



Montana Fish, Wildlife & Parks

January 22, 2009
215 W. Aztec
P.O. Box 938
Lewistown MT 59457

Environmental Quality Council
Montana Department of Environmental Quality
Montana Department of Fish, Wildlife and Parks
 Fisheries Division
 Endangered Species Coordinator
 Native Species Coordinator, Fisheries Division
Montana State Library, Helena
MT Environmental Information Center
Montana Audubon Council
Montana Wildlife Federation
U.S. Army Corp of Engineers, Helena
U.S. Fish and Wildlife Service, Helena
State Historic Preservation Office, Helena
Big Creek Water Right Owners of Record

Dear Interested Party:

Please find enclosed an Environmental Assessment (EA) prepared for Montana Fish, Wildlife and Parks (FWP) and the Future Fisheries Improvement Program. FWP proposes to renew a water right lease on Big Creek, a tributary to the Yellowstone River near Emigrant. The water rights are currently leased by FWP for in-stream flow for the benefit of the fishery. The intent of the project is to continue the lease for another 10 years to maintain habitat for salmonids, primarily Yellowstone cutthroat trout.

Please submit any comments that you have by 5:00 P.M., March 4, 2009 to Montana Fish, Wildlife & Parks at the address listed above. The funding for this project is contingent upon approval being granted by the Fish, Wildlife and Parks Commission. If you have any questions, feel free to contact me at (406) 538-4658. Please note that this draft EA will be considered as final if no substantive comments are received by the deadline listed above.

Sincerely,

Andy Brummond
Water Resources Specialist
Habitat Protection Bureau
Fisheries Division
e-mail: abrummond@mt.gov

ENVIRONMENTAL ASSESSMENT
Fisheries Division
Montana Fish, Wildlife & Parks
Big Creek Water Right Lease Renewal

General Purpose: The 1995 Montana Legislature enacted sections 87-1-272 through 273, MCA that directs the Montana Fish, Wildlife and Parks (FWP) to administer a Future Fisheries Improvement Program. The program involves providing funding for physical projects to restore degraded fish habitat in rivers and lakes for the purpose of improving wild fisheries. The legislature established an earmarked funding account to help accomplish this goal. Additionally, the 1999 Montana Legislature amended statute sections 87-1-273, 15-38-202 and Section 5, Chapter 463, Laws of 1995 to create a bull trout and cutthroat trout enhancement program. The program calls for the enhancement of bull trout and cutthroat trout through habitat restoration, natural reproduction and reductions in species competition by way of the Future Fisheries Program.

Section 85-2-436, MCA authorizes FWP to lease water rights and temporarily change water rights to in-stream flow purposes to benefit of the fishery.

Montana Fish, Wildlife and Parks is proposing to renew an existing water right lease on Big Creek, a tributary to the Yellowstone River near Emigrant. FWP currently leases 10 cubic feet per second (cfs) and proposes to continue leasing 10 cfs. Big Creek provides substantial Yellowstone cutthroat fry recruitment to the Yellowstone River and is vital to maintaining Yellowstone cutthroat populations. The Future Fisheries Improvement Program is proposing to provide 61% of the funding for the water right lease with the remainder coming from other FWP sources.

I. Location of Project: This project involves maintaining stream flow in approximately the lower 1.4 miles of Big Creek. This stream reach is located in Sections 22 and 23, Township 6 South, Range 7 East, Park County. A general location map is attached.

II. Need for the Project: One goal within Montana Fish, Wildlife and Parks six-year operations plan for the fisheries program is to “restore and enhance degraded fisheries habitats” by implementing habitat restoration projects and administering the Future Fisheries Improvement Program to restore important habitats on private and public lands. This proposed project would help meet this goal.

The water lease FWP proposes to renew is one of two leases on Big Creek. The other lease is a 20-year lease that has 11 years remaining. The other lease was funded by Future Fisheries for \$228,640 and provided for an extensive gravity pipeline and sprinkler system that significantly increase the total water demand. However it guarantees only 1 cfs of water. The two leases were meant to work in tandem. The lease currently proposed for renewal was statutorily limited to a 10-year initial term because it did not directly fund a water conservation project.

