4. LETTERS FROM FEDERAL AGENCIES

This section contains 14 letters received from the Federal agencies listed in Table D2-2. Please note that, for the reader's convenience, this table is sorted alphabetically by the agency or sender. However, comment documents are printed in numerical order by the comment identification number (first column). The page number each comment document begins on is also noted in the table. Responses to the comments coded (box with category and number) can be found grouped by categories in Section 4 of Volume VI, RDEIS Comments and Responses, Part 1.

Table D2-2. Summary list of comment documents received from Federal agencies, including response codes.

Comment ID Number	Agency or Sender's Last Name	Sender's Name	Page Number	Response Numbers
F0600001	Advisory Council on Historic Preservation	Don L. Klima	D2-55	Other-148
F0100003	Carnahan	Senator Jean	D2-11	IntD-1; GW-2; Nav-12; MoPower-1; Other-6,10
F0100002	Conrad	Senator Kent	D2-10	Rec-25; EnSp-2; Nav-9,10,11; Hydro-3,4; Other-7,8
F0100004	Emerson	Representative Jo Ann	D2-11	EnSp-3; IntD-1; GW-2; FC-8; Miss-4; Hydro-5; Other-12, 13
F0100006	Graves	Representative Sam	D2-13	EnSp-1,4; FC-8; Nav-7,8,12; Other-6,13
F0100001	Harkin	Senator Tom	D2-9	EnSp-1; IntD-1; GW-2; Hpower-1, Nav-7,8; MoPower-1; Other-2
F0100007	Latham, Nussle, Leach, & Ganske	Representatives Tom, Jim, James A., & Greg	D2-14	Other-120
F0600002	National Trust of Historic Preservation	Elizabeth Merritt & Anita Caovas	D2-60	Other-148
F0100005	Skelton	Representative Ike	D2-12	IntD-1; GW-2; Miss-4; Nav-7,12; MoPower-1; Other-6
F0300001	U.S. Department of Agriculture	Bill Hawks	D2-37	FC-2; Miss-4; Nav-6,7,8
F0400001	U.S. Department of Interior	Thomas J. Casadevall	D2-38	Other-21
F0400002	U.S. Department of Interior	Willie R. Taylor	D2-39	Tribal-10,12,13,14,15; CR-10; EnSp-2,5,8,9,10, 20,22,24,25,37,38,39,40,41,61; WRH-3,13,14; Fish-6,7; GW-8; FC-4; Miss-6,7,8,9,10,11,12,13 ,14,15,16; ErSd-25,34; Nav-13,14,15,16; WS-1; Hydro-6,26,38; Other-3,6,7,8,13,14,29,67,97,9 9,100,101,102,103,104,105,106,107,108,109,11 0,111,112,113,114,115,116,117,118,119,126,14 3,144
F0500001	U.S. Department of Transportation	Al Ames	D2-51	Rec-42,43,46,47; FC-5; Miss-1,2,3; Nav-1,2,3,4,5,6; Other-1,27,49,121,122,123,124
F0200002	U.S. Environmental Protection Agency	James Gulliford & Jack McGraw	D2-15	Tribal-1,2,3,5,6,7; CR-6,7,8; Rec-9; EnSp-5,6,7; WRH-1,2; Fish-1,2,3,4,5,6; IntD-1,3,4,5,6,7; GW-2,5,6; WQ-14,20,21,22,23; FC-1; ErSd-31; Hpower-2,3; Nav-6,17; WS-2,3,4; Hydro-26, 27, 28; Legal-20; Other-3, 8, 14, 29, 35, 56, 86, 88, 122, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 173, 174, 175, 176, 177

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F0100001

TOM HARKIN
IOWA

TTY (202) 224-4823
Tom_Harkin@Harkin.Senate.Gov

COMMITTEES:
AGRICULTURE
APPROPRIATIONS
SMALL BUSINESS
LABOR AND HUMAN RESOURCES

United States Senate

WASHINGTON, DC 20510-1502

Feb 28,2002

Brigadier General David A. Fastabend
U.S. Army Corps of Engineers, Northwestern Division
Attention: Missouri River Master Manual RDEIS
12565 West Center Road
Omaha, NE 68144-3869

FAX # 402-697-2504

Dear Brigadier General Fastabend:

The decision facing the Corps of Engineers regarding the selection of a specific set of modifications of the Missouri River Master Manual is a very complex one. There are considerable uncertainties regarding a wide variety of factors and no certainty as to what will in fact assure that the endangered species will flourish. Clearly, the key driving force to revise the Manual is the opinion of the Fish and Wildlife Service, which is highly focused on that agency's view of what might, most likely, result in the highest chance of the survival of several endangered species. The Corps has a similar responsibility. However, the Corps' focus under its mandates is broader. As expressed in the carefully thought out position of the Congress, laid out in Section 116 of the FY 2002 Energy and Water Appropriations Act, passed last November:

Other - 2

> "During consideration of revisions to the manual in fiscal year 2002, the Secretary may consider and propose alternatives for achieving species recovery other than the alternatives specifically prescribed by the United State Fish and Wildlife Service in the biological opinion of the Service. The Secretary shall consider the views of other Federal agencies, non-Federal agencies, and individuals to ensure that other congressionally authorized purposes are maintained".

Other - 2

Basically, I see the provision, which I cosponsored, as a restatement of the Corps' role. It has a responsibility to consider the alternatives for achieving species recovery, and act on that analysis. This is a very important goal. It also is to ensure that the other congressionally authorized purposes are maintained. These include flood control and navigation.

I have been informed by many knowledgeable service parties that the unfortunate reality is that the spring rise proposed by the Fish and Wildlife will likely result in considerable flooding of land in my state of Iowa as well as other locations. That flooding will cause significant harm to many farmers and others in my state. Will it be flooding that runs over the levees? -- not usually. But, the flood damage can still be severe if the water percolates up from under the levees because of high water levels.

IntD 1
GW 2

150 FIRST AVENUE, NE
SUITE 370
CEDAR RAPIDS, IA 52407-4884
(319) 365-4504

210 WALNUT ST.
733 FEDERAL BLDG.
DES MOINES, IA 50309
(515) 284-4574

131 E. 4TH ST.
314B FEDERAL BLDG.
DAVENPORT, IA 52801
(319) 322-1338

350 WEST 6TH ST.
315 FEDERAL BLDG.
DUBUQUE, IA 52001
(319) 583-2130

320 6TH ST.
110 FEDERAL BLDG.
SIOUX CITY, IA 51101
(712) 252-1550

Navigation is another real concern. Some have suggested that the level of barge traffic on the Missouri River is not that high on the Missouri River in Iowa. But, the impact of the availability of barge traffic does have an impact on rail rates that is favorable to many shippers. The reality of an effective alternative to rail does have an impact on price. Clearly, trucking is not an effective alternative for long distance. However, the barge option can be.

NAV 7, 8

These are not the only adverse impacts of a spring rise. Many communities in Western Iowa are dependent on hydroelectric power generated by the Western Area Power Administration. Increased spring releases of water from the dams will likely result in lower summer electric generation when power is at a premium. This will increase the costs to the many communities in Iowa and elsewhere that purchase from WAPA generated power. It also means that higher cost power generated elsewhere will probably result in increased pollution. Low summer flows could also put at risk power generated by several coal fired plants in both the Council Bluffs and Sioux City areas important to my state.

HPower 1
MoPower 1

I understand that the Corps has a capability of properly spending approximately six million dollars to develop shallow, slow moving, aquatic areas important for fish and wildlife habitat likely to be important to endangered species and wildlife in the coming fiscal year. Construction of sandbars very useful for the habitat of many birds could also be undertaken. In future years, more substantial efforts in these areas could and should be undertaken and I plan to be supportive of efforts to authorize that work. Such coordinated efforts may significantly improve the spawning and development of endangered fish and improve the population of endangered birds.

EnSp 1

I hope that the Corps will carefully examine serious comment and proposals to meet all of the various Corps legislative purposes and then propose the best plan that meets those priorities. I appreciate your consideration of my views and I appreciate the courtesy you extended in meeting with my staff on these important issues.

Sincerely,

Tom Harkin

Tom Harkin
United States Senator

KENT CONRAD
NORTH DAKOTA
202–224–2043

F0100002

COMMITTEES
AGRICULTURE, NUTRITION, AND FORESTRY
FINANCE
BUDGET
INDIAN AFFAIRS

United States Senate
WASHINGTON, DC 20510–3403

Senator Kent Conrad
Revised Draft Environmental Impact Statement
Missouri River Master Water Control Manual
February 28, 2002

I am pleased to be able to present comments to the U.S. Army Corps of Engineers regarding the revised draft Environmental Impact Statement for the Missouri River Master Manual.

The Corps' Master Manual, which is over 40 years old, simply does not pass the laugh test. It favors a tiny downstream navigation interest over a much more significant upper-basin recreation and tourism interest. Additionally, the Master Manual is extremely outdated, relying on data projections from the Eisenhower Administration, and fails to recognize the contemporary needs in the basin. No one in their right mind would come up with a plan like this today, and it simply must change.

Other - 7

We began the process of changing the Master Manual when the drought of the late 1980's lowered the elevations of the upstream reservoirs dramatically. While the barges continued to float, Lake Sakakawea dropped about 30 feet during that period and Lake Oahe nearly retreated from the State of North Dakota leaving boat ramps high and dry and forcing marinas and resorts out of business. That decline was an economic disaster for our state.

Hydro 3

We were shocked that, in the middle of the worst drought since the Great Depression, the Corps continued to drain huge amounts of water from the reservoirs to support downstream navigation at the expense of recreation and other upper-basin uses for that water. We unfairly bore the brunt of the drought because the manual did not have effective conservation measures in place to protect upper basin interests. If the alternatives that have been presented in the revised draft EIS had been in place during this time, Lake Sakakawea would have been 4-6 feet higher.

Hydro 4

The Corps can no longer let navigation be the sole driving force on the management of the river. Navigation represents only about $7 million of the annual benefits from the operations of the dams, compared to about $85 million in recreation benefits, over $400 million in flood control benefits, over $500 million in water supply benefits, and over $650 million in hydropower benefits. We do not need to continue to subsidize a dying barge industry in Missouri at the expense of our recreation and tourism industries in North Dakota and the other upper basin states. Our fisheries and the recreation and tourism that come from those lakes will be in jeopardy if we continue to let navigation dominate the management decisions on this river.

Nav 9, 10, 11 Rec 22,24

In economic terms, does it make sense for the Corps to favor navigation over recreation? The honest answer is "no." However, that is exactly what the Corps is doing if the master manual is not changed. It is well past the time for the Master Manual to be changed to reflect the current economic realities along the river.

Nav 10, 22 Rec 24

PRINTED ON RECYCLED PAPER

North Dakota has a lot at stake if management of the river does not change. Our state's greatest fisheries are in jeopardy if conservation measures are not implemented. The North Dakota Game and Fish Department has publicly sounded the warning bells about the potential loss of the fishery in Lake Sakakawea if the Corps does not change course. We have world-class fisheries in these reservoirs and the Corps must not sacrifice those valuable resources to the powerful downstream barge industry. It took years for the fishery to recovery from the drought of the late 1980s. Changes to the manual are vital to ensure that disaster does not happen again.

Rec 16, 22

In addition to protecting our fisheries, the overall recreational value of the lake is also dependent on water levels, particularly during the summer months when water releases from the dam lower the lake levels and directly impact boating and fishing on the lake. Currently, level of Lake Sakakawea is about seven feet below normal. As tourism becomes a larger component of the North Dakota economy, the impact of the Corps operation of the dam on recreation in our state becomes even more important. In order to sustain the vibrant recreation industry, the Master Manual must implement more stringent conservation measures to stabilize reservoir levels during times of drought. We simply cannot afford a repeat of the late 1980's. Although the alternatives presented in the revised draft are an improvement over the existing manual, more aggressive steps must be taken to provide adequate safeguards to upper basin states in times of drought.

