

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

APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 39FJ 30102974 BY DENBURY ONSHORE LLC	}	PRELIMINARY DETERMINATION TO GRANT PERMIT
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On June 19, 2015, Denbury Onshore LLC (Applicant) submitted Application for Beneficial Water Use Permit No. 39FJ 30102974 to the Billings Regional Water Resources Office of the Department of Natural Resources and Conservation (Department or DNRC) for 177 GPM up to 286 AF for oil well flooding use. The Department published receipt of the Application on its website. The Applicant requested a variance from aquifer testing requirements on November 26, 2014 and the variance was granted on March 12, 2015. The Application was determined to be correct and complete as of July 14, 2015. An Environmental Assessment for this Application was completed on July 15, 2015. An Interim Permit was issued on July 15, 2015.

INFORMATION

The Department considered the following information submitted by the Applicant.

Application as filed:

- Application for Beneficial Water Use Permit, Form 600
- Maps: Aerial Photograph (1" = 2500') showing locations of existing pipelines and proposed water well.
 Plat map showing locations of injections wells (place of use).
- Aquifer Testing Addendum
- Information Received after Application Filed
- Aquifer Test Report dated July 7, 2015, by Department Hydrogeologist Attila Fohnagy
- Depletion Report dated July 8, 2015, by Department Hydrogeologist Attila Fohnagy

Information within the Department's Possession/Knowledge

- Department water right records of existing rights.

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).

NOTE: Department or DNRC means the Department of Natural Resources & Conservation; CFS means cubic feet per second; GPM means gallons per minute; AF means acre-feet; AC means acres; AF/YR means acre-feet per year; AU means animal unit; and POD means point of diversion.

PROPOSED APPROPRIATION

FINDINGS OF FACT

1. The applicant proposes to divert water from groundwater, by means of a well converted from oil well to water well. Well #24-11 would be re-completed to a depth of 4475 feet and access water from the Dakota Sandstone aquifer. The Applicant proposes to divert water from January 1 to December 31 at 177 GPM up to 286 AF, from a point in the SWSESW section 11 T6N R60E, Fallon County, for oil well flooding use from January 1 to December 31. The place of use is generally located in sections 32, 33, 34 T7N R60E, and sections 3, 4, 5, 9, 10, 11, 14, 15 T6N R60E, Fallon County. The Applicant proposes to use the water to flood an existing oil field.
2. There will be no consumption for the proposed well because water under the proposed appropriation will be re-injected for oil well flooding in a formation with the same potential connection to surface water.