The existing leases successfully kept Big Creek connected with the Yellowstone during the late summer over the past 10 years. Because of the success of the lease it is not definitively known what hydrologic and biological conditions would have occurred over the past 10 years without the lease. However, some comparison to pre and post-lease data lends insight into this question. While FWP has monitored flows in Big Creek since the inception of the lease, this monitoring occurs below the main irrigation diversion and does not record flows in Big Creek above the main diversion. Therefore this data reflects that the lease

was effective, but gives no indications of what conditions would have been without the lease.

Long-term flow data exists for the Yellowstone River both at Corwin Springs upstream of Big Creek and near Livingston downstream of Big Creek. By subtracting the Corwin Springs flow from the Livingston flow the resulting net gain is indicative of the magnitude of the relative contribution of the tributaries, including Big Creek, between the two gauges. Diversions would also deplete flows, but this depletion would be expected to be relatively constant.

Fry and redd count data was collected prior to the lease in 1988 and 1989. In addition the stream was documented as dry in 1985 and 1990. In 2004 redds were counted and in 2005 both fry and redds were counted reflecting conditions with the lease in place. Table 1 includes the fry and redd count data along with Yellowstone River mean monthly flows for August near Livingston and at Corwin Springs. The table also reflects the net gain between Corwin Springs and Livingston as an indicator of tributary inflows in this reach.

	August Mean Monthly Flow (cfs)			Fry Count	Redd Count
	Yellowstone near Livingston	Yellowstone at Corwin Springs	Net Gain		
1985	2,633	2,425	208	0	
1988	1,713	1,461	252	0	27
1989	2,981	2,644	337	3429	39
1990	2,903	2,860	43	0 ⁺	
1999	4,224	3,954	270		
2000	2,221	2,016	205		
2001	1,793	1,562	231		
2002	2,598	2,308	290		
2003	2,459	2,254	205		
2004	2,530	2,326	204		142
2005	2,651	2,402	249	18000	88
2006	2,337	2,052	285		
2007	1,778	1,601	177		

⁺ Assumes no fry production as stream was documented as dry on Sept. 19.

Table 1 – Comparison of Flow to Fry and Redd Counts

The fry count in 1988 was zero because Big Creek was dry due to irrigation diversions. While fish were spawning as indicated by the redd count, fry out migration to the Yellowstone River was not occurring due to dewatering. This ongoing situation was in large part the impetus for leasing water on Big Creek. In 1989 flow conditions were better as evidenced by the net gain of 337 cfs between Corwin Springs and Livingston. Some limited fry out-migration from Big Creek did occur in 1989.

The fry out-migration is believed to be largely comprised of Yellowstone cutthroat fry with few rainbows because Big Creek typically has a relatively violent runoff and has few backwater areas making it less than hospitable for rainbow spawning during the rising limb of the hydrograph. By the time Yellowstone

cutthroat spawning occurs later on the falling limb of the hydrograph conditions are much more suitable for successful spawning. This assumption has yet to be investigated using genetic sampling of fry.

Since the beginning of the water lease in 1999 and through 2007 the net flow gain in the Yellowstone River between Corwin Spring and Livingston at best was 86% of the 337 cfs in 1989 when some fry out migration did occur. However, in 5 of these years the net gain was less than that experienced in 1988 indicating that Big Creek may well have gone dry in those 5 years without the lease. In the other 4 years Big Creek may have gone dry or fry production would have been severely limited without the lease as the net gain was less than that found in 1989. With the lease in place redd counts have increased and fry production has significantly increased. Fry trapping has been purposely limited as it results in the mortality of a significant number of fry. The U.S. Geological Service has not yet finalized flow data for 2008 and for that reason it is not included in Table 1, but flows were substantially higher than in previous years.

Without the water leases, fry out migration from Big Creek to the Yellowstone would have been very limited in the best of years since 1999 and would have likely been non-existent in the majority of years.

