

July 11, 2003

Montana Fish, Wildlife, & Parks
Fisheries Division, Hatchery Bureau
1420 E. Sixth Ave.
Helena, MT 59620

City of Great Falls
Cascade County Conservation District
Source Giant Springs, Inc.
Mr. Charles Bocoock
All Interested Parties

Ladies and Gentlemen:

Please find enclosed a Draft Environmental Assessment prepared for the International Malting Company's malt plant water supply project. The project proposes to use water from Giant Springs near Great Falls for use in a barley malt production facility. The Department of Natural Resources and Conservation in conjunction with Montana Fish Wildlife & Parks has prepared the Draft Environmental Assessment.

Please submit any comments that you have by 5:00 P.M., August 11, 2003 to the Montana Fish, Wildlife, & Parks at the address listed above. If you have any questions, feel free to contact me at (406) 444-2449. Please note that this Draft EA will be considered as final if no substantive comments are received by the deadline listed above.

Sincerely,

Gary Bertellotti
Montana Fish, Wildlife, & Parks
Fish Hatchery Bureau Chief

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State of Montana

Department of Natural Resources and Conservation

Department of Fish Wildlife & Parks

July 2003

International Malting Company

**Great Falls Malt Plant
Water Supply Project**

**DRAFT
ENVIRONMENTAL ASSESSMENT**

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ACRONYMS AND ABBREVIATIONS

City.....	City of Great Falls
cfs.....	Cubic Feet per Second
DNRC.....	Montana Department of Natural Resources and Conservation
FWP.....	Montana Department of Fish, Wildlife & Parks
EA.....	Environmental Assessment
EIS.....	Environmental Impact Statement
gpm.....	gallons per minute
Hatchery.....	Giant Springs State Fish Hatchery
IMC.....	International Malting Co., LLC
MPDES.....	Montana Pollution Discharge Elimination System
MCA.....	Montana Code Annotated
NPDES.....	National Pollution Discharge Elimination System
USGS.....	U.S. Geological Survey

CONVERSIONS

1 acre-foot (ac.-ft.) = 325, 851 gallons (gal)

1 million gallons per day (mgpd) = 694.4 gallons per minute (gpm)

1 cubic foot per second (cfs) = 448.8 gallons per minute (gpm)

1.0 PURPOSE AND NEED FOR ACTION

International Malting Company, LLC (IMC) is proposing the construction and operation of a barley malt manufacturing plant with a malt and salable malt by-product production capacity of 16 million bushels per year. Construction and operation of the proposed malting plant would occur in two phases. After construction of Phase I, the malting plant would have the capacity to produce from 8 to 10 million bushels of malt and salable malt by-product per year. After construction of Phase II, the malting plant capacity would increase to a maximum of 16 million bushels of malt and salable malt by-product per year. IMC would commence Phase II operations within 3 years of the commencement of Phase I operations.

1.1 PROJECT LOCATION

The facility would be located approximately 2 miles North of Great Falls, Montana between Black Eagle Road and U.S. Highway 87. The legal description is the SE ¼ Section 30, Township 21 North, Range 4 East, Cascade County, Montana. The raw water supply system for the malt production process would be located in Sections 28-30 & 33, Township 21 North, Range 4 East, Cascade County, Montana. A map is included in Appendix A.

1.2 NEED FOR ACTION

IMC has applied to the Montana Department of Natural Resources and Conservation (DNRC) for an easement to install a pipeline under the Missouri River, a navigable water body of which the State of Montana claims ownership of the land below the low water mark. IMC is also pursuing the purchase of an easement and the lease a portion of a water right permit from the Montana Department of Fish Wildlife & Parks (FWP).

FWP has applied to DNRC to change the place of use and purpose of use of a portion of Beneficial Water Use Permit 41Q-55863-00, a non-consumptive water right from Giant Springs used in the Giant Springs State Fish Hatchery (Hatchery). The application requests a temporary lease of water to IMC providing for a non-consumptive use of water for a period of 10 years with the option of requesting an additional 10-year extension. The City of Great Falls (City) has applied to the DNRC to change a portion of Reserved Water Right 41K71890-00 requesting an additional point of diversion from Giant Springs. The requested change would allow for the consumptive use of water by IMC. In addition, the City application includes requested corrections and clarifications to the place of use and points of diversion of the Reserved Water Right.

The sale of an easement and issuance of Authorizations to Change a Water Right on the part of DNRC and the sale of an easement and the lease of a water right on the part of FWP are state actions requiring review in compliance with the Montana Environmental Policy Act (MEPA).

1.3 OBJECTIVES OF PROJECT

IMC needs a high quality, reliable source of water to successfully operate the malting plant. IMC requires a maximum flow rate of 1500 gpm with a maximum annual diversion of 2419 acre-feet. The diversion and use of water would remain approximately the same throughout the entire year. Of the water diverted the malting process would consume approximately 20 % while 80 % would be a non-consumptive use of water. The 80 % of water not consumptively used would be released into the City sewer system and ultimately be discharged into the Missouri River from the City's sewage treatment plant.

1.4 SCOPE

This document analyzes the portions of the project dealing with the water supply for the malt processing. This includes the diversion of water from the source and the transmission of water to the malt production facility. Other issues have been already addressed in previously completed environmental reviews. This document will not be analyzing the operation and location of the malt production facility. However as the water is key to the ultimate success of the malt production facility, the beneficial impacts to agricultural income were also analyzed in order to provide balance and perspective in the document.

1.4.1 EXISTING RELEVANT DOCUMENTS

The project calls for the use of existing water rights and existing diversion structures. Environmental reviews pertaining to these uses already exist. Additionally, an environmental review has been completed as a part of the Air Quality Permitting process.

1.4.1.1 Water Supply Protection Project for Giant Springs Hatchery EA

FWP completed a project designed to protect the diversion structure from Giant Springs from contamination from the whirling disease parasite. The project included the reconstruction of the collection facility. The March 1997 EA for the project explored several alternatives and their projected effects on the human environment.

1.4.1.2 Air Quality Permit 3238-00 EA

The Montana Department of Environmental Quality issued Air Quality Permit 3238-00 to IMC on May 1, 2003. An environmental assessment was completed evaluating the proposed malt plant and its impacts on the human environment. This assessment was limited in scope to generally the malt production facility and immediate area and did not examine in detail the potential impacts associated with the water supply for the plant. This EA concluded that no significant impacts would result from the operation of the malt processing plant and all impacts would be minor in nature.

1.4.1.3 Water Reservation Applications Above Fort Peck Dam EIS

The reserved water right owned by the City was granted by the Board of Natural Resources and Conservation on July 1, 1992 as a part of the Final Order for all reservations granted in the Missouri River Basin upstream of Fort Peck Dam. An EIS was completed evaluating several alternatives and the projected effects on the human environment.

1.4.2 ISSUES STUDIED IN DETAIL

DNRC and FWP through internal scoping and through consultation with other agencies and organizations have identified four issues that warrant detailed study. The issues (1.4.2.1 - 1.4.2.4) were studied in greater detail as they relate to the water supply system construction and operation.

1.4.2.1 Hatchery Operations / Production

The operation and fish production capability of Giant Springs State Fish Hatchery is dependent on the flow of water available to the hatchery. Diminishment of flow may limit fish production and change operations at the hatchery.

1.4.2.2 Water Rights & Water Quality

Central to the water right change applications submitted both by FWP and the City are the issues of water quantity and distribution. Both applications involve the same diversion from Giant Springs that is also shared with Source Giant Springs, Inc., a water bottling plant. The protection

of water quality is also of great importance as Source Giant Springs Inc, relies on a clean, protected water supply.

1.4.2.3 Water Supply System Installation & Location

The proposed water supply system would require the installation of a pump station, excavation for a pipeline and drilling under the bed of the Missouri River. These activities would occur on the Hatchery grounds as well as on native lands that have been previously undisturbed. This installation would require short-term disturbances of various resources as well as permanent impacts to some resources.

1.4.2.4 Agricultural Economic Impacts

Secondary impacts to malt barely prices would be noticeable. Air Quality Permit 3238-00 EA did not adequately address the secondary beneficial impacts to the agricultural production and the associated impacts.