Rec 12, 25

To ensure that the river's economic benefits are equitably distributed among the competing interests in the basin and to comply with the U.S. Fish and Wildlife Service's Biological Opinion, I believe that the Corps must incorporate a split navigation season in its management plan. Under a split season, more water will be in the reservoirs during the summer months when it is needed most to protect and enhance our sport fisheries and recreational opportunities, while at the same ensuring the barge industry has the support it needs during the periods of the heaviest use. Furthermore, a split season will more closely mimic the natural flow of the river which will help improve the conditions for fish and wildlife, while ensuring compliance with the Biological Opinion. Failure to do so could place the management of the river in the hands of the courts.

Rec 15, 16 EnSp 2

More than 10 years have passed since the Corps started the process to update the Master Manual. The U.S. Fish and Wildlife Service's Biological Opinion and a recent report by the National Academy of Sciences all point to necessary changes needed in the management of the river. The time has come for the management of these reservoirs to fundamentally change, and that change must happen now. Only by changing the manual to reflect current realities will we ensure that the river's economic benefits are equitably distributed among the various interests. It is simply a matter of fairness.

Other - 8

Kent Conrad

JEAN CARNAHAN
MISSOURI

F0100003

COMMITTEES:
ARMED SERVICES
COMMERCE
GOVERNMENTAL AFFAIRS
SPECIAL COMMITTEE ON AGING

United States Senate

WASHINGTON, DC 20510

February 25, 2002

Ms. Rosemary C. Hargrave
Master Manual Project Leader
U.S. Army Corps of Engineers
Northwest Division
12565 W Center Rd
Omaha, NE 68144-3869

Dear Ms. Hargrave,

Thank you for the opportunity to comment on the Corps of Engineers' proposed changes to the Missouri River Master Water Control Manual. My constituency has a deep interest in the management of the Missouri River, and I join many stakeholders and other Missouri elected officials in calling for a balanced plan that reflects the many uses of the river and its importance to agriculture, transportation, and power industries in addition to our broader state economy. — Other - 6

The Revised Draft Environmental Impact Statement (RDEIS) for the Master Manual outlines six possible alternatives for water flows on the river—the Current Water Control Plan, a Modified Conservation Plan, and four alternatives that add various Gavins Point Dam releases to the modified conservation plan, including a spring rise and low summer releases.

The five options beyond the Current Water Control plan are not compatible with the many uses of the Missouri River. Let me share a few of my specific concerns. A man-made "spring rise" could devastate already struggling farmers with the possibility of more floods and agricultural drainage in some of Missouri's most productive cropland. Higher reservoir levels could affect drinking and irrigation water supplies at critical times. The reduced summer flow could negatively influence and possibly even halt vital river navigation and electricity generation. Finally, the Adaptive Management proposal would not allow for sufficient public input into potentially drastic changes in river management. — IntD 1, GW 2, Nav 12, MoPower 1, Other - 10

The serious economic impacts of the five proposals beyond the current water control plan are untenable for the thousands of Missourians who rely on the river's current management for many diverse interests. Missouri River stakeholders have been very articulate throughout the comment process in expressing their concerns about the consequences of changes in the river's management on their livelihoods. It is clear to me that the Current Water Control plan is the most prudent of the proposed alternatives. — Other - 6

Sincerely,

Jean Carnahan

JC/sts

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F0100004

JO ANN EMERSON
MEMBER OF CONGRESS
8TH DISTRICT, MISSOURI

COMMITTEE:
APPROPRIATIONS

SUBCOMMITTEES:
AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION AND RELATED AGENCIES
ENERGY AND WATER
TRANSPORTATION

E-Mail and Web Page:
http://www.house.gov/emerson/

Congress of the United States
House of Representatives
Washington, DC 20515–2508

January 3, 2002

OFFICES:
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CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-4404

THE FEDERAL BUILDING
339 BROADWAY
CAPE GIRARDEAU, MO 63701
(573) 335-0101

612 PINE
ROLLA, MO 65401
(573) 364-2455

22 EAST COLUMBIA
FARMINGTON, MO 63640
(573) 756-9755

Colonel David A. Fastabend
Division Engineer
Northwest Division
U.S. Army Corps Of Engineers
12565 West Center Road
Omaha, Nebraska 68144

Dear Colonel Fastabend:

I want to thank the Army Corps of Engineers for giving me the opportunity to express my views on the Revised Draft Environmental Impact Statement. I have had a very close working relationship with the Corps and I look forward to our continued work.

Let me begin by saying that I unequivocally oppose any plan that would create an artificial spring rise of the Missouri River. I do not believe that the Corps should propose any operational changes that would sacrifice the need of commercial interests for the exclusive benefit of environmental groups. — Other - 12

We have already been down this road, and I am disappointed that I must again fight in opposition to this ill-conceived plan. In 1994, the United States Fish and Wildlife Service offered a plan that included the artificial spring rise. This plan was immediately condemned by public and private organizations from Omaha to Kansas City to Memphis to New Orleans. After the hearings, the Clinton Administration went back to the drawing board. Common sense should dictate that they would develop a plan that includes an alternative approach, but instead they returned armed with the Endangered Species Act. — Other - 13

This is not the first time that the Endangered Species Act has been used as a weapon and it certainly will not be the last. However, I am counting on the Corps to look past the propaganda and see that the science simply does not support the claims of the environmentalists. This plan is simply an experiment, and I don't believe it is fair to gamble with the livelihood of the people who rely on the river. — EnSp 3

The Missouri River does not flow directly through my Southern Missouri district, but we are still very reliant on the Missouri River. The Missouri feeds the Mississippi and provides as much as two-thirds of its flow during dry years. Decreasing the flow of the Missouri during these dry years would essentially cripple Mississippi River transportation in my district. — Miss 4

Colonel David A. Fastabend
January 3, 2002
Page 2

Mississippi River transportation is very important to me as well as my constituency and I intend to protect their interests.

In Missouri, we already have a natural spring rise. An additional artificial rise would jeopardize the Corps' ability to control the flow of the river and endanger low-lying farmland. When water is released from Gavin's Point, it takes about one week to get to Kansas City, 11 days to get to St. Louis, and two weeks to get to my hometown of Cape Girardeau. A heavy rain, like that received just last week, during an artificial rise could cause the river to spill its banks, and destroy low lying homes, businesses, and farmlands.

InD 1
GW 2
FC 8

Additionally, the artificial spring rise would lower up-stream water reserves. These reserves are vital to sustaining a navigable channel during times of drought. Without the necessary flow, barges could be stranded on the Missouri or Mississippi River, leaving agricultural products land-locked.

Hydro 5

My constituents enjoy the benefits of being located along the Mississippi River, but conversely they understand the risks involved. The farmers and people who live along the river fully understand that their land is in danger of being flooded at any given time. However, I cannot fathom the thought of telling my constituents that the Federal Government is going to intentionally increase the risk that their lives, homes, farms, or jobs could be destroyed by a flood because we believe some fish upstream might be happier.

FC 6, 8

Again, I thank you for allowing me to offer my comments. I hope that you will keep my comments, as well as those of countless others, in mind as you work to develop a plan to protect people, as well as fish.

Sincerely,

Jo Ann

JO ANN EMERSON
Member of Congress

IKE SKELTON
4TH DISTRICT, MISSOURI

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F0100005

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BLUE SPRINGS, MO 64014–2733
(816) 228–4242

1401 SOUTHWEST BLVD., SUITE 101
JEFFERSON CITY, MO 65109–2429
(573) 635–3499

219 NORTH ADAMS STREET
LEBANON, MO 65536–3000
(417) 532–7964

908 THOMPSON BLVD.
SEDALIA, MO 65301–4593
(660) 826–2675

Congress of the United States
House of Representatives
Washington, DC 20515–2504

February 12, 2002

Ms. Rosemary C. Hargrave
Master Manual Project Leader
U.S. Army Corps of Engineers
Northwest Division
12565 W Center Rd
Omaha, NE 68144-3869

re: Missouri River Master Manual RDEIS

Dear Ms. Hargrave,

Thank you for the opportunity to submit comments on the Corps of Engineers' proposed changes to the Missouri River Master Water Control Manual. As you know, residents of Missouri have demonstrated a serious interest in ensuring that responsible water flows are maintained on the Missouri River. These citizens, many of whom reside in Missouri's Fourth Congressional District, have actively participated during the public meetings and comment periods to discuss proposals to modify the Master Manual.

Through its Revised Draft Environmental Impact Statement (RDEIS) for the Master Manual, the Corps of Engineers outlines six possible alternatives for water flows on the river – the current water control plan, a modified conservation plan, and four alternatives that add various Gavins Point Dam releases to the modified conservation plan, including a spring rise and low summer releases. At this time, let me take this opportunity to share my support for maintaining the current water control plan.

The Missouri River forms the northern border of the Fourth Congressional District, whose residents I have the privilege of representing in the U.S. House of Representatives. Having been born in the river town of Lexington in Lafayette County, the Missouri River has played an important role in my life. Generations of men and women who have lived along the river share my respect for the Missouri River's contributions to our history, our heritage, and our economy.

Citizens in Missouri and other downstream states continue to be concerned about the impact of proposed water flow changes on farming, barge navigation, other agribusiness, and power generation, in addition to the impact on wildlife habitat. A spring rise and subsequent flooding that keeps farmers out of their fields would be an additional blow to farmers who have been facing some of the lowest crop prices in a generation. Lower water levels in the summer that disrupt the barge navigation season would raise transportation costs and possibly end barge traffic on the Missouri River

IntD 1
GW 2
Nav 7, 12

altogether. Low water levels would also hinder electricity generation. Modifications to water flows on the Missouri impact other vital waterways, such as the Mississippi River, and may interrupt commerce.

MoPower 1
Miss 4

None of these possible outcomes can be taken lightly. Short of maintaining the current water control plan, other proposals that have been discussed would be disastrous to these interests, without any measurable benefit for wildlife or habitat. A recently published National Academy of Sciences report reiterates that current decisions on the future management of the river must take into account the social and economic costs to all Missouri River stakeholders.

Other - 6

Again, I appreciate being given the opportunity to comment on the Revised Draft Environmental Impact Statement. It is my hope that the Corps' final environmental impact statement seeks to avoid the adverse results that are such a concern to Missourians. I am grateful for your attention to my views.

Sincerely,

IKE SKELTON
Member of Congress

IS:do

SAM GRAVES
6TH DISTRICT, MISSOURI

1407 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-7041

113 BLUE JAY DRIVE, SUITE 200
LIBERTY, MO 64068
(816) 792-3976

201 SOUTH 8TH STREET, ROOM 330
ST. JOSEPH, MO 64501
(816) 233-9818

F0100006

Congress of the United States
House of Representatives
Washington, DC 20515–2506

February 14, 2002

U.S. Army Corps of Engineers, Northwestern Division
Attention: Missouri River--Master Manual RDEIS
12565 West Center Road
Omaha, Nebraska 68114

Dear To Whom It May Concern::

I am writing to express my deep concern about the U.S. Army Corps of Engineers proposed Missouri River Revised Draft Environmental Impact Statement (RDEIS) Master Manual Revision. Please include my letter in the official comments received on this matter.

