

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

APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 43Q 30106065 BY NESLO LLC)))	PRELIMINARY DETERMINATION TO GRANT PERMIT
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On March 29, 2016, Neslo LLC (Applicant) submitted Application for Beneficial Water Use Permit No. 43Q 30106065 to the Billings Water Resources Office of the Department of Natural Resources and Conservation (Department or DNRC) for 45 GPM flow rate and 45.82 AF volume for geothermal heating and cooling. The Applicant requested a variance from ARM 36.12.121(3)(g) requiring one or more observation wells on August 7, 2014. The variance request was granted on May 10, 2014. The Applicant submitted another variance request, dated April 28, 2016, requesting variance from aquifer testing requirements (ARM 36.12.121(3)(i and j)). The second variance was granted on July 8, 2016. The Department published receipt of the Application on its website. The Application was determined to be correct and complete as of August 22, 2016. An Environmental Assessment for this Application was completed on August 22, 2016.

INFORMATION

The Department considered the following information submitted by the Applicant.

Application as filed:

- Application for Beneficial Water Use Permit, Form 600
- Maps: USGS topographic map depicting the project location
- Form 633 Aquifer Test Data in electronic format
- Request for variance from ARM 36.12.121(3)(g) requiring one or more observation wells dated August 7, 2014
- Letter from Kimberly Overcast, Regional Manager, dated May 10, 2014, granting the August 7, 2014, variance request

Information Received after Application Filed

- E-mail from Alan Frohberg, Applicant’s consultant, to Mark Elison, Department hydrospecialist, dated April 12, 2016, providing supplemental information and the Aquifer Testing Addendum
- E-mail from Alan Frohberg, Applicant’s consultant, to Mark Elison, Department hydrospecialist, dated April 28, 2016, requesting an additional variance from aquifer testing requirements (ARM 36.12.121(3)(i and j)).
- Letter from Kimberly Overcast, Regional Manager, dated July 8, 2016, to Alan Frohberg, Applicant’s consultant, granting the April 28, 2016, variance request.
- E-mail from Alan Frohberg, Applicant’s consultant, to Mark Elison, Department hydrospecialist, dated May 9, 2016, giving annual volume estimates and indicating equal distribution of volume by month

Information within the Department’s Possession/Knowledge

- Aquifer Test Report by Department hydrogeologist, Attila Folnagy, dated May 12, 2016
- Depletion Report by Department hydrogeologist, Attila Folnagy, dated May 13, 2016
- Preliminary Determination for Application 43Q 30068497
- Hydrogeology of the West Billings Area: Impacts of Land-Use Change on Water Resources, John Olson and Jon Reiten, Montana Bureau of Mines and Geology, 2002

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 of 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; and POD means point of diversion.