1.4.3 ISSUES ELIMINATED FROM FURTHER STUDY

1.4.3.1 Fishery

As the project is located in part in close proximity to the Missouri River, the impacts to the natural fishery were initially of concern. After further consultation with FWP fisheries biologists, it was determined because the impacts to the water quantity and quality of the river would be so small there would be no impacts to the fishery. For this reason the impacts to the fishery as an issue was eliminated from further study.

1.4.3.2 Clarification of City of Great Falls Reserved Water Right

The *Water Reservation Applications Above Fort Peck Dam EIS* has previously analyzed the impact of the additional use of water granted to the City in Reserved Water Right 41K71890-00. It was determined the granting of this and the other reserved water rights would have no significant impact. For this reason the additional use of water was not analyzed in this EA, only the potential impacts resulting from the requested change in manner received more study.

This EIS analyzed the impacts of the reserved water right as outlined in the reservation application submitted by the City. The application contained the conflicting information and as a result the Reserved Water Right contains some errors. In addition, the City may have been overly specific in terms of its future development. The corrections and clarifications requested do not represent impacts different than those already evaluated in the EIS.

1.5 DECISIONS TO BE MADE

The DNRC must decide on the issuance or denial of the applications to change a water right by both FWP and the City. The DNRC must also decide on the sale of an easement for the pipeline under the Missouri River. FWP must decide whether or not to lease a non-consumptive portion of their permit to IMC and whether or not to sell and easement for pumping and pipeline facilities to IMC.

1.6 STATUTORY REGULATORY REQUIREMENTS

The decisions to be made by DNRC and FWP are governed by state and federal statute. Other agencies may have jurisdiction over certain aspects of the project.

1.6.1 STATUTES DIRECTLY RELATED TO DECISIONS.

The decision by the DNRC regarding the applications to change a water right by both FWP and the City of Great Falls are governed by the statutory criteria in section 85-2-402(2) MCA. These criteria are found in Appendix B. With regard to the temporary leasing of a water right by FWP to IMC the limitations of section 85-2-407, MCA must also be considered. The DNRC authority in selling an easement is governed by sections 70-16-201, 70-1-202, 70-1-102, 70-18-203, MCA. Because FWP received federal funding from US Fish & Wildlife Service for the Hatchery they are governed by federal statute regarding actions potentially impacting the Hatchery or operations of the Hatchery. The US Fish & Wildlife Service has been informed of the project and has supplied FWP with a letter indicating that they are not concerned with the proposed project.

1.6.2 OTHER REGULATORY STATUTES

The local, state and federal agencies listed in Table 1.3-1 may have jurisdictional authority over certain aspects of the water supply project. IMC has submitted a *Joint Application of Proposed Work in Montana's Streams, Wetlands, Floodplains and Other Water Bodies*. This joint application includes the permits listed in Table 1.3-1. If additional permitting is required, the agency with jurisdiction will conduct the proper review.

Table 1.6-1. Other agencies that may have jurisdiction and permitting authority.

Agency	Permit	Nature of Permit	Authority
U.S. Army Corps of Engineers	Section 404 Permit (Clean Water Act)	Controls discharge of dredged or fill materials in wetlands and other water of the U.S.	Section 404 of the Clean Water Act (33 CFR 323.1)
MT Dept. of Environmental Quality	Short-Term Water Quality Standard For Turbidity 318 Authorization	Requires a permit of any activity in any state water that will cause unavoidable short-term violations of water quality standards	Section 75-5-318, MCA
Cascade County Floodplain Program	Floodplain Permit	Requires a permit to build permanent structures or to place fill in a designated flood plain.	Sections 76-5-301 – 302, MCA Floodplain and Floodway Management
Cascade County Conservation District	310 Permit (Montana Natural Streambed and Land Preservation Act)	Requires a permit to perform work in or near a stream.	Sections 75-7-101 - 124, MCA Natural Streambed and Land Preservation Act

2.0 PROPOSED ALTERNATIVES

2.1 INTRODUCTION

Beginning in 2002 IMC began exploring the possibility of locating a malt production facility in the Great Falls area. Water supply was an extremely important factor and was extensively explored by IMC.

2.2 PROCESS USED TO FORMULATE ALTERNATIVES

The alternatives were developed as a natural part of IMC exploring the possible water supplies for the malt production plant. Several state agencies worked with IMC to provide possible ideas for sources of water and to help them investigate the opportunities available to them.

2.3 ALTERNATIVE DEVELOPMENT CRITERIA

IMC requires reliable, high quality water for the malt production process. A maximum flow rate of 1500 gpm is needed. A total annual volume of 2419 acre-feet is needed. Approximately 20% of this volume must be available for consumptive use. The alternatives must also provide a conduit to move the water from the source to the IMC plant.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

IMC analyzed several possible water supplies as well as alternate means of delivering the water from the source to the IMC plant. IMC ultimately chose not to pursue these alternatives.

2.4.1 RAILROAD BRIDGE PIPELINE ROUTE

Through the development of alternatives it became apparent that the supply of water might well be located on the opposite side of the Missouri River from the IMC plant. IMC considered attaching the water supply pipeline to the Rainbow Dam Railroad Bridge located just upstream of Rainbow Dam. This would leave the pipeline exposed to vandalism. Also, it would require several miles of additional easements and pipeline creating additional economic and environmental impacts. For these reasons this alternative was not ultimately considered as a viable alternative warranting detailed study.

2.4.2 ALTERNATE WATER SUPPLIES

Because of the importance of the water supply to the project IMC considered several potential sources of water.

2.4.2.1 Madison Wells

IMC considered the construction of wells tapping the Madison Aquifer. This is the same aquifer that supplies high quality water to Giant Springs. The Madison Aquifer is a very prolific aquifer immediately south and east of Great Falls. A cluster of wells tapping the Madison Aquifer in this area would likely be able to produce the flow rate and volume needed for the malt production plant. However, in the area of the IMC plant on the north side of the Missouri River the Madison Aquifer is not likely capable of producing neither the quality nor quantity of water required. The wells would most likely need to be located south of the River. The well water would need to be piped across or under the River. Additionally, the pumping of the wells could negatively impact other water wells in the Madison Aquifer as well as the flow from Giant Springs. The legal

availability of the water could be in question. This coupled with the cost of the pipeline and the cost of constructing the wells were the reasons this alternative was not ultimately pursued.

2.4.2.2 Missouri River

IMC also considered diverting water directly from the Missouri River. This would require extensive treatment of the water prior to being used in the malt production process. Because of the economic costs associated with water treatment this alternative was not pursued.

2.4.3 NON-CONSUMPTIVE USE WATER RIGHT

Once IMC determined that Giant Springs would be the source of water it considered different options for obtaining the legal right to use the water. IMC could have applied to obtain a beneficial water use permit for the 80 % of the water not consumed by the malt production process. This would have required an additional diversion of 1500 gpm from Giant Springs. The pursuit of a non-consumptive water right on the part of IMC is not considered by IMC to be currently desirable.

2.4.4 CONSUMPTIVE USE - CHANGE OF EXISTING WATER RIGHTS

The upper Missouri River basin upstream of Morony Dam is generally closed to new appropriations of water by section 85-2-343, MCA. Morony Dam is located on the Missouri River approximately 10 miles downstream of Giant Springs. For this reason IMC would need to change the use of existing water right to supply the consumptive portion of the water diverted from Giant Springs. Ultimately, IMC determined the Reserved Water Right owned by the City of Great Falls presented the most reasonable source for the consumptive demand of the malt production plant. However, the possibility of changing the point of diversion, place of use and in some cases the purpose of other water rights was initially explored.

2.4.4.1 Industrial or Commercial Water Rights

IMC on its own volition as well as with the help of DNRC explored the possibility of purchasing existing industrial or commercial water rights and changing the purpose, point of diversion and place of use to allow for the use of the water rights at the IMC plant. Industrial or commercial water rights were sought as they typically have period of diversion encompassing the entire year. No suitable water rights with owners willing to sell them for reasonable compensation were found. For this reason this alternative was explored no further.