Other - 6

As drafted, I believe that the proposed changes to the current water control plan on the Missouri River are flawed. My concerns relate to the modified conservation plan and the four proposed flow management release changes at the Gavins Point dam. These options do not adequately account for the current state of scientific consensus, potential harm to landowners and local residents in the flood plain, and the possible economic impact on the regional and national economy if navigation is impeded or interrupted on the river. Accordingly, I believe that the modified conservation plan and the Gavins Point flow proposals should be withdrawn.

EnSp 4, 1
Other - 13

A recent report by the National Academy of Sciences clearly stated that no compelling data has been generated within the scientific community to link habitat restoration and species preservation with the water management proposals put forward by the Corps. I strongly support reasonable and effective efforts to restore and protect our nation's wildlife habitats and to preserve our endangered species. In the absence of a clear understanding of what the Corps proposals will actually achieve, I believe that a more modest approach using proven techniques would be more appropriate. I believe that the Corps should continue to work with local governments and private landowners to improve on the good work already accomplished in the Missouri River Mitigation Project and the new Missouri and Middle Mississippi Rivers Enhancement Project. Clear and compelling evidence exists that targeted mitigation projects can and do respond to our nation's important environmental goals. Moreover, mitigation projects have the added benefit of strong local support—a key ingredient for any successful, long-term effort to ensure that the Missouri river and its resources are available to all Americans.

I would like to make one additional point on the subject of mitigation programs. I support the Corps' policy of only working with willing sellers of private property to

advance mitigation projects. I do not believe that condemnation proceedings should be used at any time for these efforts.

FC 8

The Corps proposals for alternative water flows also fail to adequately address potential flooding dangers posed to citizens and businesses downstream in the Missouri River basin. My own review of the relevant documents and the considered views of many local officials and informed constituents in my district give me pause. I am concerned about the flood potential caused by a combination of sizable water releases from upstream dams with heavy rains along the navigable parts of the Missouri River. I do not believe that enough attention has been paid to the dangers such a combination could pose to the physical and economic well-being of my constituents. We have experienced severe flooding problems within the last decade that caused a great deal of hardship. I do not believe that we should jeopardize the flood control progress the Corps has made in the last half century with decisions made in haste.

Nav 7, 8, 12

Finally, I oppose the Corps proposals because of the harmful effect they are likely to have on navigation and commercial traffic on the Missouri River. Long-standing federal policy has produced a reliable navigational channel on the river upon which local businesses and a significant portion of the regional agricultural economy have come to rely upon. My analysis of the situation and that of many of my constituents leads me to the conclusion that continued commercial traffic on the river may be impractical or impossible through much of the year if the Corps proposals were implemented. I base this statement on a concern about both the low-flow impact on navigation that effectively eliminates a navigable channel and very large water flows that make barge traffic on the river impractical. A significant portion of the agricultural products on the region either flow on the river or have their transportation costs based upon competition with barge traffic. To eliminate commercial access to the river could potentially raise the prices of agricultural production—costs that would ultimately be borne by consumers. I believe that such an impact would be unacceptable.

I want to continue to work with the Corps to develop a reasonable and effective plan that meets the needs of local citizens and the business community while protecting our precious natural resources. I encourage you to make increased use of responsible mitigation efforts and to work with local communities to address their legitimate concerns about flood dangers and commercial navigation. Please feel free to contact me or Peter Kirkham of my staff at any time about this matter at 202-225-7041. Thank you for your time and attention to this matter.

Sincerely,

Sam Graves
Member of Congress

F0100007

Congress of the United States

Washington, DC 20515

September 28, 2001

Colonel David A. Fastabend
Division Commander, North Pacific Division
U. S. Army Corps of Engineers
P.O. Box 2870
Portland, OR 97208-2870

Dear Colonel Fastabend:

Other 120

The outcome of the debate on the management of the Missouri River is extremely critical for Iowa and for agriculture. We are requesting that you delay the start of the public hearings by 90 days to allow our constituents to adequately analyze the six management alternatives. In addition, we are requesting that you extend the ending date of the public comment period to correspond with the delay in the public hearings.

The Army Corps of Engineers has not yet provided the full and final copy of the Revised Draft Environmental Impact Statement (RDEIS) including the supporting data it used to determine economic impacts of each of the proposed management options. Although, it is our understanding that this data will be released soon, there is not adequate time to complete a thorough analysis of the impacts on Iowa.

In addition, farmers in Iowa are in the early stages of harvest. Once harvest begins in earnest, it will be a race against the clock to complete it. October and November are not ideal times for farmers to participate in public hearings. Yet, the potential impact on agriculture of flow changes in the Missouri River may be dramatic. We are concerned that their absence at these public hearings may be taken as a sign of their lack of interest in the process.

We ask that you grant our request to delay the public hearings and extend the public comment period by ninety days.

Sincerely,

Tom Latham
Member of Congress

Jim Nussle
Member of Congress

James A. Leach
Member of Congress

Greg Ganske
Member of Congress

F0200002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

February 25, 2002

Brigadier General David A. Fastabend
Division Engineer, Northwestern Division
U.S. Army Corps of Engineers
220 Northwest 8th Avenue
Portland, Oregon 97209-3589

Dear General Fastabend:

Re: Review of the Revised Draft Environmental Impact Statement (RDEIS) for the Missouri River Master Water Control Manual (Master Manual)

The U.S. Environmental Protection Agency (EPA) has reviewed the Master Manual RDEIS. Our review is provided under the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

The EPA appreciates the opportunity to comment on this important project. We look forward to working proactively with you and the many stakeholders in managing the river for all its contemporary uses. As you evaluate our detailed comments, EPA would also recommend that the Corps evaluate the merits of alternatives that provide for a transition to system-wide flow changes that have been justified by modest, but well-monitored experiments. Any flow changes should be based on monitoring adequate to justify the shifts. This approach is consistent with the recent National Academy of Sciences report, "The Missouri River Ecosystem: Exploring the Prospects for Recovery." (2002)

Other 35

Since no preferred alternative was identified, EPA has reviewed and rated each alternative presented in the RDEIS. Of the six alternatives, the Current Water Control Plan (CWCP) and the Modified Control Plan (MCP) are rated **EU-2** (Environmentally Unsatisfactory - Insufficient Information), based on their ecological degradation of the Missouri River system. Either of these two alternatives could, however, be revised through consultation with the U.S. Fish and Wildlife Service. If either the CWCP or the MCP are selected as the preferred alternative without satisfactory revisions, this matter may become a potential candidate for referral to the Council on Environmental Quality (CEQ). The four GP alternatives (GP 1521, GP 1528, GP 2021, GP 2028), which include modification of flows out of Gavins Point Dam, are rated **EC-2** (Environmental Concerns - Insufficient Information), on the basis of concerns about the impacts of the alternatives on states' water quality standards. The alternative that you select should provide specific details on the adaptive management process and the monitoring program that would support such a process.

Other 149

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The EPA rating system is composed of two parts: an alpha rating, which addresses the environmental impact of an alternative, and a numeric rating, which addresses the adequacy of analysis in the document. All six alternatives, have a numeric rating of "2," which states that additional information and analyses should be included in the Final EIS. Detailed comments on the RDEIS and the rationale for our ratings are provided as an enclosure.

There are several areas of the document which EPA recommends more discussion or refinements in analysis, including improved modeling of impacts to Tribal cultural resources. Tribal cultural issues have historically been protected by court-ordered reservoir level management, and these stipulated pool levels may have affected hydropower production capability. These areas of concern are discussed in more detail in the enclosed comment letter, and are related to the following categories:

Tribal and Environmental Justice
Clean Water Act
Fish and Wildlife
Economic Analysis
Cumulative Impacts
Mitigation
Adaptive Management
Error Analysis
Ease of Understanding the Document

We look forward to working closely with you and your staff to address our concerns and we suggest having a meeting between agency staff to address specific issues. Jim Berkley will contact Rose Hargrave to set up the initial meeting. His telephone number is (303) 312-7102, in case your staff has any immediate detailed questions.

Sincerely,

James B. Gulliford
Regional Administrator, Region 7

Jack McGraw
for Acting Regional Administrator, Region 8

Enclosures

cc: Colonel Kurt Ubbelohde, COE Omaha
Anne Norton Miller, EPA, HQ
Ralph Morgenwick, USFWS
William Hartwig, USFWS

Detailed Comments

The following are detailed comments are from EPA's review of the RDEIS. The comments have been subdivided into the following eight categories: 1) EPA Tribal and Environmental Justice concerns; 2) Clean Water Act concerns; 3) Environmental Concerns related to Fish and Wildlife; 4) Concerns Related to Ease With Which the Reader can Understand the RDEIS; and 5) RDEIS Analysis and Error 6) Economic analysis concerns, 7) Adaptive Management, 8) Cumulative impacts Analysis, 9) Mitigation.

General Comments

1 The RDEIS does not adequately discuss all federal laws and their impacts to the Master Manual process. For example, in Section 6.3.5, the document discusses legal considerations related to the Endangered Species Act (specifically, the process required for obtaining a legal exemption from compliance with that Act). A similar, albeit more thorough discussion of all applicable laws (for example, the 1944 Flood Control Act, the Clean Water Act, the Fish and Wildlife Coordination Act, the Winter's doctrine, tribal treaties, and others) should be included to provide an understanding of the legal background against which the Corps is operating the River. EPA suggests a separate section devoted to this legal background. A tabulated list of laws and impacts may aid the reader's understanding.

Legal 20

2 Similarly, there are 'congressionally mandated uses' of the River (e.g., Navigation, Flood Control, etc) which are mentioned but never clearly defined. A similar, well structured discussion of these uses should also be provided.

Other 150

3 **All figures are enclosed in Appendix A.**

EPA Tribal and Environmental Justice Concerns

1 **The Corps has not, but should... perform a thorough analysis of the social effects on Tribes and other minority and/or low income populations for all alternatives presented in the FEIS (including the CWCP).** This recommendation derives from the February 11, 1994 White House memorandum whose subject is, "Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

Tribal 1

This memorandum directs, "The Environmental Protection Agency, when reviewing environmental effects of proposed action of other Federal agencies under section 309 of the Clean Air Act, 42 U.S.C. section 760, shall ensure that the involved agency has fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects."

This memorandum also directs that, "Each Federal agency shall analyze the environmental effects, in including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. section #321 et seq." The Master Manual is a case in which such an analysis is required (please see definitions of significance in Council on

Environmental Quality regulations). A good source of reference for conducting an analysis of social impacts is found in, "Guidelines and Principles for Social Impact Assessment." These were published in 1994 by the National Oceanic and Atmospheric Administration (NOAA 1994).

2 **The RDEIS does not and the FEIS needs to discuss Tribal cultural resource concerns.** Section 101(b)(4) of NEPA states, "In order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may...(4) preserve important historic, cultural, and natural aspects of our national heritage,..."

CR 6.7.8.

Section 106 of the National Historic Preservation Act requires that when a Federal action is an undertaking (the Master Manual review meets the definition of an undertaking) that the Federal agency shall conduct consultation with the Tribal entities affected. If during consultation adverse effects are identified, "The Agency Official shall consult with the SHPO/THPO and other consulting parties to seek ways to avoid, minimize or mitigate the adverse effects."

The Corps effort to address potential impact to cultural resources is insufficient. The analysis only addresses those resources that are within 3 feet above and 5 feet below the modeled water surface. Additionally, it only addresses those areas which have been surveyed, though there are known cultural resources that have not yet been surveyed. Thus the document addresses only 10 percent of the known cultural resources along the river.

Many of the cultural resources are well above 3 feet from the water surface and may be affected by erosion. Means to mitigate impacts of alternative cannot be sufficiently evaluated with the approach taken in the RDEIS. The FEIS and any subsequent NEPA documentation on the chosen alternative should include complete analyses of potential impacts to cultural resources and mitigation measures.