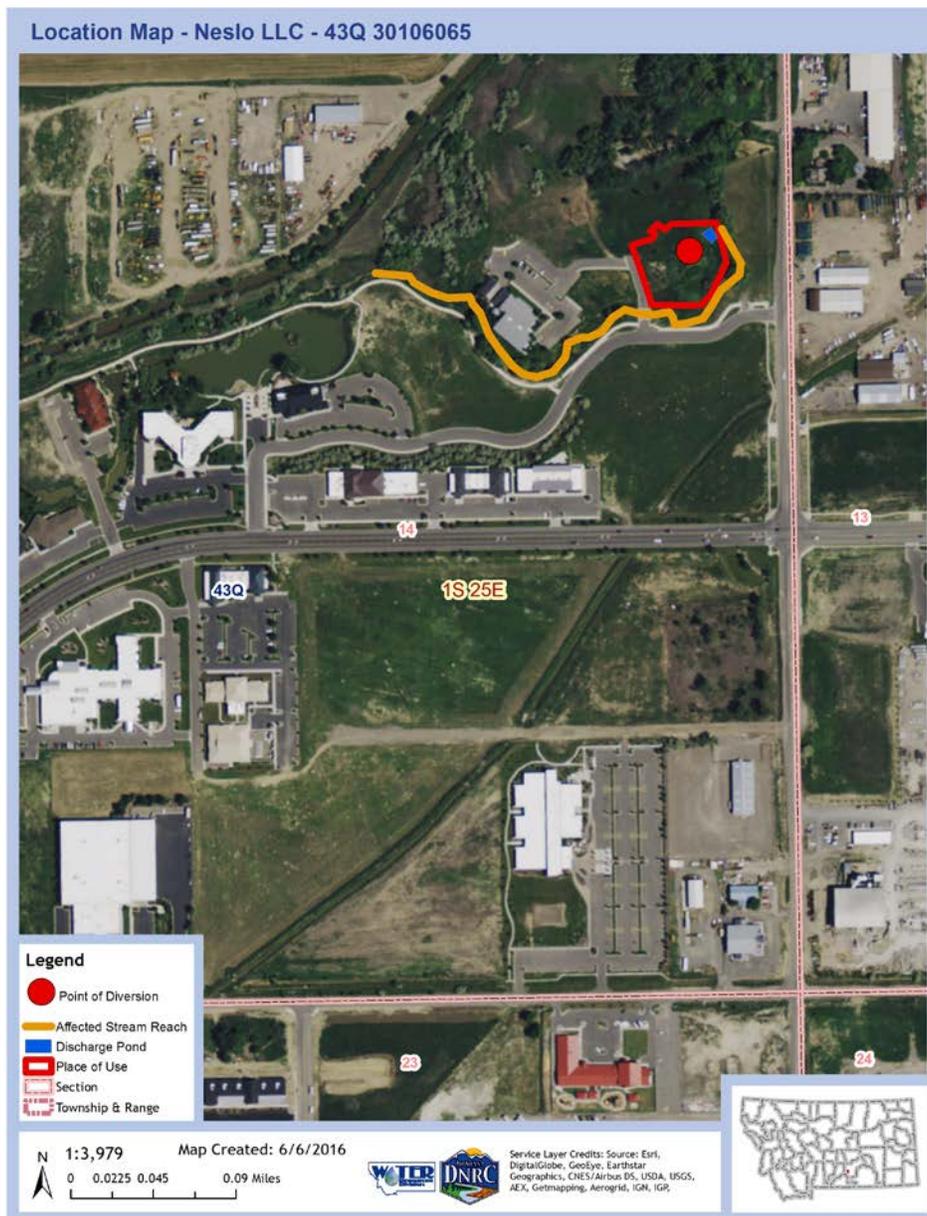
PROPOSED APPROPRIATION

FINDINGS OF FACT

1. The Applicant proposes to divert groundwater, by means of a 56 foot deep well, from January 1 to December 31 at 45 GPM up to 45.82 AF, from a point in the NENESE Section 14 T1S R25E, Yellowstone County, for geothermal heating and cooling use from January 1 to December 31. The place of use is generally located in the NENESE Section 14 T1S R25E, Yellowstone County. Water pumped from the well and circulated through the system would be

discharged to a pond from which it would overflow to Hogans Slough. An existing well provides water to the pond.

2. The proposed well is located approximately 100 feet from Hogans Slough.
3. The consumptive use of the proposed appropriation is limited to the evaporation from the discharge pond estimated at 0.33 AF/YR.



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

GENERAL CONCLUSIONS OF LAW

Preliminary Determination to Grant
Application for Beneficial Water Use Permit No. 43Q 30106065.

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.” § 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.

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, 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).

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. § 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 Applicant requested a variance from aquifer testing requirements (ARM 36.12.121) requiring one or more observation wells on August 7, 2014. The Applicant argued that there is sufficient data in the sand and gravel aquifers of the Yellowstone River Valley to not require monitoring of an additional well. That variance was granted on May 10, 2014. The Applicant requested a second variance on April 28, 2016, after submitting the application because groundwater levels were not monitored prior to beginning the aquifer test and because the data logger malfunctioned during the test. That variance was granted on July 8, 2016.