2.4.4.2 Irrigation Water Rights

IMC also considered the possibility of purchasing existing irrigation water rights to supply the consumptive use of water. While many irrigation rights have a consumptive use greater than or equal to that required by IMC they cannot be used throughout the entire year. The use of these rights is generally limited to the irrigation season. Using irrigation rights would require IMC to develop water storage facilities capable of storing up to 50% or more of the water needed for consumptive use. For this reason the purchase and use of irrigation water rights was determined to be unfeasible.

2.5 PROPOSED ALTERNATIVES

After consideration of various sources of water and means of moving the water to the IMC plant the following alternatives were studied in greater detail.

2.5.1 NO ACTION ALTERNATIVE

This No Action Alternative contemplates the IMC malt production plant not being constructed and no need for a water supply nor the associated easements and licenses.

2.5.2 EXISTING DIVERSION ALTERNATIVE

The Existing Diversion Alternative studies the impacts of using the existing FWP diversion to supply IMC. The consumptive water needs would be supplied by changing a portion of the City's Reserved Water Right while the non-consumptive needs would be supplied by changing a portion of FWP's hatchery water right. The current intention is to have FWP supply the 1200 gpm and 1936 ac-ft non-consumptive demand with the City supplying the 300 gpm 483 ac-ft consumptive demand. However, in the future if the existing diversion structure proves adequate to supply FWP's 16,325 gpm existing water rights as well as the 1500 gpm industrial demand, the FWP temporary change would not need to be extended and the City could supply the entire industrial demand.

Water would be transported to the malt production plant through pump station and pipeline. The pump station would be located on Hatchery grounds. A buried stainless steel or ductile iron pipeline from the existing Hatchery wet well where water is pumped into the Hatchery raceways would supply the new pump station. This line would be either 16 or 18 inches in diameter. The pump station would be a masonry building approximately 16 X 20 feet in size. The brick colors and roofing would be natural colors selected in conjunction with FWP staff to correspond to the surrounding buildings and landscape. The pump station would include two electric powered centrifugal pumps, each approximately 200 horsepower. A new power supply line would be buried from existing power lines to the pump station. The electric transformer supplying the pump motors would be enclosed within the pump station. Appendix C contains a general schematic of this portion of the project and Appendix D contains a picture of the general area looking northwest toward the Hatchery and across the Missouri River.

From the pump station a 12 in. pipeline would supply the malt plant. The pipeline would be inserted under the Missouri River into a drill hole constructed by directional drilling. The drill hole would be cased with 16 in. high-density polyethylene pipe with the 12 in. pipe then being inserted in the 16 in. casing. The drilling would occur from the south to north with the drilling equipment being positioned on Hatchery grounds. The drill hole would be constructed at an approximate depth of 15 ft. below the riverbed and have an approximate overall length of 900 ft. No excavation of the riverbed would occur. The directional boring would end just beyond Rainbow Dam Road approximately 50 ft. from the north bank of the river. The drilling would generate slurry composed of cuttings and water. The slurry would be removed from the drill hole at the point of entry on the Hatchery grounds and removed from the project site for proper disposal.

From the end of the directional drilling on the north side of Rainbow Dam Road the 12-in. pipeline would be buried in a 7.5 ft. deep by 3.5 ft. wide trench. The trench would be constructed using a standard tracked excavator. Granular material would be placed in the bottom of the trench to protect the pipeline from sharp objects and the pipeline would be covered and compacted in several lifts using native soils. Silt fences and other similar measures would be used to limit erosion. The areas disturbed north of the river would be restored using a blend of native grass seed matching the existing vegetation. The areas disturbed on the Hatchery grounds south of the river would be restored using fresh-cut sod.

Construction of the water supply system would be scheduled to begin in May 2004 and finishing by the end of July 2004. The construction in and around the Hatchery would be completed first with the construction north of the river occurring into the summer.

2.5.3 NEW DIVERSION ALTERNATIVE

The New Diversion Alternative explores the construction of a separate diversion from Giant Spring to supply IMC. A diversion structure similar in nature to the existing diversion would be constructed to supply the 1500 gpm and 2419 ac-ft. industrial demand. The diversion would likely be located immediately east of the existing diversion in the main spring. A gravity supply line would be buried from the new diversion to the pump station described in the Existing Diversion Alternative. This supply line would require additional excavation and restoration of Hatchery grounds from the new diversion to the area near the Hatchery wet well, a distance of approximately 300 ft. The other aspects including the general construction schedule would likely be the same as those for the Existing Diversion Alternative.

2.6 CUMULATIVE EFFECTS

2.6.1 PAST ACTIONS

Development of Giant Springs as a water source include water rights totaling 16,825 gpm up to 26559.3 acre-feet annual use. This usage is over 95% non-consumptive use with the water returned to the Missouri River. In terms of the discharge of the main spring of approximately 200 cfs or about 90,000 gpm, this diversion represents about 20% of the main spring discharge. Given the almost immediate discharge from the main spring to the Missouri River with the remainder flowing down the Roe River a distance of about 200 feet, this 20% reduction in flow is not likely visually noticeable. Almost half of this diversion has been occurring for over 80 years dating back to the time of the hatchery was established in the early 1920s.

2.6.2 PRESENT ACTIONS

The pending project currently calls for no increase in diversion while 300 gpm of the diversion previously non-consumptively used would now become a consumptive use. No other current proposed projects call for development or use of Giant Springs. When considered with past actions, the proposed project would have little or no additional impact to Giant Springs and the surrounding resources.

2.6.3 FORESEEABLE FUTURE STATE ACTIONS

Some concern exists that the pending project would set a precedent for future use and development of Giant Springs water. At this time there are no other pending applications or requests before the State of Montana for any such use. As FWP owns the property in and around Giant Springs and the diversion structure, any future development would ultimately need to be approved by FWP. Such action would require further analysis to evaluate environmental impacts and to determine if such action would be in the State's best interest.

With regard to water development in the upper Missouri River basin, new consumptive industrial uses are not permitted under the temporary basin closure. Any future consumptive water use development would require the change or reallocation of an existing water right.

2.7 SUMMARY OF IMPACTS

Table 2.7-1 compares of impacts to the affected resources for each of three alternatives.

Table 2.7-1

RESOURCE	Terrestrial and Aquatic Life and Habitats	Water Quantity, Quality and Distribution	Geology and Soil Quality, Stability, and Moisture	Vegetation Cover, Quantity & Quality	Aesthetics	Air Quality
NO ACTION	none	none	none	none	none	none
Existing Diversion	minor adverse	minor adverse	minor adverse	minor adverse	minor adverse	minor adverse
New Diversion	moderate adverse	moderate adverse	moderate adverse	minor adverse *	moderate adverse	minor adverse *
RESOURCE	Historical & Archeological Sites	Local and State Tax Base and Tax Revenue	Agricultural or Industrial Production	Access to and Quality of Recreational Activities	Quantity and Distribution of Employment	Demands for Government Services
NO ACTION	none	none	none	none	none	none
Existing Diversion	minor adverse	minor beneficial	moderate beneficial	minor adverse	minor beneficial	moderate beneficial
New Diversion	minor adverse *	minor * beneficial	moderate beneficial	moderate adverse	minor * beneficial	moderate beneficial

* The impact is generally classified the same as that associated with the Existing Diversion Alternative, however the impact is somewhat greater in magnitude.

2.8 PREFERRED ALTERNATIVE

The Existing Diversion Alternative is the preferred alternative. The No Action Alternative does not meet the objectives of the project while both Existing Diversion Alternative and the New Diversion Alternative meet these objectives. The Existing Diversion Alternative would have lesser impacts to the resources when compared to the New Diversion Alternative. The Existing Diversion Alternative minimizes impacts while meeting the project objectives and therefore is the preferred alternative.

2.9 MITIGATION / STIPULATION MEASURES

No specific mitigation or stipulation measures have been identified. Through the water right change application process mitigation or stipulation measures may be developed to ensure compliance with section 85-2-402(2) MCA.

2.10 REGULATORY EFFECTS ON PRIVATE PROPERTY

Both of the water rights involved are owned by public entities. The State of Montana owns the riverbed as well as the Hatchery and Giant Springs State Park. None of the alternatives call for changes in how DNRC or FWP regulate private property. Any mitigation or stipulation measures potentially developed as a part of the water right change application process would be necessary for compliance with section 85-2-402(2) MCA.

