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:** Udell Sharp, 1378 Clover Rd, Helena, MT 59602-7044

2. **Type of action:** Application for Beneficial Water Use Permit No. 41I-100284-00

3. **Water source name:** Groundwater Well

4. **Location affected by action:** SESESW, Sec 05, Twp 10N, Rge 03W, Lewis and Clark County

5. **Narrative summary of the proposed project and action to be taken:** This application proposes to appropriate ground water using a 40 hp pump from a 166 foot deep, 8-inch cased well located in the SESESW, Sec 05, Twp 10N, Rge 03W, Lewis and Clark County at a rate of 400 gpm up to 160 acre-feet per year. A licensed well driller drilled the well in May 1997. The water would be used yearly from April 1 through September 30 to sprinkler irrigate 39 acres of alfalfa and alfalfa/grass in the SESW, Sec 05, Twp 10N, Rge 03W, Lewis and Clark County. Approximately 2.2 inches of water would be applied to the field weekly through two quarter-mile wheel line laterals fitted with 62 3/16-inch sprinkler nozzles. The laterals, moved twice per day, would have 60-foot sets and each lateral would be operated through 11 sets. Water is supplied to the wheel line lateral from a 6-inch diameter mainline.

   The DNRC shall issue a water use permit to the applicant if the criteria in 85-2-311, MCA are met.

6. **Agencies consulted during preparation of the Environmental Assessment:**
   SHPO (State Historical Preservation Office)
   MTNHP (Montana Natural Heritage Program)
   DNRC – Karl Christians, Floodplain Manager
   DNRC – Jim Beck, Helena Regional Office Engineer
   Lewis & Clark County Planning Dept. - Marni Bentley

Part II. Environmental Review

PHYSICAL ENVIRONMENT

Water quantity, quality and distribution

Water quantity: Determine whether the source of supply is identified as a dewatered stream by DFWP or listed as chronically dewatered by DNRC. Determine whether the proposed use will worsen the already dewatered condition.

Determination: **Not applicable as the source of supply for this water right application is not from a surface water source.**

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

Determination: **Not applicable as the source of supply for this water right application is not from a surface water source.**

Groundwater: Determine if the proposed project impacts ground water quality or supply by either depleting ground water or by degrading ground water quality from return flows.
If this is a groundwater appropriation, determine if it could impact adjacent surface water flows.

Determination: **No significant impact. Groundwater in this area is abundant as evidenced by the relative constant water levels in nearby wells and by free flowing field drains just down slope. The well in question has been pumped without problems of water availability.**

The quality of the existing water supply is acceptable for irrigation. Irrigation, if done improperly, can move fertilizer (notably nitrogen) and other agricultural chemicals through the soil into ground water. The system design and operating plan of the applicant is designed to minimize over-irrigation that would minimize any fertilizer or chemical movement through the soil. Additionally, the water measurement condition, already accepted by the applicant, would offer a yearly check for seasonal over-irrigation. The hay crops to be grown by the applicant have less of a potential for fertilizer movement than annual crops because of the fertilizer mix that is normally applied to these crops and the deeper rooting depth of the crops.

Tenmile Creek flows near the well on its southeast side. There is a 14-foot thick clay and silt layer at 80 feet below the surface in the area of the well. Indications are that the layer is not extensive throughout the Helena Valley. Pumping tests do indicate that the layer does isolate the groundwater below it from shallower groundwater. Tenmile Creek would be affected by the pumping of this well only if shallow groundwater in connection with the creek is affected, which is unlikely given the scope and design of this proposal.

A hearing examiner considered hydrology information provided by several parties at the hearing for the water use permit on March 5, 1999. Her conclusion, as set forth in the Proposal for Decision, is that other water rights, including rights from Tenmile Creek

would not be affected. The decision was based, in part, on an aquifer test at the subject well which did not cause drawdown in nearby shallow wells.

Per the flood insurance rate map, panel 1529 for Lewis and Clark County, this well may be within the 100-year floodplain boundary. A portion of the eastern part of the field appears to be in the 100 and 500-year floodplain area. The applicant may need to obtain a flood development permit from the county flood plain administration. The top of the well casing should extend 18 inches above the level of the flood elevation (Sec 36.21.647, ARM).

