153.9
1969	230.0	243.9	803.8	780.5	502.6	400.9	429.8	17.4	14.6	113.5	186.6	190.3
1970	145.5	312.9	460.3	374.7	1,731.0	1,897.0	251.1	20.1	44.6	148.5	205.1	120.6
1971	137.3	691.5	949.3	587.0	1,282.0	2,051.0	172.0	23.0	42.0	248.5	298.4	101.1
1972	100.6	739.8	1,676.0	519.2	876.7	1,174.0	268.0	319.2				
1974										255.5	289.8	170.3
1975	210.0	148.9	561.0	537.6	1,089.0	3,131.0	1,526.0	131.8	49.5	218.6	263.8	236.6
1976	197.4	366.6	524.7	433.1	1,194.0	1,432.0	383.0	189.9	81.5	404.8	242.2	158.5
1977	123.9	209.3	320.1	588.6	1,447.0	526.8	150.0	181.9	95.7	221.7	178.6	150.3
1978	152.3	158.6	1,372.0	405.3	5,553.0	3,178.0	1,083.0	320.3	212.9	271.3	158.2	150.6
1979	132.5	116.7	573.4	521.7	619.6	547.4	309.3	254.5	134.5	194.5	217.0	114.2
1980	115.9	302.1	334.0	321.2	515.3	471.5	229.7	313.9	255.0	339.5	429.5	325.5
1981	444.8	348.2	324.2	206.8	656.8	891.8	242.3	97.5	45.1	135.2	188.2	120.5
1982	93.7	144.6	326.2	236.2	341.9	915.0	825.9	294.2	685.8	508.3	207.2	152.4
1983	228.4	684.8	383.3	449.2	773.3	1,675.0	421.5	192.9	84.6	234.0	261.5	83.1
1984	183.5	374.8	661.4	537.5	2,405.0	2,328.0	467.3	200.8	144.6	313.8	317.9	145.8
1985	144.5	123.2	405.6	419.0	345.8	117.5	100.3	120.2	71.1	233.8	122.6	120.5
1986	151.3	268.6	609.5	452.4	678.6	1,223.0	158.6	99.6	475.4	554.1	289.6	184.5
1987	176.1	495.9	872.2	679.8	619.2	856.7	513.6	234.1	349.7	255.4	282.6	94.8
1988	101.3	176.2	613.6	497.0	836.9	262.3	65.6	18.8	33.7	108.5	129.8	94.8
1989	117.6	69.5	336.0	252.6	239.2	268.3	124.7	55.9	112.9	215.4	276.8	102.1
1990	161.1	308.9	583.3	360.5	585.5	986.5	213.7	328.3	118.1	200.5	226.7	136.8
1991	105.2	388.6	400.8	471.5	1,685.0	1,905.0	204.5	57.7	113.2	167.5	268.2	211.0
1992	241.3	325.6	293.8	301.9	179.1	866.0	952.1	223.6	150.0	192.2	259.2	134.7
1993	109.5	124.3	623.9	450.1	1,590.0	2,180.0	772.7	382.6	163.1	295.3	253.8	226.5
1994	204.5	423.2	701.4	525.7	667.0	79.2	249.1	59.4	46.8	897.1	318.2	160.0
1995	174.5	700.5	401.7	307.4	1,783.0	3,634.0	988.4	100.9	104.5	295.5	298.6	184.1
1996	140.8	534.7	699.4	614.5	1,062.0	1,486.0	166.2	33.1	46.0	175.4	240.2	115.6
1997	245.2	389.6	764.9	548.1	1,120.0	1,937.0	804.4	724.0	231.5	334.3	284.7	226.1
1998	211.6	316.1	532.1	664.4	1,300.0	857.8	537.5	410.6	357.7	621.1	660.4	215.6
1999	217.1	305.7	353.7	814.3	2,381.0	2,153.0	378.7	115.8	191.0	272.5	265.9	232.6

2000	261.9	282.8	320.7	387.7	1,026.0	535.8	107.6	41.1	109.8	232.4	164.6	144.2
2001	139.4	143.6	293.5	230.2	177.0	93.0	173.0	2.6	7.7	55.2	127.2	133.9
2002	195.5	237.1	184.8	312.0	181.3	67.2	53.7	249.6	184.6	159.8	190.4	130.6
2003	153.9	201.4	587.5	578.1	573.5	666.3	155.4	26.2	63.9	79.0	91.3	156.5
2004	56.6	76.4	368.4	211.5	123.8	31.0	117.2	33.3	58.1	162.3	221.6	141.8
2005	135.5	158.2	198.8	241.8	1,389.0	974.5	227.1	151.4	47.4	163.1	175.3	107.4
2006	195.5	173.2	338.9	322.8	314.8	126.0	10.0	1.0	45.8	117.6	180.1	86.5
2007	83.4	71.8	287.7	427.2	1,183.0	1,156.0	280.9	161.2	137.9	198.6	233.4	181.9
2008	93.9	157.9	539.9	291.7	2,514.0	3,204.0	1,030.0	92.2	148.1	249.6	288.5	191.0
2009	212.6	412.1	640.5	757.0	859.1	968.0	429.2	272.4	103.8	321.9	306.2	165.2
2010	180.3	248.2	418.7	513.4	1,430.0	2,013.0	548.1	115.6	60.5	149.1	233.4	216.1
2011	215.5	224.6	461.4	360.1	1,616.0	3,702.0	1,224.0	134.2	93.4	241.7	292.5	274.5
2012	270.6	366.9	830.2	445.8	421.2	456.1	60.9	19.4	20.3	104.5	188.5	160.6
2013	134.8	182.9	303.4	271.7	430.3	477.9	169.0	146.5	113.1	674.9	287.1	171.6
2014	201.3	281.1	790.9	593.8	1,574.0	1,543.0	522.8	293.8	280.1	321.4	259.5	301.0
2015	232.6	285.0	401.0	322.9	1,623.0	3,396.0	489.8	140.4	110.3	200.4	215.7	228.5
2016	208.7	266.9	279.5	458.4	774.8	445.1	70.9	26.4	150.6	251.0	225.9	123.3
2017	152.9	367.3	432.3	974.7	3,467.0	2,303.0	329.4	107.1	138.1	314.7	309.9	221.0
2018	200.0	209.1	910.4	489.7	1,268.0	1,176.0	335.7	143.8	83.6	276.6	240.3	138.2
2019	180.5	174.6	1,166.0	507.4	1,742.0	3,094.0	932.8	262.3	238.1	354.7	320.8	274.1
2020	269.2	285.1	1,099.0	485.0	949.8	468.1	104.2	27.4	52.7	133.0	197.7	171.2
2021	182.0	193.3	354.5	295.4	592.2	378.7	77.9	48.6	15.5	128.3	204.3	109.6
2022	127.6	176.4	245.5	283.9	425.2	1,386.0	166.0	63.1	86.2	159.5	147.0	161.8
2023	198.6	188.4	642.5	735.2	1,255.0	3,202.0	1,548.0	399.9	448.9	775.0	431.2	210.4
2024	205.2	315.9	326.7	433.3	985.2	1,148.0	171.7	58.8				
Mean of monthly discharge	159.0	274.0	592.0	495.0	1,080.0	1,390.0	453.0	163.0	137.0	232.0	228.0	164.0
Median of mean monthly discharge	**150.8**	**209.3**	**509.8**	**450.1**	**916.6**	**1,148.0**	**292.4**	**110.8**	**97.8**	**200.4**	**225.9**	**154.8**
No. Days/Mo.	31.0	28.0	31.0	30.0	31.0	30.0	31.0	31.0	30.0	31.0	30.0	31.0
Median Volume	**9,256.1**	**11,603.6**	**31,291.5**	**26,735.9**	**56,260.9**	**68,191.2**	**17,947.5**	**6,800.9**	**5,809.3**	**12,300.6**	**13,418.5**	**9,501.6**

Median volume calculated as median of mean monthly flow times 1.98 and times the number of days in the month.

PREAPPLICATION MEETING FORM
PERMIT
§ 85-2-302
Form No. 600P *(Revised 4/2024)*

For Department Use Only

Application # 30164864 Basin 42J
Meeting Date 11/15/202 Time 9:00A AM/PM
Completed Form Deadline 5/14/2025

RECEIVED
NOV 15, 2024
DNRC - WRD - BILLINGS

Completed Form Received 11/15/2024
Fee Rec'd $ 500 Check # 1144
Deposit Receipt # BLS2507455
Payor Matthew Stiegelmeier
Refund $ _____ Date _____

PREAPPLICATION MEETING FEE
$ 500

FILING FEE REDUCTION & EXPEDITED TIMELINE
An application will be eligible for a filing fee reduction and expedited timelines if the applicant completes a preapplication meeting with the Department (ARM 36.12.1302(1)), which includes submitting any follow-up information identified by the Department (ARM 36.12.1302(3)(c)) and receiving either Department-completed technical analyses or Department review of applicant-submitted technical analyses (ARM 36.12.1302(4) and (5)). An application for the proposed project also must be submitted within 180 days of delivery of Department technical analyses or scientific credibility review and no element on the submitted application can be changed from the completed preapplication meeting form (ARM 36.12.1302(6)).

The Department will fill out Form No. 600P and will identify follow-up during the preapplication meeting. The Department and Applicant will sign the Preapplication Meeting Affidavit and Certification within five business days. Within 180 days of the preapplication meeting, the Applicant will complete identified follow-up on a separate document with the question numbers clearly labeled.

Applicant Information: *Add more as necessary.*

Applicant Name Matthew Stiegelmeier (340685) Danielle Stiegelmeier (340686)
Mailing Address 44 Bliss Rd City Otter State MT Zip 59062
Phone Numbers: Home 406-784-2484 Work _____ Cell 605-845-4864
Email Address dachicken45@hotmail.com

Applicant Name _____
Mailing Address _____ City _____ State _____ Zip _____
Phone Numbers: Home _____ Work _____ Cell _____
Email Address _____

Contact/Representative Information: *Add more as necessary.*

Contact/Representative is: ☑ Applicant ☐ Consultant ☐ Attorney ☐ Other (describe) _____
Contact/Representative Name _____
Mailing Address _____ City _____ State _____ Zip _____
Phone Numbers: Home _____ Work _____ Cell _____
Email Address _____

NOTE: *If a contact person is identified as an attorney, all communication will be sent only to the attorney unless the attorney provides written instruction to the contrary. If a contact person is identified as a consultant, employee, or lessee, the individual filing the water right form or objection form will receive all correspondence and a copy may be sent to the contact person.*

Meeting Attendees: *Add more as necessary.*

Name	Organization	Position
Matthew Stiegelmeier	Applicant	
Mark Elison	DNRC	Regional Manager
Veronica Corbett	DNRC	Water Resource Specialist
Cassey Strebeck	DNRC	Water Resource Specialist

Table of Contents

Application Details

The following questions are mandatory and must be filled out before the Preapplication Meeting Form is determined to be complete. Narrative responses that are larger than the space provided can be answered in an attachment. If an attachment is used, mark the see attachment ("A") checkbox on this form and label the attachment with the question number. Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Label units in narrative responses. Responses in the form of a table may be entered into the table provided on this form or in an attachment. Responses in the form of a table that are larger than the table provided on this form should be placed in an attachment. If an attachment is used, the table must have the exact headings found on this form, and the see attachment ("A") checkbox must be marked. For tables in this form, circle correct unit at header of column when faced with a choice of units. For tables in attachments, label all units. Questions that require Applicant to submit items to the Department have a submitted ("S") checkbox, which is marked when the required item is attached to the Preapplication Meeting Form. Label all submitted items with the question number for which they were submitted. For all questions where follow-up is necessary, mark the "F" checkbox in the "Follow-Up" column and write the question number on the "Follow-Up Page".

Questions, Narrative Responses, and Tables	Check-boxes	Follow-Up
1. Do you elect to have DNRC conduct Technical Analyses?	■ Y ☐ N	☐ F
2. Provide a map created on an aerial photograph or topographic map that shows the following: section corners, township and range, a north arrow, all proposed points of diversion labeled with a unique POD ID number, all proposed places of use, all proposed conveyance structures, all proposed places of storage, and places of use for all overlapping water rights.	☐ S	☐ F
3. Is the project located in a Controlled Groundwater Area or Basin Closure Area? If yes, immediately go to Project-Specific Questions 47 to 52 because Form 600 may be the incorrect form, or this project may not meet the requirements for the Department to accept a Form 600.	☐ Y ■ N	☐ F
4. Is the proposed use temporary?	☐ Y ■ N	☐ F
a. If yes, when will the appropriation cease? _____	☐ A	☐ F
5. Describe the proposed purpose information, including period of diversion (MM/DD-MM/DD), period of use (MM/DD-MM/DD), flow rate (GPM or CFS) and volume (AF).	☐ A	☐ F

Purpose	Period of Diversion	Period of Use	Flow Rate			Volume
	(MM/DD-MM/DD)	*(MM/DD-MM/DD)*	*Flow Rate*	*GPM*	*CFS*	*(AF)*
Irrigation	01/01-12/31	01/01-12/31	35.6	☐	✔	928
				☐	☐	
				☐	☐	
				☐	☐	
		Total	35.6	☐	✔	928

6. Describe the proposed location of the point(s) diversion to the nearest 10 acres, if source is groundwater (GW) or surface water (SW), source name, and means of diversion (e.g., pump, headgate, well). Label each POD with the POD ID number used for the project map (question 2).

☐ A ☐ F

POD #	¼	¼	¼	Sec	Twp	Rge	County	Lot	Block	Tract	Subdivision	Gov Lot	SW or GW	Source Name	Means
1				36	9S	47E	Powder River				Trans	8,6,3	SW	Powder River	Pump
2				25	9S	47E	Powder River				Trans	4	SW	Powder River	Pump

7. What are the geocodes of the place of use?

☐ A ☐ F

09-0216-36-1-03-01-0000	
09-0216-25-2-03-01-0000	
09-0216-26-4-04-04-0000	

8. Describe the legal land description for the proposed place of use and, if an irrigation or lawn and garden purpose, list the number of irrigated acres.

■ A ☐ F

Acres	Gov't Lot	Block	¼	¼	¼	Sec	Twp	Rge	County
232	***Total***								

9. Will other water right(s) supplement or overlap the place of use to contribute to the purpose(s)?

☐ Y ■ N ☐ F

a. If yes, summarize how the water rights will be operated as a whole to serve the purpose(s).

_____

_____

_____

☐ A ☐ F

42J 30164864 - STIEGELMEIER

PLACE OF USE ATTACHMENT, QUESTION 8

Acres	Gov't Lot	Block	¼	¼	¼	Section	Township	Range	County
20	7					36	9S	47E	Powder River
30	8					36	9S	47E	Powder River
25	6					36	9S	47E	Powder River
24	3					36	9S	47E	Powder River
35				SW	NE	36	9S	47E	Powder River
5				SE	NW	36	9S	47E	Powder River
30				NE	SW	36	9S	47E	Powder River
43	4					25	9S	47E	Powder River
18				SE	NW	25	9S	47E	Powder River
2	3					26	9S	47E	Powder River
TOTAL: 232									

10. For each supplemental or overlapping water right, please list the water right number, purpose, typical period of diversion and use (MM/DD-MM/DD), flow rate (GPM or CFS), and the volume of water (AF) contributed.	☐ A	☐ F

Water Right No.	Avg. Period of Diversion (MM/DD-MM/DD)	Avg. Period of Use (MM/DD-MM/DD)	Flow Rate (GPM or CFS)	Volume Contributed (AF)

11. Will this application supplement contract water from a Federal Project, ditch company, or other source?	☐ Y ■ N	☐ F
a. If yes, explain. _____ _____	☐ A	☐ F
12. Does the project involve one or more place(s) of storage with a capacity of greater than 0.1 acre-feet? This does not include storage tanks and cisterns. If yes, answer questions 53 to 61 for place of storage.	☐ Y ■ N	☐ F
13. Does the project involve one or more conveyance ditches? If yes, answer questions 62 to 64 for ditch-specific questions.	☐ Y ■ N	☐ F
14. Does the project involve an appropriation that is greater than 5.5 CFS and 4,000 AF? If yes, you must submit a Criteria Addendum Application for Beneficial Water Use Permit for Appropriations Greater than 5.5 CFS and 4,000 AC-FT (Form 600-B) with application submittal. The criteria are found in §85-2-311(3), MCA.	☐ Y ■ N	☐ F
15. Will you be transporting water for use outside of Montana? If yes, you will need submit an Out-of-State Use Addendum (Form 600/606-OSA) with the application. The out-of-state use criteria are outlined in §85-2-402(6), MCA.	☐ Y ■ N	☐ F
16. Does the project include the water marketing purpose? If yes, answer questions 65 to 71 for water marketing. A Water Marketing Purpose Addendum (Form 600/606-WMA) will be required with application submittal.	☐ Y ■ N	☐ F
17. Is the project located in designated sage grouse habitat? If yes, you must have a consultation with and review of your project by the Montana Sage Grouse Habitat Conservation Program. The review letter will be required at application submittal.	☐ Y ■ N	☐ F

Surface Water

■ **Applicable**, move on to question 18. ☐ **Not Applicable**, skip to question 29.

The following questions are mandatory for surface water permit applications and must be filled out before the Preapplication Meeting Form is determined to be complete.