2.11 NEED FOR AN EIS

The most substantial and noticeable impacts are short-term, being limited to the duration of the construction and restoration phases of the water supply system project. The long-term impacts are generally less substantial and less noticeable. The expected impacts to each resource were compared to the criteria used to determine the significance of impacts found in DNRC Admin. Rule 36.2.524 and FWP Admin. Rule 12.2.431. None of the expected impacts are significant as defined with respect to these criteria. Therefore an EIS is not necessary.

3.0 AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

Several resources were identified as being affected by the water supply system project. The existing state of each of the affected resources is described and then the environmental consequences or impacts on the affected resource due to each alternative are described. As stated in section 1.4, only the impacts associated with the water supply system are addressed with the exception of the impacts associated with increased agricultural income associated with the malt production facility. These beneficial impacts were not adequately evaluated in previous environmental documents.

3.2 PREDICTED ATTAINMENT OF OBJECTIVES

The No Action Alternative would not meet the objectives of the applications. Both the Existing Diversion and the New Diversion Alternatives would meet the objectives of the applications although the New Diversion Alternative would require slight modifications of the applications and the submission of additional information regarding the design of a new diversion.

3.3 PREDICTED IMPACTS TO AFFECTED RESOURCES

3.3.1 TERRESTRIAL AND AQUATIC LIFE AND HABITATS

The water supply project area consists of agricultural farmland, native rangeland, and a very limited riparian area supporting wildlife consistent with that found throughout eastern Montana. The Missouri River in the project area is home to various forms of aquatic life including introduced trout species. Review of information from the Montana Fisheries Information System indicates that the reach has a substantial fisheries resources value. The River is highly influenced by the existence and operation of hydroelectric dams. USGS monthly stream flow statistics for the gauge site located just downstream of Morony Dam below the project area indicates mean monthly streamflows ranging from a high of 14,130 cfs in June to a low of 5588 cfs in August.

According to the Water Supply Protection Project for Giant Springs Hatchery EA , the Hatchery provides approximately 25 % of the total trout and salmon planted in the state. This production is dependent on having a sustainable flow of water. As the fish grow in the hatchery they require more water. In order to maximize hatchery production the full 16,000 gpm must be available at certain times of the year. Flows also must be consistently supplied to the Hatchery in order to preserve the fish in the Hatchery.

3.3.1.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.1.2 Existing Diversion Alternative

According to FWP's water right change application, the 1500 gpm reduction in flow to the Hatchery would reduce maximum fish production capability from 54,000 pounds per year to 43,500 pounds, about a 19% reduction. FWP has plans to mitigate this impact by adjusting Hatchery operations by increasing late summer and fall production, growing smaller fish for April and May plants and stocking additional fish from June through November. In addition to changes in Hatchery operations, the revenue generated from the lease of the water right would be used to

increase production at other FWP hatcheries, compensate Federal hatcheries for additional fish, and improving natural spawning areas, thus reducing the need for stock fish and to better monitor stocked fish to derive more effective stocking strategies.

IMC would take precautions to not reduce flows into the Hatchery while tapping into the existing wet well. IMC plans to tap the wet well in a manner that would not lower the water level to a degree that would impair Hatchery operations. IMC also plans to coordinate with FWP Hatchery staff to minimize the potential for impact to Hatchery operations during the construction phase and in future operations of the water supply system.

Wildlife would be displaced during the construction of the pipeline. The relatively rugged topography of the area just north of the River would provide cover for displaced wildlife. The displacement would be generally temporary, although some animals such as burrowing rodents and others with habitat closely associated with the soil may be permanently displaced. The 1500 gpm (3.34 cfs) that would be redistributed (further described in section 3.3.3.2) as a part of the water right change applications amounts to less than 1/10,000th of the lowest mean monthly flow for the Missouri River. This modification of stream flow would not be physically noticeable or measurable and would have no impact on the aquatic habitat in the Missouri River.

Given the limited duration and level of effect, the Existing Diversion Alternative would have a minor impact on Terrestrial and Aquatic Life or Habitats.

3.3.1.3 New Diversion Alternative

The New Diversion Alternative would have the same impacts to terrestrial and aquatic life and habitats as the Existing Diversion Alternative. In addition the aquatic life and habitat in the area of the main spring would be greatly disrupted during the excavation and construction of the new diversion. Animal life would be displaced and plant life would be destroyed during the project.

The New Diversion Alternative would not reduce Hatchery production at all if IMC applied for and obtained its own non-consumptive water right. Considering the water right applications currently pending, the Hatchery flow would need to be reduced by 1200 gpm to offset the 1200 gpm portion of the non-consumptive water right being leased to IMC that would be diverted at the new diversion. Hatchery production would be diminished, but not to the level associated with the Existing Diversion Alternative. The same mitigation measures would likely be taken on the part of FWP to mitigate the impact.

Given the additional impacts to the spring associated with the New Diversion Alternative, the impacts to Terrestrial and Aquatic Life or Habitats would be moderate.

3.3.2 WATER QUANTITY, QUALITY AND DISTRIBUTION

One diversion facility currently exists at Giant Springs. This diversion facility is used to supply up to 16,325 gpm to FWP and up to 270 gpm to Source Giant Springs, Inc. a producer of bottled water. FWP diverts up to 16000 gpm up to 25,804 acre-feet per year for use in the Giant Springs State Fish Hatchery. FWP diverts an additional 325 gpm up to 57.5 acre-feet for irrigation of the grounds at the hatchery and Giant Springs State Park.

Source Giant Springs, Inc. has water rights for a total of 500 gpm up to 697.8 acre-feet per year for commercial use. However, a contract between FWP and Source Giant Springs, Inc. limits the diversion rate to 270 gpm, which in turn would effectively limit Source Giant Springs, Inc. annual

volume to 435.5 acre-feet. This is the maximum annual volume that can be diverted at a continuous flow rate of 270 gpm.

The diversion structure consists of two 24 in. collection conduits installed over fissures in the bottom of the main spring. Water is collected in vault where it is then diverted into two pipelines. One 8 in. pipeline supplies Source Giant Springs, Inc. This pipeline reportedly reduces to a 6 in. diameter. A 42 in. pipeline supplies the hatchery and FWP's irrigation uses. It reduces to a 36 in. diameter. Control gates or valves control the flow into each of the pipelines. The pipeline serving Source Giant Springs, Inc. gravity feeds a pumping station located on Hatchery grounds that pumps water to the Source Giant Spring, Inc. facility located approximately 1 mile to the south of Giant Springs. The pipeline serving FWP gravity feeds a wet well containing 5 pumps. These pumps serve the Hatchery. Excess water flows to a separate pumping station that supplies the irrigation needs of the Hatchery grounds and Giant Springs State Park.

The diversion structure was designed to operate with a water level that matches the overflow weir troughs, such that the system is constantly pressurized. Excess water not entering the pipelines returns to the spring. The midpoint of the 42-inch line is located 39 inches from the bottom of the overflow structure. The midpoint of the 8-inch line is located 29 inches from the bottom of the structure. The overflow troughs are located 68 inches from the bottom of the structure.

The diversion structure was installed in 1999 and has been functioning since that time. It was designed to provide protection from *Mxyobolus cerebralis*, the parasite that causes whirling disease. Whirling disease in the hatchery would be detrimental to hatchery operations. In addition, the diversions structure provides source water protection for Source Giant Springs, Inc. water bottling operation. Giant Springs produces high quality water that is essential to both the Hatchery and Source Giant Springs, Inc.

Giant Springs is located downstream of Black Eagle Dam and upstream of Rainbow Dam, both hydropower dams owned by PPL Montana. The City's municipal intake for the Reserved Right is located upstream of Black Eagle Dam. The City's wastewater treatment plant is also located upstream of Black Eagle Dam. The effluent released from the wastewater treatment plant complies with NPDES and MPDES permits. The discharge from the Hatchery receives minimal treatment. Water from the raceways moves through a settling basin for removal of suspended solids prior to being released to the Missouri River.