Diversion works

Determine 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 well is 166 feet deep and incorporates an 8-inch casing grouted with bentonite to a depth of 20 feet. The well produces from perforations at 94-108, 116-140, and 150-160 feet. A licensed well driller drilled the well in May 1997 in accordance with the Montana Board of Water Well Contractors construction standards. Approximately 2.2 inches of water would be applied to the field weekly through two quarter-mile wheel line laterals fitted with 62 3/16-inch sprinkler nozzles. The laterals, moved twice per day, would have 60-foot sets and each lateral would be operated through 11 sets. Water is supplied to the wheel line lateral from a 6-inch diameter mainline. The lateral is typical for the Helena Valley. The proposed management of the system minimizes deep percolation.**

Unique, endangered, fragile or limited environmental resources

Endangered and threatened species: Determine 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, determine 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 to endangered and threatened species is likely to occur. Per a query with MTNHP, the bald eagle was listed as a species of special concern for this general area. However, the sighting was not within this project's legal land description. Per the map submitted from the MTNHP, these species appear to be located east of Interstate 15. The project area is located west of Interstate 15 between Montana Avenue and the interstate. It is unlikely that this corridor is regularly used by wildlife.**

Wetlands: For wetlands, consult and determine whether existing fisheries resources or wetlands resources would be impacted.

Determination: **Project does not involve wetlands.**

Ponds: For ponds, consult and determine whether existing fisheries resources or wetlands resources would be impacted.

Determination: **Project does not involve ponds.**

Geology/Soil quality, stability and moisture

Determine whether there will be degradation of soil quality or alteration of soil stability. Determine whether the soils are glacial till -- heavy in salts that could cause saline seep.

Determination: **No significant impact. The proposed project should increase the soil stability and moisture of the irrigated ground. The design and proposed operation would minimize erosion and deep percolation.**

Vegetation cover, quantity and quality/Noxious weeds

Determine impacts to existing vegetative cover. Determine whether the proposed project would result in the establishment or spread of noxious weeds.

Determination: **No significant impact. The existing vegetative cover would be replaced with an alfalfa/grass mixture. This should prevent the establishment or spread of noxious weeds in the field. A query with MTNHP identified one occurrence each of two species of concern, Astragalus convallarius var convallarius and Erigeron linearis within the Scratchgravel Hills quad map area. This area has been previously disturbed as a result of past agricultural practices. It is unlikely that the two identified species of special concern exist in this area. The landowners are responsible for weed control management on their property.**

Air quality

Determine whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.

Determination: **No deterioration of air quality or adverse effects on vegetation due to increased air pollutants is likely to occur.**

Historical and archeological sites

Determine whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project.

Determination: **No significant impact. Per a query with SHPO, there are two historic residences within the SW of Sec 5, Twp 10N, Rge 03W. Because the proposed project is located on private property, it is at the landowner's discretion to conduct any cultural survey. However, this project would not impact these sites.**

Demands on environmental resources of land, water, and energy

Determine any other impacts on environmental resources of land, water and energy not already addressed.

Determination: **No significant impact. The energy use for the pump motor would be small compared to the energy used for agricultural purposes in the area. The design and proposed operation of the system would allow for the efficient (65-75%) use of water and the land would become more productive. No other impacts are anticipated.**

HUMAN ENVIRONMENT

Locally adopted environmental plans and goals

Determine whether the proposed project is inconsistent with any locally adopted environmental plans and goals.

Determination: **The Lewis & Clark County Planning Department said that there were no restrictions on land use in the area proposed for irrigation. Agricultural irrigation was an acceptable land use practice.**

Access to and quality of recreational and wilderness activities

Determine whether the proposed project will impact access to or the quality of recreational and wilderness activities.

Determination: **No significant impact on access to or the quality of recreational and wilderness activities.**

Human health

Determine whether the proposed project impacts on human health.

Determination: **No significant impact on human health.**

Other human environmental issues

For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.