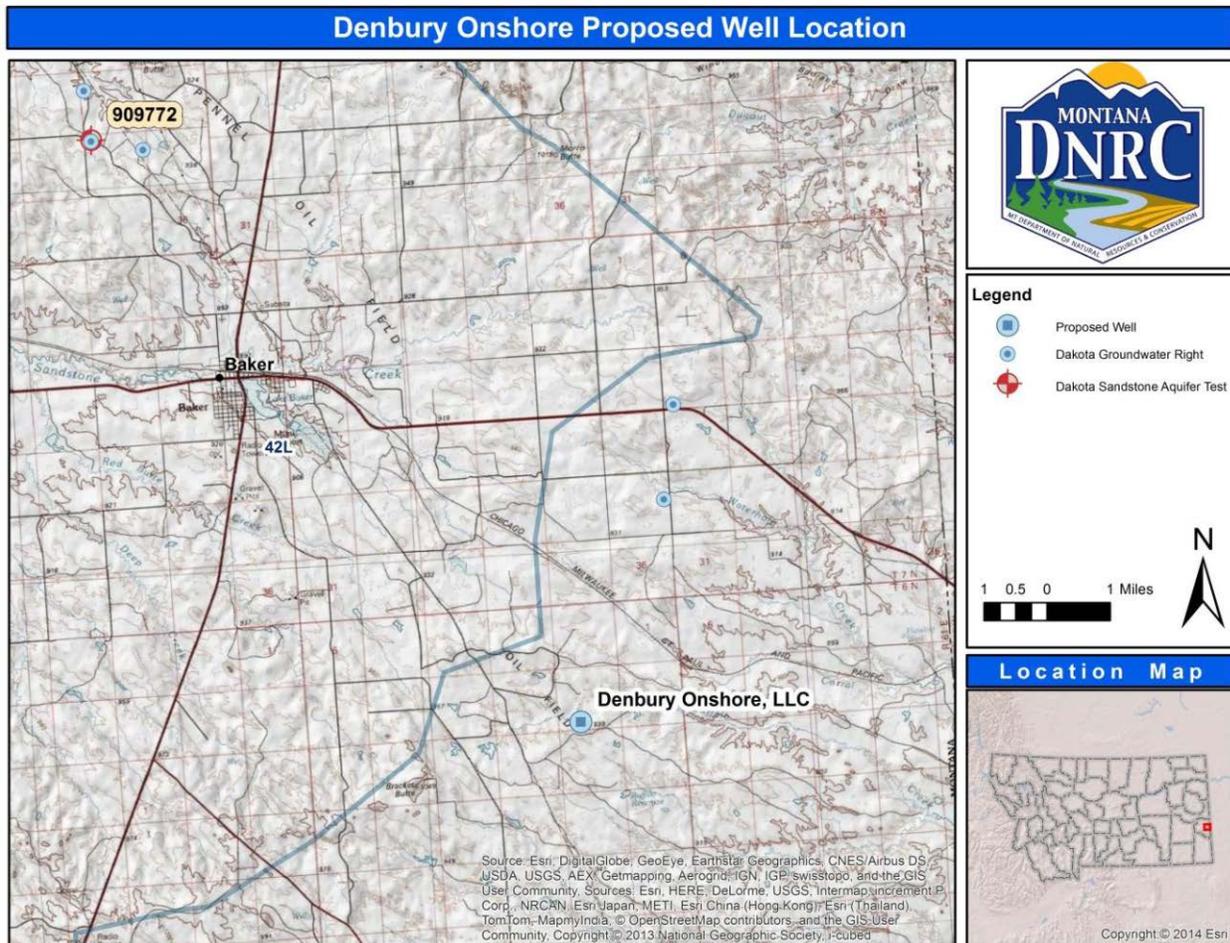


Figure 1. Map of proposed well, wells used in aquifer testing and other Dakota Sandstone wells.

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

GENERAL CONCLUSIONS OF LAW

3. 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 . . .

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

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

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

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

(A) identification of physical water availability;

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

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

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

(c) the proposed means of diversion, construction, and operation of the appropriation

works are adequate;

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

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

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

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

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

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

To meet the preponderance of evidence standard, “the applicant, in addition to other evidence demonstrating that the criteria of subsection (1) have been met, shall submit hydrologic or other evidence, including but not limited to water supply data, field reports, and other information developed by the applicant, the department, the U.S. geological survey, or the U.S. natural resources conservation service and other specific field studies.” § 85-2-311(5), MCA (emphasis added). The determination of whether an application has satisfied the § 85-2-311, MCA criteria is committed to the discretion of the Department. Bostwick Properties, Inc. v. Montana Dept. of Natural Resources and Conservation, 2009 MT 181, ¶ 21. The Department is required grant a permit only if the § 85-2-311, MCA, criteria are proven by the applicant by a preponderance of the evidence. Id. A preponderance of evidence is “more probably than not.” Hohenlohe v. DNRC, 2010 MT 203, ¶¶33, 35.

5. 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.

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

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

See also, Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order* (2011). The Supreme Court likewise explained that:

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

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

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

8. 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

9. Aquifer characteristics necessary to evaluate physical availability of water, model drawdown and determine an area of potential effect were obtained from an aquifer test conducted by Denbury Onshore LLC on oil flooding wells in the Pennel Unit located approximately 12 miles NNW in the same aquifer, (Dakota Sandstone aquifer), as the proposed well. As detailed under application 42L 30072206, a 72 hour aquifer test was performed on an existing well with another existing well as an observation well (Figure 1). Because the pumping well was in operation prior to the aquifer test, it was shut in on December 19, 2014, and recovery water level was recorded for 72 hours. On December 22, 2014, the pumping phase of the test began and continued at an average rate of 221 GPM for the duration of the test.

10. The maximum drawdown in the pumping well was 37 feet from a static water level of 1,068 feet below ground surface. The observation well was 3,900 feet from the pumping well and exhibited a maximum drawdown of 6.85 feet from a static water level of 1,124.7 feet below ground surface.

