

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:*

BRADLEY W. & VIRGINIA K. DAWS
512 OLD FARM RD
BOZEMAN, MT 59715-8473

2. *Type of action:* APPLICATION TO CHANGE AN EXISTING NON-IRRIGATION WATER RIGHT NO. 41H 30067730. The Applicant has drilled a replacement well and filed an application to change the point of diversion (POD) for Provisional Permit No. 41H 30010360. The Applicant proposes to supply domestic water for one residence and irrigation water for 1 acre within the Bozeman Solvent Site Controlled Groundwater Area (BSS CGA).
3. *Water source name:* GROUNDWATER. Water will be diverted from a depth of 300 feet using a well with a submersible pump. The well is located approximately 130 feet northeast of the East Gallatin River.
4. *Location affected by project:* NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ of SECTION 25, T01 S, R05 E, GALLATIN COUNTY. The well is located at 512 Old Farm Road, private property owned by the Applicant, in a rural agricultural area north of the East Gallatin River and Interstate 90 and between Riverside Country Club and Bridger Creek Golf Course. The well is located generally in the northwest part of the 20.735 acres that comprise Parcel 7 of Certificate of Survey 1498A. (See Figure 1 for a map on the next page.)



Figure 1: Map of location affected by project.

5. *Narrative summary of the proposed project, purpose, action to be taken, and benefits:*
 The Applicant proposes to use a new replacement well to supply domestic water to one residence and irrigation water for 1 acre, for a total diversion of 20 gallons per minute (GPM) up to 3.5 acre-feet (AF) per year. The replacement well is located within the BSS CGA. Based on the criteria issued in the DNRC’s July 20, 1998, BSS CGA Final Order, this is a Type A well because the flow rate is less than 35 GPM and the annual volumetric usage is less than 10 AF. The original well supplying this residence was drilled in 2004 to a depth of 80 feet. The subsequent deeper well has been drilled in order to obtain water from below the BSS plume, which is contaminated with tetrachloroethylene (PCE), and to provide safe domestic water.

The DNRC shall authorize a change if the Applicant proves that the criteria in 85-2-402, MCA, are met.

6. *Agencies consulted during preparation of the Environmental Assessment:*
 - Montana Department of Fish, Wildlife & Parks (FWP) – Montana Fisheries Information System (MFISH)
 - <http://fwp.mt.gov/fishing/mFish/>

- Montana Department of Environmental Quality (DEQ) – Clean Water Act Information Center (CWAIC)
 - <http://deq.mt.gov/wqinfo/CWAIC/default.mcpx>
- Montana National Heritage Program (MTNHP) – Species of Concern:
 - <http://mtnhp.org/SpeciesOfConcern>
- U.S. Fish & Wildlife Service (USFWS) – National Wetlands Inventory Wetlands Mapper
 - <http://www.fws.gov/wetlands/Data/Mapper.html>
- Natural Resource Conservation Service (NRCS) – Web Soil Survey (WSS)
 - <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

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

Determination: No significant impact. The source of water is a groundwater well, which is not listed as chronically or periodically dewatered according to a January 16, 2015, search of the DFWP MFISH website. The Applicant is proposing to continue existing use and not to expand the current flow rate or volume of water diverted or consumed. The nearest surface water is the East Gallatin River, located approximately 130 feet from the well, which is not listed as chronically or periodically dewatered by DFWP. Pumping from the replacement well will not have a significant impact on flows in the East Gallatin River.

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

Determination: No significant impact. This well is not listed on the DEQ 303(d) list. The BSS CGA was listed as a controlled groundwater area because water quality is a problem. The Applicant is proposing to drill a deeper well to avoid contaminants in the groundwater.

A January 16, 2015, search of the DEQ CWAIC website revealed that the East Gallatin River in the project area, defined as the reach from Bridger Creek to Smith Creek, is listed as not supporting primary contact recreation or aquatic life. It has not been assessed for drinking water or agricultural uses. DEQ lists the following impairment information: alteration in stream-side or littoral vegetative covers, excess algal growth, low flow alterations, total nitrogen, total phosphorous, and pH.