Impacts on:

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

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

(c) Existing land uses **? No significant impact. This land had been historically irrigated.**

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

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

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

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

(h) Utilities **? No significant impact. There would be an increase in the demand for electricity to run the pump. However, the impact would be minimal and would not create the need for new or altered power facilities.**

(i) Transportation ? **No significant impact.**

(j) Safety ? **No significant impact.**

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

1. Secondary and cumulative impacts on the physical environment and human population:
Cumulative impacts from this proposed ground water diversion for irrigation might come from additional groundwater diversions for irrigation along the Tenmile Creek corridor. Future surface water diversions do not need to be considered because the drainage basin is closed to irrigation uses from surface water sources. Only one permit in the area remains unperfected, Application 41I-Y-084714, which has a Montana Power Company (now PP&L Montana) objection. Any permit issued from the application would be usable only when PP&L Montana's water rights are filled.

Tenmile Creek flows northeast toward Lake Helena from where it crosses McHugh Lane, about 1.4 miles upstream from Udell Sharp's well. Lake Helena is about 4.0 miles downstream from the well. From Mr. Sharp's well, Tenmile Creek flows about 2.4 miles to where it joins Prickly Pear Creek. As Prickly Pear Creek, the combined flows of the two sources flow for another 1.6 miles into the lake.

Areas upstream from Mr. Sharp's well have been subdivided. The Tenmile Creek corridor, in the areas along McHugh Lane, Montana Avenue, and Interstate 15, is currently used for dwellings and small businesses. This can be seen in Sec. 7 and 8, T10N, R03W of the map entitled Irrigated Lands Along Lower Tenmile Creek (map). (For those reading this document on the Internet, you may obtain a map by writing Jim Beck, DNRC Helena Regional Office, PO Box 201601, Helena, MT 59620-1601; or telephoning him at (406) 442-9065.) This area is supplied water from individual or community wells for domestic or commercial uses. Any further development would be for individual domestic and commercial uses. Most of this area has already been developed. The remaining ground water development would be a result of "small" wells for which the water rights are issued, on a non-discretionary basis, by the Department of Natural Resources and Conservation (DNRC).

Downstream from Mr. Sharp's well location the Tenmile Creek corridor is flanked by existing irrigation for nearly a mile on either side. The map shows private irrigation (dark blue hatch) and irrigated areas supplied by the Helena Valley Irrigation District (red hatch) to within 0.5 miles of Lake Helena. Most of the apparent open areas on the map have current uses, which reasonably preclude irrigation. For example the water ski pond a half mile to the east of Mr. Sharp (Sec. 4, T10N, R03W) occupies a portion of an 80-acre area. With the exception of the mouth of Prickly Pear Creek, the only other open areas are immediately along the creeks.

There is no irrigation development within a half-mile of Lake Helena. The soils in that area (light blue hatch) are Fluvaquents and Aquolls according to the *Soil Survey of Helena Valley part of Lewis and Clark County, Montana*. These soils are described as; "…extremely variable, and no particular kind of soil can be

consistently identified and mapped separately." The survey does mention that the soils have a shallow depth to the water table and assigns this classification a land capability class 6w (dryland), no classification (irrigated). The *Soil Survey* says of this capability class,"…soils have severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture, range…w shows that water in or on the soil interferes with plant growth or cultivation…". DNRC employee, Jim Beck, has field investigated areas on the south and west sides of Lake Helena and found the areas to have a high water table. In some areas the ground water was visible in shallow depressions in the land surface.

Further significant irrigation development in the corridor along Tenmile Creek in the vicinity of Mr. Sharp's well is unlikely. There is an existing water supply for most of the irrigable land downstream from the well. Upstream from the well are areas that are currently subdivided and have homes or commercial properties on them. It is unlikely that those small, presently developed, parcels would be converted to irrigated lands. Near Lake Helena the soil and water table conditions preclude any reasonable efforts at irrigation. Based on the above information, there are no significant cumulative impacts anticipated that are related to this irrigation proposal.

2. 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:
There are no reasonable alternatives to the proposed action since this project is located in the Upper Missouri River basin closure area which is closed to new appropriations of surface water for irrigation purposes. Appropriating groundwater is one of the few exceptions to the closure. The no action alternative would result in the applicant not being able to produce his hay crop.

PART III. Conclusion

Based on the significance criteria evaluated in this EA, is an EIS required? **No.**
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 environmental impacts have been identified.**

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

Name: Terry Scow
Title: Water Resources Specialist
Date: September 15, 2000

Name: Jim Beck
Title: Engineering Specialist
Date: September 15, 2000