11. Modeling of aquifer test results by department hydrogeologist Attila Fohnagy gives transmissivity of 1,700 ft²/day and storativity of 2.3×10^{-5} . These values are recommended for use in evaluating permit criteria for the proposed well.

12. Well #24-11 was evaluated with an 8 hour drawdown and yield test at 177 GPM. The well had maximum drawdown of 277.1 feet below the static water level of 1,010.5 feet below ground surface.

13. Based on a modeled transmissivity of 1,700 ft²/day, storativity of 2.3 x 10⁻⁵, and assuming a constant pumping rate of 177 GPM for one year the 0.01 foot drawdown contour extends past aquifer boundaries. The zone of influence was truncated at 50,000 feet by Department hydrogeologists. The calculation for groundwater flux (Q) through the delineated area is given by Eq. 1 and is 1,360,000 ft³/day or 11,396 AF/year:

$$Q = TWi \qquad \text{Eq.1}$$

where:

T = Transmissivity = 1,700 ft²/day

W = Width of Zone of Influence = 100,000 ft

i = Groundwater gradient (from groundwater elevations provided by the Applicant) = 0.008 ft/ft.

CONCLUSIONS OF LAW

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

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

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

17. Cannot grant permit for amount requested as failure to conduct test at rate requested by applicant (75 GPM) but only at 35 GPM. *In the Matter of Application for Beneficial Water Use Permit No. 12826-g76LJ by Ridgewood* (DNRC Final Order 1988).

18. The Applicant has proven by a preponderance of the evidence that water is physically available at the proposed point of diversion in the amount Applicant seeks to appropriate. § 85-2-311(1)(a)(i), MCA. (FOF 9 – 13)

Legal Availability:

FINDINGS OF FACT

19. Department hydrogeologists truncated the zone of influence predicted from the proposed well at 50,000 feet because modeled width of the zone of influence extended past aquifer boundaries. Within that modeled zone of influence there are two groundwater rights completed in the Dakota Sandstone. Those rights are held by Denbury Onshore LLC.

20. The total legal demand from the existing water rights is 870.5 AF/YR. Subtracting the legal demands from the calculated groundwater flux leaves 10,525.5 AF/YR (11,396 AF/YR – 870.5 AF/YR = 10,525.5 AF/YR).

21. Department hydrogeologist Attila Fohnagy analyzed geologic structures in the area of the proposed wells and determined that the potentially affected surface water would be the Yellowstone River on the basis of its incision into bedrock and the location of the Cedar Creek Anticline.

22. The water under the proposed appropriation will be re-injected for oil well flooding in a formation with the same potential connection to surface water. Therefore, there will be no surface water depletion. In addition, the timing and location of depletion from pumping and accretion resulting from injection should be the same because the production and injection wells are a similar distance to the nearest potentially affected surface water (Yellowstone River) and the distance between the production and injection wells is small relative to the distance to the Yellowstone River.

23. The physical amount of water available is 11,396 AF/YR and the existing legal demands on groundwater total 870.5 AF/YR.

CONCLUSIONS OF LAW

24. 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).

25. 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.

26. Pursuant to Montana Trout Unlimited v. DNRC, 2006 MT 72, 331 Mont. 483, 133 P.3d 224, the Department recognizes the connectivity between surface water and ground water and the effect of pre-stream capture on surface water. E.g., Wesmont Developers v. DNRC, CDV-2009-823, Montana First Judicial District Court, Memorandum and Order, (2011) Pgs. 7-8; In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility

Solutions LLC (DNRC Final Order 2006)(mitigation of depletion required), *affirmed*, Faust v. DNRC et al., Cause No. CDV-2006-886, Montana First Judicial District (2008); *see also* Robert and Marlene Takle v. DNRC et al., Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994) (affirming DNRC denial of Applications for Beneficial Water Use Permit Nos. 76691-76H, 72842-76H, 76692-76H and 76070-76H; underground tributary flow cannot be taken to the detriment of other appropriators including surface appropriators and ground water appropriators must prove unappropriated surface water, *citing* Smith v. Duff, 39 Mont. 382, 102 P. 984 (1909), and Perkins v. Kramer, 148 Mont. 355, 423 P.2d 587 (1966)); *In the Matter of Beneficial Water Use Permit No. 80175-s76H by Tintzman* (DNRC Final Order 1993)(prior appropriators on a stream gain right to natural flows of all tributaries in so far as may be necessary to afford the amount of water to which they are entitled, *citing* Loyning v. Rankin (1946), 118 Mont. 235, 165 P.2d 1006; Granite Ditch Co. v. Anderson (1983), 204 Mont. 10, 662 P.2d 1312; Beaverhead Canal Co. v. Dillon Electric Light & Power Co. (1906), 34 Mont. 135, 85 P. 880); *In the Matter of Beneficial Water Use Permit No. 63997-42M by Joseph F. Crisafulli* (DNRC Final Order 1990)(since there is a relationship between surface flows and the ground water source proposed for appropriation, and since diversion by applicant's well appears to influence surface flows, the ranking of the proposed appropriation in priority must be as against all rights to surface water as well as against all groundwater rights in the drainage.) Because the applicant bears the burden of proof as to legal availability, the applicant must prove that the proposed appropriation will not result in prestream capture or induced infiltration and cannot limit its analysis to ground water. § 85-2-311(a)(ii), MCA. Absent such proof, the applicant must analyze the legal availability of surface water in light of the proposed ground water appropriation. *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 By Utility Solutions LLC* (DNRC Final Order 2007) (permit denied); *In the Matter of Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer* (DNRC Final Order 2009); Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 ; Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12.

27. Where a proposed ground water appropriation depletes surface water, applicant must prove legal availability of amount of depletion of surface water throughout the period of diversion either through a mitigation /aquifer recharge plan to offset depletions or by analysis of the legal demands on, and availability of, water in the surface water source. Robert and Marlene Takle v. DNRC et al., Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994); *In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility Solutions LLC* (DNRC Final Order 2006)(permits granted), *affirmed*, Faust v. DNRC et al., Cause No. CDV-2006-886, Montana First Judicial District (2008); *In the Matter of Application for Beneficial Water Use Permit 41H 30019215 by Utility Solutions LLC* (DNRC Final Order 2007)(permit granted), *affirmed*, Montana River Action Network et al. v. DNRC et al., Cause No. CDV-2007-602, Montana First Judicial District (2008); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 by Utility Solutions LLC* (DNRC Final Order 2007) (permit denied for failure to analyze legal availability outside of irrigation season (where mitigation applied)); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30026244 by Utility Solutions LLC* (DNRC Final Order 2008); *In the Matter of Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer* (DNRC Final Order 2009)(permit denied in part for failure to analyze legal availability for surface water depletion); Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 (Court affirmed denial of permit in part for failure to prove legal availability of stream depletion to slough and Beaverhead River); Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12 (“DNRC properly determined that Wesmont cannot be authorized to divert, either directly or indirectly, 205.09 acre-feet from the Bitterroot River without establishing that the water does not belong to a senior appropriator”; applicant failed to analyze legal availability of surface water where projected surface water depletion from groundwater pumping); *In the Matter of Application for Beneficial Water Use Permit No. 76D-30045578 by GBCI Other Real Estate, LLC* (DNRC Final Order 2011) (in an open basin, applicant for a new water right can show legal availability by using a mitigation/aquifer recharge plan or by showing that any depletion to surface water by groundwater pumping will not take water already appropriated; development next to Lake Koocanusa will not take previously

appropriated water). Applicant may use water right claims of potentially affected appropriators as a substitute for “historic beneficial use” in analyzing legal availability of surface water under § 85-2-360(5), MCA. Royston, supra.

28. Applicant has proven by a preponderance of the evidence that water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested, based on the records of the Department and other evidence provided to the Department. § 85-2-311(1)(a)(ii), MCA. (FOF 19 -23)

Adverse Effect

FINDINGS OF FACT

29. In the event of a call, the Applicant will shut down the well.

30. After five years of pumping at the requested constant rate of 177 GPM, modeling by Department hydrogeologists predicts a drawdown in excess of 1 foot occurs in wells that are 220,000 feet from the Applicant’s wells. The 1-foot drawdown contour extends past the aquifer boundaries; therefore the radius was truncated to 50,000 feet from the proposed wells. There are 2 water rights that are predicted to experience drawdown greater than 1 foot. The depth of these wells is over 5000 feet however static water levels of these wells are not recorded. These water rights are held by the Applicant. Based on depth to the Dakota Sandstone (approximately 4200 feet) and static water level in Dakota Sandstone wells (approximately 1100 feet below ground surface), 1 foot of drawdown would not adversely affect existing wells.