III. Scope of the Project:

The proposed project would renew the 10-cfs water lease on Big Creek for 10 more years. Approximately the lowermost 1.4 miles of Big Creek would continue to avert dewatering in the late summer due to irrigation with diversions. The project is intended to continue to benefit the recruitment of Yellowstone cutthroat trout to the Yellowstone River. This recruitment of fish from Big Creek serves to help sustain the Yellowstone cutthroat trout populations in the Yellowstone River.

The total price for the water lease renewal is \$255,000 with the Future Fisheries Improvement Program proposing to contribute \$155,000 and the remainder coming from other FWP funding sources.

IV. Environmental Impact Checklist:

Please see attached checklist.

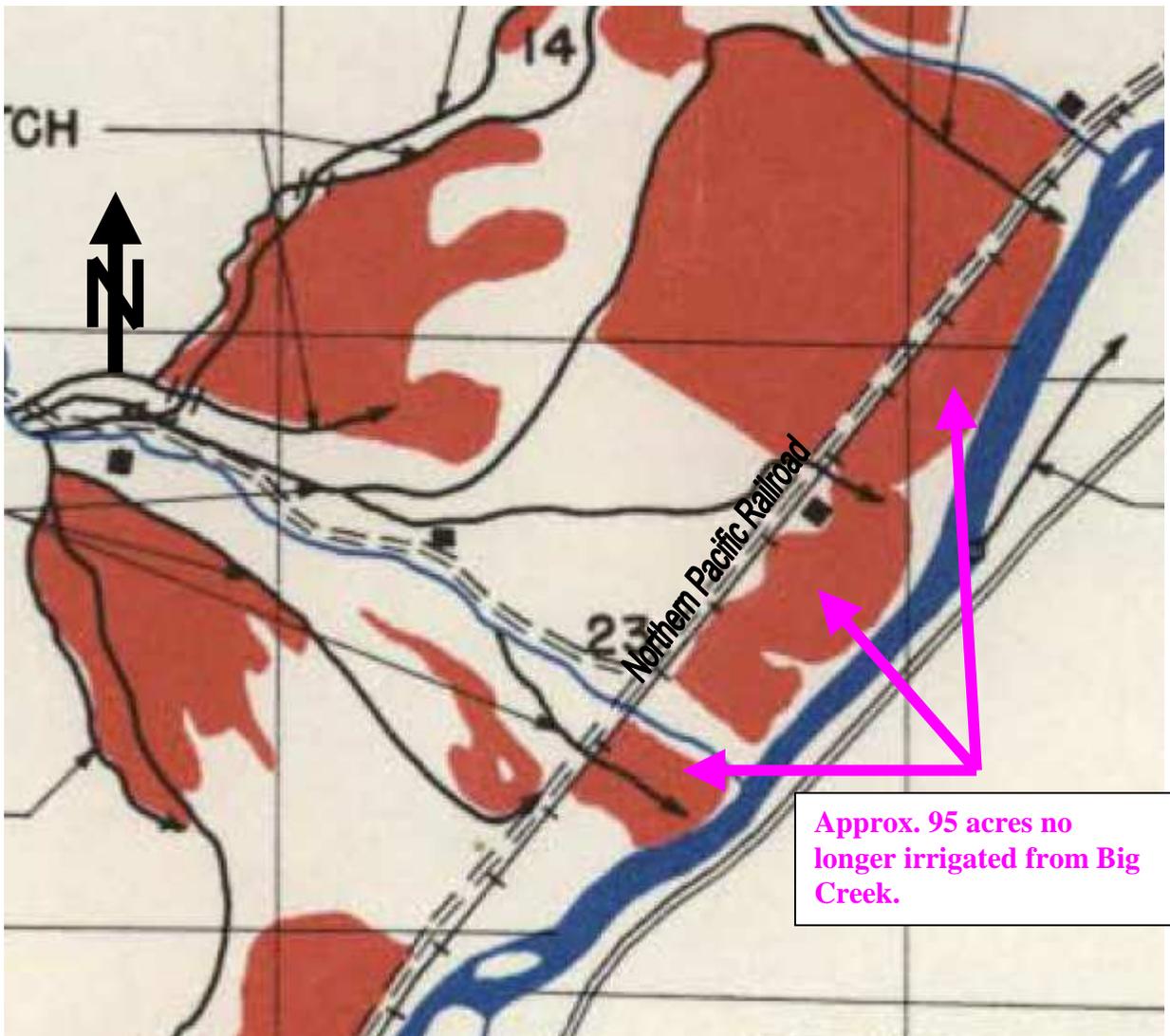
V. Explanation of Impacts to the Physical Environment

