

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

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

Revised 11-00

Part I. Proposed Action Description

1. **Applicant/Contact name and address:** Robert E. Durocher  
90 15<sup>th</sup> Lane NE  
Vaughn, MT 59487
2. **Type of action:** Application for Beneficial Water Use Permit #41QJ-111525-00
3. **Water source name:** Little Muddy Creek
4. **Location affected by action:** Section 32, T19N, R01E, Cascade County  
Approximately 8 miles southwest of Ulm.
5. **Narrative summary of the proposed project, purpose, action to be taken, and benefits:**  
The applicant proposed to construct a 386.8 ac.-ft., off-stream reservoir. The reservoir water surface will cover 216.2 acres at full capacity with a maximum depth of 5 ft. Diversion from Little Muddy Creek will occur at a maximum rate of 50 CFS up to 386.8 ac.-ft. per year. Diversion would occur in the time period of March 1 to June 30. The diversion is a sheet pile structure with a 36" headgate controlling flows into the diversion channel. The intended use is for wildlife purposes with the establishment of a viable duck reproduction habitat being the primary goal.
6. **Agencies consulted during preparation of the Environmental Assessment:  
(include agencies with overlapping jurisdiction)**  
DNRC – Trust Land Management Division\*  
DFWP  
State Historic Preservation Office  
Montana Natural Heritage Program Web-site  
US Fish & Wildlife Service

**\*note:** Tom Hughes, Hydrologist, has filed an objection to this application on behalf of Trust Lands Management Division. This objection addressed water quality and water quantity issues that must be addressed in the water right permitting process. The public notice of this application occurred prior to the completion of the Environmental Assessment because of fire restrictions in late Summer 2000 that precluded DRNC Staff from making a field investigation of the project site.

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: POSSIBLE IMPACT

The application materials cite USGS Water Resources Investigations Reports 84-4143 and 86-4027. The application contends that report 84-4143 predicts a mean annual runoff of 4-5 CFS but also acknowledges that the basin in question falls outside of the study area. The application contends that regression equations in report 86-4027 predict a 2-year peak flow event of 263 CFS.

Tom Hughes, DNRC Trust Lands Management Division Hydrologist, contends that the quantity of water requested is not often available. He cites observations by the State Land Lessee and his own observations of the channel. Tom contends that the use of report 86-4027 to predict maximum 2-year flow event is not reliable in this basin because it is in a rain shadow. Report 86-4027 unlike report 84-4143 does include the basin in question in its study area, but did not use data from Little Muddy Creek in developing the regression equations. Therefore, no level of accuracy can be reliably assigned to the 263-CFS peak flow. Regardless, the project is sizable in comparison with Little Muddy Creek Watershed and there will be a decrease in available water in the basin. The reservoir will likely take its full flow rate and volume only in years when water is in plentiful supply. This decrease of available water in the basin will be noticeable but will not likely be significant.

Tom also states that existing upstream diversions use much of the peak flow leaving very little to reach the lower part of the basin where the proposed project is located. The basin is yet to be adjudicated so using the DNRC source index to access existing uses is misleading. However, substantial upstream diversions do exist. Tom has also expressed concern that this project would eliminate most of the flushing flows in the basin that are already greatly hindered by the existing water demands. He is concerned that the lack of flushing flows will degrade the riparian area on the School Trust Land immediately downstream of the project. This impact will not be significant given that degradation of the riparian area has already occurred due to current development. If any of the impacts to the riparian area are significant, they have already occurred and this project will not significantly worsen the already present impacts.

Steve Leathe, Regional Fisheries Biologist for DFWP, is concerned with the relatively high diversion rate of this project and the impact on high spring flows in the Missouri River. DFWP's in-stream flow reservation application requested 11284 CFS during late May and into June. This is the flow rate that is reportedly needed to trigger the spawning migration in paddlefish and sturgeon species which are species of concern as listed on the Montana Natural Heritage Web-

site. This project unto itself will not likely impact the spawning trigger in the Missouri River, but the cumulative impacts could be significant.

No actual measurement data has been located for Little Muddy Creek.

There will be more than minor impacts to water quantity due to the proposed project. However, the impacts will not be significant given the location of the project near the downstream end of the Little Muddy Creek Basin and its overall size in terms of the entire Upper Missouri Basin.

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: POSSIBLE IMPACT

Trust Lands' Objection raised the issue of water quality due to the soils in the project area. Tom Hughes is concerned both with surface and groundwater quality and the potential impact on the School Trust Land adjacent to the proposed project. Current soils information indicates the potential for a salinity problem.