31. There is no predicted net depletion to surface water and therefore no adverse effect to any surface water right.

CONCLUSIONS OF LAW

32. Pursuant to § 85-2-311(1)(b), MCA, the Applicant bears the affirmative burden of proving by a preponderance of the evidence that the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. Analysis of adverse effect must be determined based on a consideration of an applicant's plan for the exercise of the permit that demonstrates that the applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied. See Montana Power Co. (1984), 211 Mont. 91, 685 P.2d 336 (purpose of the Water Use Act is to protect senior appropriators from encroachment by junior users); Bostwick Properties, Inc. ¶ 21.

33. 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(8).

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

35. In analyzing adverse effect to other appropriators, an applicant may use the water rights claims of potentially affected appropriators as evidence of their “historic beneficial use.” See *Matter of Application for Change of Appropriation Water Rights Nos. 101960-41S and 101967-41S by Royston* (1991), 249 Mont. 425, 816 P.2d 1054.

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

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

38. Adverse effect not required to be measurable but must be calculable. *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7 (DNRC permit denial affirmed; 3 gpm and 9 gpm depletion to surface water not addressed in legal availability or mitigation plan.); *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pg. 12 (“DNRC properly determined that Wesmont cannot be authorized to divert, either directly or indirectly, 205.09 acre-feet from the Bitterroot River without establishing that the water does not belong to a senior appropriator”);

applicant failed to analyze legal availability of surface water where projected depletion from groundwater pumping); *In the Matter of Beneficial Water Use Permit No. 76N-30010429 by Thompson River Lumber Company* (DNRC Final Order 2006); see also Robert and Marlene Tackle v. DNRC et al., Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994). Artesian pressure is not protectable and a reduction by a junior appropriator is not considered an adverse effect. See In re Application No. 72948-G76L by Cross, (DNRC Final Order 1991); see also In re Application No. 75997-G76L by Carr, (DNRC Final Order 1991).

39. The Applicant has proven by a preponderance of the evidence that the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. § 85-2-311(1)(b) , MCA. (FOF 29 - 31)

Adequate Diversion

FINDINGS OF FACT

40. The Applicant proposes to divert water from groundwater using a well (Well #24-11). This well was originally completed as an oil production well. It would be recompleted at 4475 feet depth for use as a water well.

41. A General Electric electrical submersible H-pump is proposed to be set in the well. The pump is rated at 6000 barrels per day (177 GPM) under a differential head of 2,800 psi. The water will be conveyed to a 500 barrel tank where a horizontal surface pump will pressurize the water and send it to the field injection system. From the water injection facility water is pumped through steel or fiberglass lines to thirty five injection wells where it is injected under pressure to flood oil-bearing zones beneath the Dakota Sandstone.

42. The recompletion was designed by engineers with Denbury Onshore LLC (Applicant). The water injection facility from well to injection wells was designed by licensed engineers.

43. The injection system is in place operating at 15,700 barrels per day (458 GPM) using existing wells. Water from the proposed application will be used to augment existing flow.

44. Modeled maximum drawdown in well #24-11 based on a constant pumping rate of 177 GPM in that well and summing modeled drawdown at the end of the diversion period of one year (40 feet) and drawdown extrapolated from the 8 hour test (283 feet) is 323 feet. This would leave approximately 3141.5 feet of available drawdown above the bottom of the well.

45. The volume of water produced and the wellhead pressure would be measured each day with a Scada System that uses flow meters and pressure gauges at the wellhead.

CONCLUSIONS OF LAW

46. 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.

47. 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.

48. Water wells must be constructed according to the laws, rules, and standards of the Board of Water Well Contractors to prevent contamination of the aquifer. *In the Matter of Application for Beneficial Water Use Permit No. 41I-105511 by Flying J Inc.* (DNRC Final Order 1999).

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

50. Applicant has proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. § 85-2-311(1)(c), MCA (FOF 40 - 45).

Beneficial Use

FINDINGS OF FACT

51. The Applicant proposes to use 177 GPM up to 286 AF from January 1 to December 31 for oil field flooding. The proposed use is beneficial to the Applicant in allowing enhanced oil recovery.