Surface Water: Physical Availability

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-Up**
18. What is the flow rate (GPM or CFS), volume (AF), period of diversion start date and end date (MM/DD-MM/DD), and source type (e.g., perennial, ephemeral) at each point of diversion? Use the same POD # as the project map (question 2) to label each point of diversion.	☐ A	☐ F

POD #	Flow Rate (GPM or CFS)	Volume (AF)	Period Start (MM/DD)	Period End (MM/DD)	Source Type
1	35.6 CFS	676	01/01	12/31	Perennial
2	35.6 CFS	252	01/01	12/31	Perennial

19. What is the source type of the surface water diversion? Perennial	☐ A	☐ F

Perennial or intermittent	Answer question 20	**Ephemeral**	Answer questions 22 to 24	**Lakes**	Answer question 25	**Other**	Answer question 26

Surface Water: Physical Availability: Perennial or Intermittent

■ Applicable ☐ Not Applicable

20. Is stream gage data available?	■ Y ☐ N	☐ F
a. If yes, answer the following questions related to the number of stream gages that are available.		
i. One stream gage is available		
1. What is the gage name? USGS (06324500) Powder River @ Moorhead MT		☐ F

	2. Who operates and maintains the gage? USGS		☐ F
	3. Is the stream gage upstream or downstream of point(s) of diversion? Downstream		☐ F
	4. Is there a limiting or controlling factor that would make the Drainage Area Method not practical? This includes dams that control the flow and streams with large gaining and/or losing reaches. If you have questions about this, please contact the Regional Hydro-Specialist or the Water Sciences Bureau.	☐ Y ■ N	☐ F
	5. Is the period of record greater than or equal to 10 years?	■ Y ☐ N	☐ F
	6. How frequently is stage data recorded? Daily		☐ F
	7. If data gaps were to occur, are they identified and left unfilled or estimated using interpolation, ice correction, or indirect discharge measurements methods?	■ Y ☐ N	☐ F
	8. Was the rating curve established and maintained throughout the duration of the period of record using measurements taken near the reference gage and stage recorder according to USGS protocols?	■ Y ☐ N	☐ F
	9. Were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	■ Y ☐ N	☐ F
	10. Does the gage data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	■ Y ☐ N	☐ F
	a. If yes, this section is complete. Skip to question 27.		
	b. If no, answer question 20.b.		
ii. More than one stream gage is available			
	1. List the gage names. _____		☐ F
	2. Who operates and maintains the gages? _____		☐ F
	3. Is one stream gage upstream and one downstream of point(s) of diversion?	☐ Y ☐ N	☐ F
	4. Do the stream gages have similar periods of record?	☐ Y ☐ N	☐ F
	5. Are the periods of record each greater than or equal to 10 years?	☐ Y ☐ N	☐ F

6. How frequently is stage data recorded at each gage? _____		☐ F
7. For each gage, if data gaps were to occur, are they identified and left unfilled or estimated using interpolation, ice correction, or indirect discharge measurements methods?	☐ Y ☐ N	☐ F
8. Were the rating curves established and maintained throughout the duration of the period of record using measurements taken near the reference gages and stage recorders according to USGS protocols?	☐ Y ☐ N	☐ F
9. For each gage, were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
10. Does the gage data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	☐ Y ☐ N	☐ F
a. If yes, this section is complete. Skip to question 27.		
b. If no, answer question 20.b.		
b. If no gage data is available or if available gage data does not meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion, is the source otherwise measured?	☐ Y ☐ N	☐ F
i. If yes,		
1. Submit available measurements to the Department.	☐ S	☐ F
2. Who collected the measurements? _____	☐ A	☐ F
3. With what method was the data collected? _____ _____	☐ A	☐ F
4. What is the period of record? _____		☐ F
5. What is the frequency of measurement? _____		☐ F
6. Are there gaps in the data?	☐ Y ☐ N	☐ F

a. If yes, what is the nature of the gaps and how are gaps handled to ensure data quality? _____ _____ _____	☐ A	☐ F
7. Is there a process for maintaining the data and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
a. If yes, explain. _____ _____ _____	☐ A	☐ F
8. Does available measurement data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	☐ Y ☐ N	☐ F
a. If yes, this section is complete. Skip to question 27.		
b. If no, answer question 21.		
21. Does the available measurement data, gage and/or otherwise measured, meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a department-accepted estimation technique?	☐ Y ☐ N	☐ F
a. If yes, describe the estimation technique. _____ _____ _____ _____ _____	☐ A	☐ F
b. If no,		
i. Will measurements be collected prior to submission of a completed Form No. 600P that meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a department-accepted estimation technique?	☐ Y ☐ N	☐ F
1. If yes,		
a. With what method will the data be collected? _____ _____ _____	☐ A	☐ F

b. What will be the interval of measurement? _____		☐ F
c. Describe the proposed estimation technique. _____ _____ _____ _____	☐ A	☐ F
2. If no,		
a. Describe your plan to comply with the requirements of ARM 36.12.1702(1). _____ _____ _____	☐ A	☐ F
b. Do you plan on requesting a variance from measurement requirements pursuant to ARM 36.12.1702(1)(b)?	☐ Y ☐ N	☐ F

Surface Water: Physical Availability: Ephemeral

☐ Applicable ■ Not Applicable

22. If you will conduct Technical Analyses, what is your plan to calculate mean annual runoff? If DNRC will conduct Technical Analyses, write N/A. _____ _____	☐ A	☐ F
23. Where do you plan to obtain climate and drainage area data? _____ _____	☐ A	☐ F
24. Where is the downstream point of diversion, which will be used to delineate the drainage basin? _____	☐ A	☐ F

Surface Water: Physical Availability: Lakes

☐ Applicable ■ Not Applicable

25. Do you have a design plan?	☐ Y ☐ N	☐ F
a. If yes, provide the design plans to DNRC	☐ S	☐ F
b. If no, has the lake volume been quantified by a qualified entity based on bathymetric data?	☐ Y ☐ N	☐ F
i. If yes, provide this information to DNRC.	☐ S	☐ F
ii. If no, answer the following questions,		
1. When do you plan to collect this information? _____		☐ F
2. With what method will it be collected? _____ _____	☐ A	☐ F

Surface Water: Physical Availability: Other

☐ Applicable ■ Not Applicable

26. Have you measured the source?	☐ Y ☐ N	☐ F
a. If yes, answer the following questions,		
i. With what method was the data collected? _____ _____	☐ A	☐ F
ii. What is the measurement interval? _____		☐ F
1. Does the interval meet the requirements of 36.12.1702(4)?	☐ Y ☐ N	☐ F
b. If no or if the measurement interval does not meet the requirements of 36.12.1702(4)		
i. When do you plan to measure? _____		☐ F
ii. With what method will the measurements be collected? _____ _____ _____	☐ A	☐ F

Surface Water: Identification of Legal Demands in Area of Potential Impact

27. If you are conducting Technical Analysis, how will the Area of Potential Impact be defined? If Department is conducting Technical Analyses, write N/A. N/A	☐ A	☐ F

Surface Water: Basin Closure Area

28. Is the project located in a Basin Closure Area? If yes, explain how the project meets a closure exception. More information about basin closures online at: https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas. Answer the follow-up questions for specific Basin Closure Areas in the "Project-Specific Questions: Controlled Groundwater Areas and Basin Closures" section (questions 51 to 52). Powder River - no groundwater component, not drilling for coal bed methane	☐ Y ■ N	☐ F

Groundwater

☐ **Applicable**, move on to question 29. ☒ **Not Applicable**, skip to question 47.

The following questions are mandatory for groundwater permit applications and must be filled out before the Preapplication Meeting Form is determined to be complete.

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-Up**

Groundwater: Physical Availability

29. What is the type of groundwater diversion? _____					☐ A	☐ F
Well/Pit	Answer questions 30 to 32	**Developed Spring**	Answer question 33	**Pond**	Answer questions 34 to 38	

Groundwater: Physical Availability: Well/Pit

☐ Applicable ☐ Not Applicable

30. Provide the Aquifer Testing Addendum (Form 600-ATA). This form will be required before the Preapplication Meeting Form is deemed complete.	☐ S	☐ F
31. Have you submitted a completed Form 633 to DNRC for review?	☐ Y ☐ N	☐ F
a. If no, submit Form 633 to DNRC for review. Form 633 is required by the time the Preapplication Meeting Form is deemed complete.	☐ S	☐ F
b. If yes, did the Department identify deficiencies?	☐ Y ☐ N	☐ F
i. If yes, are variances from ARM 36.12.121 needed?	☐ Y ☐ N	☐ F
1. If yes,		
a. Do you have data for aquifer characteristics?	☐ Y ☐ N	☐ F
i. If yes, provide the data to the Department.	☐ S	☐ F
b. Have you submitted Form 653 to the Department?	☐ Y ☐ N	☐ F
i. If yes, was the variance granted?	☐ Y ☐ N	☐ F
32. Do you have a map with the location of each well/pit labeled and, if available, with the GWIC ID?	☐ Y ☐ N	☐ F
a. If no, have all the wells/pits been constructed?	☐ Y ☐ N	☐ F

i. If yes, provide a map with the wells/pits labeled and, if available, with the GWIC ID. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F
ii. If no, answer the following questions,		
1. When will the wells/pits be constructed? _____		☐ F
2. Do you have an initial map with the proposed location of wells/pits?	☐ Y ☐ N	☐ F
a. If yes, provide an initial map to the Department. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F
3. Is the requested volume for each new well/pit known?	☐ Y ☐ N	☐ F
a. If no, what is the total requested volume (AF) and the number of new PODs? _____		☐ F

Groundwater: Physical Availability: Developed Spring

☐ Applicable ☐ Not Applicable

33. Have you measured the source?	☐ Y ☐ N	☐ F
a. If yes, answer the following questions,		
i. Do you have flow rate (GPM or CFS) and volume measurements?	☐ Y ☐ N	☐ F
ii. With what method were measurements collected? _____ _____	☐ A	☐ F
iii. What is the interval of measurements? _____		☐ F
iv. Is the interval of measurements sufficient to comply with ARM 36.12.1703(1)?	☐ Y ☐ N	☐ F
b. If no, or if measurements do not comply with ARM 36.12.1703(1),		
i. When do you plan to measure? _____		☐ F

ii. With what method and at what interval will measurements be collected? _____ _____	☐ A	☐ F

Groundwater: Physical Availability: Ponds

☐ Applicable ☐ Not Applicable

34. Have you submitted Form 653 to apply for a variance from ARM 36.12.121 for the Aquifer Test?	☐ Y ☐ N	☐ F
a. If yes, did the Department approve the variance request?	☐ Y ☐ N	☐ F
35. Have you submitted measurements to the Department? If yes, describe. _____	☐ Y ☐ N	☐ F
36. Submit pond bathymetry data, survey, or engineering plans to the Department.	☐ S	☐ F
37. Please submit a map identifying the location of the proposed pond to the Department. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F
38. If you are conducting Technical Analyses, what is your plan to determine depth, surface area, and net evaporation of the pond? If DNRC is conducting Technical Analyses, write N/A. _____ _____ _____	☐ A	☐ F

Groundwater: Identification of Groundwater Legal Demands

All information to calculated Zone of Influence was collected in previous questions.

Groundwater: Adverse Effect to Existing Groundwater Rights

All information to calculate One-Foot Drawdown Contour was collected in previous questions.

Groundwater: Physical Availability of Depleted Surface Water Source(s)

39. What are the hydraulically connected surface water source(s)? _____		☐ F
40. For each hydraulically connected surface water source, is gage data available?	☐ Y ☐ N	☐ F
a. If yes, answer the following questions for the number of stream gages that are available.		

i. One stream gage is available		
1. What is the gage name? _____		☐ F
2. Who operates and maintains the gage? _____		☐ F
3. Is the stream gage upstream or downstream of point(s) of diversion? _____		☐ F
4. Is there a limiting or controlling factor that would make the Drainage Area Method not practical? This includes dams that control the flow and streams with large gaining and/or losing reaches. If you have questions about this, please contact the Regional Hydro-Specialist or the Water Sciences Bureau.	☐ Y ☐ N	☐ F
5. Is the period of record greater than or equal to 10 years?	☐ Y ☐ N	☐ F
6. How frequently is stage data recorded? _____		☐ F
7. If data gaps were to occur, are they identified and left unfilled or estimated using interpolation, ice correction, or indirect discharge measurements methods?	☐ Y ☐ N	☐ F
8. Was the rating curve established and maintained throughout the duration of the period of record using measurements taken near the reference gage and stage recorder according to USGS protocols?	☐ Y ☐ N	☐ F
9. Were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
10. Does the gage data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	☐ Y ☐ N	☐ F
a. If yes, this section is complete. Skip to question 42.		
b. If no, answer question 40.b.		
ii. More than one stream gage is available		
1. List the gage names. _____		☐ F
2. Who operates and maintains the gages? _____		☐ F
3. Is one stream gage upstream and one downstream of point(s) of diversion?	☐ Y ☐ N	☐ F

4. Do the stream gages have similar periods of record?	☐ Y ☐ N	☐ F
5. Are the periods of record each greater than or equal to 10 years?	☐ Y ☐ N	☐ F
6. How frequently is stage data recorded at each gage? _____		☐ F
7. For each gage, if data gaps were to occur, are they identified and left unfilled or estimated using interpolation, ice correction, or indirect discharge measurements methods?	☐ Y ☐ N	☐ F
8. Were the rating curves established and maintained throughout the duration of the period of record using measurements taken near the reference gages and stage recorders according to USGS protocols?	☐ Y ☐ N	☐ F
9. For each gage, were there requirements for maintaining a permanent gage datum and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
10. Does the gage data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	☐ Y ☐ N	☐ F
a. If yes, this section is complete. Skip to question 42.		
b. If no, answer question 40.b.		
b. If no gage data is available or if available gage data does not meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion, is the source otherwise measured?	☐ Y ☐ N	☐ F
i. If yes,		
1. Submit measurements to the Department.	☐ S	☐ F
2. Who collected the measurements? _____	☐ A	☐ F
3. With what method was the data collected? _____ _____	☐ A	☐ F
4. What is the period of record? _____		☐ F
5. What is the frequency of measurement? _____		☐ F
6. Are there gaps in the data?	☐ Y ☐ N	☐ F

a. If yes, what is the nature of the gaps and how are gaps handled to ensure data quality _____ _____ _____ _____	☐ A	☐ F
7. Is there a process for maintaining the data and meeting specified accuracy limits?	☐ Y ☐ N	☐ F
a. If yes, explain. _____ _____ _____ _____	☐ A	☐ F
8. Does available measurement data meet the Department's standard to be sufficient to calculate the median of the mean monthly flow rate and volume during the proposed months of diversion?	☐ Y ☐ N	☐ F
a. If yes, this section is complete. Skip to question 42.		
b. If no, answer question 41.		
41. For each hydraulically connected surface water source, does the available measurement data, gage and/or otherwise measured, meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a department-accepted estimation technique?	☐ Y ☐ N	☐ F
a. If yes, describe the estimation technique. _____ _____ _____	☐ A	☐ F
b. If no,		
i. Will measurements be collected prior to submission of a completed Form No. 600P that meet the Department's standard of including a minimum of high, moderate, and low flows to be sufficient to use for calibration of a department-accepted estimation technique?	☐ Y ☐ N	☐ F
1. If yes,		
a. With what method will the data be collected? _____ _____ _____	☐ A	☐ F

b. What will be the interval of measurement? _____		☐ F
c. Describe the proposed estimation technique. _____ _____ _____ _____	☐ A	☐ F
2. If no, describe your plan to comply with the measurement requirements for hydraulically connected surface water sources. _____ _____ _____	☐ A	☐ F

Groundwater: Legal Availability of Depleted Surface Water Source(s)

All information to determine legal demands for depleted surface water source(s) was collected in previous questions.

Groundwater: Adequacy of Diversion

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-Up**
42. What is the flow rate (GPM or CFS), volume (AF), and period of diversion required (MM/DD-MM/DD) at each groundwater point of diversion? If the POD is a well, provide the well depth (FT), if available, or estimated well depth (FT). Please use the same POD # as the project map (question 2) to match this information with the location information.	☐ A	☐ F

POD #	Flow Rate (GPM or CFS)	Volume (AF)	Period of Diversion (MM/DD-MM/DD)	Well Depth (FT)	Measured or Estimated

43. Will the monthly pumping schedule differ from an allocation of diverted volume by the number of days in the month for year-round uses or the IWR 80% net irrigation requirements for irrigation/lawn & garden uses (IWR, NRCS 2003)?	☐ Y ☐ N	☐ F

a. If yes, provide the alternative pumping schedule in the table below. Use the same POD # as the project map (question 2).	☐ A	☐ F

Month	POD #	Volume (AF)	Month	POD #	Volume (AF)
January			**July**		
February			**August**		
March			**September**		
April			**October**		
May			**November**		
June			**December**		

Groundwater: Basin Closure Area

44. Are the point(s) of diversion located in a basin closure area? If yes, fill out questions 45 to 46.	☐ Y ☐ N	☐ F
45. Did you elect in question 1 for the Department to conduct Technical Analysis?	☐ Y ☐ N	☐ F
a. If yes, the Basin Closure Area Addendum (Form 600-BCA), Hydrogeologic Report Addendum (Form 600-HRA), and Hydrogeologic Report are not required at this time. The Department's Technical Analyses will meet requirements of §85-2-360 for Form 600-HRA. Form 600-BCA will be required with application submittal.		
b. If no, submit the Basin Closure Area Addendum (Form 600-BCA), Hydrogeologic Report Addendum (600-HRA), and Hydrogeologic Report with your Technical Analysis.	☐ S	☐ F
46. If the Hydrogeologic Report indicates that the proposed groundwater use will impact a surface water source, which of the following three options best describe your plan to mitigate depletions of hydraulically connected surface water? A separate Preapplication Meeting will be required for each application to change a water right to a mitigation or aquifer recharge purpose to maintain expedited timelines and reduced filing fees for the project.		
a. Application to Change a Water Right to mitigate the adverse effects created.	☐ Y ☐ N	☐ F
b. Alternative mitigation plan.	☐ Y ☐ N	☐ F
c. Documentation to show a mitigation plan is not required.	☐ Y ☐ N	☐ F

Project-Specific Questions

The following questions are mandatory when applicable and must be filled out before the Preapplication Meeting Form is determined to be complete.

Questions, Narrative Responses, and Tables	**Check-boxes**	**Follow-Up**
Project-Specific Questions: Controlled Groundwater Areas and Basin Closures		
47. Is the project located in the East Valley Controlled Groundwater Area?	☐ Y ■ N	☐ F
a. If yes,		
i. Do you have written approval from (1) Lewis and Clark County Board of Health, (2) Lewis and Clark County Water Quality Protection Bureau, (3) the U.S. Environmental Protection Agency, (4) the Montana State Dept. of Environmental Quality and (5) the Montana State Dept. of Natural Resources and Conservation? If the agencies have established a Technical Advisory Group, prior approval by the Technical Advisory Group satisfies this requirement.	☐ Y ☐ N	☐ F
ii. Is the project in Zone 2?	☐ Y ☐ N	☐ F
i. If yes, provide in the written approval the following recommendations which will also be included as conditions on the appropriation. a. Well design and construction requirements necessary to measure the water level and water quality for any well; b. Water level measurement and water quality sample reporting requirements for any new well; c. Any other requirements necessary to ensure new wells can be operated in a manner consistent with purpose of the EVCGWA.	☐ S	☐ F
iii. Is the project in Zone 1? If yes, a Form 600 cannot be accepted by the Department.	☐ Y ☐ N	☐ F
48. Is the project located in the South Pine Controlled Groundwater Area?	☐ Y ■ N	☐ F
a. If yes, have you completed an Application for Beneficial Water Use Permit South Pine Controlled Groundwater Area Addendum? The addendum needs to be completed by application submittal.	☐ Y ☐ N	☐ F
49. Is the project located in the Yellowstone Controlled Groundwater Area?	☐ Y ■ N	☐ F
a. If yes, is the use over 35 GPM or 10 AF per year?	☐ Y ☐ N	☐ F
i. If no, this is the incorrect form. Use instead the Yellowstone Controlled Groundwater Area Permit Application (600-YCGA).		
ii. If yes, answer the remaining parts of question 49. A Yellowstone Controlled Groundwater Area Addendum (600 Y over35) will be required with application submittal.		
1. Does the proposed use require a point of diversion with water temperature of 60 degrees Fahrenheit or more?	☐ Y ☐ N	☐ F
2. What is the ground elevation at the point of diversion? _____		☐ F

3. What is the specific conductance at the point of diversion? _____		☐ F
4. If an application is in a basin tributary to a category 3 or 4 stream (generally in or upstream of YNP), provide a report prepared by a professional qualified in the science of groundwater hydrology, verifying that the appropriation is not hydrologically connected to surface flow that is tributary to the reserved portion of category 3 or 4 streams.	☐ S	☐ F
50. Is the project located in one of the Controlled Groundwater Areas listed on the Department's website (https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas)?	■ Y ☐ N	☐ F
a. If yes, list which one and describe how the proposed project meets the requirements of the Controlled Groundwater Area. An application must meet the specific requirements of the Controlled Groundwater Area to be accepted by the Department. Powder River - not a groundwater application, no coal bed methane extraction proposed	☐ A	☐ F
51. Is the project located in one of the administrative, Department ordered, or legislative closures listed on the Department's website (https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas)?	☐ Y ■ N	☐ F
a. If yes, list which one and describe how the proposed project meet the requirements of the closure. An application must meet the specific requirements of the closure to be accepted by the Department.	☐ A	☐ F
52. Is the project located in one of the compact closures listed on the Department's website (https://dnrc.mt.gov/Water-Resources/Water-Rights/Basin-Closures-Stream-Depletion-Controlled-Ground-Water-Areas)?	☐ Y ■ N	☐ F
a. If yes, list which one and describe how the proposed project meet the requirements of the compact closure. An application must meet the specific requirements of the compact closure to be accepted by the Department.	☐ A	☐ F