11. A 24-hour aquifer test was conducted on October 14-15, 2014, at an average flow rate of 70 GPM. The data is incomplete because the data logger malfunctioned shortly after 380 minutes. Maximum drawdown measured manually during the last 40 minutes of the test was 7.6 feet below the static water level of 7.4 feet below ground surface (bgs). Department Hydrogeologist, Attila Folnagy, modeled the results of the aquifer test and recommended a transmissivity of 5,236 ft²/day. This transmissivity is consistent with other aquifer test results in the terrace sand and gravel in the west Billings area. A S_y value of 0.1 was taken from the literature.

12. Using the Theis (1935) solution, a constant pumping rate of 28.4 GPM for one year (the flow rate required to produce the requested annual volume) and aquifer properties from above, the modeled 0.01 foot drawdown contour occurs at 10,250 feet from the well. Annual groundwater flux through the region is given by the equation, $Q = TWi$, where T is transmissivity, W is width of the zone of influence and i is the groundwater gradient. Using transmissivity of 5,236 ft²/day, width equal to 20,500 feet and a groundwater gradient from Olson (2005) of 0.003 ft/ft, annual groundwater flux is 322,014 ft³/day (5,236 ft²/day x 20,500 ft x 0.003 ft/ft) or 2,698 AF/YR.

13. Department hydrogeologist, Attila Folnagy, examined local geology and available well logs and determined that Hogans Slough for a distance of approximately 1500 feet upstream of the well is hydraulically connected to the source aquifer. Information regarding the physical availability of water in the depleted reach of Hogans Slough is detailed under adverse effect (FOF 31 - 38).

CONCLUSIONS OF LAW

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

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

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

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

Legal Availability:

FINDINGS OF FACT

18. There are 448 existing water rights within the zone of influence defined by the 0.01 foot drawdown contour. A list is in the file. Of those, 420 are Groundwater Certificates, 77 of which have no recorded volume. The legal demand for these water rights was taken as 2.5 AF representing the average volume of the 343 Groundwater Certificates for which volumes are recorded. Total annual legal demand on groundwater within the zone of influence is 2,335.55 AF/YR.

19. Below is a comparison of the water supply and current legal demands for groundwater.

Physically Available (AF/year)	Existing Legal Demands (AF/year)	Physically Available Minus Existing Legal Demands (AF/year)
2,698	2,335.55	362.45

20. Information regarding the legal availability of water in the potentially depleted reach of Hogans Slough is detailed under adverse effect (FOF 31 - 38).

CONCLUSIONS OF LAW

21. 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).

22. 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.

23. 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.

24. 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*.

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

Pgs. 5-6. A flow of water past a point on a particular date or dates does not demonstrate that water is legally available. Id.

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

27. *In the Matter of Beneficial Water Use Permit No. 62935-s76LJ by Crop Hail Management* (DNRC Final Order 1991)(Applicant showed water physically available for appropriation by producing evidence based on upstream diversions; however, he failed to show water legally available with information of downstream uses).

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 18 – 20)

Adverse Effect

FINDINGS OF FACT

29. Because the appropriation is for heating and cooling of an office building that will be occupied year around, the appropriator can’t turn off the system if call is made. The system was designed to be non-consumptive in order to avoid any adverse effect. However, because the system diverts groundwater and releases it to surface water, there is a depleted stream reach and a consumptive volume attributable to the system of 0.33 AF/YR.

30. Using the aquifer parameters given above and a constant pumping rate of 28.4 GPM for five years, the modeled one foot drawdown contour occurs at 35 feet from the proposed well. There are no water rights in the source aquifer predicted to experience drawdown greater than one foot.

31. Hogans Slough in the reach extending from approximately 1500 feet upstream from the outlet from the pond where the heating/cooling system discharges to the confluence with the 29th Street Drain is the surface water source predicted to be depleted by the groundwater appropriation. Depletion modeling suggests that Hogans Slough is hydraulically connected to groundwater in the area of the proposed well.