52. The current water flooding system operates at 15,700 barrels per day (458 GPM) and runs continuously twenty four hours a day for 365 days a year requiring a volume of 737 AF/YR. The current system yields an injection withdraw ratio (IWR) below 1.0. Maintaining an IWR greater than 1.0 will improve the effectiveness of the water flood system. The requested 177 GPM and 286 AF/YR in conjunction with existing wells will create and maintain an IWR greater than

1.0. The Applicant proposes to continue to use existing water wells to supply part of the required flow rate and volume.

CONCLUSIONS OF LAW

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

54. An appropriator may appropriate water only for a beneficial use. See also, § 85-2-301 MCA. It is a fundamental premise of Montana water law that beneficial use is the basis, measure, and limit of the use. E.g., McDonald, supra; Toohey v. Campbell (1900), 24 Mont. 13, 60 P. 396. The amount of water under a water right is limited to the amount of water necessary to sustain the beneficial use. E.g., Bitterroot River Protective Association v. Siebel, Order on Petition for Judicial Review, Cause No. BDV-2002-519, Montana First Judicial District Court, Lewis and Clark County (2003), *affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518; *In The Matter Of Application For Beneficial Water Use Permit No. 43C 30007297 by Dee Deaterly* (DNRC Final Order), *affirmed other grounds, Dee Deaterly v. DNRC et al*, Cause No. 2007-186, Montana First Judicial District, *Order Nunc Pro Tunc on Petition for Judicial Review* (2009); Worden v. Alexander (1939), 108 Mont. 208, 90 P.2d 160; Allen v. Petrick (1924), 69 Mont. 373, 222 P. 451; *In the Matter of Application for Beneficial Water Use Permit No. 41S-105823 by French* (DNRC Final Order 2000).

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

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

56. Applicant proposes to use water for oil filed flooding which is a recognized beneficial use. § 85-2-102(4), MCA. Applicant has proven by a preponderance of the evidence oil filed flooding is a beneficial use and that 177 GPM and 286 AF of diverted volume requested is the amount needed to sustain the beneficial use. § 85-2-311(1)(d), MCA, (FOF 51, 52)

Possessory Interest

FINDINGS OF FACT

57. The affidavit on the application form was signed by Tommy Deiss, Cedar Creek Anticline Asset Supervisor for Denbury Onshore LLC, affirming the Applicant has possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use.

CONCLUSIONS OF LAW

58. 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.

59. 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.

60. The Applicant has proven by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. § 85-2-311(1)(e), MCA. (FOF 57)

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. 42FJ 30102974 should be **GRANTED**.

The Department determines the Applicant may divert water from groundwater, by means of a well, from January 1 through December 31 at 177 GPM up to 286 AF, from a point in the SWSESW section 11 T6N R60E, Fallon County, for oil well flooding use from January 1 through December 31. The place of use is generally located in sections 32, 33, 34 T7N R60E, and sections 3, 4, 5, 9, 10, 11, 14, 15 T6N R60E, Fallon County.

NOTICE

This Department will provide public notice of this Application and the Department's Preliminary Determination to Grant pursuant to §§ 85-2-307, MCA. The Department will set a deadline for objections to this Application pursuant to §§ 85-2-307, and -308, MCA. If this Application receives no valid objection or all valid objections are unconditionally withdrawn, the Department will grant this Application as herein approved. If this Application receives a valid objection, the application and objection will proceed to a contested case proceeding pursuant to Title 2 Chapter 4 Part 6, MCA, and § 85-2-309, MCA. If valid objections to an application are received and withdrawn with stipulated conditions and the department preliminarily determined to grant the permit or change in appropriation right, the department will grant the permit or change subject to conditions necessary to satisfy applicable criteria.

DATED this 9th day of November, 2015.

/Original signed by Kimberly Overcast/
Kimberly Overcast, Manager
Billings Regional Office
Department of Natural Resources and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this _____ day of _____, 2015, by first class United States mail.

DENBURY ONSHORE LLC
5320 LEGACY DR
PLANO, TX 75024

SHANNON HEWSON
BROSZ ENGINEERING
PO BOX 357
BOWMAN, ND 58623

NAME

DATE