Project-Specific Questions: Place of Storage

53. Does the proposal include at least one place of storage? If yes, answer questions 54 to 61 for each individual place of storage (use Additional Place of Storage Sheet for additional places of storage). If no, this section is complete, and you can skip to question 62.	☐ Y ■ N	☐ F
54. Provide a map showing the location of the place of storage. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F
55. Is this application to enlarge an existing reservoir?	☐ Y ☐ N	☐ F
a. If yes, what is the water right number for the existing reservoir? _____		☐ F
56. Is the place of storage located on-stream?	☐ Y ☐ N	☐ F
a. If no, explain the conveyance means to and from the off-stream place of storage and any losses that may occur with that conveyance. _____ _____ _____	☐ A	☐ F
57. What is the capacity of the proposed place of storage or the existing place of storage after it is enlarged? Use bathymetry data, survey, or engineering plans for capacity. Submit the data source used with this form. In lieu of these data sources, use the following equation: *Surface Acres x Maximum Depth (FT) x 0.5 (0.4-0.6 depending on side slope) = Capacity (AF)* _____	☐ A	☐ F
58. Will the place of storage include primary and/or emergency spillways? Preliminary design specifications for primary and emergency spillways must be included with application submittal (ARM 36.12.113).	☐ Y ☐ N	☐ F
59. Will the place of storage be lined?	☐ Y ☐ N	☐ F
60. What is the annual net evaporation of water from the place of storage using the standards in ARM 36.12.116(1)? Gridded net evaporation layer is available from DNRC upon request. _____		☐ F
61. Is the place of storage capacity calculated to be greater than 50 acre-feet?	☐ Y ☐ N	☐ F
a. If yes, have you made an application to the DNRC Water Operations Bureau for a determination of whether the dam or reservoir is a high-hazard dam?	☐ Y ☐ N	☐ F

Project-Specific Questions: Ditch-Specific Questions

62. Does the proposal include at least one conveyance ditch? If yes, answer question 63 and, for each ditch, answer question 64. If no, this section is complete, and you can skip to question 65.	☐ Y ■ N	☐ F

63. Submit a Ditch Map that shows every ditch conveying water for the proposed project. Label the ditch name(s), POD(s), the POU(s), and the ditch measurement locations (requested in question 64.c). The map should be created on an aerial photograph or topographic map with the following: section corners, township and range, and a north arrow.	☐ S	☐ F
64. For each conveyance ditch, answer the following. If there is more than one conveyance ditch, use an Additional Ditch Sheet for each additional conveyance ditch.		
a. What is the ditch name? _____		☐ F
b. What is the distance water will be carried by the conveyance ditch? Only include segments between the POD and start of the POU; do not include segments within the POU. _____ _____	☐ A	☐ F
c. Provide at least one set of ditch measurements, which include width (FT), depth (FT), and slope (%). Discuss ditch characteristics with DNRC to determine the minimum number of ditch measurements. Include the location of each measurement, labeled with the 2-digit measurement ID number, used on the map submitted for question 63.	☐ S	☐ F

ID #	Width (FT)	Depth (FT)	Slope (%)	Date of Measurement

d. What is a reasonable Manning's n value? List the factors used for estimation. If you do not know this value, please work through estimation with the Department. _____ _____	☐ A	☐ F
e. What type of soils compose the proposed conveyance ditch? For lined ditches, write "lined" instead. _____ _____	☐ A	☐ F
f. Are other water rights conveyed by the conveyance ditch?	☐ Y ☐ N	☐ F
i. If yes,		
1. What are the water right numbers? _____ _____	☐ A	☐ F

2. What is the sum of the flow rates (GPM or CFS) for water rights conveyed? _____ _____ _____	☐ A	☐ F
3. Provide a map with your best estimate of where the existing POUs begin for the other water rights conveyed by the conveyance ditch for all POUs between the proposed POD and your proposed POU. Create map on an aerial photograph or topographic map that also includes the following: section corners, township and range, and a north arrow.	☐ S	☐ F

Project-Specific Questions: Water Marketing

65. Does the proposal include water marketing? If yes, please answer the questions in this section (questions 66 to 71). If no, this section is complete, and you can skip to question 72.	☐ Y ■ N	☐ F
66. Identify the flow rate (GPM or CFS) and volume (AF) of water that will be marketed. _____		☐ F
67. Will the marketed water return to the source?	☐ Y ☐ N	☐ F
a. Explain how this determination was made. _____ _____ _____	☐ A	☐ F
68. For what purpose(s) will the marketed water be used? _____ _____	☐ A	☐ F
69. How will you control or limit access to the water? _____ _____	☐ A	☐ F
70. Do you have contracts for the entire volume and flow rate sought?	☐ Y ☐ N	☐ F
71. Provide a service area map. Create map on an aerial photograph or topographic map and shows the following: general service area boundary, section corners, township and range, and a north arrow.	☐ S	☐ F

Non-Mandatory Questions for Criteria Analysis

The following questions are not mandatory. They should be discussed in the Preapplication Meeting, but do not need to be filled out before the Preapplication Meeting Form is determined to be complete.

Adverse Effect

Questions, Narrative Responses, and Tables	Check-boxes
72. Do you have evidence that water is legally available in the proper flow rate, volume, and timing?	☐ Y ■ N
73. If water is not found to be legally available for part or all the proposed period of diversion, what is the plan to address this with the permitting process? Shorten period of diversion and/or flow rate	☐ A
74. Describe your plan to ensure that existing water rights will be satisfied during times of water shortage. Pumps can be shut off if valid call is made	☐ A
75. Explain how you can control your diversion in response to call being made. Pump can be shut off	☐ A
76. Are you aware of any calls that have been made on the source of supply or depleted surface water source?	☐ Y ■ N
a. If yes, explain.	☐ A
77. Does a water commissioner distribute water or oversee water distribution on your proposed source or depleted surface water source?	☐ Y ■ N

Adequate Diversion Means and Operation

78. Provide a diagram of how you will operate your system from the point of diversion to the place of use.	☐ S
79. Describe specific information about the capacity of the diversionary structure(s). This may include, where applicable: pump curves and total dynamic head calculations, headgate design specifications, and dike or dam height and length.	☐ A

80. Is the diversion capable of providing the full amount requested through the period of diversion?	■ Y ☐ N
81. Describe the size and configuration of infrastructure to convey water from point of diversion to place of use. This may include, where applicable: ditch capacity and/or pipeline size and configuration. Pump in river to gated pipe & border ditch	☐ A
82. Describe any losses related to conveyance. None	☐ A
83. Is the conveyance infrastructure capable of providing the required flow and volume and any losses?	■ Y ☐ N
84. Does the proposed conveyance require easements?	☐ Y ■ N
a. If yes, explain.	☐ A
85. Describe any places of storage, including whether drainage devices will be installed, and provide preliminary designs, if available. Preliminary designs will be required at application submittal. N/A	☐ A
86. Describe specific information about how water is delivered within the place of use. This may include, where applicable, the range of flow rates needed for a pivot and output and configuration of sprinkler heads.	☐ A
87. Is the water delivery system capable of providing the requested beneficial use?	■ Y ☐ N
88. Will your system be designed to discharge water from the project?	☐ Y ■ N
a. If yes, explain the way water will be discharged and the wastewater disposal method.	☐ A

89. Provide a plan of operations.	☐ A
90. Can the plan of operations deliver the flow rate and volume for the beneficial use being requested?	■ Y ☐ N
91. Do you have any plans to measure your diversion and use?	☐ Y ■ N
a. If yes, describe the plan and the type of measurements you will take.	☐ A

Beneficial Use

92. Why is the requested flow rate and volume the amount needed for the purpose? Flow rate necessary to move water for flood irrigation, volume per climatic area 2 standard	☐ A
93. Does the Department have a standard for the purposes for which water is used? Department standards can be found in ARM 36.12.112.	■ Y ☐ N
a. If yes, does the proposed beneficial use fall within Department standards?	■ Y ☐ N
94. If no standard, or if proposed beneficial use falls outside of Department standards, explain how the use is reasonable for the purpose.	☐ A
95. Will your proposed project be subject to DEQ requirements for a public water supply (PWS) system or Certificate of Subdivision Approval (COSA)?	☐ Y ■ N
a. If yes,	
i. Have you researched or consulted with DEQ regarding those requirements?	☐ Y ☐ N
96. Are you proposing to use surface water for in-house domestic use?	☐ Y ■ N
a. If yes, does a COSA exist for the proposed place of use?	☐ Y ☐ N
i. If yes, please submit the COSA.	☐ S
ii. If no, have you researched or consulted with DEQ regarding their requirements?	☐ Y ☐ N

Possessory Interest

97. Do you have possessory interest, or the permission of the party with possessory interest, of the proposed place of use? Proof of possessory interest or permission of the party with possessory interest is required at application submittal.	■ Y ☐ N
a. If no, explain. _____ _____ _____	☐ A

PREAPPLICATION MEETING AFFIDAVIT & CERTIFICATION

"We attest that the information on this form accurately describes the proposed project discussed during the preapplication meeting and that the items marked for follow-up will require the applicant to provide additional information before the form is deemed complete."

"Applicant acknowledges that any information provided by the Department during the preapplication is preliminary and subject to change."

"Applicant acknowledges that if the follow-up information provided to the Department substantially changes the proposed project, for example in a way that alters which sections of the form are applicable or which technical analyses are required, or who is to complete the technical analyses, the applicant will need to schedule a new preapplication meeting so that the department can identify any additional information necessary for completion of the technical analyses (ARM 36.12.1302(3)(c))."

Upon Department receipt of the completed form (within 180 days following the meeting), the Department reserves the first five days of the 45-day period in ARM 36.12.1302(4) or (5) to return the form to the applicant if:

1 – the completed form does not include all necessary follow-up information identified in the meeting, OR
2 – the completed form is not adequate for the Department to proceed with technical analyses, OR
3 – the applicant has elected to complete technical analyses and has not submitted each piece of technical analysis required, OR
4 – the applicant has substantially changed the details of the proposed project, such as in a way that alters which sections of the form are applicable, which technical analyses are required, or who is to complete the technical analyses.

If the Department returns the form to the Applicant within these five days due to reasons 1-3 above, the Applicant can use the balance of their 180-day period in ARM 36.12.1302(4) or (5) to gather the remaining follow-up information needed. If there is no time remaining in the 180-day period, the Applicant can submit a written request for a new preapplication meeting, pursuant to ARM 36.12.1302(2). Even if there is still time remaining, the Applicant can choose to schedule a new preapplication meeting. The Department shall transfer the $500 payment received to the new preapplication meeting, or refund the payment to the Applicant if the Applicant desires. If the Department returns the form to the Applicant within these five days due to reason (4) above, the Applicant must submit a written request for a new preapplication meeting, pursuant to ARM 36.12.1302(2). The Department shall transfer the $500 payment received to the new preapplication meeting, or refund the payment to the Applicant if the Applicant desires.

Matt Stringham — 11-15-24
Applicant Signature — Date

Danelle Stringham by MS poa — 11-15-24
Applicant Signature — Date

[signature] — 11/15/2024
Department Signature — Date

FOLLOW-UP PAGE

Applicant will provide all responses to questions marked for follow-up on a separate document entitled "Follow-up Responses" with the question number labeled. Answer questions in the same format as the form. For responses in the form of checkboxes, write "Y", "N", or "S". Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Label units in narrative responses and tables. Tables must have the exact headings found on the form. Questions that require items to be submitted to the Department may be marked "S" when the required item is attached to the Preapplication Meeting Form. Label all submitted items with the question number for which they were submitted. The Applicant may not alter the Preapplication Meeting Form signed at the Preapplication Meeting. Instead, the Applicant must use the Amended Responses procedure defined below. Do not include additional information for questions not marked for follow-up here; instead include any additional information pursuant to the process for amending responses defined below.

Questions marked for follow-up

AMENDED RESPONSES PAGE

The Applicant may not alter the Preapplication Meeting Form signed at the Preapplication Meeting or the Follow-up Page. If a response has changed to a question answered at the preapplication meeting, the Applicant can provide a new response in a separate document entitled "Amended Responses" with the question number labeled. Answer questions in the same format as the form. For responses in the form of checkboxes, write "Y", "N", or "S". Constrain narrative responses to the specific question as is asked on the form; do not respond to multiple questions in one narrative. Label units in narrative responses and tables. Tables must have the exact headings found on the form. Questions that require items to be submitted to the Department may be marked "S" when the required item is attached to the Preapplication Meeting Form. Label all submitted items with the question number for which they were submitted. The Applicant will mark all question numbers with an amended response in the table below and note for each question whether the response will replace the response given at the preapplication meeting or will provide additional information to consider in conjunction with the response given at the preapplication meeting. The Applicant will return the "Amended Responses" document with the "Follow-up Responses" document and the signed Preapplication Meeting Form.

Questions with amended responses

FOLLOW-UP PAGE AFFIDAVIT & CERTIFICATION

"I/we attest that this preapplication meeting form, follow-up page, and amended responses page accurately portray my proposed project. I am aware that my application for this project will not qualify for a discounted filing fee and expedited timelines if upon submittal of the application to the department, I change any element of the proposed application from the preapplication meeting form and follow-up materials (ARM 36.12.1302(6)(a))."

Matthew Stuyvesant 11-15-24

Applicant Signature Date

Danelle Stuyvesant by MS POA 11-15-24

Applicant Signature Date

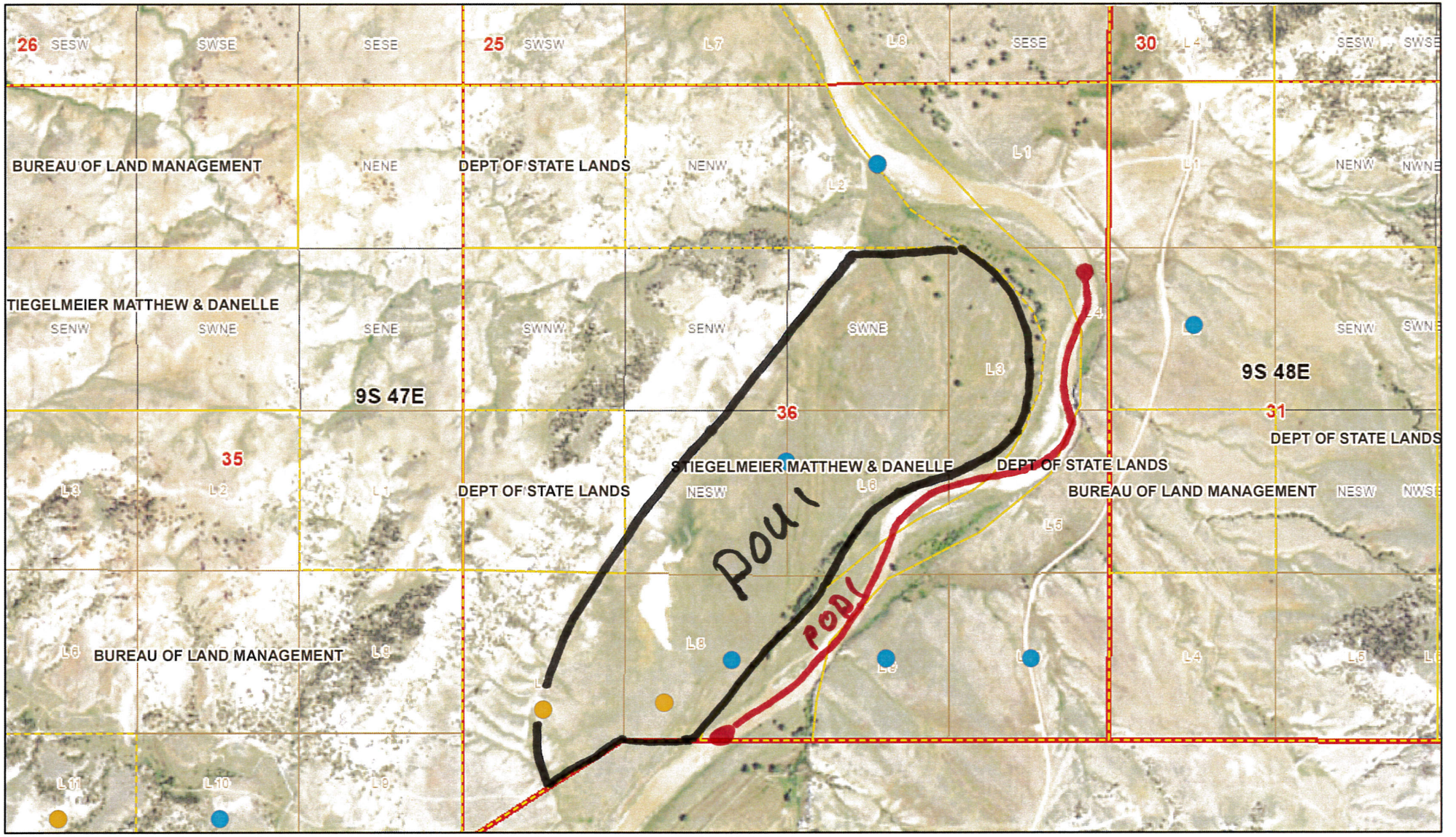
"We confirm that the preapplication form and follow-up information are adequate for the Department to proceed with technical analyses in ARM 36.12.1303. Or, if the applicant has elected to complete technical analyses, we confirm they have submitted each piece of technical analysis required based on the proposed project and the Department is able to proceed with the scientific credibility review (ARM 36.12.1303(8))."

Mark Sher 11/15/2024

Department Signature Date

Department Signature Date

Stiegelmeier Map



11/15/2024, 9:42:30 AM

Active Water Rights (Points of Diversion)
- SURFACE
- GROUNDWATER
- Parcels

PLSS Second Division
- Aliquot Part
- Government Lot

PLSS First Division
- Section

PLSS Township

2021 Aerial Photos
- Red: Band_1
- Green: Band_2
- Blue: Band_3

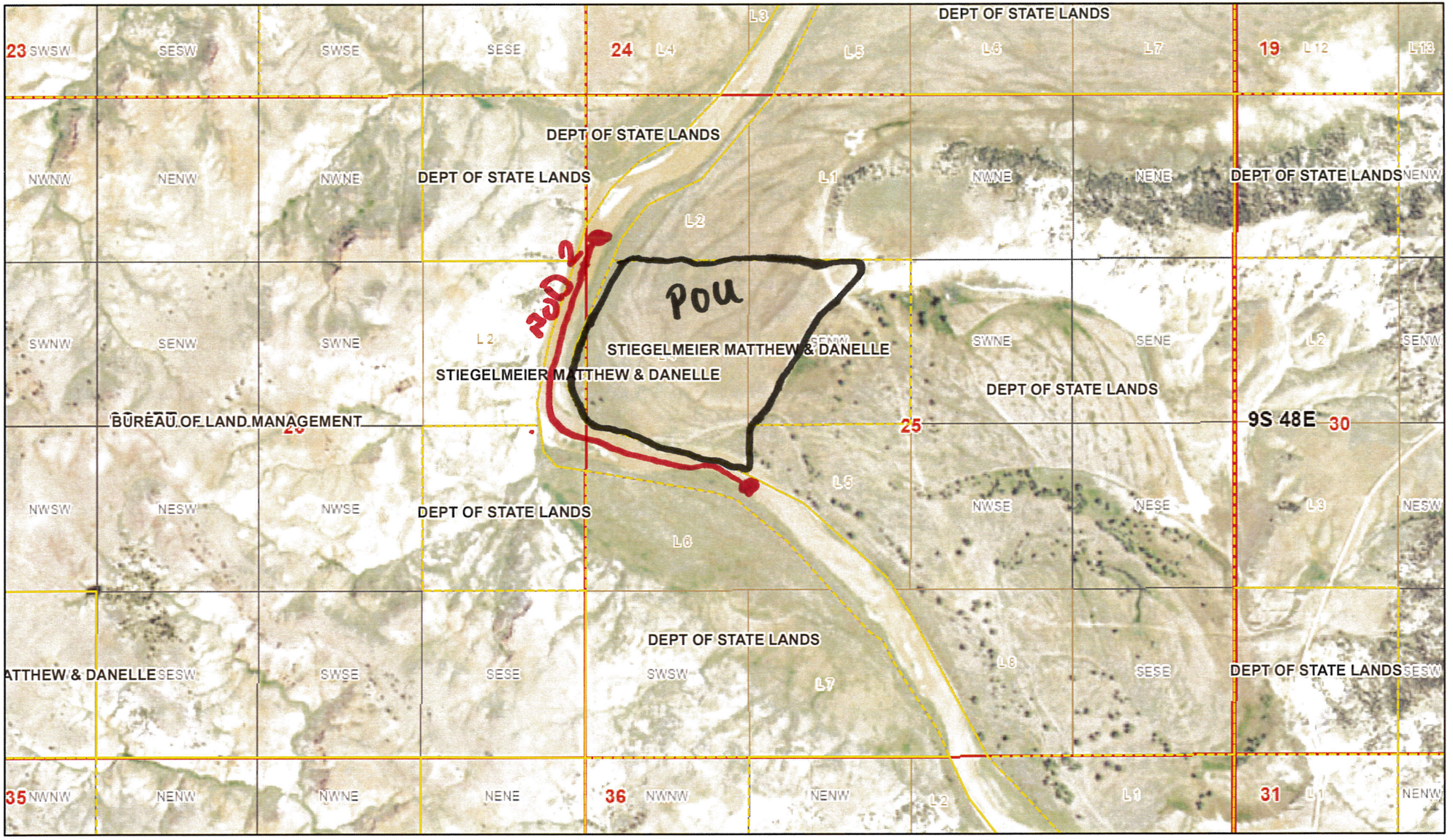
1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

ArcGIS Web AppBuilder

Stiegelmeier Map 2



11/15/2024, 9:47:01 AM

Parcels

Government Lot

PLSS Township

Green: Band_2

PLSS Second Division

PLSS First Division

2021 Aerial Photos

Blue: Band_3

Aliquot Part

Section

Red: Band_1

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

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ArcGIS Web AppBuilder

REQUEST FOR PREAPPLICATION MEETING

ARM 36.12.1302(2)
(Revised 01/2024)

Instructions
Use this optional form to submit a written request for a preapplication meeting, as required in ARM 36.12.1302(2) for applicants electing to complete a preapplication meeting with the department prior to submitting an application for a beneficial water use permit or change in appropriation right pursuant to §85-2-302, MCA. Use additional sheets as necessary.