3 **The following section reiterates EPA comments provided to the Corps in previous correspondence, and which have not been addressed in the RDEIS.**

1 **Compliance with EO 12898:** The RDEIS should explain how the Corps met the requirements of EO 12898. The EO provides the needed direction to address, in detail, impacts to the Tribes.

Tribal 2

2 **Explanation of modeling is not understandable and needs to been enhanced:** The Corps's Missouri River Basin Multiregional Variable Input-Output Model (MRVIO) is briefly explained, but a separate document is required to fully understand it. Parameters used in this model may not result in an accurate estimate of the economic status of Tribes because the Tribes do not benefit from the traditional economic outputs of the Missouri River System (hydropower, irrigation, navigation and recreation) and they have not had significant opportunity to participate in traditional channels of commerce. For example, according to Volume 9, Tribes do not receive any economic benefits as a result of navigation or hydroelectric power generation, and minimal benefits from recreation and irrigation.

Tribal 3

3 **Benefits from Recreation:** Under this comment heading, EPA expressed concerns about the methodology used to estimate tribal recreational use. It was difficult to assess the methodologies used because they were not described in the RDEIS, making it difficult for the reader to judge the accuracy, validity and strength of the methods. Secondly, EPA expressed concerns about one method in particular, that of observation at recreational sites. Rec 9

4 **Tribal Socioeconomic Trends:** EPA's 1995 letter commented that a comprehensive analysis of socioeconomic trends for the Tribes should be performed. It is important to note that demographic trends for the states do not track with the Tribes. While the Missouri Basin states have experienced slow growth or declines in population in the past 20 years, some Tribes have been experiencing a growing trend in their population. The significance of this tribal population trend is the rapidly increasing tribal need for electricity and employment. Tribal 6

5 **Unemployment Data:** EPA noted in its 1995 comment letter that the accuracy of information about unemployment was especially important because of the extremely high levels on reservations along the Missouri River. The RDEIS should clarify the apparent disparity between the positive impacts of the project to the economies of the first-tier counties versus the economies of the non-Indian communities.o.k. Tribal 5

EPA also noted that it is inappropriate to use county unemployment figures to account for unemployment on tribal land, with the exception being when the entire county lies within the Reservation boundaries. EPA also noted that BIA information should be used, as BIA is the agency charged with collecting socioeconomic data on Tribes.

4 **Council on Environmental Quality Guidance on Environmental Justice and NEPA**

In December of 1997, the Council on Environmental Quality released a guidance document entitled "Environmental Justice: Guidance under the National Environmental Policy Act". The document applies to federal agencies at all stages of the NEPA process. In general, the guidance recommends that agencies should recognize that the question of whether an agency action raises environmental justice issues is highly sensitive to the history or circumstances or a particular community or population, the particular type of environmental or human health impact, and the nature of the proposed action itself. Tribal 7

The guidance goes on to identify six general principles for agencies to consider when incorporating environmental justice concerns into the NEPA process.

a. Agencies should consider the demographic composition of the affected area, to determine whether minority populations, low-income populations, or Indian Tribes are present in affected area, and if so, whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian Tribes.

b. Agencies should consider relevant sources of data concerning the potential for multiple or

cumulative exposure to human health or environmental hazards in the affected population, to the extent such information is reasonably available. Agencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action. Tribal (cont.) 7

c. Agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.

d. Agencies should develop effective public participation strategies. Agencies should, as appropriate, acknowledge and seek to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation, and should incorporate active outreach to affected groups. Tribal 7

e. Agencies should assure meaningful community representation in the process. Agencies should be aware of the diverse constituencies within any particular community when they seek community representation and should endeavor to have complete representation of the community as a whole.

f. Agencies should seek tribal representation in the process in a manner that is consistent with the government-to-government relationship between the United States and tribal governments, the federal government's trust responsibility to federally-recognized Tribes, and any treaty rights.

Clean Water Act Concerns

1. **The RDEIS should provide an analysis of Clean Water Act anti-degradation requirements applicable in each state as presented in the chart below.** This analysis should include an evaluation of how the alternatives presented in the RDEIS will meet each state's anti-degradation requirements and what steps would be taken to ensure attainment of beneficial uses and existing uses as required by EPA's regulations. Table 1 below summarizes state designated beneficial uses. WQ 19

Table 1: Missouri River Designated Beneficial Use Matrix

	Beneficial Use Designation								
State	ALS	CR	DWS	FP	GWR	IWS	IR	LV	Other
MT	X	X	X	X		X	X	X	
ND	X	X	X				X	X	
SD	X	X	X			X	X	X	
IA	B(WW)	A		X					
KS	S	X	X	X	X	X	X	X	
MO	GWWF								BTG
NE	AWW	X	X	X		X	X	LWW	T&E Species

ALS = Aquatic Life Support
S = Special
B(WW) = "B" = wildlife, aquatic life and secondary body contact uses
"WW" = significant resource warm water
AWW = Class A Warmwater Stream
GWWF = Protection of General Warm Water Fisheries Aquatic Life and Human Health (Fish Consumption)
CR = Contact recreation (whole body accidental or intentional contact), Iowa's entry ,"A", indicates primary contact recreation .
DWS = Public Drinking Water Supply
FP = Food Procurement
GWR = Groundwater Recharge
IWS = Industrial Water Supply
IR = Irrigation Nebraska's, "A", pertains to irrigation and livestock watering without treatment
LV = Livestock Watering Missouri's "LWW" means Livestock and Wildlife Watering
Other = Nebraska (threatened-Lake Sturgeon, endangered-Pallid Sturgeon); BTG = Boating and Canoeing Use

2. **The FEIS should provide an analysis of whether Corps operations are in compliance with the CWA and what proposed mitigation is for its operations that violate the CWA.** The FEIS should include this information in the compliance with environmental laws section recommended above. WQ 20

3. **The FEIS should include information describing how all of the alternatives will avoid violation of the CWA on lake Sakakawea and an analysis should be conducted to present under what conditions water quality problems will occur on the other reservoirs.** The RDEIS selectively uses part of the historic record for the lake Sakakwea analysis, without explanation. The RDEIS found that lake Sakakwea Clean Water Act water quality standards would be exceeded years at a time during a drought. WQ 14

4. **The information under RDEIS section 7.2.3 (p. 7-5) should also be presented under the water quality analysis section.** The FEIS needs to include how the preferred alternative will avoid violations of the CWA referred to in this section of the report. WQ 21

5. **Water quality section 7.4.2 (page 7-25) should be changed to reflect the discussion in the Corps' table which talks about potential impacts and proposed approaches to resolving these problems through adaptive management.** None of that information is in the text. WQ 22

6. **The RDEIS also needs to clarify the significance between direct water quality impacts resulting from dam operations (e.g. low DO resulting from drawdown of reservoir levels) and indirect impacts (e.g. less dilution provided by low summer flows below Gavins Point).** When the direct impacts resulting from a Corps operational decision cause or threaten a violation of state water quality standards, the Corps is obligated to alter their operation to avoid or prevent the violation. When an indirect impact leads to non-compliance with standards or permits, the Corps is not legally responsible for making operational changes to prevent non-compliance – in other words, they are not obligated to provide sufficient dilution to prevent existing point and nonpoint sources from causing standards exceedances. WQ 23

7. **EPA does not agree with the description of effects of various alternatives on the ability of certain powerplants to discharge their cooling water.** The following paragraphs describe EPA's current understanding of this problem and recommend inclusion of this text in the FEIS. WS 3

Given current efficiencies, Power plants can only convert about one half of the raw fuel-(coal or nuclear) into electricity: about one half of the energy is lost as heat to the environment. There are 17 power plants along the banks of the Missouri below Gavin's Point Dam which use "open cycle" or "one pass" cooling to dissipate lost heat. These plants pump through hundreds of millions of gallons of water each day and warm that cooling water as much as 20°F. The heat discharged by the power plants is limited by the requirement in NPDES permits issued by state environmental agencies. Heat limits are based on a number of factors including dilution, mixing zones, background river temperature, and in stream temperature caps.

Dilution, or more precisely, the mixing of the heated effluent in the river is mediated by a large number of variables: river flows, effluent flows, discharge configuration, river morphology, etc. For thermal dischargers the key factors to consider are: a) the relative size of the plants to the river at low flows, and b) proximity to the dam (the closer the plant is to Gavins Point Dam, the less augmentation of river flow from tributaries. Another important consideration is the fact that power plants must operate at peak capacity in the summer months.

The proposed RDEIS alternatives consider a reduction of dam flows from fully maintained navigation, 29,500 CFS, to a lowered summer flow of 28, 500 CFS or 21,500 CFS, depending on which alternative is considered (GP1528, GP 2028, GP2021 or GP1521). On the surface, this would appear to create a very limiting situation in NPDES permits, but in practice, the reductions are not so extreme. The low flows used in setting NPDES permit limits are based on gage records on the river. Over the past twenty years or so, the gage records have included several summer low flow events which create a design summer low flow level equivalent to a release of 23,500 CFS of water from Gavin's Point.

Based on dilution alone, most existing plants should be able to discharge heat at existing rates without being limited by more stringent permit requirements for heat. Exceptions to this estimate could be for the Neal North and Neal South power plants in Iowa, near Gavins Point dam, and the very large Ameren UE-Labadie plant near St. Louis. Facilities that may be required to discharge less heat, would not require total retrofits on cooling systems, but would probably require some marginal evaporative cooling. WS 3 (cont.)

The key variable driving the heat limits for existing power plants is the question of background heat in the river. Most permit calculations have been based on the assumption of a maximum summer river temperature of 85˚F and maximum temperatures at the end of the mixing zone have been capped at 90˚F by state water quality standards. This means that power plants, when allotted a certain mixing zone for dilution, are allowed to increase the in-stream temperature at the end of the mixing zone by 5˚F under worst case summer conditions.

During the past few years, summer river temperatures have become warmer and have been in the 87˚F range. This greatly changes the amount of heat which can be discharged from power plant without violation of the 90˚F cap at the end of the regulatory mixing zone. Studies by Region 7 on four power plants in Nebraska show that there is sufficient mixing within the states' 5000 foot mixing zone so that plants can discharge at current rates without exceeding the 90˚F cap even with background temperatures of 87˚F. If background river temperatures rise another 1˚F, then Nebraska's standards would be violated.

While state standards are currently being met, the local impacts from these sources do increase as the background temperature of the river increases. The amount of area needed to meet the 90˚F cap grows substantially as background temperatures increase.

A key question, not easily answered, is whether the decreased summer flows will cause or contribute to higher river temperatures. EPA could not find evidence of study on the relation of temperature to flow for the Missouri River. WS 4

Summer heat is a biological stressor to stream ecosystems, and the peak summer temperature of the river is moving toward the maximums allowed in state water quality criteria.

8. **Section 7.10.2, "Power at Risk," should be re-analyzed.** EPA does not agree with the Thermal capacity at risk calculation. Please see our comments on thermal discharges and NPDES permits above. EPA suggests a joint meeting to discuss this analysis and how it can be adjusted to meet our concerns. Additionally, the analysis should include costs for mitigating the problems associated with cooling. What would be the cost of retrofitting the plants? Our analysis shows that most likely there would not be a problem until flows are below 21, 500 cfs. WS 2

Environmental Concerns Related To Fish and Wildlife

The Missouri River ecosystem is in a continuing state of degradation. This was confirmed in the recent National Academy of Sciences' report, "The Missouri River Ecosystem: Exploring the

Prospects for Recovery.[1]" EPA and the Corps requested that the NAS provide an objective examination and explanation of what is known from the existing science (over 2000 scientific reports) about the Missouri river and what the science says about the needs of the river for purposes of ecological recovery. NAS was selected to do the study because they are viewed as an objective organization that has experience in evaluating complex controversial scientific issues. NAS is in fact often commissioned by Congress to conduct scientific studies.