The applicant has responded to the water quality issues. Mr. Gary L. Knudson, a registered professional engineer hired by the applicant refers to the project area as being located in an alluvial deposit. Tom is concerned that the alluvium may contain variable strata that could allow movement of highly saline water, contrary to Mr. Knudsen's assessment. The bore hole sampling information provided by the applicant also indicates some variability in the strata but does not identify the different types of strata. Mr. Knudson does however state that there is "no risk" of impacting ground water or surface water down stream of the impoundment site. This conclusion seems quite strong given the limited information available and that the operation of the reservoir itself could lead to downstream water quality problems even if no water leaves the reservoir through seepage.

Rick Bandy, NRCS Soil Scientist, is recommending reclassifying the soils in the project area. His recommendation is to reclassify the soil as a Marvin Clay rather than an Absher-Noble Complex. The Marvin Clay typically is less inclined to develop salinity problems. However, this reclassification does not alleviate the concerns of Tom Hughes. Tom contends that because only three sample sites were used, not enough information is available to make a proper determination. It should be noted that most likely fewer samples from the area were used to make the original determination for the soil survey than have recently been taken by Rick Bandy. By Mr. Bandy seems to conclude that it is unlikely given the information available that this project will have an impact on adjacent landowners.

Sufficient study of the area has not been completed to rule out the possibility of water quality impacts. These potential impacts could be mitigated by requiring the reservoir to be designed and constructed in such a manner as to prevent any seepage from moving through the surrounding soil profile. However these impacts will not likely be significant even without mitigation based on the limited assessments already completed.

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 issue of groundwater quality is addressed in the previous section. It is not likely that this project will negatively impact the groundwater supply in the area.

### **Diversions 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 diversion structure and reservoir have been professionally designed by Ducks Unlimited. The reservoir has been determined not to be high hazard by the DNRC Dam Safety Program. The diversion structure will create a barrier in the channel; this could create an impact to the limited fishery if one exists. Because the quality of the fishery is limited, this impact will not be significant.

The diversion structure will make use of an existing washed out dam. The diversion structure is presumably designed with a plunge pool to help prevent erosion of the stream channel. Possible impacts due to flow modification could occur, but these impacts center around flushing flows and riparian areas as they are related to water quantity. It is addressed in the water quantity section of this document.

### **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

The Montana Natural Heritage Program identified four plant species of concern that may occur in the project area. *Chenopodium subglabrum*, *Cyperus schweinitzii* and *Psoralea hypogaea* all occur in sandy soils. It is highly unlikely these species would be found growing in the very clayey soils of the project area. *Carex crawei* is found in gravelly or sandy seepage zones. The project does not encompass these features. Therefore, it is highly unlikely this species would be found in the project area. None of these plant species were identified during the site investigation, although much of the vegetation was snow covered at the time.

Several bird species of concern are identified as being present in the area. The prime bird habitat in the area is centered on the Missouri River, which is approximately 2 miles southeast of the

project. The project will not likely negatively impact these species and may benefit some of them. Several immature bald eagles were observed during the site investigation. Some short term disturbance to the resident bald eagle population could occur during construction, but these impacts would be minimal will likely be offset by the increased food base for the bald eagles that will be created by the new pond.

No other species of concern were identified in the area. Because of the close proximity of the Interstate Highway and 2 existing residences, it is unlikely that the project lies in the range of any endangered animal 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 IMPACT

The site survey found no indications of wetlands in the project area or downstream of the project to the confluence of Little Muddy Creek with the Missouri River. As the site survey found and the information in the file indicates that no wetland is present due to a lack of available water.

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

Determination: NO SIGNIFICANT IMPACT

The US Fish & Wildlife Service is a co-operator in this project and provided information in the application indicating that it would be benefit to migratory waterfowl. Existing wildlife habitat would likely be improved as the project would likely increase available water for game and non-game animals alike.

The Montana Rivers Information System ranks Little Muddy Creek as having a limited fisheries resource with the lowest possible ranking for habitat class. This indicates that little if any fishery habitat exists that would be possibly impacted. This is particularly true in the location of the proposed project as the stream often dries up late in the year.

Steve Leathe, Regional Fisheries Biologist for DFWP, expressed concern that reduction of spring flows could impact the possible spawning of some species of non-game fish that may occur in the lower reaches of Little Muddy Creek in some years. However, it is not documented whether or not this spawning occur. The value of Little Muddy Creek as a fishery is quite limited.

Because this pond is not intended to be stocked with fish and because it is off-stream it should not cause the introduction of non-indigenous fish and/ or incompatible genetics into the existing Missouri fishery.