Submit this form to the appropriate regional office; see contact information on the last page of this form.

For Department Use Only

RECEIVED
SEP 09 2024
DNRC-WRD-BILLINGS

Date Received: September 9, 2024
Received By: SW
Scheduled Meeting Date: _____

1. Applicant Name Matthew Striegelmeier
Mailing Address 4413 135 Rd
City Otter State MT Zip 59062
Home Phone 406-784-2484 Other Phone 605-845-4864
Email: _____

2. Representative Name (if other than Applicant) _____
☐ Representative is Consultant ☐ Representative is Attorney ☐ Representative is Other
Mailing Address _____
City _____ State _____ Zip _____
Home Phone _____ Other Phone _____
Email: _____

3. Are you requesting a preapplication meeting for a permit or change application?
☒ Permit ☐ Change

4. Identify the following elements of the proposed permit or change in appropriation.

a) The flow rate and volume of water required:
Flow Rate 1000 ☒ GPM ☐ CFS Volume 100 Acre-Feet

b) The point of diversion:
Point of Diversion #1 ____1/4 ____1/4 ____1/4 Section 26, Township 9 ☐ N ☒ S, Range 47 ☒ E ☐ W
County Powder River
Lot/Tract 3 Block _____ Subdivision Name _____
Point of Diversion #2 ____1/4 ____1/4 ____1/4 Section 25, Township 9 ☐ N ☒ S, Range 47 ☒ E ☐ W
County Powder River
Lot/Tract 4 Block _____ Subdivision Name _____

c) The place of use:

43	Acres	43	Lot	4	Block	____	1/4 ____	1/4 ____	1/4 Sec	25	Twp	9	☐ N	☒ S	Rge	47	☒ E	☐ W
10	Acres	10	Lot	____	Block	____	1/4 SE	1/4 NW	1/4 Sec	25	Twp	9	☐ N	☒ S	Rge	47	☒ E	☐ W
1	Acres	81	Lot	3	Block	____	1/4 ____	1/4 ____	1/4 Sec	26	Twp	9	☐ N	☒ S	Rge	47	☒ E	☐ W
____	Acres	____	Lot	____	Block	____	1/4 ____	1/4 ____	1/4 Sec	____	Twp	____	☐ N	☐ S	Rge	____	☐ E	☐ W

_____Acres ____ Lot ____ Block_____1/4 _____1/4 _____1/4 Sec ____, Twp ____ ☐ N ☐ S, Rge ____ ☐ E ☐ W

d) The source of water: Powder River

e) The proposed purpose: ~~[illegible]~~ Sprinkler Irrigation

f) For a change in appropriation right, the water right(s) proposed for change:

Type of water right _____ Basin _____ Water Right # _____

Type of water right _____ Basin _____ Water Right # _____

Type of water right _____ Basin _____ Water Right # _____

g) For a change in appropriation right, an explanation of historical use of the right(s) proposed for change:

h) Any proposed place of storage, if applicable (only if storage capacity is greater than 0.1 acre-feet):

#1 Capacity: Surface Acres _____ x Max Depth (feet) _____ x (.4 for dams/.5 for pits) = _____Acre-Feet

Location: ____1/4 ____1/4 ____1/4 Section ___, Township ___ ☐ N ☐ S, Range ___ ☐ E ☐ W

#2 Capacity: Surface Acres _____ x Max Depth (feet) _____ x (.4 for dams/.5 for pits) = _____Acre-Feet

Location: ____1/4 ____1/4 ____1/4 Section ___, Township ___ ☐ N ☐ S, Range ___ ☐ E ☐ W

#3 Capacity: Surface Acres _____ x Max Depth (feet) _____ x (.4 for dams/.5 for pits) = _____Acre-Feet

Location: ____1/4 ____1/4 ____1/4 Section ___, Township ___ ☐ N ☐ S, Range ___ ☐ E ☐ W

i) For applications proposing a new well or wells, the well depth(s) and location:

New Well #1 ____1/4 ____1/4 ____1/4 Section ____, Township _____ ☐ N ☐ S, Range _____ ☐ E ☐ W

County _____

Lot/Tract _____ Block_____ Subdivision Name_____

Estimated Well Depth _____ Feet

New Well #2 ____1/4 ____1/4 ____1/4 Section ____, Township _____ ☐ N ☐ S, Range _____ ☐ E ☐ W

County _____

Lot/Tract _____ Block_____ Subdivision Name_____

Estimated Well Depth _____ Feet

Physically Available Flow Rate at the Uppermost Proposed POD (CFS)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Median of Mean Monthly Discharge	150.8	209.3	509.8	450.1	916.6	1,148.0	292.4	110.8	97.8	200.4	225.9	154.8
Diverted Rights Above the Gage	0.2	0.2	0.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	0.2	0.2
Median of Mean Monthly Discharge Plus Legal Demands Above the Gage and Below the Upper POD	**151.0**	**209.5**	**510.0**	**460.3**	**926.8**	**1,158.2**	**302.6**	**121.0**	**108.0**	**210.6**	**226.1**	**155.0**

Physically Available Volume at the Uppermost Proposed POD (AF)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Median of Mean Monthly Discharge	9,256.1	11,603.6	31,291.5	26,735.9	56,260.9	68,191.2	17,947.5	6,800.9	5,809.3	12,300.6	13,418.5	9,501.6
Diverted Rights Above the Gage	2.15	2.15	2.15	22.15	22.15	22.15	22.15	22.15	22.15	22.15	2.15	2.15
Median of Mean Monthly Discharge Plus Legal Demands Above the Gage and Below the Upper POD	**9,258.3**	**11,605.7**	**31,293.7**	**26,758.1**	**56,283.1**	**68,213.4**	**17,969.7**	**6,823.1**	**5,831.5**	**12,322.7**	**13,420.6**	**9,503.8**

Physical and Legal Availability Comparison at Uppermost Proposed POD by Flow Rate (CFS)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Physically Available at Uppermost Proposed POD	150.98	209.48	509.98	460.28	926.78	1158.18	302.58	120.98	107.98	210.58	226.08	154.98
Legal Demands Below Uppermost Proposed POD	32.08	71.98	29.18	357.18	434.18	194.18	80.18	24.68	19.05	19.61	61.78	61.18
Legally available downstream of uppermost proposed POD	**118.90**	**137.50**	**480.80**	**103.10**	**492.60**	**964.00**	**222.40**	**96.30**	**88.93**	**190.97**	**164.30**	**93.80**

Physical and Legal Availability Comparison at Uppermost Proposed POD by Volume (AF)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Physically Available at Uppermost Proposed POD	9258.254	11605.742	31293.674	26758.09	56283.058	68213.35	17969.662	6823.054	5831.47	12322.702	13420.61	9503.774
Legal Demands Below Uppermost Proposed POD	1,960.17	3,982.74	1,782.17	20,633.95	26,047.27	10,951.75	4,318.75	912.16	549.03	600.96	3,661.19	3,746.33
Legally available downstream of uppermost proposed POD	**7,298.08**	**7,623.00**	**29,511.50**	**6,124.14**	**30,235.79**	**57,261.60**	**13,650.91**	**5,910.89**	**5,282.44**	**11,721.74**	**9,759.42**	**5,757.44**

Comparison of Physical and Legal Availability at the Uppermost Proposed POD

Legal demands between gage and POD by flow rate (CFS)

WR_NUMBER	WR_TYPE	ENF_PRTY_1	OWNERS	PURPOSES	SOURCE_NAM	MEANS_OF_D	GOVT_LOT	TRS_QQQQ	Max Flow CFS	Max Flow GPM	MAX_VOL	MAX_ACRES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	No/Mos.	Vol/Mo.	PERIOD_OF_	AUM_SUM	
42J 2790 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	11	T9S R48E Sec. 19	0.10	46.00	1.50	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	12.00	0.13	01/01 to 12/31	39.00	
42J 2801 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE		T9S R47E Sec. 24	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.13	01/01 to 12/31	57.00	
42J 2808 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	4	T9S R47E Sec. 26	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.13	01/01 to 12/31	13.00	
42J 2810 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	9	T9S R47E Sec. 36	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.13	01/01 to 12/31	55.00	
42J 30017743	WATER RESERVATION	1978/12/15	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	FISHERY	POWDER RIVER	INSTREAM		T9S R47E Sec. 25	424.00		95,201.00	0.00	31.90	71.80	29.00	347.00	424.00	184.00	70.00	14.50	8.87	9.43	61.60	61.00	12.00	7,933.42	01/01 to 12/31	0.00	
42J 30142405	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	7	T9S R48E Sec. 19	0.00	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.10	01/01 to 12/31	36.00	
42J 30142410	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.03	01/01 to 12/31	10.00	
42J 30142414	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	10.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.89	01/01 to 12/31	314.00	
42J 717 00	POWDER RIVER DECLARATION	1883/10/01	DANELLE STIEGELMEIER; MATTHEW STIEGELMEIER	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	8	T9S R47E Sec. 36	0.02	10.00	1.50	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	12.00	0.13	01/01 to 12/31	0.00	
42J 8004 00	POWDER RIVER DECLARATION	1883/10/01	GAY RANCH INC; TWIN HEARTS SMILING HORSES INC; USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 26	0.04	20.00	3.50	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	12.00	0.29	01/01 to 12/31	0.00	
42J 9749 00	POWDER RIVER DECLARATION	1883/10/01	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	10	T9S R48E Sec. 19	0.02	10.00	2.25	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	12.00	0.19	01/01 to 12/31	0.00	
42J 2806 00	POWDER RIVER DECLARATION	1909/07/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	IRRIGATION	POWDER RIVER	FUELED PUMP	1	T9S R47E Sec. 25	10.00		140.00	70.00				10.00	10.00	10.00	10.00	10.00	10.00	10.00			7.00	20.00	04/01 to 10/31	0.00	
												Total Legal Demands ->	32.08	71.98	29.18	357.18	434.18	194.18	80.18	24.68	19.05	19.61	61.78	61.18				524.00	17.8 AF (524 * 0.034 = 17.8)
												Total Diverted ->	0.18	0.18	0.18	10.18	10.18	10.18	10.18	10.18	10.18	10.18	0.18	0.18				0.10	

Legal demands between gage and POD by volume (AF)

WR_NUMBER	WR_TYPE	ENF_PRTY_1	OWNERS	PURPOSES	SOURCE_NAM	MEANS_OF_D	GOVT_LOT	TRS_QQQQ	Max Flow CFS	Max Flow GPM	MAX_VOL	MAX_ACRES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	No/Mos.	Vol/Mo.	PERIOD_OF_	AUM_SUM	
42J 2790 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	11	T9S R48E Sec. 19	0.10	46.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	39.00	
42J 2801 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE		T9S R47E Sec. 24	0.00	0.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	57.00	
42J 2808 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	4	T9S R47E Sec. 26	0.00	0.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	13.00	
42J 2810 00	POWDER RIVER DECLARATION	1883/10/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	9	T9S R47E Sec. 36	0.00	0.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	55.00	
42J 30017743	WATER RESERVATION	1978/12/15	MONTANA, STATE OF DEPT OF FISH WILDLIFE & PARKS	FISHERY	POWDER RIVER	INSTREAM		T9S R47E Sec. 25	424.00		95,201.00	0.00	1,958.02	3,980.59	1,780.02	20,611.80	26,025.12	10,929.60	4,296.60	890.01	526.88	578.81	3,659.04	3,744.18	12.00	7,933.42	01/01 to 12/31	0.00	
42J 30142405	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	7	T9S R48E Sec. 19	0.00	0.00	1.22	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	12.00	0.10	01/01 to 12/31	36.00	
42J 30142410	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	0.34	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	12.00	0.03	01/01 to 12/31	10.00	
42J 30142414	STATEMENT OF CLAIM	1935/04/08	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 36	0.00	0.00	10.68	0.00	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	12.00	0.89	01/01 to 12/31	314.00	
42J 717 00	POWDER RIVER DECLARATION	1883/10/01	DANELLE STIEGELMEIER; MATTHEW STIEGELMEIER	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	8	T9S R47E Sec. 36	0.02	10.00	1.50	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	12.00	0.13	01/01 to 12/31	0.00	
42J 8004 00	POWDER RIVER DECLARATION	1883/10/01	GAY RANCH INC; TWIN HEARTS SMILING HORSES INC; USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	2	T9S R47E Sec. 26	0.04	20.00	3.50	0.00	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	12.00	0.29	01/01 to 12/31	0.00	
42J 9749 00	POWDER RIVER DECLARATION	1883/10/01	USA (DEPT OF INTERIOR BUREAU OF LAND MGMT)	STOCK	POWDER RIVER	LIVESTOCK DIRECT FROM SOURCE	10	T9S R48E Sec. 19	0.02	10.00	2.25	0.00	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	12.00	0.19	01/01 to 12/31	0.00	
42J 2806 00	POWDER RIVER DECLARATION	1909/07/01	MONTANA STATE BOARD OF LAND COMMISSIONERS	IRRIGATION	POWDER RIVER	FUELED PUMP	1	T9S R47E Sec. 25	10.00		140.00	70.00				20.00	20.00	20.00	20.00	20.00	20.00	20.00			7.00	20.00	04/01 to 10/31	0.00	
												Total Legal Demands ->	1,960.17	3,982.74	1,782.17	20,633.95	26,047.27	10,951.75	4,318.75	912.16	549.03	600.96	3,661.19	3,746.33				524.00	17.8 AF (524 * 0.034 = 17.8)
												Total Diverted ->	2.15	2.15	2.15	22.15	22.15	22.15	22.15	22.15	22.15	22.15	2.15	2.15				7.32	
												no. days/ mo	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00					