32. Water used for the geothermal heating/cooling system is discharged to a pond that overflows to Hogans Slough. Below the discharge from the pond, the depletion to Hogans Slough is due only to the evaporation from the pond. Although water is returned to Hogans Slough at the outlet, the reach of the slough upstream of the outlet does not benefit from that return. Moreover, there is 0.33 AF of consumption from evaporation in the outlet pond (Potts, 1988) and Hogans Slough downstream of the outlet would be depleted by that amount. According to Olsen and Reiten (2002) the 29th Street Drain approximately doubles the flow in Hogans Slough and is an appropriate lower end of the affected reach. Hogans Slough upstream from the discharge from the pond will experience depletion of the full 45.82 AF of diverted volume spread evenly over the year. Department hydrogeologists have determined that the affected reach that does not benefit from overflow returned to Hogans Slough begins approximately 1,500 feet upstream of the overflow outlet location.

33. Hogans Slough is not gaged and there are no nearby streams of similar character that are gaged. Measurements of the flow in Hogans Slough at two locations below the confluence with the Shiloh Drain were made by consultants for the City of Billings in 2012 as part of the application for water right 43Q 30068497. Olson and Reiten (2002) suggest that Hogans Slough at the mouth carries 4-6 CFS in the winter and 80-100 CFS during the irrigation season. They indicate that half of the flow comes from the 29th Street Drain and that one quarter of the flow comes from Shiloh Drain and one quarter originates upstream of Shiloh Drain. This suggests that within the depleted reach Hogans Slough carries 2-3 CFS in the winter and 40-50 CFS in the irrigation season which is consistent with available measurements.

34. The physical availability of water in the potentially depleted reach of Hogans Slough was estimated by taking the monthly average of all available measurements for April through October and calculating for the winter months based on proportional monthly decreases in flow extrapolated in 43Q 30068497. The table below shows the resulting monthly flow and volume in the depleted reach of Hogans Slough.

Month	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
Flow rate (CFS)	3.63	3.33	2.95	2.73	35.64	34.22	51.87	39.55	32.47	12.61	5.46	4.34
Volume	222.8	184.6	181.1	162.2	2187.6	2032.7	3183.8	2427.6	1930.5	773.3	324.3	266.4

(AF)												
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35. Flow in Hogans Slough will experience different depletion depending on location with respect to the outlet from the system. The affected reach above the outlet will be depleted by the full diverted volume. The reach downstream of the outlet will benefit from the water returned from the system and be depleted less. The table below shows depletions modeled by the Department for the affected reach and the downstream reach of Hogans Slough.

Month	Pond Evaporation (AF)	Affected Reach Consumption (AF)	Downstream Depletion (AF)	Affected Reach Depletion (AF)	Downstream Depletion (GPM)	Affected Reach Depletion (GPM)
January	0.00	3.82	0.00	3.82	0.00	27.88
February	0.00	3.82	0.00	3.82	0.00	27.88
March	0.00	3.82	0.00	3.82	0.00	27.88
April	0.00	3.82	0.00	3.82	0.04	27.88
May	0.04	3.82	0.04	3.82	0.27	27.88
June	0.07	3.82	0.07	3.82	0.50	27.88
July	0.09	3.82	0.09	3.82	0.66	27.88
August	0.08	3.82	0.08	3.82	0.60	27.88
September	0.04	3.82	0.04	3.82	0.30	27.88
October	0.01	3.82	0.01	3.82	0.08	27.88
November	0.00	3.82	0.00	3.82	0.00	27.88
December	0.00	3.82	0.00	3.82	0.00	27.88
Total	0.33	45.82	0.33	45.82		