### **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

The soil moisture content would likely increase in the project area due to the impoundment of water. Because the soil is clayey in nature causing a low permeability it is well suited for reservoir construction. The increased moisture content will likely be minimal and will not impact soil stability. Even though the soil for the most part has a low permeability, the possibility of saline seep does exist. It has been addressed more fully in the water quality section of this document.

### **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

The existing vegetation consists of native grasses and forbes in the area of the proposed diversion. The remainder of the project area is currently covered with introduced wheatgrasses that were planted when the land was placed in the Conservation Reserve Program in the late 1980s. Hydric plants will for the most part replace the existing vegetative cover.

The only noxious weed observed to be present is a very limited population of Canadian Thistle. With proper control measures already mandated by law, this noxious weed population will not increase or spread as a result of this project.

### **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 IMPACT

Short-term impacts due to dust and machinery operation may occur during construction of the project. If the reservoir is allowed to dry up without sufficient vegetation to prevent wind erosion, air pollution from dust could become a long-term problem. With proper operation of the reservoir no long term impacts will likely occur. The US Fish & Wildlife Service is responsible for developing the reservoir operation plan.

### **Historical and archeological sites**

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

Determination: NO SIGNIFICANT IMPACT

A literature search by the State Historic Preservation Office found no archeological or historical sites documented in the vicinity of the project. Because the entire project area has already been

disturbed either by farming or existing irrigation development, it is unlikely that any cultural resources will be impacted by this project.

**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 IMPACT

No other demands have been identified.

<b>HUMAN ENVIRONMENT</b>
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**Locally adopted environmental plans and goals**

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

Determination: NO IMPACT

No locally adopted environmental plans or goals have been identified.

**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 project will create increase recreational hunting opportunities. However, these opportunities will not be available to the general public.

**Human health**

Assess whether the proposed project impacts on human health.

Determination: NO SIGNIFICANT IMPACT

It is unlikely that the potential water quality impacts would significantly impact the quality of groundwater used for drinking in the area. The depth to potable water as identified in the well log report for the well owned by Rob Nylund near the project site is sufficient to minimize the potential for contamination of the drinking water supply.

As noted previously, changes in air quality will not be significant and therefore do not present a significant human health impact.

**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

No governmental regulatory impacts on private property rights have been identified.

**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
- (b) Local and state tax base and tax revenues ? NO
- (c) Existing land uses ? NO
- (d) Quantity and distribution of employment ? NO
- (e) Distribution and density of population and housing ? NO
- (f) Demands for government services ? NO
- (g) Industrial and commercial activity ? NO
- (h) Utilities ? NO
- (i) Transportation ? NO
- (j) Safety ? NO
- (k) Other appropriate social and economic circumstances ? NONE

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

This and other new developments in the Upper Missouri Basin typically divert water during high spring flows, when water is most often legally available for new appropriations. During this time existing water rights are typically more than satisfied. The cumulative impacts of new consumptive uses in the Upper Missouri Basin that rely on high spring flows may eventually cause the a significant reduction in peak flows. This reduction could significantly impact the Missouri River fishery below Great Falls because several species of concern including sturgeon and paddlefish rely on high peak flows to trigger spawning migration.

Recent flow data shows that these peaks still occur in most years. Continued development at its currently pace will not immediately create a cumulative significant impact. Further study of this issue is not currently warranted, but will likely be necessary at some point in the future if development continues.

**8. Describe any mitigation/stipulation measures:**

Mitigation of the potential impacts to water quality, water quantity, and related impacts will be mitigated if necessary in the water right permitting process.

**9. 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:**

ALTERNATIVE #1 – NO ACTION

This alternative would result in no changes to the existing environment. Potential beneficial impacts to wildlife population would not occur. The potential negative impacts would also not occur.

ALTERNATIVE #2 – CONSTRUCTION OF A SMALLER POND

Construction of a pond ¼ to 1/3 the size of the proposed pond would possibly eliminate many of the possible impacts. The quantity of water needed would be reduced and thus the associated impacts. The issue of water quality and the associated impacts would likely be reduced by decreasing the size of the project. The same point of diversion could be used while keeping the project farther away from the property of others. This would help confine any salinity problems to the property of the applicant. The associated beneficial impacts to wildlife would be correspondingly reduced. This alternative has not been fully explored but is possibly the preferred alternative.

**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:

The no significant impacts have been identified. Further review of water quantity and water quality issues will occur during the water rights permitting process.

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

Name: Andy Brummond  
Title: Water Resources Specialist  
Date: 12/06/00