Legal demands between POD and USGS Gage on Powder River at Moorhead

USGS 06324500 Powder River at Moorhead MT

Powder River County, Montana

Hydrologic Unit Code 10090207

Latitude 45°03'25.91", Longitude 105°52'42.16" NAD83

Drainage area 8,029 square miles

Gage datum 3,350.60 feet above NGVD29

00060, Discharge, cubic feet per second,

Monthly mean in ft3/s (Calculation Period: 1929-10-01 -> 2024-08-31)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1929										318.9	490.9	250.0
1930	200.0	1,200.0	611.8	671.2	738.8	246.5	296.5	569.9	188.7	391.6	241.1	250.0
1931	100.0	150.0	340.0	273.9	1,019.0	533.3	127.5	309.9	69.6	121.8	135.8	100.0
1932	100.0	197.5	537.7	402.3	1,452.0	1,316.0	203.7	6.8	23.1	102.0	163.7	56.2
1933	88.6	20.9	420.5	764.4	2,815.0	2,067.0	51.3	448.5	450.0	179.5	235.9	200.0
1934	250.0	350.0	309.4	405.9	82.6	283.0	209.2	49.7	78.1	148.8	103.8	70.0
1935	82.0	214.8	210.3	217.5	429.6	1,885.0	258.7	101.4	48.5	70.7	80.0	100.0
1936	100.0	300.0	1,526.0	375.9	124.6	575.9	958.7	37.7	16.8	100.0	166.8	89.9
1937	46.4	34.6	649.8	545.8	725.6	1,862.0	2,500.0	83.2	97.8	195.4	205.7	140.4
1938	201.2	224.5	350.0	377.2	1,202.0	1,314.0	1,011.0	72.1	158.3	111.4	200.4	200.1
1939	159.4	95.5	1,166.0	374.0	590.3	1,121.0	101.4	42.2	38.9	98.0	114.1	214.5
1940	124.5	117.2	395.4	450.3	394.5	601.0	215.3	20.2	143.1	700.1	161.0	205.8
1941	166.1	206.8	298.0	1,193.0	2,357.0	852.8	909.5	1,219.0	465.5	471.5	403.2	271.2
1942	104.8	172.5	621.9	784.3	1,435.0	1,002.0	123.4	153.2	42.9	207.5	185.2	200.0
1943	171.9	441.1	1,055.0	1,015.0	1,115.0	2,266.0	497.9	79.4	100.1	99.7	173.7	107.1
1944	76.1	88.1	615.2	954.5	3,051.0	3,984.0	1,131.0	84.6	51.1	143.9	160.7	151.6
1945	119.4	201.8	735.0	643.8	835.4	2,549.0	872.3	359.3	287.9	271.3	290.7	154.8
1946	251.0	478.9	644.8	799.3	939.9	1,573.0	699.1	53.4	311.0	281.8	314.2	225.6
1947	169.5	344.3	2,290.0	649.4	2,307.0	1,622.0	748.0	35.7	75.9	162.9	279.8	255.3
1948	175.2	531.2	1,595.0	570.9	1,197.0	2,059.0	744.9	163.0	129.6	225.0	226.4	188.0
1949	140.0	139.6	1,296.0	611.3	1,120.0	1,467.0	194.0	37.5	52.8	181.5	231.7	73.1
1950	27.2	70.5	397.4	648.9	1,382.0	949.0	188.5	42.4	74.5	240.8	214.1	178.5
1951	147.5	152.9	362.5	266.5	509.8	270.8	292.4	138.1	461.6	256.0	302.0	199.5
1952	96.7	178.6	432.3	801.3	1,813.0	785.6	450.4	137.7	76.6	79.5	133.0	105.0
1953	140.3	199.6	445.7	277.9	412.0	1,448.0	121.7	310.1	13.3	31.2	107.4	136.6
1954	137.1	296.4	291.4	361.2	515.5	39.5	79.4	283.0	4.9	16.1	111.1	106.3
1955	90.6	97.3	568.6	1,112.0	651.7	987.6	206.6	205.4	9.1	41.2	91.2	196.0
1956	150.8	161.0	882.1	401.2	815.7	740.7	182.6	89.7	9.3	19.4	148.0	113.5
1957	91.9	92.9	336.9	264.0	533.0	2,205.0	467.6	79.1	102.8	181.5	241.8	199.7
1958	150.0	188.4	279.0	390.2	1,004.0	704.5	743.5	156.7	25.5	50.7	104.0	139.5
1959	110.8	140.2	845.3	379.3	588.0	722.7	336.2	9.8	19.1	107.4	115.2	172.9
1960	109.0	160.9	744.8	281.2	118.8	159.7	61.3	19.1	1.3	23.1	101.3	81.6
1961	79.7	91.8	308.0	116.7	275.9	133.8	33.9	15.4	49.8	195.8	228.8	99.4
1962	98.4	720.7	518.2	621.8	1,939.0	4,024.0	1,192.0	293.7	231.3	451.9	293.6	269.4
1963	225.2	533.2	337.7	329.9	1,063.0	2,710.0	339.3	29.2	213.8	109.2	200.2	116.6
1964	172.3	173.6	285.5	504.7	817.8	2,734.0	763.5	37.7	52.6	95.1	192.8	191.5
1965	270.3	471.8	790.6	1,313.0	1,071.0	1,766.0	512.7	229.8	169.8	235.6	200.6	154.6
1966	136.3	170.9	509.8	376.4	416.9	124.3	51.6	0.6	122.5	120.6	172.1	125.5
1967	129.4	198.9	377.1	263.1	795.5	4,131.0	1,377.0	110.8	288.3	242.7	270.1	125.8
1968	119.4	371.7	812.8	464.2	916.6	3,024.0	553.4	515.3	497.1	277.1	265.6	153.9
1969	230.0	243.9	803.8	780.5	502.6	400.9	429.8	17.4	14.6	113.5	186.6	190.3
1970	145.5	312.9	460.3	374.7	1,731.0	1,897.0	251.1	20.1	44.6	148.5	205.1	120.6
1971	137.3	691.5	949.3	587.0	1,282.0	2,051.0	172.0	23.0	42.0	248.5	298.4	101.1
1972	100.6	739.8	1,676.0	519.2	876.7	1,174.0	268.0	319.2				
1974										255.5	289.8	170.3
1975	210.0	148.9	561.0	537.6	1,089.0	3,131.0	1,526.0	131.8	49.5	218.6	263.8	236.6
1976	197.4	366.6	524.7	433.1	1,194.0	1,432.0	383.0	189.9	81.5	404.8	242.2	158.5
1977	123.9	209.3	320.1	588.6	1,447.0	526.8	150.0	181.9	95.7	221.7	178.6	150.3
1978	152.3	158.6	1,372.0	405.3	5,553.0	3,178.0	1,083.0	320.3	212.9	271.3	158.2	150.6
1979	132.5	116.7	573.4	521.7	619.6	547.4	309.3	254.5	134.5	194.5	217.0	114.2
1980	115.9	302.1	334.0	321.2	515.3	471.5	229.7	313.9	255.0	339.5	429.5	325.5
1981	444.8	348.2	324.2	206.8	656.8	891.8	242.3	97.5	45.1	135.2	188.2	120.5
1982	93.7	144.6	326.2	236.2	341.9	915.0	825.9	294.2	685.8	508.3	207.2	152.4
1983	228.4	684.8	383.3	449.2	773.3	1,675.0	421.5	192.9	84.6	234.0	261.5	83.1
1984	183.5	374.8	661.4	537.5	2,405.0	2,328.0	467.3	200.8	144.6	313.8	317.9	145.8
1985	144.5	123.2	405.6	419.0	345.8	117.5	100.3	120.2	71.1	233.8	122.6	120.5
1986	151.3	268.6	609.5	452.4	678.6	1,223.0	158.6	99.6	475.4	554.1	289.6	184.5
1987	176.1	495.9	872.2	679.8	619.2	856.7	513.6	234.1	349.7	255.4	282.6	94.8
1988	101.3	176.2	613.6	497.0	836.9	262.3	65.6	18.8	33.7	108.5	129.8	94.8
1989	117.6	69.5	336.0	252.6	239.2	268.3	124.7	55.9	112.9	215.4	276.8	102.1
1990	161.1	308.9	583.3	360.5	585.5	986.5	213.7	328.3	118.1	200.5	226.7	136.8
1991	105.2	388.6	400.8	471.5	1,685.0	1,905.0	204.5	57.7	113.2	167.5	268.2	211.0
1992	241.3	325.6	293.8	301.9	179.1	866.0	952.1	223.6	150.0	192.2	259.2	134.7
1993	109.5	124.3	623.9	450.1	1,590.0	2,180.0	772.7	382.6	163.1	295.3	253.8	226.5
1994	204.5	423.2	701.4	525.7	667.0	79.2	249.1	59.4	46.8	897.1	318.2	160.0
1995	174.5	700.5	401.7	307.4	1,783.0	3,634.0	988.4	100.9	104.5	295.5	298.6	184.1
1996	140.8	534.7	699.4	614.5	1,062.0	1,486.0	166.2	33.1	46.0	175.4	240.2	115.6
1997	245.2	389.6	764.9	548.1	1,120.0	1,937.0	804.4	724.0	231.5	334.3	284.7	226.1
1998	211.6	316.1	532.1	664.4	1,300.0	857.8	537.5	410.6	357.7	621.1	660.4	215.6
1999	217.1	305.7	353.7	814.3	2,381.0	2,153.0	378.7	115.8	191.0	272.5	265.9	232.6

2000	261.9	282.8	320.7	387.7	1,026.0	535.8	107.6	41.1	109.8	232.4	164.6	144.2
2001	139.4	143.6	293.5	230.2	177.0	93.0	173.0	2.6	7.7	55.2	127.2	133.9
2002	195.5	237.1	184.8	312.0	181.3	67.2	53.7	249.6	184.6	159.8	190.4	130.6
2003	153.9	201.4	587.5	578.1	573.5	666.3	155.4	26.2	63.9	79.0	91.3	156.5
2004	56.6	76.4	368.4	211.5	123.8	31.0	117.2	33.3	58.1	162.3	221.6	141.8
2005	135.5	158.2	198.8	241.8	1,389.0	974.5	227.1	151.4	47.4	163.1	175.3	107.4
2006	195.5	173.2	338.9	322.8	314.8	126.0	10.0	1.0	45.8	117.6	180.1	86.5
2007	83.4	71.8	287.7	427.2	1,183.0	1,156.0	280.9	161.2	137.9	198.6	233.4	181.9
2008	93.9	157.9	539.9	291.7	2,514.0	3,204.0	1,030.0	92.2	148.1	249.6	288.5	191.0
2009	212.6	412.1	640.5	757.0	859.1	968.0	429.2	272.4	103.8	321.9	306.2	165.2
2010	180.3	248.2	418.7	513.4	1,430.0	2,013.0	548.1	115.6	60.5	149.1	233.4	216.1
2011	215.5	224.6	461.4	360.1	1,616.0	3,702.0	1,224.0	134.2	93.4	241.7	292.5	274.5
2012	270.6	366.9	830.2	445.8	421.2	456.1	60.9	19.4	20.3	104.5	188.5	160.6
2013	134.8	182.9	303.4	271.7	430.3	477.9	169.0	146.5	113.1	674.9	287.1	171.6
2014	201.3	281.1	790.9	593.8	1,574.0	1,543.0	522.8	293.8	280.1	321.4	259.5	301.0
2015	232.6	285.0	401.0	322.9	1,623.0	3,396.0	489.8	140.4	110.3	200.4	215.7	228.5
2016	208.7	266.9	279.5	458.4	774.8	445.1	70.9	26.4	150.6	251.0	225.9	123.3
2017	152.9	367.3	432.3	974.7	3,467.0	2,303.0	329.4	107.1	138.1	314.7	309.9	221.0
2018	200.0	209.1	910.4	489.7	1,268.0	1,176.0	335.7	143.8	83.6	276.6	240.3	138.2
2019	180.5	174.6	1,166.0	507.4	1,742.0	3,094.0	932.8	262.3	238.1	354.7	320.8	274.1
2020	269.2	285.1	1,099.0	485.0	949.8	468.1	104.2	27.4	52.7	133.0	197.7	171.2
2021	182.0	193.3	354.5	295.4	592.2	378.7	77.9	48.6	15.5	128.3	204.3	109.6
2022	127.6	176.4	245.5	283.9	425.2	1,386.0	166.0	63.1	86.2	159.5	147.0	161.8
2023	198.6	188.4	642.5	735.2	1,255.0	3,202.0	1,548.0	399.9	448.9	775.0	431.2	210.4
2024	205.2	315.9	326.7	433.3	985.2	1,148.0	171.7	58.8				
Mean of monthly discharge	159.0	274.0	592.0	495.0	1,080.0	1,390.0	453.0	163.0	137.0	232.0	228.0	164.0
Median of mean monthly discharge	**150.8**	**209.3**	**509.8**	**450.1**	**916.6**	**1,148.0**	**292.4**	**110.8**	**97.8**	**200.4**	**225.9**	**154.8**
No. Days/Mo.	31.0	28.0	31.0	30.0	31.0	30.0	31.0	31.0	30.0	31.0	30.0	31.0
Median Volume	**9,256.1**	**11,603.6**	**31,291.5**	**26,735.9**	**56,260.9**	**68,191.2**	**17,947.5**	**6,800.9**	**5,809.3**	**12,300.6**	**13,418.5**	**9,501.6**

Median volume calculated as median of mean monthly flow times 1.98 and times the number of days in the month.

Public Notice
&
Environmental Documents

- Public Notice
- Notice Area Map
- Form Checklist
- PN – Letter to Applicant
- PN – Letter to Editor
- PN - Certificate of Service
- PN – Invoice & Tear sheet
- PN – Return Mail
- Environmental Checklist (EA)
    - Supporting Documentation

Public Notice & Environmental Information

NOTICE AREA

Application No. **42J 30164864** RegionalOffice #03

Applicant's Name **Matthew and Danelle Stiegelmeier**

SB Decree [x] Yes [ ] No

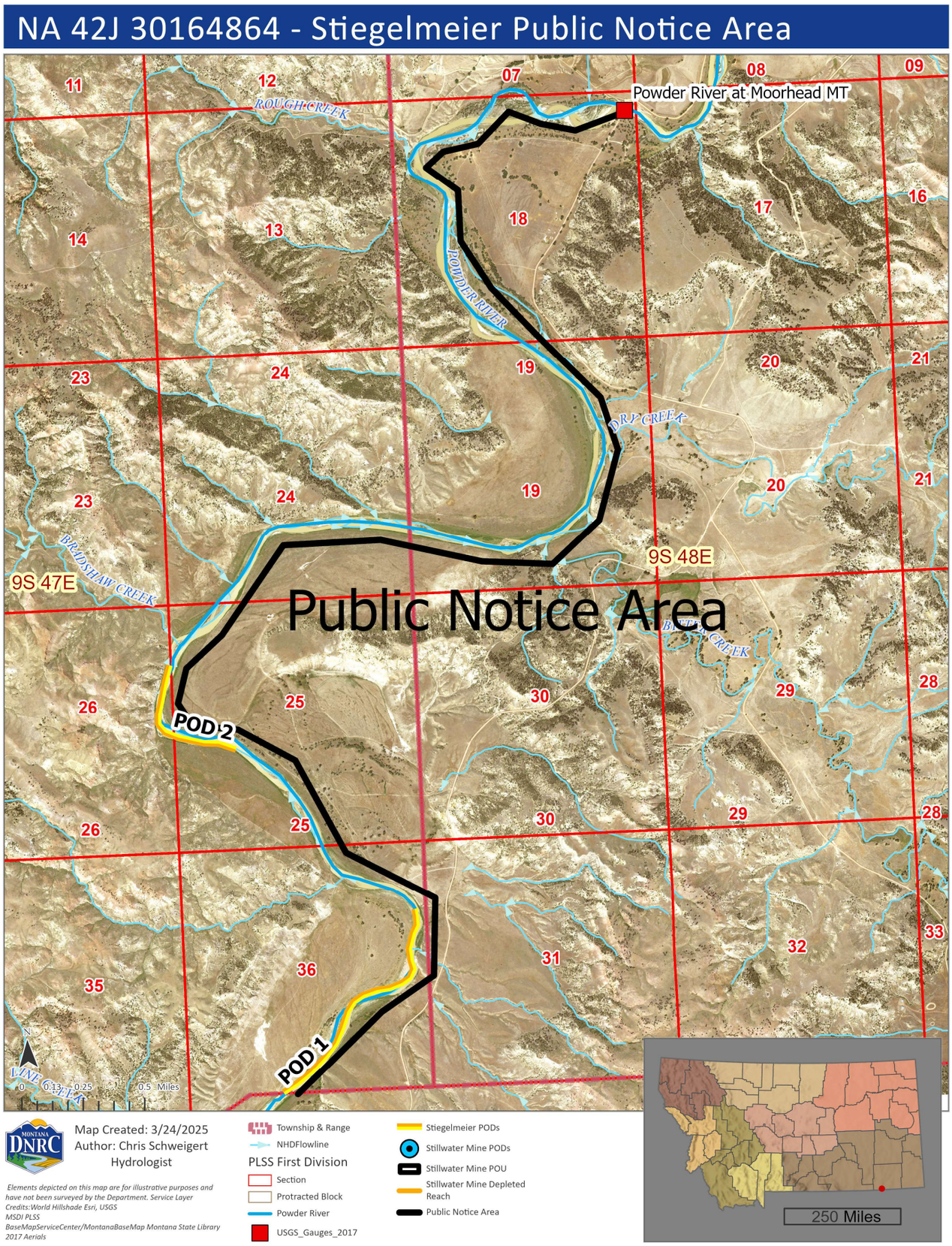
Non – SB Decree [x] Yes [x] No If yes, Case # **Powder River Decree**

Indian Reservation [ ] Yes [x] No If yes, Reservation

Irrigation District [ ] Yes [x] No If yes, District

Specialist **C. Schweigert** Date **03/21/2025**

Attach a USGS or Resource Survey map identifying area of possible adverse affect.



Water Right Owner	Water Right # (Basin, ID, and Number)
Applicant—Matthew and Danelle Stiegelmeier	**NA 42J 30164864**
State of MT FWP	**NA 42J 30017743**
State of MT Board of Land Commissioners	**PR 42J 2801-00**
USA BLM	**ADJ 42J 30142405**
Gay Ranch, Twin Hearts Smiling Horses, USA BLM	**PR 42J 8004-00**
1BIA	
1DSL	
1FWP	
1PPL	
1NWE	
2FWP	
3BLG	
3NPR	
1BOR	
1TUL	
1FWS	
1WDB	
3PRD	

PUBLISHED IN: POWDER RIVER EXAMINER

REMARKS: The area of potential impact is approximately 82 miles downstream from the uppermost POD at the Montana-Wyoming state line to the USGS gage at Moorhead. This area includes the mouths of Bitter Creek, Bradshaw Creek, Dry Creek, Rough Creek and Trail Creek and adds 167.9 square miles of tributary drainage area.

EA Form R 1/2007

Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. *Applicant/Contact name and address:* Matthew and Danelle Stiegelmeier
   44 Bliss Rd
   Otter, MT 59062-9412

2. *Type of action:* Application for Beneficial Water Use Permit

3. *Water source name:* Powder River

4. *Location affected by project:* Govt lot 4 (SWNW) and SENW Sec. 25; Govt lot 3 (E2SENE) Sec. 26; Govt lots 3, 6, 7, and 8, SWNE, NESW, and SESENW Sec. 36, T9S, R47E, Powder River County.

5. *Narrative summary of the proposed project, purpose, action to be taken, and benefits:* Matthew and Danelle Stiegelmeier are requesting a beneficial water use permit to divert 35.6 CFS flow up to 928 acre-feet per year from the Powder River to use for irrigation of 232 acres on Govt lot 4 (SWNW) and SENW Sec. 25; Govt lot 3 (E2SENE) Sec. 26; Govt lots 3, 6, 7, and 8, SWNE, NESW, and SESENW Sec. 36, T9S, R47E, Powder River County. The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met.

6. *Agencies consulted during preparation of the Environmental Assessment: (include agencies with overlapping jurisdiction)*

Montana Natural Heritage Program
Montana Department of Fish Wildlife & Parks (MFWP)
Montana Department of Environmental Quality (MDEQ)
Montana Bureau of Mines and Geology
United States Fish and Wildlife Service
United States Natural Resource and Conservation Service

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity - *Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

Determination: No significant impact

Powder River from the Montana/Wyoming border to the mouth at the Yellowstone River is on the DFWP list of chronically dewatered streams. The Department analysis of physical and legal availability shows that there is water in the Powder River in excess of this request and all legal demands within the area of potential impact throughout the proposed period of diversion and use. The use of 35.6 CFS up to 928 AF/YR should not worsen the periodic dewatering of this source.

Water quality - *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

Determination: No significant impact

The Powder River, from the Wyoming border to Little Powder River to the mouth of the Mizpah Creek is listed as water quality category 5 by DEQ. This category is for waters where one or more applicable beneficial uses are impaired or threatened and a TMDL is required to address the factors causing the impairment or threat. This source is listed as not fully supporting agriculture. Primary contact recreation and aquatic life were not assessed. The proposed use of water for flood irrigation should not further impair water quality on this source.

Groundwater - *Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

Determination: No Impact

This use for irrigation may increase groundwater recharge on the 232 acres proposed for irrigation. There should be no impact to groundwater quality due to this proposed use.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

Determination: No Significant Impact.

The proposed diversion would be a two Crisafulli centrifugal pumps on moveable ag trailers with power provided by a PTO from a tractor for one and a dedicated engine for the other. There should be not impact to the channel, flow modification, barriers, riparian areas dams or well construction.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species - *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special*

concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."

Determination: No Impact

The Natural Heritage Program identified the following species of concern, potential species of concern or special status species within the project area: Blue Sucker, Sturgeon Chub, Pinyon Jay, Plains Hog-nosed Snake, Little Indian Beadroot, Golden Eagle, Pallid Bat, Black-tailed Prairie Dog, Townsend's Big-eared Bat, Double Bladderpod, Northern Hoary Bat, Plains Minnow, Northern Leopard Frog, Sharp-tailed Grouse, and Bald Eagle The place of use is already actively farmed, the use of Powder River water for flood irrigation should not affect any species of concern or create a barrier to the migration or movement of fish or wildlife.

Wetlands - *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

Determination: No Impact

The project area is not within a wetland, so there should be no significant impacts to wetlands from this proposed use.

Ponds - *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

Determination: No impact

There are no ponds associated with this water right application.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Determination: No Impact

The soils in the proposed place of use are mainly Haverdad clay loam, Glenberg fine sandy loam, Bankard fine sandy loam, and Heldt silty clay loam, which are well drained, and range from non-saline to moderately saline. The flood irrigation of 232 should not degrade soil quality, alter stability or moisture content. There should be very little saline seep from this use of water.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

Determination: No Impact

The land owner is expected to prevent the establishment or spread of noxious weeds on their

property.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Determination: No Impact

There should be no deterioration of air quality due to increased air pollutants from this proposed project.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project if it is on State or Federal Lands. If it is not on State or Federal Lands simply state NA-project not located on State or Federal Lands.*

Determination: NA-project not located on State or Federal Lands.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

Determination: No Impact

There should be no significant impacts on other environmental resources of land, energy, and water from this proposed use.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

Determination: No Impact

This proposed use is not inconsistent with locally adopted environmental plans and goals for Powder River County.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

Determination: No Impact

The project is located on private land; this project should have no new impact on recreational or wilderness activities.

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

Determination: No significant Impact

The project would have no impact on public health.

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*
Yes___ No_X__ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.

Determination: No significant impact.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) *Cultural uniqueness and diversity?* No significant impact.

(b) *Local and state tax base and tax revenues?* No significant impact.

(c) *Existing land uses?* No significant impact.

(d) *Quantity and distribution of employment?* No significant impact.

(e) *Distribution and density of population and housing?* No significant impact.

(f) *Demands for government services?* No significant impact.

(g) *Industrial and commercial activity?* No significant impact.

(h) *Utilities?* No significant impact.

(i) *Transportation?* No significant impact.

(j) *Safety?* No significant impact.