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 impact. The source of water is a groundwater well. The well is located in the BSS CGA. The fact that the BSS CGA was designated a controlled groundwater area indicates that water quality is a problem. Groundwater quality should not be impacted by the replacement of a well that is currently withdrawing water from the aquifer. The flow rate and annual volume of water withdrawn from the well will remain the same.

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

Determination: No significant impact. The replacement well is located approximately 50 feet west of the existing well and will not pump any more water than was historically pumped from the existing well. The replacement well will not have any significant channel or flow impacts. It should not significantly affect riparian areas or create any barriers.

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 impact. According to a search of MTNHP website, conducted on January 16, 2015, seven animal Species of Concern may be found within the project area: Little Brown Myotis, Great Blue Heron, Veery, Bobolink, Pacific Wren, Hooked Snowfly, and Western Pearlshell. MTNHP did not identify any animal Potential Species of Concern. One animal is listed as a Special Status Species: Bald Eagle.

MTNHP lists two plant Species of Concern that may be found within the project area: Rocky Mountain Twinpod and Small Dropseed. Slender Wedgegrass is the only plant Potential Species of Concern.

As this proposed application is to divert water from a well located on private property, no significant impacts will occur to threatened, endangered, or special concern species. The pumping of groundwater will not decrease surface water flows to significantly impact any of these 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: Not applicable. A January 16, 2015, search of the USFWS Wetlands Mapper website indicates that no wetlands are located in the area where the existing or proposed wells have been drilled.

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

Determination: Not applicable. No ponds are involved in the 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 significant impact. A January 16, 2015, search of the NRCS WSS site did not identify any saline seeps in the area. This well has been constructed by Van Dyken Drilling Inc, a licensed driller (license number WWC-656), in accordance with rules of the Board of Water Well Contractors, so there should not be significant impacts on nearby soil quality. Use of water will occur in a manner consistent with locally accepted, historic practices and will not significantly impact soil quality.

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 impact. This well has been constructed by Van Dyken Drilling Inc., a licensed driller (license number WWC-656), in accordance with rules of the Board of Water Well Contractors, so there should not be significant impacts on nearby vegetative cover. A small area was disturbed by drilling the well, but this should have no significant impact on the surrounding area's vegetative cover and neither should it allow the establishment 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 impact. No deterioration of air quality will result from the drilling of this well or diversion of water from it.

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 N/A – Project not located on State or Federal Lands.

Determination: Not applicable. The project is not located on State or Federal Lands. Furthermore, the Applicant made no mention of significant historical or archeological sites on the property.

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 significant impact. No other demands on environmental resources of land, water, and energy are anticipated.

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 significant impact. Drilling wells for water supply and using water for domestic purposes and for lawn and garden irrigation are locally accepted practices within the state of Montana and the Gallatin Valley.

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 significant impact. The proposed project is located entirely on private property in a rural neighborhood and will not impact access to or the quality of recreational and wilderness activities.

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

Determination: No significant impact. The water will be used to supply one home for domestic purposes. The Applicant is proposing to divert water from a deeper well in order to avoid contaminants, primarily PCE, that are present in the groundwater of the BSS CGA at shallower depths, so this project should have a positive impact on human health.

A March 2011 DEQ Fact Sheet entitled “Individual Drinking Water Wells – Water Quality Monitoring & Treatment” notes that water quality from individual drinking water wells is monitored only by the owner and is “generally not subject to any drinking water standards.” The Applicant maintains sole responsibility for testing and treatment of water for any and all domestic purposes.

The DNRC 1998 Final Order concerning the BSS made a number of stipulations in order to protect human health. First, Applicants must obtain a drilling license from the DNRC before drilling a well in the BSS CGA. In the current instance, the Applicant’s Provisional Permit was originally issued in 2004. The Applicant received a drilling license before drilling the replacement well: The license was issued October 7, 2014, and the well was drilled December 30, 2014.

