

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

**ENVIRONMENTAL ASSESSMENT**  
**For Routine Actions with Limited Environmental Impact**

**Part I. Proposed Action Description**

1. *Applicant/Contact name and address:* Montana Army National Guard  
PO Box 4789  
Fort Harrison, MT 59636
2. *Type of action:* Application For Beneficial Water Use Permit  
76M-30049151
3. *Water source name:* Ground water
4. *Location affected by project:* SE¼ NE¼ Section 21, T 14 N, R 20 W, Missoula Co.
5. *Narrative summary of the proposed project, purpose, action to be taken, and benefits:*

The proposed diversion (AFRC Extraction Well) is a 235ft. deep ground water well, located in the SENE of Section 21, T14N, R20W, Missoula County. Water will be diverted at a maximum rate of 215 gallons per minute (GPM) up to a diverted volume of up to 20 acre-feet (AF) from May 1 – September 30 for geothermal cooling. The proposed appropriation is generally located in an area locally known as the Wye, approximately 5 miles northeast of the Missoula City limits in the Missoula valley. The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met.

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

Montana Natural Heritage Program

## **Part II. Environmental Review**

### **1. Environmental Impact Checklist:**

<b>PHYSICAL ENVIRONMENT</b>
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#### **WATER QUANTITY, QUALITY AND DISTRIBUTION**

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

*Determination:* No impacts.

The source is ground water proposed for geothermal cooling to be injected back to the source after use.

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

*Determination:* No Impacts.

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

*Determination:* No significant impacts.

The proposed diversion (AFRC Extraction Well) is a 235ft. deep ground water well, located in the SENE of Section 21, T14N, R20W, Missoula County. Water will be diverted at a maximum rate of 215 gallons per minute (GPM) up to a diverted volume of up to 20 acre-feet (AF) from May 1 – September 30 for geothermal cooling. Ground water will be diverted from the extraction well to supply a geothermal or ground source heat exchange pump to cool Building A (the POU), and then re-injected (discharged) into the source aquifer via two injection wells. The zone of influence from pumping the extraction well is the 0.01 feet drawdown contour which radiates to the northeast approximately 624 feet with a radius of approximately 312 feet and does not intersect any surface water sources. Due to the non-consumptive nature of the appropriation there will be no impact to surface water or ground water availability.

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

*Determination:* No significant impacts.

The Extraction Well is 235 feet deep, and the steel casing is 10.8 inches in diameter from the ground surface to a depth of 215 feet. The stainless steel wire-wrap well screen (60-slot) is 9.5 inches in diameter and extends from 210 to 230 feet below ground surface (bgs). The East

Injection well is located 146 feet from the Extraction (pumping) well. The East well was drilled to a total depth of 270 feet bgs and is screened from 245-265 feet bgs. The West injection well was installed after the aquifer test was conducted, and is 200 feet deep. The West well was perforated with a Holte tool from 140-145 feet and 170-180 feet bgs. All three project wells were constructed by a licensed well driller.

**UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES**

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

*Determination:* No significant impacts

The Montana Historical Society (MHS) was contacted to determine if there are any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern", that could be impacted by the proposed project. MHS identified the following animal and plant species that are threatened, or have special status, that are located regionally.

Western Skink, a stonefly, bobolink, Gray Wolf, Bald Eagle, Westslope Cutthroat Trout and the Grasshopper Sparrow.

The proposed groundwater appropriation will occur at the intersection of Interstate 90 and Highway 93. The setting is commercial development and rural residential development. The proposed project is an approximately 80,000 square feet newly constructed Armed Forces Reserve Center. The area of the new construction does not currently provide quality habitat for the above listed species.

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

*Determination:* No impacts.

There are no wetlands identified in the area of the proposed project.

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

*Determination:* No impacts.

There are no ponds identified in the area of the proposed project.

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

*Determination:* No Impacts.

The geothermal well locations are within an area mapped as Quaternary-age Glacial Lake Missoula deposits (Montana Bureau of Mines and Geology Open File Report 373; 1998). Lake Missoula sediments drape the low areas and minor drainages within the Tertiary foothills that rim the northern portion of the Missoula Valley. North and east of the AFRC site, the geology is dominated by Tertiary gravel and clay deposits that extend for approximately two miles into the foothills. The Tertiary sediments may be channel and flood plain deposits of the ancestral Clark Fork River, and if so they are equivalent to the Renova Formation of southwest Montana. The deposits include well-sorted and well rounded cobbles, gravel, sand, silt, clay, and volcanic ash. Only the coarser intervals within the Tertiary deposits are permeable.

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

*Determination:* No significant impacts.

Currently, the site is a developed collection of three buildings for use by the Montana National Guard. The site will be adequately landscaped to reduce the potential for spread of noxious weeds.

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

*Determination:* No significant impacts.

Air quality would not be impacted by the use of a well for geothermal cooling of the Applicant's building.

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

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

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

*Determination:* No impacts not already assessed.

## HUMAN ENVIRONMENT

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

*Determination:* No impacts.

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

*Determination:* No impacts.

The proposed project will not impair access to recreational or wilderness activities.

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

*Determination:* No impacts.

**PRIVATE PROPERTY** - *Assess whether there are any government regulatory impacts on private property rights.*

Yes \_\_\_ No x *If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.*

*Determination:* No impacts.

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

*Impacts on:*

- |  |      |
|--|------|
| (a) <u>Cultural uniqueness and diversity?</u>                  | None |
| (b) <u>Local and state tax base and tax revenues?</u>          | None |
| (c) <u>Existing land uses?</u>                                 | None |
| (d) <u>Quantity and distribution of employment?</u>            | None |
| (e) <u>Distribution and density of population and housing?</u> | None |
| (f) <u>Demands for government services?</u>                    | None |
| (g) <u>Industrial and commercial activity?</u>                 | None |
| (h) <u>Utilities?</u>  | None |
| (i) <u>Transportation?</u>                                     | None |

(j) Safety? None

(k) Other appropriate social and economic circumstances? None

2. ***Secondary and cumulative impacts on the physical environment and human population:***

Secondary Impacts None identified

Cumulative Impacts None identified

3. ***Describe any mitigation/stipulation measures:*** There are no mitigation/stipulation measures identified for the proposed action.

4. ***Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*** The no action alternative is the only alternative considered for the proposed action. Under the no action alternative, the applicant would be unable to obtain a water right for use of the proposed project well.

*PART III. Conclusion*

1. ***Preferred Alternative***

2. ***Comments and Responses***

3. ***Finding:***

Yes \_\_\_ No x Based on the significance criteria evaluated in this EA, is an EIS required?

*If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:* An EA is the appropriate level of analysis for this proposed action because no significant impacts have been identified as a result of the proposed action.

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

Name: Patrick Ryan

Title: Water Resource Specialist

Date: December 21, 2010