(k) *Other appropriate social and economic circumstances?* No significant impact.

2. ***Secondary and cumulative impacts on the physical environment and human population:***
Secondary Impacts None identified.

Cumulative Impacts There are no other pending applications on this source of water. There should be no significant cumulative impacts.

3. ***Describe any mitigation/stipulation measures:*** There are no mitigation or stipulation measures required.

4. ***Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*** The reasonable alternatives are to grant the application, to advise the Applicant to propose a different application or the no action alternative. Granting the application would allow the Applicant to water 232 acres of ag land. It may be possible for the Applicant to develop an alternate source of water, such as a spring or well, or abandon the proposal. The no action alternative would prevent the Applicants from using Powder River for their farm.

PART III. Conclusion

1. ***Preferred Alternative*** To authorize the beneficial water use permit.

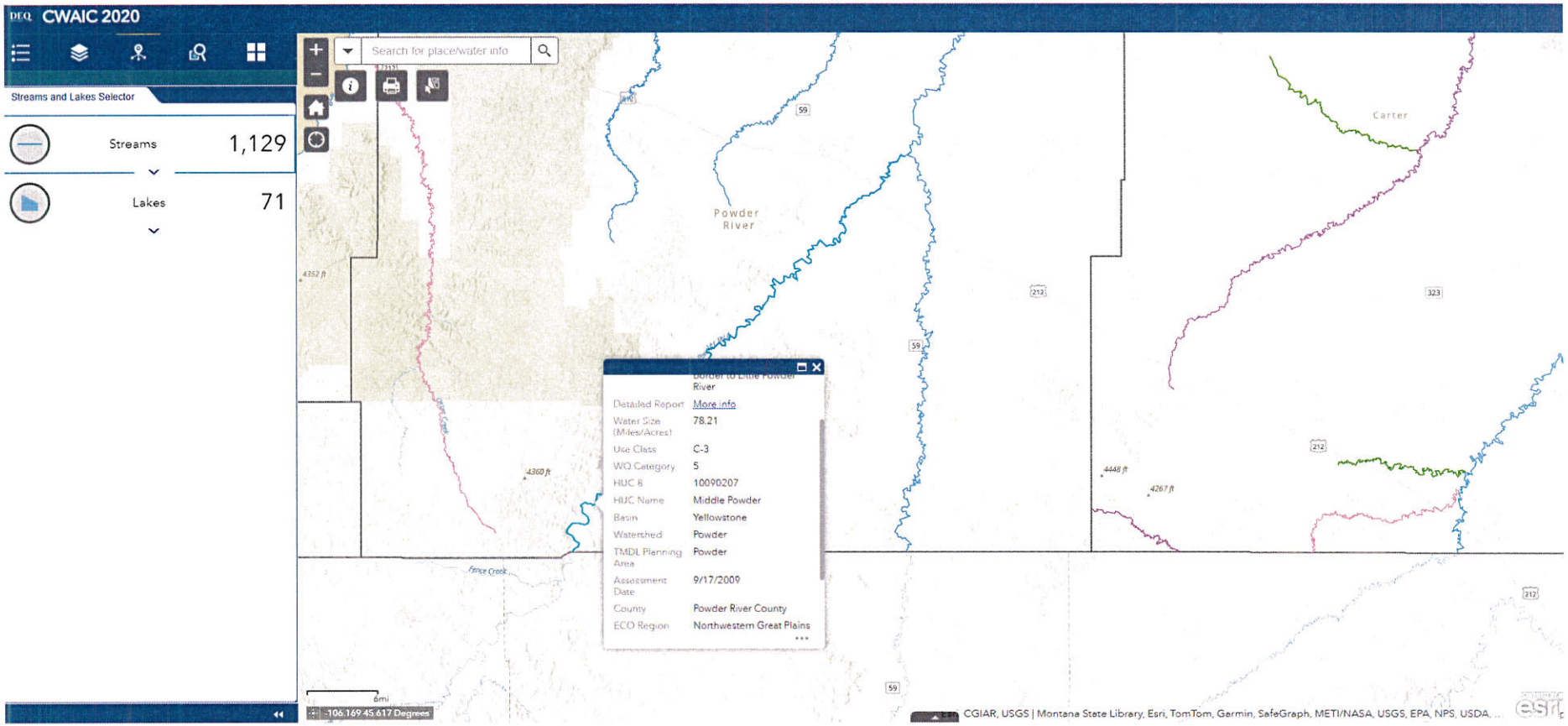
2. ***Comments and Responses***

3. ***Finding:***
   Yes___ No_X_ Based on the significance criteria evaluated in this EA, is an EIS required?

If an EIS is not required, explain <u>why</u> the EA is the appropriate level of analysis for this proposed action: No significant environmental impacts were identified. No EIS required.

Name of person(s) responsible for preparation of EA:

Name: Christine Schweigert
Title: Hydrologist
Date: March 18, 2025


DEQ CWAIC 2020
Streams and Lakes Selector
Streams 1,129
Lakes 71
Search for place/water info
Powder River
Carter
Border to Little Powder River
Detailed Report More info
Water Size (Miles/Acres) 78.21
Use Class C-3
WQ Category 5
HUC 8 10090207
HUC Name Middle Powder
Basin Yellowstone
Watershed Powder
TMDL Planning Area Powder
Assessment Date 9/17/2009
County Powder River County
ECO Region Northwestern Great Plains
4352 ft
4360 ft
4448 ft
4267 ft
Prince Creek
6mi
-106.169 45.617 Degrees
CGIAR, USGS | Montana State Library, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, ...

Montana DEQ - Water Quality Standards Attainment Record

Reporting Cycle: 2020 **Assessment Record:** MT42J001_010.pdf **Status:** Unassigned

ASSESSMENT UNIT INFORMATION

Reporting Cycle:	2020
Assessment Unit:	MT42J001_010
Waterbody Name:	Powder River
Location Description:	POWDER RIVER, Wyoming border to Little Powder River

Water Type:	Size (Miles/Acres)	Use Class:
RIVER	78.21 MILES	C-3

Hydrologic Unit Code:	10090207
HUC Name:	Middle Powder
Watershed:	Powder
Basin:	Yellowstone
TMDL Planning Area:	Powder
Ecoregion:	Northwestern Great Plains
County:	Powder River County
Lat/Long AU Start (U/S):	45.000378 / -105.910213
Lat/Long AU End (D/S):	45.46604 / -105.332218

MONITORING INFORMATION

Date Assessment Started:	09/18/2009
Assessed By:	Sada, Rosie

CITATIONS

Citation	Location	Biological Data	Habitat Data	Chemistry Data
U.S. Geological Survey (199n), USGS Water Data for the Nation - NWIS	Assessment Record	algae; chlorophyll; fecal coliforms; fish; other bacteriological data	Land use; riparian &/or instream surveys & physical features	benthic sediment data; bioaccumulation; common ions, pH, conductivity, miscellaneous; major nutrients; metals; organics; quantitative physical data
Tetra Tech, Inc. (2003), Total Maximum Daily Load (TMDL) Status Report: Powder River TMDL Planning Area	WQPB Ebrary		Land use; photo points; riparian &/or instream surveys & physical features	common ions, pH, conductivity, miscellaneous; major nutrients; metals
U.S. Department of the Interior, Bureau of Land Management (2003), Montana Final Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings Resource Management Plans	WQPB Ebrary	wildlife	Land use	
Montana Department of Environmental Quality, Planning, Prevention and Assistance Division, Water Quality Planning Bureau (2006), STORET/Storease Data Archive [Electronic Resource]	DEQ Metcalf Multimedia Case	General; algae; chlorophyll; fecal coliforms; fish; macroinvertebrates; other bacteriological data	General; Land use; riparian &/or instream surveys & physical features	General; Rosgen type; benthic sediment data; common ions, pH, conductivity, miscellaneous; imagery data; major nutrients; metals; organics; quantitative physical data
Clark, Melanie L. ; Mason, Jon P. (2007), Water-Quality Characteristics for Sites in the Tongue, Powder, Cheyenne, and Belle Fourche River Drainage Basins, Wyoming and Montana, Water Years 2001-05, wiith Temporal Patterns of Selected	WQPB Ebrary		Land use	common ions, pH, conductivity, miscellaneous; metals

Citation	Location	Biological Data	Habitat Data	Chemistry Data
Long-Term Water-Quality Data, Scientific Investigations Report 2007-5146				
(2007), Montana Environmental Monitoring & Assessment Program (EMAP Project)	Assessment Record	algae; fish; macroinvertebrates	Land use; photo points; riparian &/or instream surveys & physical features	Rosgen type; common ions, pH, conductivity, miscellaneous; major nutrients; metals; quantitative physical data
Frost, Carol ; Brinck, Elizabeth ; Mailloux, Jason ; Carter, Shaun ; Sharma, Shikha (2009), Environmental Tracers Applied to Quantifying Causes in Water Quality Along the Powder River, Wyoming	WQPB Ebrary			common ions, pH, conductivity, miscellaneous; quantitative physical data
Montana Bureau of Mines and Geology (nnnn), GWIC Data from http://mbmggwic.mtech.edu/	Assessment Record	algae	Land use; riparian &/or instream surveys & physical features	benthic sediment data; common ions, pH, conductivity, miscellaneous; major nutrients; metals; quantitative physical data

Comments: From DR8 Data Not Examined: Only data pertaining to the agricultural beneficial use support was examined in this assessment.

DATA MATRIX
Biological Data

Comments:

Reporting Cycle: 2020 **Assessment Record:** MT42J001_010.pdf **Status:** Unassigned

DATA MATRIX

Habitat Data

Comments: A survey in the Powder River watershed suggests the majority of landowners irrigate using Powder River or tributary water. The majority of the water is withdrawn via surface diversion and applied using flood irrigation. Between Locate and Moorhead, diversions occur for irrigation of an estimated 35,500 acres. Multiple crops are grown in the watershed, with a wide range of sensitivities to salinity. The most sensitive crops to salt are clover and field beans. Soils high in clay are succeptable to dispersion due to the application of sodium. The Powder Watershed in MT is dominated by soils comprised of 40-60% clay. Approximately 40% of surveyed landowners reported to have experienced crop yield problems due to existing water quality. Slightly more than have also reported having soil salinization problems. CBM water is generally high in sodium. WY has permitted a potential discharge of CBM water of approximately 36 MGD, or about 55 cfs in the Powder River watershed upstream of the MT border.

Entire Reach from WY border to the confluence with the Little Powder River

Data Type	Comments	Ref Num	Citation
Land use	Station Data for the Moorehead and Locate stations. There are diversions for irrigation of about 66,300 acres that occur upstream from the Moorhead station. Upstream of the Locate station, diversions for irrigation of about 101,800 acres. Between Locate and Moorhead, diversions occur for irrigation of an estimated 35,500 acres.	2772	U.S. Geological Survey (199n), USGS Water Data for the Nation - NWIS
Land use	Survey indicates that 90% of responding landowners irrigate using Powder River or tributary water to irrigate. Flood irrigation is the most common form of applying the water but sprinkler and spreader dikes are also employed. Approximately 80% of applied water is taken via surface diversions. A mix of crops are grown that have a range of sensitivities to salt from highly sensitive to somewhat tolerant. The most sensitive crops are clover and field beans. Soils high in clay content are succeptable to dispersion due to the application of sodium. The Powder River watershed in MT is dominated by soils with 40-60% clay. ALMOST 40% of the responding landowners reported they have experienced crop yield problems due to existing water quality. Slight more than half responded reported having soil salinization problems.	2604	Tetra Tech, Inc. (2003), Total Maximum Daily Load (TMDL) Status Report: Powder River TMDL Planning Area
Land use	CBM water is generally high in sodium. Calculated figures	11063	U.S. Department of the Interior, Bureau of Land

Data Type	Comments	Ref Num	Citation
	that represent a conservative, rough "potential" of what WY COULD be producing from permitted CBM facilities. The major assumption is the permitted and temporary filings are an annual capacity in Acre-feet with no adjustment due to evaporation, infiltration, etc. The totals show WY could be producing approximately 3 MGD in the Little Powder drainage, and 32.9 MGD in the Powder drainage. Combined totals are approximately 36 MGD or 55 cfs.		Management (2003), Montana Final Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings Resource Management Plans

DATA MATRIX

Chemistry Data

Comments:

Statistics were completed on grab samples for the period of record at every available station. The variability in the discrete data set is strongly correlated with the number of observations; variability increases with more data. This shows discrete data is not capturing the peaks and troughs for EC and SAR. No spatial trends were observed. Data was compared with EC & SAR Instantaneous and Monthly average Water Quality standards. Discrete (grab samples) and continuous data both were used to compare to standards. A minimum of 4 samples per month was used to define monthly average; including mean daily values from the continuous gages. The data set was dominated by irrigation season samples; with only a fraction from winter. Comparing to instantaneous standards, 422 of the 2619 SC samples were above the standard (16%). Only 21 of the 422 occurred during the winter season representing less than 5% of exceedances. For SAR, 12 of the 372 samples were above the standard (3%), all during the irrigation season.

For the SC monthly average, a total of 88 months had sufficient data (4 or more samples) to calculate an average (68 during irrigation season and 20 winter time). 26 of the 88 months were above standards criterion (30%). ALL EXCEEDANCES OCCURRED DURING THE IRRIGATION SEASON. There was not sufficient data to calculate any monthly averages for SAR in this segment. SC and streamflow and SAR and streamflow for water years 2001-05 were both negatively correlated. The correlation at the Moorhead site was weaker than that at the upstream sites. This probably is the result of effects from the Clear Creek drainage basin. No significant trends were observed for specific conductance or SAR at Moorhead. Signficant increasing trends were observed for SC upstream at Arvada, but was not observed in flow-adjusted SC trends. Increasing trends were observed for SAR and flow-adjusted SAR at Arvada. These increasing trends may be part of a long-term upward trend. Observed trends were not determined to be exclusively from CBM development. Other land-use activities in the basins, such as traditional oil and gas development, irrigation and mining, also can affect dissolved-constituent concentrations.

An isotope tracer study was completed to quantify the fate of coalbed methane produced water in the Powder River in WY and MT. The study concludes the influence of CBM produced water was observed in the Powder River between Sussex and Arvada, WY. But also states that waters in MT are little to unaffected by CBM production during low flows. The loss of the isotope signal could potentially be attributed to dilution or precipitation. Isotope tracers were observed and did not recover to initial levels until reaching the confluence with the Yellowstone River. This indicates the presence of CBM produced water present in MT. This study also demonstrated the possiblity for a small fraction of CBM produced water may affect some water quality parameters, such as SAR, which affects the irrigation quality of the water.

Entire Reach from WY border to the confluence with the Little Powder River

Data Type	Comments	Ref Num	Citation
common ions, pH, conductivity,	Data from USGS was compiled and analyzed along with other sources (see data matrix) for the entire period of record.	2772	U.S. Geological Survey (199n), USGS Water Data for the Nation - NWIS

Data Type	Comments	Ref Num	Citation
miscellaneous	Statistics were completed on grab samples for the period at every available station. This data was plotted to show how it changes longitudinally. The variability in the data set is strongly correlated with the number of observations; variability increases with more data. This shows discrete data is not capturing the peaks and troughs for EC and SAR. Therefore, decisions based on stations with little data will be applied with caution. No trends can be established spatially. Data was compared with EC & SAR Instantaneous and Monthly average Water Quality standards. Discrete (grab samples) and continuous data were both used to compare to standards. A minimum of 4 samples per month was used to define monthly average. This may also include mean daily values from the continuous gages. Samples were dominated by irrigation season samples; with only a fraction occurring during the winter. Comparing to instantaneous standards, of the 2619 SC samples, 422 were above the standard (16%). Only 21 of the 422 occurred during the winter season representing less than 5% of exceedances. For SAR, 12 of the 372 samples were above the standard (3%), all during the irrigation season. For the SC monthly average, a total of 88 months had sufficient data (4 or more samples) to calculate an average (68 during irrigation season and 20 winter time). 26 of the 88 months were above standards criterion (30%). ALL EXCEEDANCES OCCURRED DURING THE IRRIGATION SEASON. There was not sufficient data to calculate any monthly averages for SAR in this segment.		
common ions, pH, conductivity,	Data compiled, analyzed, and reported with other data included in referece "Clark, Melanie L. ; Mason, Jon P.	2604	Tetra Tech, Inc. (2003), Total Maximum Daily Load (TMDL) Status Report: Powder River

Data Type	Comments	Ref Num	Citation
miscellaneous	(2007)".		TMDL Planning Area
common ions, pH, conductivity, miscellaneous	Data compiled, analyzed, and reported with other data included in referece "Clark, Melanie L. ; Mason, Jon P. (2007)".	10255	Montana Department of Environmental Quality, Planning, Prevention and Assistance Division, Water Quality Planning Bureau (2006), STORET/Storease Data Archive [Electronic Resource]
common ions, pH, conductivity, miscellaneous	2007 Data: Data compiled, analyzed, and reported with other data included in referece "Clark, Melanie L. ; Mason, Jon P. (2007)".	2774	(2007), Montana Environmental Monitoring & Assessment Program (EMAP Project)
common ions, pH, conductivity, miscellaneous	SC and streamflow and SAR and streamflow for water years 2001-05 were both negatively correlated, the largest values tended to occur during low-flow conditions, when ground water composes a large part of the streamflow. The correlation at the Moorhead site on the Powder River was weaker than that at the upstream sites for SC and SAR. This probably is the result of effects from the Clear Creek drainage basin, which has different geology, streamflow characteristics, and stream chemistry compared to tributaries entirely within the plains. No significant trends were observed for specific conductance or SAR at Moorhead. Signficant increasing trends were observed for SC upstream at Arvada, but was not observed in flow-adjusted SC trends. Increasing trends were observed for SAR and flow-adjusted SAR at Arvada. These increasing trends may be part of a long-term upward trend. Observed trends were not determined to be exclusively from CBM development. Other land-use activities in the basins, such as traditional oil and gas development, irrigation and mining, also can affect streamflow and dissolved-constituent concentrations.	12348	Clark, Melanie L. ; Mason, Jon P. (2007), Water-Quality Characteristics for Sites in the Tongue, Powder, Cheyenne, and Belle Fourche River Drainage Basins, Wyoming and Montana, Water Years 2001-05, wiith Temporal Patterns of Selected Long-Term Water-Quality Data, Scientific Investigations Report 2007-5146

Data Type	Comments	Ref Num	Citation
common ions, pH, conductivity, miscellaneous	Isotope tracer study to quantify the fate of coalbed methane produced water in the Powder River in WY and MT. Study concludes the influence of CBM produced water was observed in the Powder River between Sussex and Arvada, WY. But also states that waters in MT are little to unaffected by CBM production during low flows. The loss of the isotope signal could be attributed to dilution from clear creek, chemical change causing carbon to precipitate out of the water column, or carbon dioxide production causing precipitation. Isotope tracers do not recover to initial levels until the confluence with the Yellowstone. This indicates the presence of CBM produced water present in MT. This study also demonstrated the possiblity for a small fraction of produced water may affect some water quality parameters, such as SAR, which affects the irrigation quality of the water.	12510	Frost, Carol ; Brinck, Elizabeth ; Mailloux, Jason ; Carter, Shaun ; Sharma, Shikha (2009), Environmental Tracers Applied to Quantifying Causes in Water Quality Along the Powder River, Wyoming
common ions, pH, conductivity, miscellaneous	Data compiled, analyzed, and reported with other data included in referece "Clark, Melanie L. ; Mason, Jon P. (2007)".	10121	Montana Bureau of Mines and Geology (nnnn), GWIC Data from http://mbmggwic.mtech.edu/
quantitative physical data	Discharging of CBM produced water infiltrates into shallow groundwater (alluvium) and is detectable down-gradient in surface water.	12510	Frost, Carol ; Brinck, Elizabeth ; Mailloux, Jason ; Carter, Shaun ; Sharma, Shikha (2009), Environmental Tracers Applied to Quantifying Causes in Water Quality Along the Powder River, Wyoming

ASSESSMENT HISTORY

Cycle 2006

1996: Listed for metals, nutrients, other inorganics, salinity/TDS/chlorides, TSS, flow alteration and pathogens. 2000-2006: Insufficient data to assess this segment of the river.