3.3.2.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.2.2 Existing Diversion Alternative

Because the existing diversion structure would be used, no disturbance of the diversion structure or Giant Springs would occur. The IMC line would tap into the Hatchery wet well which is located several hundred feet away from the diversion structure. The valve on the Hatchery supply line would be closed to isolate the wet well from the diversion structure when the wet well is tapped. The proposed project would redirect the 1,500 gpm downstream of the overflow structure. Flow out of the overflow structure will remain the same after the project is implemented as before. The project will have no effect on the supply of water to the 8-inch line utilized by Source Giant Springs, Inc.

Because the diversion structure would be isolated during construction and because operation of diversion would remain unchanged over the long term, the water quality from the diversion would not be impacted during construction or during future operations.

If the 1500 and 2419 ac.-ft. industrial portion of the Reserved Right being changed to Giant Springs were developed at the existing City of Great Falls diversion, the water diverted would not necessarily flow through Black Eagle Dam. Some portion may return as effluent from the wastewater treatment plant and ultimately flow through Black Eagle Dam. With this portion developed at Giant Springs and equal amount of water would remain in the Missouri River and be available for hydropower generation at Black Eagle Dam. The 1200 gpm and 1936 acre-feet portion of FWP's Hatchery water right being changed would now be discharged to the Missouri River from the City's wastewater treatment plant. This would increase the flow available at Black Eagle Dam over present conditions. As outlined in section 2.5.2 the total diversion would be 1500 gpm and 2419 ac-ft per year. If after further testing the diversion structure proves adequate to supply the FWP water rights in addition to the 1500 gpm industrial demand, FWP would not need to renew the temporary change of water rights and the City could supply the entire industrial demand.

The increased discharge from the City's wastewater treatment plant due to the malt plant effluent would be offset by a decreased discharge from the Hatchery. The quality of water released from the wastewater treatment plant is generally better than that released from the Hatchery and is more rigorously monitored as a part of the City's existing discharge permits. Water quality would not be diminished by this change in effluent discharges.

Considering the limited duration and limited severity, the Existing Diversion Alternative would have a minor impact on water quantity, quality and distribution.

3.3.2.3 New Diversion Alternative

In addition to the impacts associated with the Existing Diversion Alternative, the New Diversion Alternative would require that the main spring area water level be lowered by unstacking the rocks surrounding the pool. The spring would be excavated to install the diversion structure. During this construction phase diversion the water supply would be limited or completely cutoff to both the Hatchery and Source Giant Springs Inc. Even if the levels in the spring were sufficient to supply the existing diversion, the water quality would likely be impaired to the level that diversion would not be feasible.

The impacts to quantity and distribution of water in the Missouri River would be the same as the impacts using the Existing Diversion Alternative. Overall the impacts associated with the New Diversion Alternative would be moderate when considering the impacts associated with the construction in relation to the duration of these impacts.

3.3.3 GEOLOGY AND SOIL QUALITY, STABILITY, AND MOISTURE

The general geology of the area consists of the Morrison Formation exposed at the surface underlain by the Kootenai and Madison Formations with Madison Formation being the oldest and hence the deepest. The Madison Formation is a prolific aquifer in the area and supplies the Giant Springs complex. Water in the Madison is under pressure and rises to the surface at Giant Springs through fractures in the overlying formations. The Missouri River flows on top of a shallow bed of alluvial deposits over the rock of the Morrison Formation.

The soil in the area varies in nature. The soils in the area of the Hatchery are classified as Lothair Silty Clay Loam. However, the area has undergone extensive disturbance over time and natural soil horizons are likely missing in many areas due to previous excavations. An area between the Hatchery wet well and pumping station and the proposed IMC pumping station is known to have

hydrocarbon contamination. A remediation plan exists to remove and replace the contaminated soil in the area. This remediation plan is already in progress and calls for the removal of two existing garage structures. These structures are shown on the schematic in Appendix C. The removal of the garage structures allows for the placement of the pipeline from the Hatchery wet well to the IMC pump station as shown in Appendix C.

Soils along the pipeline route from the north bank of the Missouri River to the malt plant consist of Lisam-rock outcrop complex, Pendroy Clay, Marias Silty Clay and Ethridge-Kobar Silty Clay Loams. Review of the characteristics of these soil types indicate that in general they are moderately susceptible to wind and water erosion. Approximately the first ½ mile of the pipeline route north of the river consists of bedrock at or near the surface.

3.3.3.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.3.2 Existing Diversion Alternative

Soils would be excavated from the Hatchery wet well to the IMC pump station and in the area of the pump station to connect to the pipeline installed under the river. The fill would be properly compacted to prevent future settling and topsoil would cover the excavated areas. The pipeline through the area of contaminated soil would be installed when excavation occurs as called for in the ongoing remediation plan. The pipeline would be stainless steel to prevent possible decay and contamination caused by any remaining hydrocarbons.

The pipeline would be installed under the Missouri River using directional boring. The pipeline would be placed at a depth of approximately 15 feet below the bottom of the river. It is anticipated that at this depth the borehole would be through solid rock, creating very little disturbance to the surrounding strata.

The pipeline from the north bank of the river to the IMC plant would be buried at a depth of 6.5 feet. The excavation in the first ½ mile may require on-site route modifications to avoid areas of consolidated bedrock. The fill would be compacted to prevent future settling. Best management practices to prevent both wind and water erosion would be used to stabilize the pipeline route until such time vegetation is re-established.

The short-term impacts due to the installation of the pipeline would be substantial in the area of construction while the long-term impacts would be relatively minor. The overall impacts to geology and soil quality, stability, and moisture would be minor given the extent and duration of the impacts.

3.3.3.3 New Diversion Alternative

In addition to the impacts associated with the Existing Diversion Alternative, the New Diversion Alternative would require an additional excavation between the Hatchery wet well and the spring. Also, it would require excavation of the main spring itself. Considering these additional impacts, the overall impact to geology and soil quality, stability, and moisture would also be moderate given the extent and duration of the impacts. However, these impacts would be more extensive than only those associated with the Existing Diversion Alternative.

3.3.4 VEGETATION COVER, QUANTITY AND QUALITY

Vegetation on the hatchery grounds generally consists of irrigated turf, various species of ornamental shrubs and both conifers and deciduous trees. Little if any riparian vegetation exists along the Missouri River as the hatchery grounds extend to the rivers edge on the south bank and the north bank consists of rock outcrops very closely bounded by the Rainbow Dam Road.

Vegetation from the Rainbow Dam Road to the IMC plant location consists of native plant species, introduced species and crops. From the Rainbow Dam Road on the north bank of the river to the top of the ridge to the north vegetation consists of native species including Western Wheatgrass, Wild Rose, Great Plains yucca and introduced species including Smooth Brome and Houndstongue. The density of vegetation is somewhat sparse, particularly on the ridges where soils are thinner. The vegetation is likely representative of natural conditions as it appears that no agricultural grazing of the area occurs. On the flat north of the river the vegetation changes to small grain crops as well as both introduced and native grasses that have been seeded on previously cultivated ground, possibly as part of the Conservation Reserve Program. Review of available documentation indicates that Leafy Spurge, Spotted Knapweed, Canadian Thistle, Hoary Cress (Whitetop) and Dalmation Toadflax have been identified as noxious weeds in the project area.

3.3.4.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.4.2 Existing Diversion Alternative

The installation of the pump station and waterlines as well as the directional boring would require disturbance of turf on the Hatchery grounds. The disturbance associated with the directional boring and excavation would be short-term and the turf would be replaced. A small area of likely less than ¼ acre would be disturbed during construction.

The pump station would permanently replace a small area of turf.

The excavation required for the pipeline from the exit of the directional boring on the north of the river to the IMC plant would remove the existing vegetation. Once the pipeline was buried, the disturbed areas would be re-vegetated using native species of grasses in the previously undisturbed areas and in the areas previously cultivated and now seeded to grass, like species of grass would be seeded. IMC would request that contractors clean any equipment that has previously been in areas invested with noxious weeds. Additionally no soil or material would be imported from sites where noxious weeds are known to exist. IMC intends to contract with Cascade County Weed and Mosquito Management would monitor pipeline route and control noxious weeds in accordance with state statute.