One of the indicators of decline identified in the report relates to three federally listed threatened or endangered species. These are the least tern, piping plover and a unique fish species, the pallid sturgeon.[2] The report goes on to say, "The list of threatened or endangered Missouri species continues to grow. And it noted that 82 species found along the Missouri River were listed as rare, threatened, or endangered by seven states bordering the river. 24 fish, 22 birds, 14 plants, 8 reptiles, 6 mammals, 6 insects, and 2 freshwater mussels were included.[3]"

The CWCP and MCP are environmentally unsatisfactory because they do not make changes which reverse the trend of ecosystem degradation and would prevent the extirpation of the three threatened and endangered species. In making this statement EPA concurs with the NAS study which says, "Without notable changes to current Missouri River dam and reservoir operation policies, further ecological degradation is certain.[4]" One of those notable changes is the inclusion of a flood pulse in each alternative. This is supported in the NAS report where it states: Other 8.14.56, 151

The flood pulse is essential to the health of river-floodplain ecosystems for the following reasons:

- *Floods add dissolved and particulate organic matter and mineral nutrients to aquatic and terrestrial ecosystems. The river channel and its floodplain both depend on erosion and deposition associated with the channel's lateral migration. Inundation deposits silts and nutrients that replenish floodplain pools and backwaters. The flooding of terrestrial mineral and organic matter releases nutrients to the water.*
- *Many plants rely upon inundation for rapid growth and reproduction. Species such as cottonwood and willow are highly dependent upon periodic floods.*

[1]National Research Council. 2002. The Missouri River Ecosystem: Exploring the Prospects for Recovery

[2]Ibid at 63.

[3]Ibid at 65.

[4]Ibid at 93.

- *Many animals (invertebrates, fish, birds, mammals) are adapted to the flood cycle and depend upon the high plant and microbial activity associated with it. Floods provide reproductive cues for many fish species in river-floodplain ecosystems. Furthermore, floods make inundated floodplain vegetation available as a food source for fish and invertebrates.*[5]

Other 8,14,56 ,151 (cont.)

The MCP includes a flood pulse from Ft. Peck dam, but not from Gavin's Point. State and Federal scientists (Missouri River Natural Resources Committee (MRNRC) and the U.S. Fish and Wildlife Service) have both stated that a flood pulse is necessary in both locations.[6] [7] Moreover, U.S. Fish and Wildlife Service has concluded that a flood pulse is one component of ecosystem restoration that is necessary to "...avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat.[8]"

1. **The accepted method of determining the length of the spring rise necessary to provide the proper spawning cue is to select a starting place (e.g. a starting flow volume and duration) and implement it under adaptive management.** Section 7.7.9, page 7-64 indicates the need to know the required length of the spawning cue to know which alternative, if any, will achieve its designed purpose. The only way to gain that information is to select a starting place, try it, collect data and adjust when new information indicates adjustment is necessary. This is described in the NAS study.

EnSp 5

2. **Much of the original riverine wetland habitat has been lost. Healthy and abundant riverine wetland habitat is an important part of ecosystem health.** The exact amount of acreage necessary is not known. The FEIS should provide an analysis and information relating to the impacts of the alternatives on wetland conditions and how these impacts may result in changes by type of wetland. This analysis should also include changes effected in riparian habitat quality with respect to the alternatives. Some estimation via a qualitative discussion should be presented, since the DRM cannot model wetlands and riparian habitat outside a particular zone.

WRH 1

3. **The FEIS should examine methods of determining how much overbank flooding is needed for cottonwood regeneration.** According to the REIS, decadent stands of cottonwood (necessary for many species, including bald eagles) in the upper river are not being replaced with younger trees. The reduced frequency of spring flooding and a lowered water table are presented in the RDEIS as major contributing factors to this overall loss. Without changes to river operations, cottonwoods will likely be replaced by other species that will not offer the same habitat characteristics. The examination

WRH 2

[5]Ibid at 49.

[6]Missouri River Natural Resources Committee Letter. May 21, 2001. To Secretary Gale Norton.

[7]U.S. Fish and Wildlife Service. November 30, 2000. Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project And Operation of the Kansas River Reservoir System.

[8]Ibid at 226.

should also include a presentation of where existing cottonwood stands are located and what the impacts of the alternatives will be to those stands.

WRH 2 (cont.)

4. **The FEIS should link the temperature, hydrologic and habitat models to obtain a more accurate picture of where the flow induced improvements occur.**

Fish 1

5. **The FEIS should address impacts of peaking power operations for each alternative.** The RDEIS alternatives do not appear to take this aspect of dam operations into account. The impacts of peaking power may be quite profound on the endangered and threatened native fishes.

EnSp 6

6. **For each alternative, the RDEIS did not and the FEIS should analyze the impact of river operations on sediment transport, and fish migration.**

ErSd 31 Fish 2

7. **An explanation of the validity of averaging responses of the species over a 100 or 48 year period should be provided.** It is EPA's opinion that figures showing the response for each year in the modeling period would be more valuable than an average over long periods of time.

Other 152

8. **A quantitative impact analysis of the effects of wet and dry cycles on the species should provided for each alternative.**

9. **Daily flow information should be provided for each alternative.** Monthly average flows are presented in the RDEIS for each alternative. Daily flow magnitudes which occur within a particular month may be important, especially if these flows are critical to successful restoration.

Other 173

10. **The FEIS should document how the alternatives will specifically affect individual species such as the pallid sturgeon, sturgeon chub and sicklefin chub.**

Fish 3

<u>Concerns Related to Ease With Which The Reader Can Understand The RDEIS</u>

1. **Section 7.7.6, pages 7-57, is confusing to the reader and should be rewritten.** An example is provided by this quote, "Table 7.7-6 presents the total values for the 25th percentile (lower quartile) from Figure 7.7-21 with a breakdown among the reaches making up the total reach from Sioux City to the mouth. The 25th percentile was selected for presentation in the RDEIS because the alternatives were designed to have spring rises about one-third of the time, and the 25th percentile falls within the range when spring rises may be affecting the amount of connectivity. The total connectivity values are also shown in Figure 7.7-22."

Fish 4

2. **The following information should be removed from the RDEIS.** Section 7.7.7, page 7-59, states, "Integration of the area under the duration curve leads to the average daily value per mile for shallow water habitat for each reach." This information is not necessary in the body of the RDEIS.

Fish 5

3. **The RDEIS does not establish, or mention the relationship between habitat and species populations.** The FEIS should explain what it means to each species to have a change in a habitat metric. For example, If the warmwater habitat increases by 10 miles what is the anticipated reaction of the species it is intended to affect. This should be done for each of the habitat parameters. The public and decisionmaker cannot tell how the species are affected without this information.

Fish 3 Other 153

4. **The RDEIS states that endangered species and other wildlife will be affected by changes in wetland and riparian habitat. However, the RDEIS does not contain any explicit explanation of the potential direct, indirect, or other impacts from the implementation of each of the alternatives on the endangered species. The FEIS should contain quantitative estimates of each alternative's affect on endangered species and upon what foundational information and methods these estimates are based.** EnSp 7

5. **The RDEIS presents benefits in a way that does not make comparison of alternatives' impacts reasonably understandable for the public or the decisionmaker. The FEIS should correct this.** For example, the RDEIS presents warmwater fish habitat in units of miles for each alternative. No estimation of what a decrease or increase in habitat between alternatives is explained in terms of what it may do towards recovery or further decline of the fish. Another example is that of physical habitat for native river fishes. The presentation of this information for each alternative is in relative index units. This information does not tell the public or decision-maker how these relative differences between alternatives impacts the recovery of the fish. Fish 3

Analysis and Error

The comments presented in this section are some of the most important from the standpoint of the public and decision-maker understanding the basis for the Corps' selection of a preferred alternative. EPA offers these recommendations such that they can aid the Corps in presenting a clear basis for its selection of the preferred alternative in the FEIS.

1. Analyses that culminate with significant statistical error, and therefore do not exhibit any real difference among alternatives, should receive discussion explaining how the differences or lack of differences among alternatives will or will not be the basis of the selection of a preferred alternative. Other 154

2. **Modeling error is not sufficiently addressed in the RDEIS.** This Corps discusses error in RDEIS section 6.5.6 "Uncertainties Associated with RDEIS Analyses." The RDEIS states, "Expression of the level of uncertainty was not an issue when the models were developed. Establishing some sort of uncertainty factor at this time is impossible. Those more technically involved with the study understood that the models were developed to understand the relative differences among the alternatives." Other 155

While error may not have been an issue of great focus during the development of the models, everyone involved in their development and familiar with simulation models had to know that there is inherent error in modeling efforts. It is not expected that the level of uncertainty or error would be a particular "issue" during model development. Until the model was run, no one could know how the magnitude of error would compare to the differences among alternatives. Once the models were run and it was realized that the error was greater than the differences between alternatives, it then becomes a problem.

EPA understands that the Corps has not intended to calibrate the DRM to the river and that it is for purposes of comparing alternatives. However, it does not serve that purpose when the modeling error is greater in magnitude than the differences in alternatives. EPA disagrees with the Corps statement, "Establishing some sort of uncertainty factor at this time is impossible." The Corps has already identified error magnitude associated with some of their modeling efforts, which are then incorporated in the DRM. Examples of Corps' identified modeling error is presented below. Other 174

Below EPA provides a brief explanation of the RDEIS hydraulic models, their error and how they interact. Additionally, a specific example of one modeling effort, its associated error and how that associated error affects the ability of the public and decision-maker to discern among alternatives is presented.

RDEIS Hydraulic Models: Their error and how they interact. Figure 1 below schematically illustrates that the DRM provides input to the environmental studies models, the interior drainage model (HEC-IFH), and the ground water model (MODFLOW). The LRS also provides input to the environmental studies models. Once the interior drainage model and ground water model results are generated, their results are used in the economic model. Other 175

Each model has error associated with it, including the DRM and the LRS. The Corps has not documented the calibration and validation of these models, so their associated error is not known (**A peer review of the DRM and LRS models should be performed to determine the appropriateness and technical adequacy of these models**). Both the interior drainage and ground water models have had their calibration and validation errors calculated by the Corps. The economics model **error is unknown.** Table 2 below presents a listing of hydraulic modeling error. To correctly portray the error associated with each alternative, each model's error should be calculated and then presented with the cumulative error band and benefits of each alternative. We will provide an example of this below.

4. **Example of one modeling effort and its associated error: Interior Drainage Modeling** The Corps used six levee units along the river to study interior drainage, modeled these units and then attempted to extrapolate this information to the lower 811 miles of the river. The HEC-IFH model was used to estimate interior drainage scenarios. Table 3 summarizes error calculated by the Corps for the interior drainage modeling effort. The error in the interior drainage modeling effort ranges from about 4% to 132%.

As mentioned in the paragraph above, the six levee units were modeled. Each of these levee units was further subdivided by basin within the units and then these individual unit basins were modeled. Figure 2 provides an example of how the levee units were subdivided for purposes of modeling. This example was taken from levee unit R351. Calibration and validation error for this levee unit is presented on this Figure 2 for each unit basin.