Very limited impacts to the physical environment are expected. Currently the water rights are leased for the benefit of instream flow and that would continue under the renewal of the lease. This lease has been in place for 10 years. Under the present lease no irrigated acres were taken out of production, with the water made available for instream flow coming from water conservation measures. Under the renewed lease approximately 95 acres would no longer be irrigated from Big Creek, but FWP would prepare an application on behalf of the lessor for water rights from the Yellowstone River to irrigate the same lands. The environmental review of the water right application is under the jurisdiction of the Dept. of Natural Resources and Conservation and is therefore not the subject of this review except to the extent that it is expected that the amount of irrigated land will not decrease and that energy demand will increase.

The only physical impacts associated with the project would be the cessation of diversion of water from Big Creek for irrigation of approximately 95 acres. The general hydrologic regime in Big Creek that has been experienced over the last 10 years will continue within the context of the climatic effects on stream

flow.

Minor impacts may result from water no longer being diverted from Big Creek to irrigate approximately 95 acres. It is expected that this acreage will be irrigated from the Yellowstone River, so no net reduction in irrigated acres is anticipated. However, some minor impacts may occur along the supply ditches between Big Creek and the 95 acres. Water will no longer flow through the ditches, which will lead to decreased groundwater due to seepage in the area near the ditches. This could lead to mortality of trees and other plants dependent on the flow in the ditches. However, due to limited irrigation over the past several years a good deal of mortality has already occurred. Any increase in mortality of trees and other plant dependent on the flow in the supply ditches is expected to be minor. The following edited excerpt from the Park County Water Resources Survey shows those lands east of the now-abandoned Northern Pacific Railroad historically irrigated from Big Creek that will no longer be irrigated from Big Creek. It also shows the location of the supply ditches that will no longer be used.



1. Terrestrial and aquatic life and habitats.

Quasi-riparian type habitats along the supply ditches that have already deteriorated due to less frequent irrigation may further degrade due to a complete cessation of water flowing in the ditches.

2. Water quantity, quality and distribution.

Less water will be diverted from Big Creek as irrigation water will no longer be diverted to approximately 95 acres. The amount diverted for this field over the past 10 years has been limited particularly during times of lower stream flow so the amount of increase in flow in Big Creek would be quite minor in relation to existing stream flow.

3. Geology and soil quality, stability and moisture.

Soil moisture will decrease along the supply ditches that will no longer be used. It is not expected that the soil stability would be impacted.

4. Vegetation cover, quantity and quality.

Trees and other riparian vegetation along the supply ditches may suffer some further mortality beyond that which has already occurred.

5. Aesthetics.

Further mortality of riparian vegetation and in particular trees would negatively impact aesthetics, but this impact is expected to be minor, as a good deal of mortality has already occurred.

VI. Explanation of Impacts on the Human Environment.

Only a few minor impacts to the human environment are expected. As the lease renewal calls for application for water rights from the Yellowstone River, irrigated production is not expected to decrease. Similarly the tax base associated with the agricultural land will not decrease. In fact it will likely increase as the land to be irrigated from the Yellowstone River is currently being subdivided and will no longer be classified as agricultural land.

3. Local & state tax base & tax revenue.

As irrigation presently from Big Creek is expected to be replaced by irrigation from the Yellowstone River, the tax base would remain unchanged if not improve.