Given the short-term duration of many of the impacts and the small area that would be permanently affected, the impact to vegetation cover, quantity and quality would be minor.

3.3.4.3 New Diversion Alternative

In addition to the impact found in 3.3.4.2, the construction of the new diversion would require excavation of turf in the area around Giant Springs. The turf would be replaced at the completion of construction. This additional short-term impact to vegetation cover, quantity and quality in addition to the other impacts outlined previously would be minor.

3.3.5 AESTHETICS

The area surrounding the Hatchery and Giant Springs State Park is generally considered aesthetically pleasing. The area around Giant Springs is particularly beautiful and is usually viewed by visitors to both the park and Hatchery. The area is relatively quiet and serene, although there is some noise associated with Hatchery operations and associated traffic. While the area contains many buildings, they are appropriate for the setting. The Hatchery area includes several homes occupied by hatchery workers. The Hatchery and park grounds are well manicured and are pleasing to the eye. Some less aesthetically pleasing features such as electrical transformers do exist. The area from the north bank of the Missouri to the top of the ridge paralleling the river is generally undisturbed native land, although a single-family residence is located on the north bank of the river approximately 0.2 miles upstream of the proposed pipeline location.

The Lewis and Clark Interpretive Center is located less than 1/2 mile upstream of the Giant Springs area on the south side of the river. The view from this location includes both the Missouri River Channel and hills rising above the river. In large part, the view does not contain man-made structures or features. FWP owns a conservation easement on the land north of the river owned by PPL Montana. The map in Appendix A shows the boundaries of this easement. The conservation easement is an open space easement requiring that the native features of the land be maintained and that no structures be placed on the land.

3.3.5.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.5.2 Existing Diversion Alternative

The construction and excavation on the Hatchery grounds would be limited to the eastern part of the hatchery, not typically visited by the public. It would not be highly visible from the Giant Springs. Hatchery housing is located in the area and some noise would be associated with the construction. This noise level would be similar to other construction projects that have occurred in the area.

The bricks for the masonry pump station building would be similar in color to other hatchery buildings and would be selected to blend with the existing landscape and buildings. It would be consistent in size and location with other buildings on the hatchery station. All of the necessary equipment including the electrical transformer would be enclosed in the building where it would not be visible.

The pipeline route would generally not be visible from the hatchery and in particular from Giant Springs due to the topography of the area. The view of the pipeline route from the north bank of the river to the top of hills or ridge would be concealed by its placement in a ravine. Once on top of the hills or ridge north of the river, the elevation would conceal the route from the Giant Springs area. The pipeline route would not likely be directly visible from the Lewis and Clark Interpretive Center. No structures would be placed on the surface in the area of the FWP conservation easement. However, during construction, the equipment would be visible from the Giant Springs area and possibly from the Lewis and Clark Interpretive Center. The duration of the construction would be limited and would be completed prior to the 2005 tourist season when visitation to the area is expected to increase due to the bi-centennial celebration of the Lewis & Clark Expedition.

Because of the limited duration of the most noticeable aesthetic impacts, the timing of the impacts, the location of the impacts and the limited nature of the permanent aesthetic changes, the overall impact to aesthetics is minor.

3.3.5.3 New Diversion Alternative

In addition to the impacts outlined in 3.3.5.2, the construction of a new diversion would negatively impact the view in the immediate area of Giant Springs as the part of the spring and the surrounding area would be excavated. The impact to aesthetic would be moderate as the construction in the area the Giant Springs would be highly visible and intrusive in an area with high aesthetic values.

3.3.6 AIR QUALITY

Review of the Air Quality Permit 3238-00 EA indicates the air quality classification of Great Falls is “Unclassifiable or Better than National Standards” for all pollutants. Further review of the of the Air Quality Permit 3238-00 EA indicates that the Montana Refining Company located approximately 1.5 miles southwest of the proposed malt production facility does not show compliance with Montana Ambient Air Quality Standards with regard to SO₂ emissions. Montana Refining Company is not required to show compliance with this standard.

3.3.6.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.6.2 Existing Diversion Alternative

Air quality would be slightly diminished for a short time due to the emissions from equipment used in the construction of the water supply system would be minor. No impacts to air quality are expected as a result of the operation of the water supply system. The impacts to air quality due to the construction and operation of the water supply system would be minor given the limited severity and duration.

3.3.6.3 New Diversion Alternative

The New Diversion Alternative would result in slightly increased emissions over the low emission level associated with the Existing Diversion Alternative due to the additional construction. The equipment used for the additional excavation would generate the increased emissions. As with the existing diversion alternative, the impact to air quality would be minor.

3.3.7 HISTORICAL & ARCHEOLOGICAL SITES

The Hatchery and Giant Springs State Park contain many historic features. These features include rock walls constructed in the early 1920s as part of the original hatchery construction as well as some historic buildings dating back to the early days of the Hatchery. No archeological sites exist on Hatchery grounds.

The proposed pipeline route from the north bank of the river to the malt plant contains both native, undisturbed lands as well as currently or previously cultivated lands.

3.3.7.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.7.2 Existing Diversion Alternative

The State Historic Preservation Office has recommended that a cultural resources inventory be conducted of the previously undisturbed native lands. IMC would employ a qualified archaeologist to conduct a detailed cultural survey and inventory of the proposed pipeline route in previously undisturbed areas. IMC plans to adjust the route if cultural resources were to be found in close proximity to the intended route. The cultural resources survey and inventory would be

coordinated with the State Historic Preservation Office. As IMC has provided a plan to mitigate impacts to historical & archeological sites, the impact would be minor.

3.3.7.3 New Diversion Alternative

The impacts with the New Diversion Alternative would be the same as those expected with the Existing Diversion Alternative with the addition of impacts associated with the additional construction. The area in and around the main spring contains historic rock walls. The New Diversion Alternative would require that the walls be disassembled prior to the excavation and installation of the collection pipes and reassembled to their previous state after construction. This method was used during the installation of the existing diversion. As this additional impact would short term, when considered with the other impacts outlined with regard to the Existing Diversion Alternative the overall impact to historical & archeological sites would be minor.

3.3.8 LOCAL AND STATE TAX BASE AND TAX REVENUE

The Great Falls area has a large residential population and some industrial development. The region is also a very important agricultural area producing primarily small grains, hay and livestock. The 2000 assessed property value for Cascade County is \$2,728,247,779. (MT Dept. of Revenue, 2000)

3.3.8.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.8.2 Existing Diversion Alternative

The Air Quality Permit 3238-00 EA reports that the water supply system is expected to cost slightly less than \$1 million. This value is very minor in relation to the assessed value of property in Cascade County. As with the malt plant itself, the expected increase in property taxes associated with the water supply system would be relatively small when compared to all property tax revenues in the area.

It is expected that the increased income to malt barley producers could be on the order of \$3 million to \$6 million.(see section 3.3.9.2) The secondary positive impacts to the local and state tax base and tax revenue due to increased income to malt barley producers while important would be small in relation to existing revenues and tax base.

The overall direct and secondary impacts to the local and state tax base and to tax revenue would be minor when compared to the current tax base and tax revenue levels.

3.3.8.3 New Diversion Alternative

The New Diversion Alternative represents the almost the same impact on the local and state tax base and tax revenue as the Existing Diversion Alternative with a very slight increase associated with the added revenues associated with the added cost of construction and added value associated with the new diversion structure and associated additional structures. As with the Existing Diversion Alternative, the direct and secondary positive impact to the local and state tax base and tax revenue would be minor.

3.3.9 AGRICULTURAL OR INDUSTRIAL PRODUCTION

According to the Montana Dept. of Agriculture interpretation of Montana Agricultural Statistics Services data, current Malt Barley production in the north central region of Montana was 9.6

million bushels in 2000 and 7.2 million bushels in 2001. (Poppe & Sullivan, 2003) The current malt barley price per 100 pounds is \$5.25 in the Great Falls area with feed barley at \$3.85 - \$4.70. Malt barley prices often greatly exceed the feed barley price and range around \$7.00.