5. **Example of how modeling error affects the ability of the public and decisionmaker to discern among alternatives**

As mentioned previously, the interior drainage model error ranged from about 4% to 132%. EPA has selected 4% error to use in its example. We have selected this value because it is the minimum error calculated for one of the modeling efforts and thus in no way attempts to exaggerate the effect of error on the comparison of alternatives. Figure 3 is derived from information in RDEIS Table 7.13-4, page 7-181. It is a presentation of the Average annual total NED benefits. In addition to the Corps' information, we have added an error band of ±4%, indicated by the "I" shaped error bar superimposed

Table 2: Summary of Potential RDEIS Hydraulic Modeling Errors (The boxes with "?" in them indicate an error was not estimated or EPA could not locate where it was presented in the RDEIS documents.)	
Model	**Percentage Error**
LRS Model	± ?
DRM Model	± ?
HEC-IFH Model	±4 to ±132
MODFLOW Model	±10 to ±70
HEC-IFH/MODFLOW Communication	± ?
Flood Routing	± ?
Evaporation	± ?
Local Inflows	18 %
Travel Time	± 10 %
Missing Daily Flow Information	± ?
Ice Free Assumptions	± ?
Short Term Flow Adjustments	± ?
BOR 1987 Stream Depletion Calculation	± ?
HEC-2	± ?

upon the bar chart. It is quite clear, when one considers the error, there is no difference in benefits among the alternatives, or if there is, it is not possible to tell which alternative has more or less benefits

The reader should bear in mind that this is only considering the error associated with the interior drainage model and the smallest error calculated associated with this effort. To properly consider the error of the entire effort requires the consideration of the error propagated from all the models.

Table 3: Interior Drainage Modeling Error Source: Volume 11: Interior Drainage Study, Preliminary Revised Draft Environmental Impact Statement			
Levee Unit	**Basin Within Levee Unit**	**Calibration & Validation Error [%]**	**Page Number of table from which data was obtained**
L575	E	61	2-64
	F	132	2-65
	G	49	2-66
	H	80	2-67
	J	15	2-68
	L	6	2-69
L536	A	15	3-67
	B	4.4	3-68
	C	15.1	3-69
	D	52.3	3-70
	E	??	3-71
L497/L488	497L2	28.6	4-57
	488W	103.8	4-58
	488E	96.86	4-59
	488E2	69.6	4-60
	488E4	30	4-61
R351	79+70	13.3	5-64
	414+50	15.3	5-65
	445+50	3.2 (rounded to 4 by Corps)	5-68
	526+20	26.8	5-69
	591+80	24.2	5-70
	618+70	39.1	5-71
	632+32	22.2	5-72

Table 3 (Continued): Interior Drainage Modeling Error Source: Volume 11: Interior Drainage Study, Preliminary Revised Draft Environmental Impact Statement			
Levee Unit	**Basin Within Levee Unit**	**Calibration &Validation Error [%]**	**Page Number of table from which data was obtained**
L246	A	10.88	6-91
	B	8.58	6-92
	C	27.6	6-94
	D	15.12	6-95
	E	16.67	6-97
	F	21.25	6-98
	G	1.48	6-99
	H	??	6-100
	I	5.56	6-101
Tri-County LD2	2	??	7-71
	3	??	7-72
	4/5	??	7-73
	6	??	7-74
	7	??	7-75

This information should be disclosed, so that the public can fully understand the basis for selection of the preferred alternative in the FEIS. There are real differences between the alternatives. Examples of this are the Ft. Peck and Gavins Point flows assigned for each alternative, and compliance or non-compliance with ESA is another difference that does not have to rely on the model to know the real difference between alternatives. EPA would also suggest that the Corps simply identify those analyses in which the difference in impacts is not relevant to the selection of a preferred alternative. Other 176

6. **When the information in Section 7.11, page 7-164 is depicted in graphical form and error is taken into account, it appears there is no difference between alternatives in recreational benefits.** It would be helpful to the public and decisionmaker to provide an explanation in the FEIS. Please see Figure 4.

7. **When the information in Section 7.81, page 7-88 is depicted in graphical form and error is taken into account, it appears there is no difference between alternatives in relation to flood control benefits.** It would be helpful to the public and decisionmaker to provide an explanation in the FEIS. Figure 5 is a plot of RDEIS Table 7.8-1 with a conservatively assumed modeling error of 10 percent.

8. **The FEIS should substitute more plain language for the more technical language in the RDEIS.** The discussion of the impacts of each alternative in the RDEIS Chapter 7 is confusing. The confusion is compounded when the reader considers that the models are only intended for purposes of comparing alternatives and that there is a significant range of error in these models. An example of the confusing language is found on RDEIS page 7-7: *In April, a significant dichotomy in the duration curves becomes apparent (Figure 7.2-13). The MCP is nearly identical to the CWCP, but the GP options require higher releases during April in wet years because of the release restrictions imposed in late summer. These alternatives indicate much higher April releases, up to 10 kcfs, than the MCP, which does not include a spring rise out of Gavins Point Dam. The GP option with minimum service summer flow, GP1528, has a duration curve significantly higher than the MCP. This duration curve is, however, slightly lower than the GP option with the more restricted summer flows, GP2021.* Other 156

What further adds to the confusion is the graphical presentation of these discussions, an example of which is presented in Figure 7.2-13 below. This is representative of many of the graphs and instead of aiding in explanation may result in more confusion because one cannot discern among symbols representing the different alternatives. Other 157

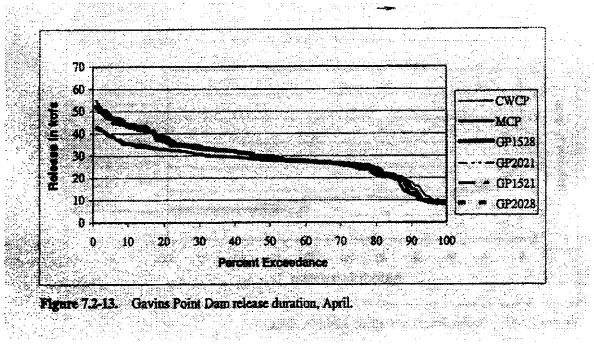

Figure 7.2-13. Gavins Point Dam release duration, April.

9. **The RDEIS delves into too much detail in instances when it is not appropriate.** Furthermore, the RDEIS discussion of impacts delves into detail such as 10 kcfs flow differences in alternatives, when it is not clear that the models can really support a discussion at such a detailed level. While we may know that in actuality 10 kcfs may make a real difference in impacts along the river based upon empirical information, the discussion in relation to modeling results is not supported with sufficient explanation in the RDEIS. Additionally, the fact that the document is looking at the modeled impacts in relation to a 100 year historic record is lost by delving into this level of detailed discussion. The document is not predicting what will happen in the future, it is predicting what would happen if we were to go through the same 100 year hydrologic record. No one knows what the probability of that record being repeated is and thus it is not possible to know what the risk is of recurrence of various modeled hydrologic events and their impacts.

Other 158

10. **An example of providing an inappropriate level of detail in RDEIS analyses.** As previously mentioned, no modeling effort can be achieved without error. It should be accounted for in each analysis. And when deciding how far one can go in presenting results, the modeler should not got too far in drawing conclusions about what will happen in particular scenarios. For example, it is acceptable to model the hydrologic impacts of the various alternatives through the 100 year historic record and show the differences in among them, e.g. GP2021 has modeled 10 kcfs greater than GP1521 which has modeled 10 kcfs greater than the MCP, which has modeled at 7 kcfs greater than CWCP at Nebraska City. Hopefully when error is taken into account there is enough of a remaining difference among the alternatives for the decision-maker to make use of the information.

However, the RDEIS has presented (page 7-7) analyses that go to a level of detail that cannot be supported by the modeling. The example analysis is one in which the RDEIS attempts to present how many days per year, in the historic record, one would expect to see river flows exceed 55 kcfs at Nebraska City. This is important information to the residents of Nebraska City, because it is the flow above which flooding begins to occur. This analysis is not appropriate. It gives the public a false sense that the Corps knows how many days a year flows would exceed 55 kcfs if we repeated the historic record.

The proper way to look at this analysis is to understand that each alternative will have a range of days in which it might exceed or be below 55 kcfs, depending upon how much error is in the DRM. Two examples in tables 4 and 5 are provided below to explain our point. It is conservative to assume 10 percent error for the DRM model for this example.

***Table 4: One Day of Fictitious* Nebraska City Scenario For Purposes of Calculating Days of Exceedance of 55 kcfs with ± 10 % error**

Alternative	Modeled Flow	(+) 10 percent error	(-) 10 percent error	Modeled Flow (+ 10%)	Modeled Flow (- 10%)	Results when error is considered	
						Days above 55 kcfs	Days below 55 kcfs
CWCP	50	5	-5	55	45	1	1
MCP	50	5	-5	55	45	1	1
GP1528	57	5.7	-5.7	62.7	51.3	1	1
GP1521	57	5.7	-5.7	62.7	51.3	1	1
GP2028	60	6	-6	66	54	1	1
GP2021	60	6	-6	66	54	1	1

Another example is presented below where it is reasonable to assume an error of 20 percent.

***Table 5: One Day of Fictitious* Nebraska City Scenario For Purposes of Calculating Days of Exceedance of 55 kcfs with ± 20 % error**

Alternative	Modeled Flow	(+) 20 percent error	(-) 20 percent error	Modeled Flow (+ 20%)	Modeled Flow (- 20%)	Results when error is considered	
						Days above 55 kcfs	Days below 55 kcfs
CWCP	45	9	-9	54	36	0	2
MCP	45	9	-9	54	36	0	2
GP1528	60	12	-12	72	48	1	1
GP1521	60	12	-12	72	48	1	1
GP2028	65	13	-13	78	52	1	1
GP2021	65	13	-13	78	52	1	1

What these examples show is that with error included, in some cases the flows can just as equally be below or above 55 kcfs depending on the range of error and the flows considered. This is important information for people who live at these locations. They need to be aware of this as they consider how much to rely on the Corps' analyses to decide the risk associated with and of agreeing to a particular plan.

11. **Remove or redo the coldwater habitat modeling effort, because it is not capable of simulating the Fort Peck spring pulse and its warmwater temperature effects.** The results are presented as though they describe what happens with each alternative. Section 7.7.3, page 7-54 is confusing and does not provide the information that is critical for the public and decision-makers to understand effects of performing the Fort Peck warmwater spring pulse simulation flows. The modeling results as presented would argue that the CWCP, without a warmwater spill, would create more warm water habitat than any of the rest of the alternatives that do spill warmwater. This RDEIS explains, "The Fort Peck numbers are high for all five alternatives [compared] to the CWCP because the coldwater habitat model does not account for the fact that warmer water will go over the spillway at Fort Peck in the years there is a spring rise or very high releases from the dam. The relative differences among the five alternatives should be about the same as presented." Fish 6

    Coldwater habitat should decrease with warmwater releases. Additionally, there is no difference between alternatives when error is taken into account. Please see the figures 6 and 7, which include a conservative guesstimate error of 10 percent. EPA recommends removing this modeling effort from the report or obtaining a model that is able to present the simulated effects of the different features of each alternative.

12. **Remove or redo the warmwater habitat modeling effort, because it is not capable of simulating the Fort Peck spring pulse and its warmwater temperature effects.** Section 7.7.4, page 7-55, "Warmwater Fish Habitat in River Reaches." It does not present information that allows the public or decision-maker to understand what happens differently among the alternatives.