4. Agricultural or industrial productivity.

As irrigation presently from Big Creek is expected to be replaced by irrigation from the Yellowstone River, agricultural production is not expected to decrease.

12. Demands for energy.

Installation of irrigation pumps for diversion of water from the Yellowstone River to replace that diverted from Big Creek would increase energy demands.

VII. Discussion and Evaluation of Reasonable Alternatives.

1. No Action Alternative

If no action is taken, the existing water right lease will expire on May 1, 2009. If the water is no longer leased to provide instream flow in Big Creek recruitment of Yellowstone cutthroat trout to the Yellowstone River would severely decline and the Yellowstone cutthroat trout population in the upper Yellowstone River may suffer significantly.

2. The Proposed Alternative

The proposed alternative intends to generally maintain the status quo with regard to instream flow by continuing to lease 10 cfs of water for another 10 years. This lease serves to legally protect instream flow and maintain Big Creek as an important Yellowstone cutthroat spawning stream. This project would serve to ensure that Big Creek remains a viable Yellowstone cutthroat spawning stream. This project also serves to mitigate hydrologic changes associated with climate change that may be impacting the ability of adult Yellowstone cutthroat to use Big Creek for spawning.

VIII. Environmental Assessment Conclusion Section

1. Is an EIS required? No.

We conclude from this review that the proposed activities will continue to a positive impact on the physical and human environment.

2. Level of public involvement.

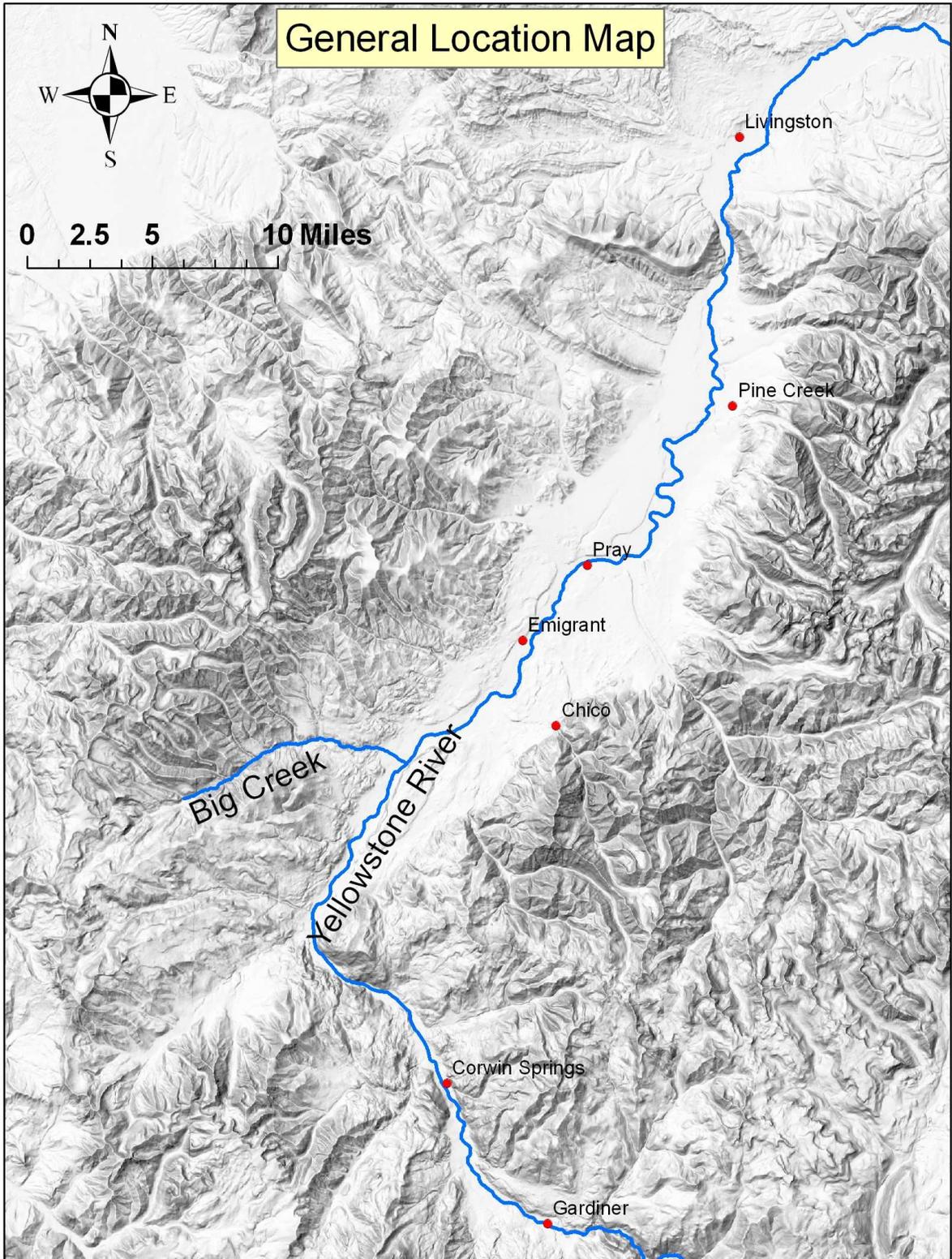
The proposed project was reviewed and supported by the public review panel of the Future Fisheries Improvement Program. The Fish, Wildlife and Parks Commission also will review the proposed project and the funding will be contingent upon their approval. The Environmental Assessment (EA) is being distributed to all individuals and groups listed on the cover letter. The EA also will be published on Montana Fish, Wildlife and Parks webpage: http://fwp.mt.gov/publicnotices/category_7.aspx