36. There are three water rights above the affected reach and below the point at which measurements were taken in 2012 (43Q 211109-00, 43Q 179728-00 and 43Q 29373-00). There are no water rights within the affected reach. Water right 43Q 29373-00 appropriates 8 CFS from Hogans Slough beginning on April 1st of each year. The primary diversion is a ditch cut high in the side of the slough. Measurements during site visits by the Department and Applicant show that this ditch lies 2 to 3 feet above the bed of the slough. This ditch cannot divert water from Hogans Slough unless the slough is running full. At flow rates of 7 to 8 CFS in Hogans Slough in January, the diversion ditch was 1.5 to 2.0 feet above the water level. The primary diversion requires irrigation season flows in Hogans Slough and during irrigation season there is available water above the amounts otherwise legally allocated. The place of use for irrigation water right

43Q 29373-00 is now occupied by a major transportation facility and it is unlikely that water is diverted even when possible during the irrigation season. The tables below compare the flow rate and volume of physically available water in Hogans Slough and the legal demands including 43Q 29373-00.

Flow Rate (CFS)

Month	Physical Availability	Existing Legal Demands	Physical Availability Minus Legal Demands
January	3.63	0	3.63
February	3.33	0	3.33
March	2.95	0	2.95
April	2.73	9.5	-6.77
May	35.64	14.1	21.54
June	34.22	14.1	20.12
July	51.87	14.1	37.77
August	39.55	14.1	25.45
September	32.47	14.1	18.37
October	12.61	12.6	0.01
November	5.46	0	5.46
December	4.34	0	4.34

Volume (AF)

Month	Physical Availability	Existing Legal Demands	Physical - Legal
January	222.8	0	222.8
February	184.6	0	184.6
March	181.1	0	181.1
April	162.2	222.14	-59.94
May	2187.6	326.20	1861.40
June	2032.7	315.66	1717.04

July	3183.8	326.20	2857.60
August	2427.6	326.20	2101.40
September	1930.5	315.66	1614.84
October	773.3	302.47	470.83
November	324.3	0	324.3
December	266.4	0	266.4

37. Water right 43Q 29373-00 is unable to divert water in April based on the historic diversion structure. Additionally, the place of use for water right 43Q 29373-00 is no longer agricultural land and thus any future use would require a change application that would include a finding on the historic diversion. Therefore, the historic flow and volume associated with water right 43Q 29373-00 can be removed from the legal demands shown above for the upstream reach of Hogan Slough. Because the physically available water exceeds the legal demands in all other months, water can be considered legally available in the depleted reach during the proposed period of diversion.

38. There are no surface water rights within the affected reach of Hogans Slough. Below the outlet from the overflow pond, the depletions to Hogans Slough would be a maximum of 0.66 GPM and 0.09 AF in July. There would be no downstream depletion over six months of the year. During the irrigation seasons, when depletions would occur, Hogans Slough receives run-off and return flows from irrigation and water is legally available in excess of predicted depletions.

CONCLUSIONS OF LAW

39. 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.

40. 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).

41. 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.

42. 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.

43. 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.

44. 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.

45. Simply asserting that an acknowledged reduction, however small, would not affect those with a prior right does not constitute the preponderance of the evidence necessary to sustain applicant’s burden of proof. *Wesmont Developers v. DNRC*, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11 (Court rejected applicant’s argument that net depletion of .15 millimeters in the level of the Bitterroot River could not be adverse effect.); *Sitz Ranch v. DNRC*, DV-10-13390, Fifth Judicial District Court, *Order Affirming*

DNRC Decision, (2011) Pgs. 3-4 (Court rejected applicant's arguments that its net depletion (3 and 9 gpm, respectively to Black Slough and Beaverhead River) was "not an adverse effect because it's not measurable," and that the depletion "won't change how things are administered on the source.").

After calculating the projected depletion for the irrigation season, the District Court in Sitz Ranch v. DNRC explained:

Section 85-2-363(3)(d) MCA requires analysis whether net depletion will adversely affect prior appropriators. Many appropriators are those who use surface water. Thus, surface water must be analyzed to determine if there is a net depletion to that resource. Sitz's own evidence demonstrates that about 8 acre feet of water will be consumed each irrigation season. Both Sitz and any other irrigator would claim harm if a third party were allowed to remove 8 acre feet of water each season from the source upon which they rely.

Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pgs. 3-4.