13. **The interior drainage study covers six levee units and two alternative operations plans (the CWCP and an alternative similar to PRDEIS alternative FW20-which is now close to any of the GP alternatives that include 20 kcfs spring flows). It would be helpful to the public and decision-maker for the Corps to clearly explain that the interior drainage modeling results have not been extrapolated to the lower 811 miles of the river.** Upon reading the workshop notes, the reader may have the impression that the results have been extrapolated for the entire lower river and for all alternatives. This clarification may be especially important for land owners along the river who may be affected by interior drainage concerns. IntD 3

14. **Although the Corps does explain why the period of record chosen for this modeling exercise was used, it does not explain what, if any, concern should or should not arise because of the difference of period of record used in this modeling effort (interior drainage) versus that used in the other efforts: 1898 through 1994.** "The simulation period [for interior drainage modeling] starts at the beginning of water year 1950 (October 1949) and finishes at the end of water year 1994 (September 1994). This period was selected because the first continuous hourly precipitation data were available beginning in 1949."(Corps 1998f, p. 1-6) IntD 4

15. **Several assumptions made may lead to additional error in interior drainage estimates:**

    1. If there are several pond areas adjacent to each other behind a levee unit, these pond areas can overflow into each other in either direction during extreme events. This situation, though real, cannot be simulated by HEC-IFH and thus has not been addressed in the interior drainage simulation (Corps 1998f, Page 8-3 and 8-4). IntD 5

    2. Seepage from adjacent interior impoundments, ditches, or tributary streams to the main pond is also not included in model simulations (Corps 1998f, Page 8-3 and 8-4).

    3. For interior drainage areas discharging into the tributaries of the Missouri River, daily stages of the tributaries are not based on a combination of Missouri River stages and flows through the tributary or backwater analyses (Corps 1998f, Page 8-3 and 8-4). IntD 5 (cont.)

    4. A constant water surface slope is assumed between the confluence of the tributary and the location of the outlet of the interior drainage area (Corps 1998f, Page 8-3 and 8-4).

    How are these sources of error accounted for in the alternatives comparison analysis and how do they affect cumulative error?

16. **Crop damage associated with interior drainage is not included in the PRDEIS analysis.** The resulting total damages for alternative operations plans with relatively higher river stages may be underestimated. Crop damage due to relatively prolonged water logging conditions caused by subsequent high ground water levels may be significant. Costs/damages should be estimated for crop damage associated with interior flooding and drainage. These estimates should include areas which will be inundated due to high surface water levels plus those where high surface water levels in and around the impoundments will result in high ground water elevations encroaching upon the root zones of crops. IntD 1 GW 2

17. **The ground water modeling (MODFLOW) and interior drainage modeling (HEC-IFH) information, as presented in the RDEIS, indicate that these models do not attempt to communicate with each other in the modeling process (please see Figure 1). Thus ground water/interior drainage interaction dynamics do not appear to be estimated.** In nature there can be a direct relationship between ground water depth and interior drainage dynamics, depending on ground water and interior drainage conditions. The rationale for not making this hydrologic connection should be explained. The ramifications of not modeling this dynamic should also be discussed, so that it is clear what potential impacts are not being estimated. IntD 6

    Interior drainage modeling for all levee units should be linked with ground water modeling. As we are sure the Corps is aware, the results of the interior drainage model along with those of the DRM will have to be arranged in appropriate formats if they are to be used as input for the ground water flow model. The current model description presented in Corps 1998f does not indicate how the results of HEC-IFH will be reformatted and used as input to the MODFLOW model (McDonald and Harbaugh, 1984)

18. The Daily Routing Model (DRM) was used to generate input for the MODFLOW modeling scenarios. Uncertainty in the results of the DRM, as discussed previously, will also be reflected in uncertainties in the ground water model predictions and conclusions. GW 5

19. **Detailed explanation of the questions posed below should be provided in the RDEIS, so that the public can understand how these concerns may affect comparison of alternatives:**

1. The input parameters for Levee Unit L488/497 appear to be extrapolated from other reaches of the river. If this is the case, an explanation of the reasoning supporting this approach should provided. GW 6

2. The river conductances used for several reaches appear to be high. An explanation of the reasoning supporting this approach should provided. GW 6

3. Drain conductance values, which were used extensively, appear abnormally high. A discussion or analysis of these values is warranted. GW 6

4. Some of the river stages were generated from surface water modeling, which introduces error into these values and then into the MODFLOW modeling. How will the Corps analyze this error in the framework of the modeling effort? GW 6

20. **There are additional areas of uncertainty in the modeling effort that should be addressed in RDEIS:**

1. The travel time from Gavins Point Dam to the mouth is stated to be 8 to 10 days. Thus the estimation of travel times has a confidence band of about ± 10 percent (Programmer's and Technical Manual for the DRM, November, 1998, Pages I-2, I-5 and I-6). Hydro 26

2. The estimated local inflows are stated to have undetermined day-to-day variations and standard errors of estimates because the estimates are based on regression analyses with r^2 values of about 0.82.

3. Similar uncertainties or confidence bands are associated with missing daily flow data which were filled in by correlations at several nodes for different periods of time and different depletion factors used to adjust historic monthly inflows to current water uses.

4. Another uncertainty is introduced in model simulations by the fact that the model cannot detect ice-free times and so all winter periods are assumed to have no ice restrictions (Corps 1998e, Page 47).

5. Also, in the absence of a better estimate, it is assumed that only 80 percent of the incremental inflow between Hermann and St. Louis is effective for meeting the navigation targets when setting the Gavins Point releases (Corps 1998e, Page 48).

6. Actual system releases involve day-to-day adjustments to account for varying weather conditions, unforeseen operating conditions, and downstream tributary runoff. The DRM does not account for these short-term adjustments.

7. River stages at various locations corresponding to different releases are determined using dynamic routing models. Predictions of dynamic models for flood routing have their own confidence bands (Corps 1998e, Appendix A, Page 16).

21. **Any discrepancies in the estimation of evaporation losses may result in appreciable discrepancies in model results. These discrepancies may introduce additional uncertainty in the calibration, validation, and simulation results obtained from the DRM. System evaporation losses are estimated to be about 2 MAF (Corps 1994a, Appendix A, Page A-3).** This is 10.9 percent of the permanent pool storage of 18.3 MAF and 5.0 percent of the carryover multiple use zone storage of 39.3 MAF. Figure 6 (Corps 1994a, Appendix A) shows isocontours of net annual evaporation (i.e., annual free water surface evaporation - annual precipitation) for the Missouri River Basin. Estimation of evaporation losses is based on observed conditions at the projects. Actual losses are dependent on the actual surface area of the lakes and prevailing weather conditions which may vary widely from day to day and year to year. Hydro 27

22. **The uncertainties or error bands associated with the estimated US Bureau of Reclamation stream depletions should be included in determining the overall accuracy of the DRM model simulations.** The Corps 1998e (Page 9) states that stream depletions for each reach upstream from Sioux City, Iowa were analyzed in 1987 by the Billings, Montana office of the US Bureau of Reclamation. No documentation is presented to indicate the degree of uncertainty of these estimates or the assumptions and objectives associated with the US Bureau of Reclamation analysis. Hydro 28

23. **Although the HEC-2 model is a standard model, the simulation results are expected to have finite random errors as described above which may contribute to the compounded errors alluded to previously in these review comments.** This EPA comment was made for the PRDEIS and continues to be relevant, because this modeling effort was not reanalyzed for the RDEIS. The low flow studies reported in PRDEIS Volume 3A, July 1994 (Pages 3 and 5) and used for comparative evaluation of alternatives for the PRDEIS are based on the HEC-2 model of the US Army Corps of Engineers (1992). The model was calibrated against measured low flow water surface profiles obtained during July 24-25, September 19-20, and November 14-16, 1989 and March 19-20, September 5-6, and November 27, 1990. The results of calibration are not presented. The standard errors and maximum and minimum errors should be included and should be used to assess the expected errors in model predictions and their effect on the analysis of alternative operations plans included in the PRDEIS. Additional inaccuracies in HEC-2 model predictions may have resulted because the model assumes that the channel bed remains fixed throughout the simulated river reach whereas the Missouri River channel is mobile and is periodically disturbed by dredging. Another area of concern for the HEC-2 modeling is that 15 to 18 cross sections of the river in the river reach from Rulo, Nebraska to Sioux City, Iowa were adjusted resulting in artificial smoothing of the average velocity profiles. This was done for the PRDEIS and not the RDEIS. Results of the calibration done earlier are not provided. Other 177

24. **One suggestion for interior drainage problem resolution, to be included in the Corps analysis, is to resize the pumps and outlets for the impoundments. It is our opinion that this can be done at a relatively small cost.** The comparative ranking of such alternatives from the standpoint of interior drainage may be improved relatively easily and at relatively small costs. These features may be designed or modified to increase the rate of outflow from the impoundments resulting in faster evacuation of flooded areas and lower flood elevations in and around the impoundments. This may significantly alter the flooded area and durations of inundations for alternatives where small negative impacts on interior flooding and drainage are indicated (i.e., -1 to -3 percent). IntD 7

Overall comments on the Economic Studies

1. **Hydropower Economics** – Section 7.10.1, page 7-143, "Hydropower Economic Benefits," do not appear to vary between alternatives. Please see the Figure 8, "Average Annual Hydropower Benefits." Page 7-143 mentions that, "only unit values used in the analysis have been adjusted since the 1994 analysis." The document should present how these values have changed and the basis for the change. We assume they were changed in light of the energy crisis of 2001. However, energy prices have now stabilized and in some cases, as with natural gas are lower than they were before they started to rise in 2001. Hpower 2

2. **The economic benefits calculations throughout the document do not appear to present the full and fair picture on which to provide a basis for the public and decision-maker to evaluate among the alternatives.** It does not include measurement of ecosystem values. An example is in Section 7.9, page 7-137, "Water Supply." The RDEIS states, "Economic benefits are provided through the use of water for powerplants (other than hydroelectric), agriculture, drinking water, and other industrial uses of water. These benefits are described in greater detail in Economic Studies–Water Supply Economics (Corps, 1994g)." Our comments from the 1994 study indicated that we did not believe the analysis was adequate, because it did not include consideration of measurement of environmental benefits and costs. In 1999 the NAS published a study at the request of Corps (National Research Council, 1999. *New Direction in Water Resources: Planning for the U.S. Army Corps of Engineers.")* The study purpose was to, "...identify ways to shorten the planning period and improve results." One of the recommendations is found on page 75 of the report and is entitled, *Measuring Environmental Benefits and Costs.* This section of the report recommends using nonmarket valuation techniques to measure the value of ecosystem services. Five methods are presented as examples: (1) Factor income/productivity approach; (2) Travel cost analysis/averting behavior/household production function; (3) Hedonic pricing (property/wage); (4) contingent evaluation; and (5) the benefit transfer method. EPA recommends the Corps uses one of these methods to include ecosystem values in its FEIS analysis. Other 159

3. **As mentioned previously, the economic models and volumes need to be made more understandable.** Other 160

4. **The methods used for economic calculations should be made available so that it is clear how the evaluations were performed.** The economic models are based upon estimated equations that are not specified. Other 122

5. **The Principles and Guidelines explicitly direct economic analyses to include quantified (where possible) and qualitative descriptions of economic benefits where quantified benefits are not available or possible. This information should be provided in the RDEIS.** Other 159

6. **The Corps has described the NED (National economic development) and RED (regional economic development) accounts, but it does not appear that the EQ (environmental quality) account and the OSE (other social effects) account is included in the economic analysis.** Other 159

7. **Volume 6E-R: Economic Studies – Regional Economics (Revised):**

The differences among alternatives appear to be statistically insignificant, given the stochastic nature of the agricultural economies, relative prices, and other variability and uncertainty. The regional economic analysis does not account for mobility of capital and changes in Federal activities associated with changes in Corps operations. In the tables and discussion presenting the differences in economic impacts from various alternatives, the baseline benefits are assumed to be several billion dollars. The losses of income from environmental alternatives are in the range of about two million dollars and the gains of income from environmental alternatives are in the range of several million dollars. It appears that as a percentage, the economic changes in the regional economy are relatively small. Other 161