3. Duration of comment period?

Public comment will be accepted through 5:00 PM on March 4, 2009.

4. Person responsible for preparing the EA.

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 (406) 538-4658

ENVIRONMENTAL ASSESSMENT

Project Title: Big Creek Water Lease Renewal

Division/Bureau: Fisheries Division -Future Fisheries Improvement, Water Program

Description of Project: Montana Fish, Wildlife and Parks is proposing to renew an existing water right lease on Big Creek, a tributary to the Yellowstone River near Emigrant. FWP currently leases 10 cubic feet per second for instream flow and is proposing to continue leasing 10 cfs for another 10 years. The intent of the project is to maintain Yellowstone cutthroat spawning, rearing and out-migration from Big Creek to help maintain the Yellowstone cutthroat population in the upper Yellowstone River. The project site is located approximately 7 miles southwest of Emigrant in Park County.

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Terrestrial & aquatic life and habitats			X			X
2. Water quality, quantity & distribution			X			X
3. Geology & soil quality, stability & moisture			X			X
4. Vegetation cover, quantity & quality			X			X
5. Aesthetics			X			X
6. Air quality				X		
7. Unique, endangered, fragile, or limited environmental resources				X		
8. Demands on environmental resources of land, water, air & energy				X		
9. Historical & archaeological sites				X		

POTENTIAL IMPACTS ON THE HUMAN ENVIRONMENT

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Social structures & mores				X		
2. Cultural uniqueness & diversity				X		
3. Local & state tax base & tax revenue				X		X
4. Agricultural or industrial production				X		X
5. Human health				X		
6. Quantity & distribution of community & personal income				X		
7. Access to & quality of recreational and wilderness activities				X		
8. Quantity & distribution of employment				X		
9. Distribution & density of population & housing				X		
10. Demands for government services				X		
11. Industrial & commercial activity				X		
12. Demands for energy			X			X
13. Locally adopted environmental plans & goals				X		
14. Transportation networks & traffic flows				X		

Other groups or agencies contacted or which may have overlapping jurisdiction: none
 Individuals or groups contributing to this EA: Scott Opitz, FWP Fisheries Biologist
 Recommendation concerning preparation of EIS No EIS required.
 EA prepared by: Andy Brummond
 Date: January 22, 2009