46. Constant call is adverse effect. *In the Matter of Application for Beneficial Water Use Permit Nos. 56782-76H and 5830-76H by Bobby D. Cutler* (DNRC Final Order 1987); *In the Matter of Application for Beneficial Water Use Permit No. 80175-s76H by Tintzmen* (DNRC Final Order 1993); *In the Matter of Application for Beneficial Water Use Permit No. 81705-g76F by Hanson* (DNRC Final Order 1992)(applicant must show that at least in some years no legitimate call will be made); *In the Matter of Application for Beneficial Water Use Permit No. 76N 30010429 by Thompson River Lumber Company* (DNRC 2006).

47. 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).

48. 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 - 38)

Adequate Diversion

FINDINGS OF FACT

49. Water will be diverted from the well by a 4-inch diameter submersible Franklin Electric pump capable of diverting up to 45 GPM and conveyed approximately 30 feet to a heat exchange system. From that system the water is conveyed approximately 75 feet to a 0.1 AC pond. Water overflows from the pond to Hogans Slough.

50. Department hydrogeologists used two methods to determine maximum drawdown in the well. Fitting a trendline to drawdown data from 20 to 1440 minutes on a semi-logarithmic graph and extrapolating to 365 days assuming the well is pumped continuously predicts drawdown of 9.2 feet at the end of the period of diversion. A second method that adds modeled aquifer drawdown and drawdown from daily pumping generates maximum drawdown of 8.5 feet. The well is 55 feet deep with static water level of 7.4 feet bgs. Drawdown predicted by the two methods would leave 38.4 feet and 39.1 feet, respectively, of water column above the bottom of the well.

51. The well was completed by American Drilling & Supply, a licensed drilling contractor.

52. The geothermal heating and cooling system was designed by CTA Construction & Environmental LLC, Great Falls, Montana.

CONCLUSIONS OF LAW

53. 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.

54. 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.

55. 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).

56. 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).

57. 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 49 - 52).

Beneficial Use

FINDINGS OF FACT

58. Mechanical engineering design and modeling of the heat exchange system by the Applicant indicated that the system requires the pump to provide up to 45 GPM.

59. The annual volume necessary to run the heat exchange system based upon an estimated run time for the pump of 5,530 hours per year is 45.82 AF (5530 hours x 60 min/hr x 45 GPM / 325851 gal/AF = 45.82 AF). The required volume is evenly distributed over the year.

CONCLUSIONS OF LAW

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

61. #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).

62. 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.

63. Applicant proposes to use water for geothermal heating and cooling. This is beneficial to the Applicant in the operation of an orthodontics facility. Applicant has proven by a preponderance of the evidence geothermal heating and cooling is a beneficial use and that 45 GPM flow rate and 45.82 AF of diverted volume of water requested is the amount needed to sustain the beneficial use. § 85-2-311(1)(d), MCA, (FOF 58, 59)

Possessory Interest

FINDINGS OF FACT

64. Janine Olsen signed the affidavit on the application form for the Applicant 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

65. 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.

66. 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.

67. 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 64)

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. 43Q 30106065 should be **GRANTED**.

The Department determines the Applicant may divert groundwater, by means of a 55 foot deep well, from January 1 to December 31 at 45 GPM up to 45.82 AF, from a point in the NENESE Section 14 T1S R25E, Yellowstone County, for geothermal heating and cooling use

from January 1 to December 31. The place of use is located in NENESE Section 14 T1S R25E, Yellowstone County, Transtech Center Subdivision Amended Lot 1A1 Block 1.

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 29th day of September, 2016.

/Original signed by Kimberly Overcast/
Kimberly Overcast, Manager
Billings 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 _____ 2016, by first class United States mail.

NESLO LLC
4705 SECRET VALLEY DR
BILLINGS, MT 59101

ALAN T FROHBERG
CTA CONSTRUCTION AND ENVIRONMENTAL
219 2ND AVE S
GREAT FALLS, MT 59405

MARK ELISON

DATE