The Final Order requires that on-site treatment systems be installed if water from a well in the BSS CGA contains concentrations of PCE greater than 5 parts per billion (ppb). Water from the replacement well was tested by Energy Laboratories, Inc., and concentrations of PCE were below the 0.5 µg/L detection threshold (1 ppb = 1 µg/L). The Applicant is required to maintain a dedicated space to accommodate installation of a treatment system if future groundwater conditions change.

Finally, if and when the City of Bozeman extends its municipal water supply lines to the Applicant’s area, they are required to connect to the municipal lines and to discontinue all use of groundwater for domestic and drinking purposes. The City of Bozeman has no immediate plans to expand their municipal lines to the project area.

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 impact. The project does not impact government regulations on private property rights.

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

Impacts on:

- (a) Cultural uniqueness and diversity? No impacts identified.
- (b) Local and state tax base and tax revenues? No significant impacts identified.
- (c) Existing land uses? No significant impacts identified.
- (d) Quantity and distribution of employment? No impacts identified.
- (e) Distribution and density of population and housing? No significant impacts identified.
- (f) Demands for government services? No significant impacts identified.
- (g) Industrial and commercial activity? No impacts identified.
- (h) Utilities? No impacts identified.
- (i) Transportation? No impacts identified.
- (j) Safety? No impacts identified.
- (k) Other appropriate social and economic circumstances? No impacts identified.

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

Secondary Impacts: It is unknown at this time if the removal of water from the aquifer beneath the BSS CGA will have additional impacts on water quality or the distribution and extent of the contaminant plume. The human population may be impacted if the solvent plume is drawn into a new area.

Cumulative Impacts: It is unknown at this time if the removal of water from the aquifer beneath the BSS CGA will have additional impacts on water quality or the distribution and extent of the contaminant plume. The human population may be impacted if the solvent plume is drawn into a new area.

3. **Describe any mitigation/stipulation measures:** Pursuant to the DNRC's July 20, 1998, Final Order regarding the BSS CGA, wells containing concentrations of PCE which equal or exceed 5 ppb require the installation of an on-site water treatment system as a condition of permit approval. Owners of wells determined by the initial analysis not to contain concentrations of PCE greater than 5 ppb will not be required to install individual water treatment systems prior to the issuance of a provisional permit; however, they will be required to provide a dedicated space to accommodate installation of a water treatment system if groundwater conditions change in the future. The Applicant's replacement well was drilled deeper to divert water from below the contaminant plume. Energy Laboratories, Inc. tested water from the replacement well, with PCE levels below the detection threshold of 0.5 ppb. Therefore, the Applicant is not required to install an on-site treatment system, but is required to maintain a dedicated space to accommodate installation of a treatment system if future groundwater conditions change.

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:** Drilling deeper is the preferred alternative. The City of Bozeman may be able to extend their water supply line to this area. When and if the City extends its municipal water lines into this area of the BSS CGA, the DNRC's Final Order requires that well owners connect to the water system and discontinue use of groundwater for drinking water and other domestic uses. Irrigation and stock use could continue.

Alternately, a well could be drilled outside the contaminated area, and water could be pumped to an on-site storage tank, which could supply all new growth within Old Farm Subdivision. These alternatives may be cost prohibitive.

PART III. Conclusion

1. **Preferred Alternative:** The preferred alternative is for the DNRC to issue a Change Authorization for the Applicant to use the replacement well if the Applicant has proven that the criteria in 85-2-402, MCA, are met.

2. **Comments and Responses:** None at this time.

4. **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: The EA is the appropriate level of analysis because the proposed project is to drill a replacement well in the BSS CGA for domestic use, which is a locally accepted practice, and no significant adverse effects are anticipated. None of the identified impacts for any of the alternatives is significant as defined in ARM 36.2.524.

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

Name: Brent Zundel

Title: Water Resource Specialist

Date: January 20, 2015