Cycle 2008

1996: Listed for metals, nutrients, other inorganics, salinity/TDS/chlorides, TSS, flow alteration and pathogens. 2000-2006: Insufficient data to assess this segment of the river. 2008: Aquatic Life, Warm Water Fishery, and Primary/Contact Recreation beneficial uses were not assessed. As a C-3 waterbody, the water quality of this segment of the Powder River is considered to be naturally marginal for drinking, culinary, and food processing purposes, agriculture, and industrial water supply due to naturally occurring levels of substances such as salts that cannot be readily removed by conventional treatment. However, the Agricultural beneficial use has been assessed in order to address the specific water quality standards for EC and SAR that were established to protect water quality for agricultural use within the Powder River Basin.

Cycle 2010

Not assessed this cycle

Cycle 2012

Not assessed this cycle

Cycle 2014

Not assessed this cycle

Cycle 2016

Not assessed this cycle

Cycle 2018

Not assessed this cycle

Cycle 2020

Not assessed this cycle

Overall Condition of Segment

An isotope tracer study (ref.#12510 "Frost, Carol ; Brinck, Elizabeth ; Sharma, Shikha ; Carter, Shaun ; Mailloux, Jason (2009), Task 4-Environmental Tracers Applied to Quantifying Causes in Water Quality Along the Powder River, Wyoming.") was completed to quantify the fate of coalbed methane produced water in the Powder River in WY and MT. The study concludes the influence of CBM produced water was observed in the Powder River between Sussex and Arvada, WY. But also states that waters in MT are little to unaffected by CBM production during low flows. The loss of the isotope signal could potentially be attributed to dilution or precipitation. Isotope tracers were observed and did not recover to initial levels until reaching the confluence with the Yellowstone River. This documents the presence of CBM produced water present in MT. Data was compared with EC & SAR Instantaneous and Monthly average Water Quality standards. Discrete (grab samples) and continuous data both were used to compare to standards. A minimum of 4 samples per month was used to define monthly average; including mean daily values from the continuous gages. The data set was dominated by irrigation season samples; with only a fraction from winter.

Comparing to instantaneous standards, 422 of the 2619 SC samples were above the standard (16%). Only 21 of the 422 occurred during the winter season representing less than 5% of exceedances. For SAR, 12 of the 372 samples were above the standard (3%), all during the irrigation season. For the SC monthly average, a total of 88 months had sufficient data (4 or more samples) to calculate an average (68 during irrigation season and 20 winter time). 26 of the 88 months were above standards criterion (30%). ALL EXCEEDANCES OCCURRED DURING THE IRRIGATION SEASON. There was not sufficient data to calculate any monthly averages for SAR in this segment. Specific conductance and sodium adsorption ratio are inversely related to stream flow. The correlation at the Moorhead site was weaker than that at the upstream sites. This probably is the result of localized hydrology and effects from the Clear Creek drainage basin.

No spatial or temporal trends for SC and SAR were observed in MT. A significant upward trend in SC, SAR, and flow-adjusted SAR were observed at stations directly upstream in WY. The causal factor of this trend cannot be determined at this time. A survey in the Powder River watershed suggests the majority of landowners irrigate using Powder River or tributary water. A majority of the water is withdrawn via surface diversion and applied using flood irrigation. Between Locate and Moorhead, diversions occur for irrigation of an estimated 35,500 acres. Multiple crops are grown in the watershed, the most sensitive being clover and field beans. Soils high in clay are succeptable to dispersion due to application of sodium. The Powder Watershed in MT is dominated by soils comprised of 40-60% clay. Approximately 40% of surveyed landowners reported to have experienced crop yield problems due to existing water quality. Slightly more than have also reported having soil salinization problems. CBM water is generally high in sodium. WY has permitted a potential discharge of CBM water of approximately 36 MGD, or about 55 cfs in the Powder River watershed upstream of the MT border.

Standards for specific conductance and sodium adsorption ratio both surpass standard criteria. Significant upward trends for specific conductance, SAR, and flow-adjusted SAR were observed at the nearest upstream station in WY. Multiple sources were documented including irrigated crop production and coal-bed methane natural gas production. Sources of increased salt loads above naturally occurring can not be verified at this time. Thus, the Agricultural Beneficial Use of this segment of the Powder River is determined to be impaired.

Reporting Cycle: 2020 **Assessment Record:** MT42J001_010.pdf **Status:** Unassigned

USE SUPPORT DECISION

Use Class C-3

Trophic Status: **Trophic Trend:**

Uses	DQA	Method, Data, and Information Used	Assessment Type and Confidence	Use Support	Partial Flag	Use Support Certainty	Threatened
Aquatic Life				Not Assessed	No		No
Agricultural				Not Fully Supporting	No	Medium	No
Primary Contact Recreation				Not Assessed	No		No

Method Number and Description

Reporting Cycle: 2020 **Assessment Record:** MT42J001_010.pdf **Status:** Unassigned

IMPAIRMENT INFORMATION

Uses	Cause (Confidence): Source(Confirmed)	Observed Effects
Aquatic Life		
Agricultural	367 (Medium): 140 (N), 155 (N)	
Primary Contact Recreation		

Cause Number and Description	Source Number and Description	Observed Effect Number and Description
367-Salinity	140-Source Unknown 155-Natural Sources	

DELISTING / STATUS CHANGES

Cause	Reason for Change	Date of Change

Reporting Cycle: 2020 **Assessment Record:** MT42J001_010.pdf **Status:** Unassigned

CATEGORY INFORMATION

Previous Cycle

Cycle	2018
Category	5 - Waters where one or more applicable beneficial uses have been assessed as being impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat.
User Defined Category	N/A

Current Cycle

Cycle	2020
Category	5 - Waters where one or more applicable beneficial uses have been assessed as being impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat.
User Defined Category	N/A

Environmental Summary

MONTANA STATE LIBRARY

NATURAL HERITAGE PROGRAM mtnhp.org

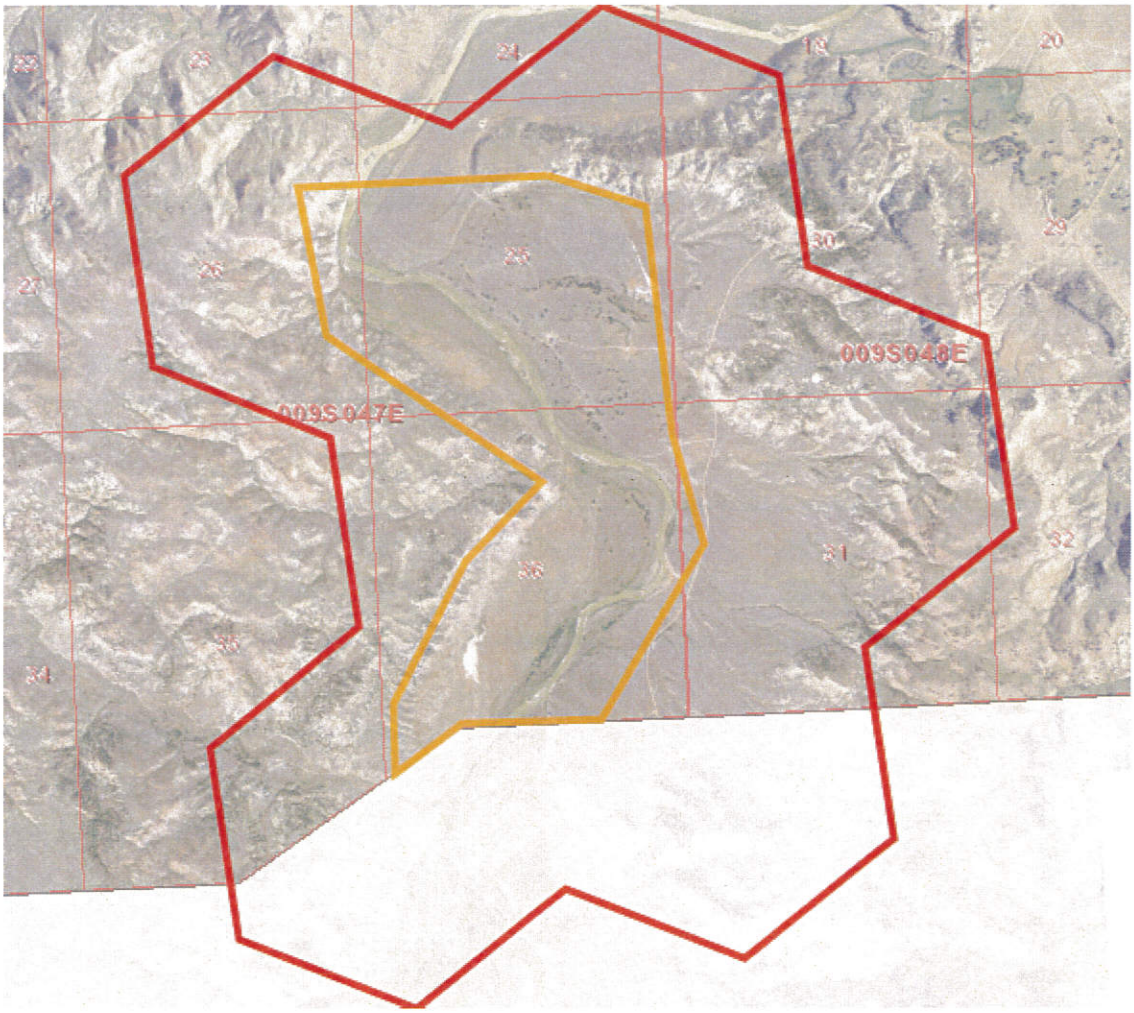
1201 11th Ave · P.O. Box 201800 · Helena, MT 59620-1800 · fax 406-444-0266 · phone 406-444-3989

Latitude	Longitude
44.98799	-105.87423
45.03270	-105.93622

Summarized by:

42J 30164864 - Stiegelmeier

(Custom Area of Interest)



Suggested Citation

Montana Natural Heritage Program. Environmental Summary Report.
for Latitude 44.98799 to 45.03270 and Longitude -105.87423 to -105.93622. Retrieved on 3/18/2025.

The Montana Natural Heritage Program is part of the Montana State Library's Natural Resource Information System. Since 1985, it has served as a neutral and non-regulatory provider of easily accessible information on Montana's species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. The program is part of the NatureServe network that is composed of over 60 member programs across North America that work to provide current and comprehensive distribution and status information on species and biological communities.

MONTANA STATE LIBRARY NATURAL HERITAGE PROGRAM

NATURESERVE

MONTANA STATE LIBRARY
NATURAL HERITAGE PROGRAM
A program of the Montana State Library's Natural Resource Information System

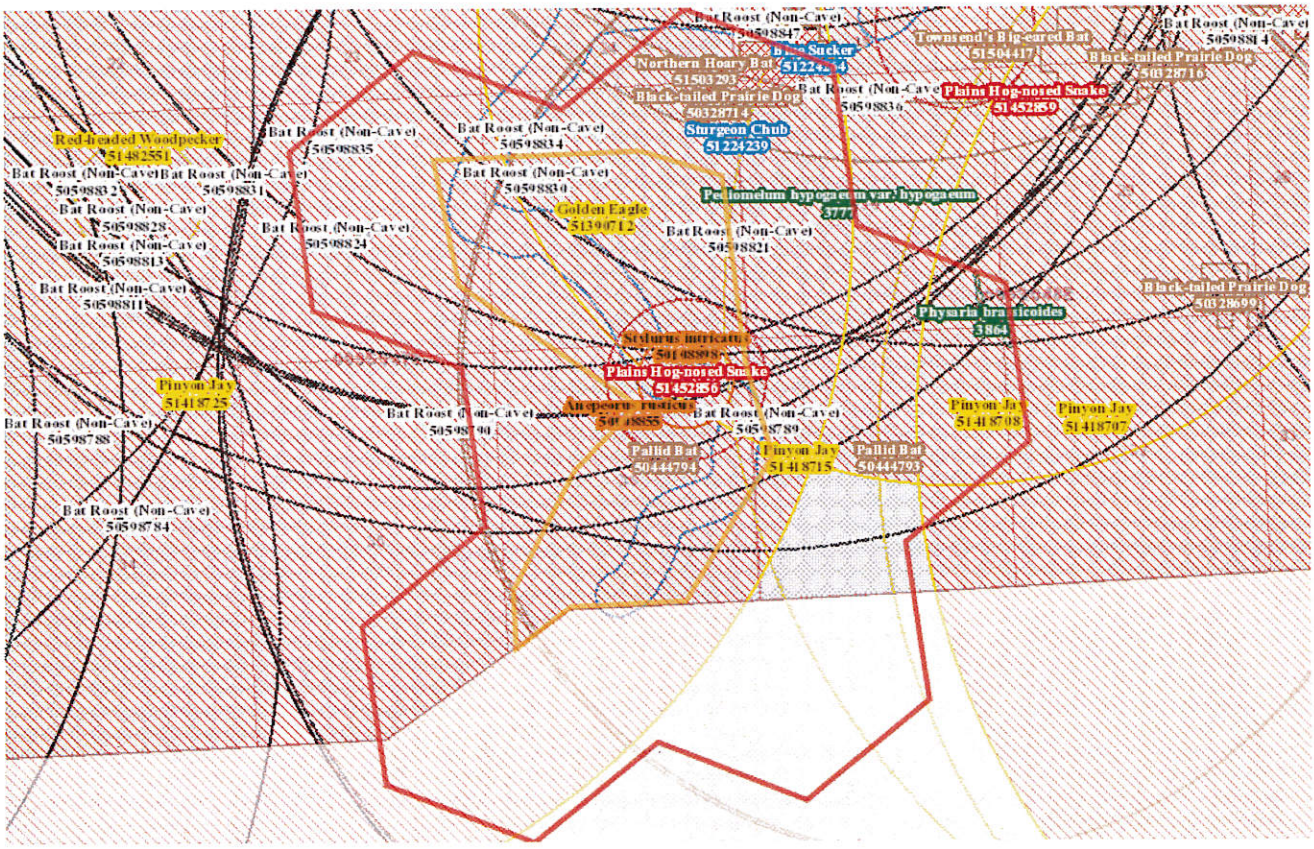
Legend

Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	Y Native / Year-round	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	S Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		W Winter	
L Low Suitability		M Migratory	
I Suitable (introduced range)		N Non-native	
		H Historical	

Latitude 44.98799 45.03270 Longitude -105.87423 -105.93622

Native Species

Summarized by: **42J 30164864 - Stiegelmeier** *(Custom Area of Interest)*
Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC



Species Occurrences

	USFWS Sec7	# SO	# Obs	Predicted Model	Range
F - Blue Sucker *(Cycleptus elongatus)* SOC		1			Y
F - Sturgeon Chub *(Macrhybopsis gelida)* SOC		1	2		Y H
B - Pinyon Jay *(Gymnorhinus cyanocephalus)* SOC		4			Y
R - Plains Hog-nosed Snake *(Heterodon nasicus)* SOC		1	1		Y

F - Blue Sucker *(Cycleptus elongatus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S2** FWP SWAP: **SGCN2-3**

Delineation Criteria Stream reaches where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Mar 18, 2024)

Predicted Models: N 100% Suitable (native range) (deductive)

F - Sturgeon Chub *(Macrhybopsis gelida)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G3** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN2-3**

Delineation Criteria Stream reaches where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Mar 18, 2024)

Predicted Models: N 100% Suitable (native range) (deductive)

B - Pinyon Jay *(Gymnorhinus cyanocephalus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G3** State: **S3** USFWS: **MBTA; BCC10; BCC17** FWP SWAP: **SGCN3**

Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 4,500 meters in order to be conservative about encompassing the home ranges reported for flocks and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. (Last Updated: Sep 25, 2024)

Predicted Models: M 100% Moderate (inductive)

R - Plains Hog-nosed Snake *(Heterodon nasicus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2, SGIN**

Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 500 meters in order to encompass the maximum summer home range size reported for the congeneric Eastern Hog-nosed Snake and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. (Last Updated: Dec 18, 2024)

Predicted Models: M 100% Moderate (inductive)

V - Pediomelum hypogaeum var. hypogaeum *(Little Indian Breadroot)* PSOC

View in Field Guide | View Predicted Models | View Range Maps

Potential Species of Concern - Native Species Global: **G5T4** State: **S3S4**

Delineation Criteria Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. (Last Updated: Feb 07, 2025)

Predicted Models: M 100% Moderate (inductive)

B - Golden Eagle *(Aquila chrysaetos)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **BGEPA; MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 3,000 meters in order to be conservative about encompassing the entire breeding territory and area commonly used for renesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. (Last Updated: Sep 20, 2024)

Predicted Models: M 67% Moderate (inductive), L 33% Low (inductive)

M - Pallid Bat *(Antrozous pallidus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 3,000 meters in order to encompass the reported maximum foraging distance for the species and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. (Last Updated: Oct 18, 2018)

Predicted Models: M 67% Moderate (inductive), L 33% Low (inductive)

M - Black-tailed Prairie Dog *(Cynomys ludovicianus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Areas with recent evidence of activity (i.e. burrow entrances) visible on recent National Agricultural Imagery Program (NAIP) aerial color photographic imagery that are within a distance of 200 meters of definitive observations buffered by the locational uncertainty of less than or equal to 1,000 meters. (Last Updated: Jul 03, 2019)

Predicted Models: M 17% Moderate (inductive), L 83% Low (inductive)

M - Townsend's Big-eared Bat *(Corynorhinus townsendii)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** USFS: **Sensitive - Known in Forests (LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for the species in California and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 4,500 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Dec 26, 2024)

Predicted Models: M 17% Moderate (inductive), L 83% Low (inductive)

V - Physaria brassicoides *(Double Bladderpod)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **No Known Threats**

Delineation Criteria Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. (Last Updated: Jan 20, 2023)

Predicted Models: M 17% Moderate (inductive), L 83% Low (inductive)

M - Northern Hoary Bat *(Lasiurus cinereus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S3B** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles during the active season. Point observation location is buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric Lasiurus borealis and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. (Last Updated: Dec 26, 2024)

Predicted Models: L 100% Low (inductive)

I - Anepeorus rusticus *(Rustic Flat-headed Mayfly)* SOC

View in Field Guide | View Range Maps

Species of Concern - Native Species Global: **G2** State: **S1**

Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age/stage. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the home range of the individual as well as adjacent habitat likely to support other individuals and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 15, 2014)

I - Raptoheptagenia cruentata *(Wallace's Deepwater Mayfly)* SOC

View in Field Guide | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S2** BLM: **SENSITIVE**

Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age/stage. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the home range of the individual as well as adjacent habitat likely to support other individuals and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jul 21, 2022)

I - Stylurus intricatus *(Brimstone Clubtail)* SOC

View in Field Guide | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S1**

Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the home range of the individual as well as adjacent habitat likely to support other individuals and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 15, 2014)

O - Bat Roost (Non-Cave) *(Bat Roost (Non-Cave))* IAH

View in Field Guide

Important Animal Habitat - Native Species Global: **GNR** State: **SNR**

Delineation Criteria Confirmed area of occupancy based on the documented presence of adults or juveniles of any bat species at non-cave natural roost sites (e.g. rock outcrops, trees), below ground human created roost sites (e.g. mines), and above ground human created roost sites (e.g., bridges, buildings). Point observation locations are buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for Townsend's Big-eared Bat (a resident Montana bat Species of Concern) and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 5,000 meters. (Last Updated: Oct 22, 2019)

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Legend

Model Icons
- N Suitable (native range)
- O Optimal Suitability
- M Moderate Suitability
- L Low Suitability
- I Suitable (introduced range)