Much of the barley grown in region is exported out the state. Review of railroad shipping rates for barley effective September 1, 2002 as reported by the Montana Wheat and Barley Committee indicates the price of shipping in the area is about \$0.50 per bushel or about \$1 per 100 pounds. The cost of shipping 16 million bushels is about \$8 million.

3.3.9.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.9.2 Existing Diversion Alternative

The Existing Diversion Alternative would result in the objective of supplying the malt production facility with a high quality reliable source of water creating a secondary impact on the demand for malt barley in the region. The initial demand of 12 million bushels of malt barley with the long-range demand of 16 million bushels is in excess of the existing production requiring additional production of about 6 million bushels of malt barley. Projecting a premium of \$1.00 to \$2.00 per hundred pounds or \$0.48 to \$0.96 per bushels this would translate into additional farm revenues of \$2.9 million to \$5.8 million over feed barley revenues. The increased demand for malt barley may support higher long-term prices for malt barley as well as cause a shift in production from other crops to malt barley, possibly resulting in improved local prices for other crops as the supply decreases. Malt barley prices would be further bolstered by a reallocation of shipping charges. The purchasers of the malt would pay to ship the malt from the IMC plant to their breweries as opposed to the current situation where barley producers indirectly pay for shipping cost through lower prices received. The situation where the purchaser of the product is paying the shipping charges instead of the producer should result in sustained higher prices for malt barley in the region. A substantial portion of the \$8 million shipping cost would be retained by the farmers in the form of higher prices.

The impact to individual farmers could be substantial. To a farmer raising 20,000 bushels of malt barley that would otherwise be sold as feed barley could earn on the order of an additional \$10 to \$20 thousand in revenues. Farmers currently selling malt barley would also experience increased prices due to increased local demand and an elimination of shipping costs. The overall impact would be very important to individual farmers and would be moderately beneficial in relation to total agricultural production in the area.

3.3.9.3 New Diversion Alternative

The new diversion alternative would have the same moderately beneficial impact on agricultural or industrial production as the existing diversion alternative.

3.3.10 ACCESS TO AND QUALITY OF RECREATIONAL ACTIVITIES

According to the Water Supply Protection Project of Giant Springs Hatchery EA Giant Springs is a popular tourist attraction with visitation ranging from 150,000 to 290,000. Giant Springs State Park is used primarily in the summer for picnics, fishing, and general recreation. Many visitors to the Park also visit the Hatchery. Visitation is expected to increase with the upcoming Lewis and Clark Bicentennial Celebration, particularly given the proximity of the Lewis and Clark Interpretive Center. The Missouri River in the area of Giant Springs is also used by a large number of recreationalists.

3.3.10.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.10.2 Existing Diversion Alternative

During construction access to portions of the hatchery grounds would be limited. The impact would be limited to an area that is not typically visited by the public while touring the hatchery. Access to the area around Giant Springs would not be limited.

The Missouri River in the project area is used for recreational activities. Because the pipeline would be installed under the river using directional boring, no interference with the use of the River is expected. From the north side of the River to the IMC plant, recreational activities may be precluded in some areas during the excavation for and installation of the pipeline. The area and duration of the restricted access would be limited.

The short-term impacts to access to and quality of recreational activities associated with the construction of the water supply system would be minor. No long-term impacts would be expected.

3.3.10.3 New Diversion Alternative

In addition to the impacts outlined in 3.3.10.2, the construction of a new diversion would further limit access to certain areas of the Hatchery grounds; in particular access to Giant Springs would be limited during construction. There would be a moderate short-term impact to access to and quality of recreational activities.

3.3.11 QUANTITY AND DISTRIBUTION OF EMPLOYMENT

The Great Falls area typically has many substantial construction projects occurring at any given time. Both local and regional companies contract these construction projects and at times hire temporary, sometime seasonal help to work on the projects. The scope and size of the projects is highly variable. In 2001 there were 32,568 jobs in Cascade County.(Great Falls City-County Growth Policy, 2003)

3.3.11.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.11.2 Existing Diversion Alternative

The construction of the water supply system may cause a short-term increase in employment as temporary local workers may be employed by the contractor. However, this increase would be minor in terms of the overall number of jobs in the Great Falls area.

3.3.11.3 New Diversion Alternative

The New Diversion Alternative may create some additional employment opportunities than the Existing Diversion Alternative, as the size of the project would be larger. However, as with the Existing diversion alternative the increase in jobs would be minor in terms of the overall number of jobs in the Great Falls area.

3.3.12 DEMANDS FOR GOVERNMENT SERVICES

The City of Great Falls currently supplies potable water to approximately 22,000 customers accounting for an average annual volume of about 12,300 to 15,300 acre-feet delivered through approximately 268 miles of water mains.(Great Falls City Engineers Office, pers. Comm., 2003)

The City of Great Falls wastewater treatment plant discharges an annual average of 10,300 acre-feet of effluent to the Missouri River with a maximum annual capacity of 16,800 acre-feet. The sewer system consists of 211 miles of collector and transmission mains.(Great Falls City-County Growth Policy, 2003)

3.3.12.1 No Action Alternative

The No Action Alternative would not impact this resource.

3.3.12.2 Existing Diversion Alternative

The demand for effluent treatment by the City of Great Falls wastewater treatment plant would increase as IMC intends to discharge 80% of the water supplied to the malt processing plant into the City sewer system for treatment and ultimately to be released into the Missouri River. The City of Great Falls has determined that the wastewater treatment plant has sufficient capacity. IMC would be charged for sewer usage and these charges would be used to cover the costs associated with this public utility. While the City's water right would supply the consumptive portion of water needed for the malt processing plant, the City would not be responsible for delivering that water to IMC. This represents about a 20 % increase demand on the wastewater treatment plant, well within the capacity of the existing facilities.

The potable water and sanitary sewer for the Malt Processing plant would be supplied by the City's municipal systems. The demand for potable water and sanitary sewer would be small as employment at the plant is expected to be about 40 full time employees.

The increased demand for government services would be moderate in relation to the current demand and system. The costs associated with the increased demand for municipal water and wastewater treatment would be mitigated by use charges. The increased demand would be beneficial as the City's water and sewer systems are utilities selling water and sewer services. The increased demand would represent increased revenues to the City's utilities allowing for continued maintenance and upgrades to the municipal supply and sanitary sewer systems.

3.3.12.3 New Diversion Alternative

The New Diversion Alternative represents the same increased demand for government services and moderately beneficial impact as the Existing Diversion Alternative.

3.4 NON-AFFECTED RESOURCES

Several resources would not be impacted by any of the three alternatives. The non-affected resources are summarized .

3.4.1 Unique Endangered Fragile or Limited Environmental Resources

Air Quality Permit 3238-00 EA indicates that two plant species of concern were identified by the Montana Natural Heritage Program. These species, *Entosthodon rubiginosus* and *Funaria americana*, are both bryophytes or mosses that were reported over 50 years ago. Typical habitat for these species would be in and around the Missouri River and the springs located along the south bank in the general project area. All disturbances associated with the water supply project would be away from the likely habitat of these species. For this reason, it is unlikely these plant species would be impacted.

In past water right actions involving the Missouri River concerns have been expressed about Pallid Sturgeon, an endangered species found in the Missouri River well downstream of the project area. Previous concerns have been with regard to high spring flows in the Missouri River necessary for the triggering the spawning migration of the Pallid Sturgeon. As the applications

call for no new consumptive water rights and changes in water distribution amounting to less than 1/100th of 1 percent of the lowest mean monthly flow in the Missouri, there would be no impact to the Pallid Sturgeon due to flow modification.

Water Supply Protection Project for Giant Springs Hatchery EA evaluated the possible impact to other animal species of concern and endangered animal species in the area and concluded none would be impacted. FWP review of this previous conclusion with respect to the proposed project reached the same finding. No endangered or threatened species would be impacted.

3.4.2 Demands on Environmental Resources of Water Air and Energy

The construction of the water supply system would put no demands on water, air and energy resources beyond those already addressed.

3.4.3 Social Structures and Mores

The construction of the water supply system would be similar to other construction projects in the Great Falls area and is not expected to impact the social structure or mores in the area.