Habitat Icons
- C Common
- O Occasional

Range Icons
- Y Native / Year-round
- S Summer
- W Winter
- M Migratory
- N Non-native
- H Historical

Num Obs
Count of obs with 'good precision' (<=1000m)
+ indicates additional 'poor precision' obs (1001m-10,000m)

Latitude	Longitude
44.98799	-105.87423
45.03270	-105.93622

Native Species

Summarized by: **42J 30164864 - Stiegelmeier** *(Custom Area of Interest)*
Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC

Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
F - Plains Minnow *(Hybognathus placitus)* PSOC		2		Y
A - Northern Leopard Frog *(Lithobates pipiens)* SOC		2		Y
B - Sharp-tailed Grouse *(Tympanuchus phasianellus)* SOC		1		Y
B - Bald Eagle *(Haliaeetus leucocephalus)* SSS		1		Y
I - Gomphurus externus *(Plains Clubtail)* PSOC		1	Not Assessed	Y
I - Leucrocuta petersi *(A Flat-headed Mayfly)* SSS		1	Not Assessed	Y

F - Plains Minnow *(Hybognathus placitus)* PSOC

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G4** State: **S4**
Predicted Models: N 100% Suitable (native range) (deductive)

A - Northern Leopard Frog *(Lithobates pipiens)* SOC

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3S4** USFS: **Sensitive - Suspected in Forests (KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN1**
Predicted Models: M 100% Moderate (inductive)

B - Sharp-tailed Grouse *(Tympanuchus phasianellus)* SOC

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3S4** FWP SWAP: **SGCN1** PIF: **2**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

B - Bald Eagle *(Haliaeetus leucocephalus)* SSS

View in Field Guide | View Predicted Models | View Range Maps
Special Status Species - Native Species Global: **G5** State: **S4** USFWS: **BGEPA; MBTA** USFS: **Sensitive - Known in Forests (LOLO)** BLM: **SENSITIVE** PIF: **2**
Predicted Models: L 100% Low (inductive)

I - Gomphurus externus *(Plains Clubtail)* PSOC

View in Field Guide | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S2S4**

I - Leucrocuta petersi *(A Flat-headed Mayfly)* SSS

View in Field Guide | View Range Maps
Special Status Species - Native Species Global: **G2G3** State: **SNR**

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Legend

Model Icons
- N Suitable (native range)
- O Optimal Suitability
- M Moderate Suitability
- L Low Suitability
- I Suitable (introduced range)

Habitat Icons
- C Common
- O Occasional

Range Icons
- Y Native / Year-round
- S Summer
- W Winter
- M Migratory
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- H Historical

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Native Species

Summarized by: **42J 30164864 - Stiegelmeier** *(Custom Area of Interest)*
Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC

Other Potential Species

USFWS Sec7 | Predicted Model | Range

F - Brassy Minnow *(Hybognathus hankinsoni)* PSOC
View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S5**
Predicted Models: N 100% Suitable (native range) (deductive)

A - Great Plains Toad *(Anaxyrus cognatus)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predicted Models: O 50% Optimal (inductive), M 50% Moderate (inductive)

B - Eastern Screech-Owl *(Megascops asio)* PSOC
View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4** USFWS: **MBTA** PIF: **3**
Predicted Models: M 100% Moderate (inductive)

R - Western Milksnake *(Lampropeltis gentilis)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2** BLM: **SENSITIVE** FWP SWAP: **SGCN2**
Predicted Models: M 100% Moderate (inductive)

V - Dalea enneandra *(Nine-anther prairie clover)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2S3** Plant Threat Score: **No Known Threats**
Predicted Models: M 100% Moderate (inductive)

B - Common Poorwill *(Phalaenoptilus nuttallii)* PSOC
View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**
Predicted Models: M 100% Moderate (inductive)

M - Dwarf Shrew *(Sorex nanus)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2S3** FWP SWAP: **SGCN2-3**
Predicted Models: M 83% Moderate (inductive), L 17% Low (inductive)

V - Astragalus barrii *(Barr's Milkvetch)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S3** Plant Threat Score: **Medium - Low** CCVI: **Highly Vulnerable**
Predicted Models: M 67% Moderate (inductive), L 33% Low (inductive)

B - Yellow-billed Cuckoo *(Coccyzus americanus)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **PS: LT; MBTA** BLM: **THREATENED** FWP SWAP: **SGCN3, SGIN** PIF: **2**
Predicted Models: M 67% Moderate (inductive), L 33% Low (inductive)

B - Greater Sage-Grouse *(Centrocercus urophasianus)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S2** USFS: **Sensitive - Known in Forests (BD)** **Species of Conservation Concern in Forests (CG)** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **1**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

R - Snapping Turtle *(Chelydra serpentina)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: **G4G5** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

V - Astragalus ceramicus var. filifolius *(Painted Milkvetch)* SOC
View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species Global: **G4T4** State: **S3** Plant Threat Score: **Medium - Low** CCVI: **Highly Vulnerable**
Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

V - Cirsium pulcherrimum *(Wyoming Thistle)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **Low** CCVI: **Less Vulnerable**

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

B - Brewer's Sparrow *(Spizella breweri)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predicted Models: M 50% Moderate (inductive), L 50% Low (inductive)

M - Merriam's Shrew *(Sorex merriami)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** FWP SWAP: **SGCN3**

Predicted Models: M 50% Moderate (inductive), L 33% Low (inductive)

V - Triodanis leptocarpa *(Slim-pod Venus'-looking-glass)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5?** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Moderately Vulnerable**

Predicted Models: M 33% Moderate (inductive), L 67% Low (inductive)

B - Red-headed Woodpecker *(Melanerpes erythrocephalus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predicted Models: M 33% Moderate (inductive), L 67% Low (inductive)

R - Greater Short-horned Lizard *(Phrynosoma hernandesi)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**

Predicted Models: M 17% Moderate (inductive), L 83% Low (inductive)

B - Chimney Swift *(Chaetura pelagica)* PSOC

View in Field Guide | View Predicted Models | View Range Maps

Potential Species of Concern - Native Species Global: **G4G5** State: **S3S4B** USFWS: **MBTA; BCC11** FWP SWAP: **SGIN** PIF: **3**

Predicted Models: M 17% Moderate (inductive), L 83% Low (inductive)

V - Dichanthelium oligosanthes var. scribnerianum *(Scribner's Panic Grass)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5T5** State: **S1S2** Plant Threat Score: **Low**

Predicted Models: M 17% Moderate (inductive), L 17% Low (inductive)

M - Fringed Myotis *(Myotis thysanodes)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Predicted Models: L 100% Low (inductive)

M - Little Brown Myotis *(Myotis lucifugus)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S2S3** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT)** FWP SWAP: **SGCN3**

Predicted Models: L 100% Low (inductive)

M - Long-eared Myotis *(Myotis evotis)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3**

Predicted Models: L 100% Low (inductive)

M - North American Porcupine *(Erethizon dorsatum)* PSOC

View in Field Guide | View Predicted Models | View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S4** FWP SWAP: **SGIN**

Predicted Models: L 100% Low (inductive)

M - Silver-haired Bat *(Lasionycteris noctivagans)* PSOC

View in Field Guide | View Predicted Models | View Range Maps

Potential Species of Concern - Native Species Global: **G3G4** State: **S3**

Predicted Models: L 100% Low (inductive)

M - Eastern Red Bat *(Lasiurus borealis)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S3B** BLM: **SENSITIVE**

Predicted Models: L 100% Low (inductive)

M - Spotted Bat *(Euderma maculatum)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S4** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**

Predicted Models: L 100% Low (inductive)

B - American White Pelican *(Pelecanus erythrorhynchos)* SOC

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**

Predicted Models: L 100% Low (inductive)

B - Burrowing Owl *(Athene cunicularia)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**
Predicted Models: L 100% Low (inductive)

B - Cassin's Kingbird *(Tyrannus vociferans)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA**
Predicted Models: L 100% Low (inductive)

B - Loggerhead Shrike *(Lanius ludovicianus)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: L 100% Low (inductive)

B - Long-billed Curlew *(Numenius americanus)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC11** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: L 100% Low (inductive)

B - Plumbeous Vireo *(Vireo plumbeus)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4B** USFWS: **MBTA** PIF: **3**
Predicted Models: L 100% Low (inductive)

B - Sage Thrasher *(Oreoscoptes montanus)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: L 100% Low (inductive)

I - Danaus plexippus *(Monarch)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **P** USFS: **Sensitive - Migratory in Forests (BD, BRT, KOOT)**
Predicted Models: L 100% Low (inductive)

B - Great Blue Heron *(Ardea herodias)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3**
Predicted Models: L 83% Low (inductive)

B - Short-eared Owl *(Asio flammeus)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA; BCC11; BCC17** PIF: **3**
Predicted Models: L 83% Low (inductive)

B - Black-billed Cuckoo *(Coccyzus erythropthalmus)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN** PIF: **2**
Predicted Models: L 83% Low (inductive)

B - Bobolink *(Dolichonyx oryzivorus)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: L 83% Low (inductive)

B - Dickcissel *(Spiza americana)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA**
Predicted Models: L 83% Low (inductive)

B - Eastern Bluebird *(Sialia sialis)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA**
Predicted Models: L 83% Low (inductive)

M - Long-legged Myotis *(Myotis volans)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4G5** State: **S3**
Predicted Models: L 67% Low (inductive)

B - American Bittern *(Botaurus lentiginosus)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: L 67% Low (inductive)

B - Black-and-white Warbler *(Mniotilta varia)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA**
Predicted Models: L 67% Low (inductive)

M - Prairie Shrew *(Sorex haydeni)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4**
Predicted Models: 50% Low (inductive)

V - Carex crawei *(Crawe's Sedge)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S2S3** Plant Threat Score: **Low**
Predicted Models: 50% Low (inductive)

V - Potentilla plattensis *(Platte Cinquefoil)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**
Predicted Models: 50% Low (inductive)

B - Ferruginous Hawk *(Buteo regalis)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: 50% Low (inductive)

M - Meadow Jumping Mouse *(Zapus hudsonius)* PSOC

View in Field Guide View Predicted Models View Range Maps
Potential Species of Concern - Native Species Global: **G5** State: **S3S4** FWP SWAP: **SGIN**
Predicted Models: 33% Low (inductive)

V - Elodea bifoliata *(Long-sheath Waterweed)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4G5** State: **S2?** Plant Threat Score: **No Known Threats**
Predicted Models: 33% Low (inductive)

B - Green-tailed Towhee *(Pipilo chlorurus)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**
Predicted Models: 33% Low (inductive)

B - Lewis's Woodpecker *(Melanerpes lewis)* SOC

View in Field Guide View Predicted Models View Range Maps
Species of Concern - Native Species Global: **G4** State: **S2B** USFWS: **MBTA; BCC10; BCC17** USFS: **Species of Conservation Concern in Forests (HLC)**
BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **2**
Predicted Models: 33% Low (inductive)

B - Sprague's Pipit *(Anthus spragueii)* SOC Not Assessed

View in Field Guide View Range Maps
Species of Concern - Native Species Global: **G3G4** State: **S3B** USFWS: **MBTA; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**

M - Northern Myotis *(Myotis septentrionalis)* SOC Not Assessed

View in Field Guide
Species of Concern - Native Species Global: **G2G3** State: **S1S2** USFWS: **LE** BLM: **ENDANGERED**

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45.03270	-105.93622

Structured Surveys

Summarized by: **42J 30164864 - Stiegelmeier** *(Custom Area of Interest)*

The Montana Natural Heritage Program (MTNHP) records information on the locations where more than 80 different types of well-defined repeatable survey protocols capable of detecting an animal species or suite of animal species have been conducted by state, federal, tribal, university, or private consulting biologists. Examples of structured survey protocols tracked by MTNHP include: visual encounter and dip net surveys for pond breeding amphibians, point counts for birds, call playback surveys for selected bird species, visual surveys of migrating raptors, kick net stream reach surveys for macroinvertebrates, visual encounter cover object surveys for terrestrial mollusks, bat acoustic or mist net surveys, pitfall and/or snap trap surveys for small terrestrial mammals, track or camera trap surveys for large mammals, and trap surveys for turtles. Whenever possible, photographs of survey locations are stored in MTNHP databases.

MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

A-Nocturnal Calling Amphibian *(Nocturnal Breeding Amphibian Calling Survey)*	Survey Count: 2	Obs Count: 2	Recent Survey: 2008
AR-Amphibian/Reptile Lentic *(Lentic Amphibian/Reptile Surveys)*	Survey Count: 5	Obs Count: 7	Recent Survey: 2009
B-Point Count *(Bird Point Count)*	Survey Count: 1	Obs Count: 6	Recent Survey: 2007
F-Fish Lentic Seine *(Fish Lentic Seine Survey)*	Survey Count: 1	Obs Count: 8	Recent Survey: 2005
F-Fish Lotic Seine *(Fish Lotic Seine Survey)*	Survey Count: 2	Obs Count:	Recent Survey: 2021
F-Fish Other Survey *(Fish Other Survey (FWP Survey Type))*	Survey Count: 1	Obs Count: 1	Recent Survey: 1994
F-Fish Trapping/Netting *(Fish Trapping or Netting Surveys)*	Survey Count: 3	Obs Count: 33	Recent Survey: 2021
I-Aquatic Invert Lotic Dipnet *(Invertebrate Lotic Site Dipnet and Visual Encounter Survey)*	Survey Count: 5	Obs Count: 104	Recent Survey: 2021
I-Mussel *(Stream Mussel Survey)*	Survey Count: 3	Obs Count: 1	Recent Survey: 2013
I-Odonates/Butterfly VES *(Visual Encounter Survey for Damselfly/Dragonfly/Butterfly)*	Survey Count: 3	Obs Count: 8	Recent Survey: 2011
M-Bat Roost (Active Season) *(Bat Roost (Active Season) Survey)*	Survey Count: 2	Obs Count: 4	Recent Survey: 2009
R-Reptile VES *(Visual Encounter Surveys for Reptiles)*	Survey Count: 6	Obs Count: 9	Recent Survey: 2010


National Wetlands Inventory
surface waters and wetlands
ABOUT
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Measure
LEGEND
PEM1A
R2USA
R2UBG
R2USC
PEM1C
R5UBH
R4SBC
PEM1Ax
Bitter Creek Rd
Moorhead Rd
1:18,056
45.005 | -105.932
Maxar | U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov | Esri Community Maps Contributors
esri

Soil Map—Campbell County, Wyoming, Northern Part; and Powder River Area, Montana
(NA 42J 30164864 - Stiegelmeier)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Campbell County, Wyoming, Northern Part
Survey Area Data: Version 24, Sep 10, 2024

Soil Survey Area: Powder River Area, Montana
Survey Area Data: Version 21, Aug 22, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 21, 2021—Nov 3, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
284	Haverdad clay loam, 0 to 3 percent slopes	0.1	0.0%
Subtotals for Soil Survey Area		**0.1**	**0.0%**
Totals for Area of Interest		**314.5**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
272	Delpoint-Yamacall-Cabbart loams, 3 to 30 percent slopes	5.8	1.9%
281	Foreleft loam, 0 to 6 percent slopes	0.1	0.0%
284	Haverdad clay loam, 0 to 3 percent slopes	72.4	23.0%
Ba	Bankard fine sandy loam	45.4	14.5%
Gf	Glenberg fine sandy loam, 0 to 2 percent slopes	69.5	22.1%
Hc	Haverson silt loam	29.7	9.4%
Hm	Heldt silty clay loam, 4 to 8 percent slopes	44.2	14.1%
Mw	Midway and Elso rocky soils, 35 to 75 percent slopes	1.3	0.4%
Nh	Nihill-Elso association, 8 to 15 percent slopes	5.1	1.6%
Rm	Remmit fine sandy loam, 2 to 4 percent slopes	14.6	4.6%
Rt	Ringling-Cabba association, 15 to 50 percent slopes	0.1	0.0%
W	Water	26.0	8.3%
Subtotals for Soil Survey Area		**314.3**	**100.0%**
Totals for Area of Interest		**314.5**	**100.0%**

Powder River Area, Montana

284—Haverdad clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1hl2l
Elevation: 3,500 to 4,500 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 105 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Haverdad and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haverdad

Setting

Landform: Stream terraces, flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

A - 0 to 5 inches: clay loam
C - 5 to 60 inches: stratified fine sandy loam to clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: R058BY128WY - Lowland (LL) 10-14" PZ
Hydric soil rating: No

Minor Components

Clarkelen

Percent of map unit: 5 percent
Landform: Flood plains, stream terraces
Landform position (three-dimensional): Tread
Ecological site: R058BY128WY - Lowland (LL) 10-14" PZ
Hydric soil rating: No

Boruff

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: R058BY128WY - Lowland (LL) 10-14" PZ
Hydric soil rating: Yes

Kishona

Percent of map unit: 5 percent
Landform: Alluvial fans, fan remnants
Ecological site: R058BY122WY - Loamy (Ly) 10-14" PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Campbell County, Wyoming, Northern Part
Survey Area Data: Version 24, Sep 10, 2024

Soil Survey Area: Powder River Area, Montana
Survey Area Data: Version 21, Aug 22, 2024

Powder River Area, Montana

Gf—Glenberg fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: cnz9
Elevation: 1,900 to 6,000 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 110 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Glenberg and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glenberg

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 6 inches: fine sandy loam
C1 - 6 to 12 inches: loam
C2 - 12 to 60 inches: loamy fine sand, silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R058AE003MT - Sandy (Sy) RRU 58A-E 10-14" p.z.
Hydric soil rating: No

Minor Components

Haverson

Percent of map unit: 4 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R058AY001MT - Loamy (Lo) 10-14 P.Z.
Hydric soil rating: No

Bankard

Percent of map unit: 4 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R058AE018MT - Sands (Sa) RRU 58A-E 10-14" p.z.
Hydric soil rating: No

Somewhat poorly drained soils

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Campbell County, Wyoming, Northern Part
Survey Area Data: Version 24, Sep 10, 2024

Soil Survey Area: Powder River Area, Montana
Survey Area Data: Version 21, Aug 22, 2024

Powder River Area, Montana

Ba—Bankard fine sandy loam

Map Unit Setting

National map unit symbol: cnyg
Elevation: 1,900 to 5,000 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 110 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Bankard and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bankard

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 11 inches: fine sandy loam
C - 11 to 62 inches: stratified sand to fine sandy loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R058AE018MT - Sands (Sa) RRU 58A-E 10-14" p.z.
Hydric soil rating: No

Minor Components

Glenberg

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R058AE003MT - Sandy (Sy) RRU 58A-E 10-14" p.z.
Hydric soil rating: No

Somewhat poorly drained soils

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Campbell County, Wyoming, Northern Part
Survey Area Data: Version 24, Sep 10, 2024

Soil Survey Area: Powder River Area, Montana
Survey Area Data: Version 21, Aug 22, 2024

Powder River Area, Montana

Hm—Heldt silty clay loam, 4 to 8 percent slopes

Map Unit Setting

National map unit symbol: cnzl
Elevation: 2,200 to 6,000 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Heldt and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Heldt

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

Ap - 0 to 9 inches: silty clay loam
Bw - 9 to 34 inches: silty clay loam
Bk - 34 to 62 inches: silty clay loam

Properties and qualities

Slope: 4 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 3.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R058AE002MT - Clayey (Cy) RRU 58A-E 10-14" p.z.
Hydric soil rating: No

Minor Components

Thurlow

Percent of map unit: 6 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R058AE002MT - Clayey (Cy) RRU 58A-E 10-14" p.z.
Hydric soil rating: No

Cushman

Percent of map unit: 4 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R058AY001MT - Loamy (Lo) 10-14 P.Z.
Hydric soil rating: No

Data Source Information

Soil Survey Area: Campbell County, Wyoming, Northern Part
Survey Area Data: Version 24, Sep 10, 2024

Soil Survey Area: Powder River Area, Montana
Survey Area Data: Version 21, Aug 22, 2024