3.4.4 Cultural Uniqueness and Diversity

While the construction of the water supply system may require contractors from outside the Great Falls area, this possible temporary influx of workers is similar to that already experienced with other construction projects and is not expected to impact the cultural uniqueness and diversity of the area.

3.4.5 Human Health

The construction of the water supply system would occur in compliance with OSHA regulations designed to protect human health. No impacts to human health are expected from the construction of the water supply system. No impacts to human health are expected from the operation of the water supply system.

3.4.6 Industrial and Commercial Activity

The construction of the water supply system would not impact industrial or commercial activity, as the system as currently contemplated would be sufficient to supply only IMC.

3.4.7 Locally Adopted Environmental Plans and Goals

The Missouri River in the area of the project is listed on the 2000 303d meaning that a TMDL plan will be developed by the Cascade County Conservation District in conjunction with the Department of Environmental Quality. Development of the plan has not yet begun. The Cascade County Conservation District is a member of the Missouri River Council, which has broad ranging goals for the Missouri River corridor. The construction of the water supply would not likely be contrary to the future TMDL Plan nor is it likely contrary to the goals of the Missouri River Council. The project is consistent with the Great Falls City-County Growth Policy.

REFERENCES

City of Great Falls / Cascade County, 2003. Great Falls City- County Growth Policy

City of Great Falls Engineer, 2003. Personal Communication

Montana Department of Revenue, 2000. July 1, 1998 to June 30, 2000 Biennial Report

Poppe, Brent and Sullivan, Michael, 2003. Personal Communication. Montana Department of Agriculture

Appendix B: Statutory Criteria

Criteria for Issuance of an Authorization to Change

85-2-402, *Montana Code Annotated*

2) Except as provided in subsections (4) through (6), the department shall approve a change in appropriation right if the appropriator proves by a preponderance of evidence that the following criteria are met:

(a) The proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or certificate has been issued or for which a state water reservation has been issued under part 3.

(b) Except for a lease authorization pursuant to 85-2-436, a temporary change authorization for instream use to benefit the fishery resource pursuant to 85-2-408, or water use pursuant to 85-2-439 when authorization does not require appropriation works, the proposed means of diversion, construction, and operation of the appropriation works are adequate.

(c) The proposed use of water is a beneficial use.

(d) Except for a lease authorization pursuant to 85-2-436 or a temporary change authorization pursuant to 85-2-408 or 85-2-439 for instream flow to benefit the fishery resource, 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.

(e) If the change in appropriation right involves salvaged water, the proposed water-saving methods will salvage at least the amount of water asserted by the applicant.

(f) The water quality of an appropriator will not be adversely affected.

(g) 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.

(3) The applicant is required to prove that the criteria in subsections (2)(f) and (2)(g) 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 (2)(f) or (2)(g), as applicable, may not be met.

(4) The department may not approve a change in purpose of use or place of use of an appropriation of 4,000 or more acre-feet of water a year and 5.5 or more cubic feet per second of water unless the appropriator proves by a preponderance of evidence that:

(a) the criteria in subsection (2) are met; and

(b) the proposed change is a reasonable use. A finding of reasonable use must be based on a consideration of:

(i) the existing demands on the state water supply, as well as projected demands for water for future beneficial purposes, including municipal water supplies, irrigation systems, and minimum streamflows for the protection of existing water rights and aquatic life;

(ii) the benefits to the applicant and the state;

(iii) the effects on the quantity and quality of water for existing uses in the source of supply;

(iv) the availability and feasibility of using low-quality water for the purpose for which application has been made;

(v) the effects on private property rights by any creation of or contribution to saline seep; and

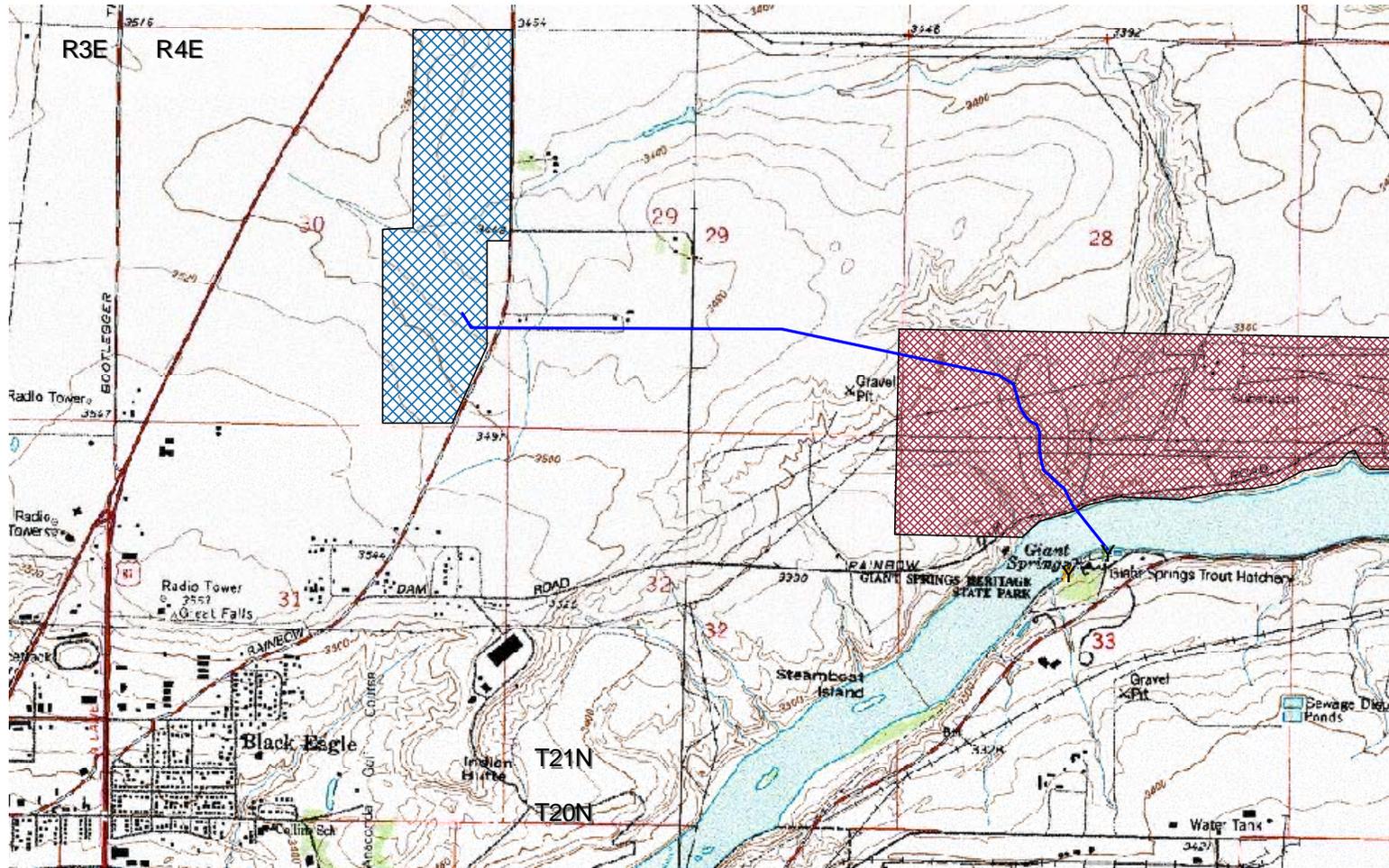
(vi) the probable significant adverse environmental impacts of the proposed use of water as determined by the department pursuant to Title 75, chapter 1, or Title 75, chapter 20.

(5) The department may not approve a change in purpose of use or place of use for a diversion that results in 4,000 or more acre-feet of water a year and 5.5 or more cubic feet per second of water being consumed unless:

(a) the applicant proves by clear and convincing evidence and the department finds that the criteria in subsections (2) and (4) are met; and

(b) for the withdrawal and transportation of appropriated water for out-of-state use, the department then petitions the legislature and the legislature affirms the decision of the department after one or more public hearings.

Appendix A: Map



Township 21 N
Range 4 E

- ⚡ IMC pump station
- IMC pipeline
- ▨ Conservation Easement
- ⚡ Giant Springs diversion
- ▨ IMC property

Appendix C: Site Plan