There should be discussion in the RDEIS of how substantial the non-monetized economic impacts are from more environmentally benign management alternatives, to give readers a sense of how important those regional benefits are compared to the opportunity costs associated with producing them. The benefit-cost analysis does not qualitatively compare benefits alongside the costs unless they are monetized benefits. This skews the analysis in favor of alternatives that use environmental resources consumptively. Other 159

8. **Volume 6F: Economic Studies – Flood Control (Revised):**

The flood damages displayed are strictly economic damages, and do not account for the benefits and costs that come from flooding – habitat restoration or failed spawning (except through recreation impacts). Those environmental effects should be discussed in the economic analysis as they relate to economic impacts in current (flooding) years and in subsequent years. FC 1

9. **EPA suggests that an independent, agreed-upon-by-all-parties consultant or entity, conduct the navigation economic analyses discussed in Section 6.5.2.** As stated in the NAS report, "No Missouri River management issue has polarized the river's stakeholders as much as the debate over how the provision of flows and channel depths for navigation has affected the Corps' ability and willingness to meet ecosystem needs."[9] The Corps and TVA do good work, however, the results of previous Missouri River navigation economics work performed by both the Corps and TVA have been controversial. EPA believes independent analyses by an agreed-upon entity will enable the stakeholders to concentrate on the results of the economic study, rather than becoming embroiled in a discussion about the validity of the analyses. Nav 6

10. **The following NAS recommendation should be followed to work towards resolution of addressing management of navigation on the Missouri.** "This committee noted that as net navigation benefits are sufficiently small in total and that as traffic volumes decrease as one moves upstream, an incremental analysis of the economics of retaining segments of the navigable waterway would appear to be useful.[10] In proceeding segment by segment, the analysis should discover a point at which it is Nav 17

[9]National Academy of Sciences Report, (Page 5, NAS report)

[10]Note 5 at 76.

beneficial to retain navigation to the mouth of the river."[11] EPA suggests this analysis be conducted by a stakeholder agreed upon entity. Nav 17

11. **Section 7.10.3, "Hydropower Revenue Impacts to the Upper Great Plains Region to WAPA and its Customers," is very difficult to understand.** EPA recommends this section be rewritten to be more understandable. How are the rules of each alternative applied over the 100 years of historical record. The GP alternatives do not envision conducting operations when river conditions do not allow Please see the BiOp. EPA suggests a meeting between WAPA, the Corps and the USFWS to further understanding among the agencies and address EPA's concerns. Hpower 3

Adaptive Management

The FEIS should provide details of how the Corps envisions the implementation of adaptive management. EPA provides the following recommendations. Now that the NAS report has been released and the MRBA has provided initial input on recovery and adaptive management, the Corps should provide more of the aforementioned detailed explanation. Other 3, 29, 86, 88

In particular, the FEIS should provide a detailed explanation about how the Corps plans to implement adaptive management. In this detailed explanation, the Corps should outline how it perceives the adaptive management public process proceeding. The Corps should also describe what flow range operating authority it believes the FEIS will provide (e.g. does the Corps believe that through adaptive management it will have a flow operating range of 15 to 20 kcfs for Gavins spring pulse and 21 to 28.5 kcfs for low flows).

The FEIS should describe the role of NEPA in adaptive management decisions. EPA recommends that whatever alternative is selected as preferred, that the FEIS be used as a programmatic document for the range of operations covered in the FEIS. And once an experiment is designed, and prior to implementation, an environmental assessment (EA, if tiered from the FEIS) should be conducted, so that the public can understand the details of how the plan will be implemented and how contingencies will be addressed. These EAs should be conducted for a particular experiment at hand, e.g. the Fort Peck spring pulse simulation should have its own EA (as is already underway). The same would be envisioned for any other experiment, such as the Gavins Point simulation and low flows. The annual operating plan (AOP) is a suggested opportunity to conduct such NEPA processes. If it is determined that impacts of the proposed action would be significant and are not already covered by an already exiting EIS, then an EIS would be necessary.

The FEIS should discuss the scope and the manner by which scientific information will be gathered to evaluate the current baseline condition of the river, and the impacts of any changes. Such a framework should be comparable to what has been previously proposed as the Missouri River Environmental Assessment Program. Without a means to study and analyze impacts of flow alterations, adaptive management is not a viable management plan.

Although not included in the Missouri River Environmental Assessment Program, the adaptive management program will need to be able to analyze and meaningfully consider social values and

[11]Ibid at 77.

impacts. EPA concurs with, as we are sure the Corps does, the following principles, which were stated in the NAS report. "As efforts are made to restore the Missouri's natural processes, means of informing, and where necessary, safeguarding, mitigating, and compensating stakeholders who may perceive harm from changes in flows, must be developed and implemented as impacts become known."[12] With respect to efforts to restore portions of the floodplain, the report recommends, "Future restoration efforts must recognize the necessity to work closely with floodplain residents to both minimize their vulnerability to floods and to ensure appropriate compensation for damages they might sustain or for property used in restoration efforts."[13] Other 3, 29, 86, 88 (cont.)

EPA concurs with and recommends the implementation of the NAS adaptive management stakeholder group recommendations, as presented in the paragraph below. The FEIS should explain whether the Corps concurs with and plans to aid in the implementation of these NAS recommendations or has another approach. EPA anticipates that formulation and implementation of the stakeholder group will not take place immediately, thus EPA suggests an implementation plan that considers this and allows for a transition to adaptive management implementation via the stakeholder group. This temporary plan should be used if the Corps and U.S. Fish and Wildlife Service determine that to comply with the ESA they need to implement aspects of the preferred alternative before the adaptive management stakeholder group is in place. Prior to conducting any adaptive management experiments, the scientific basis upon which the operational changes are founded and the criteria for the length of time required to implement the adaptive management experiment should be explained in the FEIS.

EPA concurs with and recommends the implementation of the follow NAS recommendation. "The U.S. Army Corps of Engineers, in equal partnership with other federal agencies (e.g., Department of Energy, Fish and Wildlife Service, Environmental Protection Agency, National Park Service), the Missouri River basin states, Indian tribes, and representatives from relevant interest groups (e.g, agriculture environment, municipalities, navigation, recreation) should immediately begin to develop and implement and adaptive management program designed to improve the conditions of the Missouri River ecosystem." (National Research Council. 2002. The Missouri River Ecosystem: Exploring the Prospects for Recovery, page 115.)

1. **The NAS report recommendations for adaptive management and its implementation should be included in the FEIS to modify the RDEIS paragraph below and RDEIS section 6.5.7 (6-11).** Other 3, 29, 86, 88

"Under the adaptive management process included in the BiOp RPA, the Corps would work with the USFWS through the Agency Coordination Team (ACT), basin interests, the Tribes, and State and Federal agencies to determine if changes should be made to the Water Control Plan. If the data collection and analysis, the ACT, and the various entities involved in the adaptive management process support the need for a change, the Corps could elect to implement any of the alternatives included in Chapter 7. Furthermore, the MCP and the GP options cover a range of operations at Gavins Point Dam, and the Corps could implement a Water Control Plan that incorporates releases that fall within this range evaluated in the RDEIS without further NEPA documentation. The next AOP [annual operating plan] would need to reflect the changed operations before the Water Control plan could be

[12]Ibid at 111.

[13]Ibid at 107.

implemented. Public input would be required during the adaptive managment and subsequent AOP preparation processes." (P6-2)

The NAS recommendations are provided in italics below:

*Adaptive management is characterized by the following components and assumptions*ψ:*

- *It maintains and restores some degree of ecosystem resilience.*
- *It explicitly recognizes and seeks to profit from uncertainty.*
- *It promotes interdisciplinary collaboration and inquiry.*
- *It uses models to support decision and collaboration.*
- *It seeks meaningful representation of a wide array of interest groups.*
- *It uses ecosystem monitoring to evaluate impacts of management actions.*

ψ National Research Council. 2002. The Missouri River Ecosystem: Exploring the Prospects for Recovery at pages 89 - 90.

Principles for Stakeholder Involvement‡

- *Participation by a broad spectrum of interest groups*
- *Inclusion of tribal interests*
- *Continuous two-way communication with the public*
- *Visible participation by federal, state, and tribal governments and nongovernmental organizations*
- *Support from an independent, interdisciplinary scientific panel*
- *Provision by the federal government, with support from the states and tribes, of secure funding for stakeholder involvement effort over the lifetime of the activity*
- *Participation by representatives of Congress and of the state legislatures of Missouri basin states*
- *Consensus decision making by the stakeholder group*
- *Bounding the process with defined goals and with timelines for their achievement*
- *Conduct of the governments in an open and transparent manner*
- *Authentication of the stakeholder involvement process by governments in a formal document with all participating agencies as signatories*
- *Provision of formal, independent facilitation for stakeholder group activities*

‡ National Research Council. 2002. The Missouri River Ecosystem: Exploring the Prospects for Recovery at pages 112 - 114.

Cumulative Impacts Analysis

Other 162

The RDEIS did not include a cumulative impacts analysis. The FEIS should include such an analysis. RDEIS section 7.18 does not qualify as a cumulative impacts analyses. CEQ regulations, 40 CFR 1508.25 state, "To determine the scope of environmental impact statements, agencies shall consider 3 types of actions, 3 types of alternatives, and 3 types of impacts. The include: ...(a)(2) Cumulative actions,...and (c) Impacts, which may be: ...(3) cumulative.

The analysis should include, but should not be limited to the following past, present and reasonably expected future actions:

1. **Garrison Diversion** - Reasonably expected system depletions should be examined in the FEIS. The Garrison Diversion is one such action and has been expected for decades. "Garrison Diversion is committed to securing a stronger future for all of North Dakota through better control and management of the Missouri River in North Dakota. Originally conceived in the mid-1940s, Garrison Diversion remains focused on creating and completing a state-of-the-art delivery system to provide reliable, high-quality water to areas of need across the state." (http://www.garrisondiv.org/)

2. **Gulf of Mexico Hypoxia Action Plans** - This Action Plan describes a national strategy to reduce the frequency, duration, size and degree of oxygen depletion of the hypoxic zone of the northern Gulf of Mexico (the Gulf). The Plan is the result of several years of study and discussion by the members of the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (the Task Force) and many concerned officials and citizens who participated in their deliberations. This Plan is submitted in accordance with The Harmful Algal Bloom and Hypoxia Research and Control Act of 1998, Title VI of Public Law 105-383, section 604(b), enacted on November 13, 1998.
(http://www.epa.gov/owowwtr1/msbasin/actionplan.htm#Purpose)

3. **Invasive and/or exotic species** - for instance, appearance and progression of the zebra mussel in the Missouri River System. The Executive Order (E.O. 13112) directs Federal agencies to use their authorities to prevent the introduction of invasive species, to control, monitor and to restore native species. The E.O. establishes a Federal interagency Invasive Species Council (Council), co-chaired by the Secretaries of the Interior, Agriculture, and Commerce and includes State, Treasury, Defense, Transportation and the Environmental Protection Agency. The Council has been directed to create an invasive species management plan. The Secretary of the Interior will establish an advisory committee to provide information and advice for consideration by the Council including recommended plans and actions at the local, state, regional and ecosystem-based levels to achieve the goals of the Management Plan. The Council will act in cooperation with states, tribes, scientific, agricultural organizations, conservation groups and other stakeholders.
(http://www.nps.gov/plants/alien/press/doiinvsp.htm)
The National Management Plan can be obtained at: (http://www.invasivespecies.gov/council/nmp.shtml)

4. **Big Muddy National Wildlife Refuge** - The 1997 Draft Environmental Impact Statement for this project lists a number of goals, to include: recovery of endangered species, enhancement of biological diversity, improvement of wildlife and fishery resources, and to provide opportunities for wildlife-dependent recreation. As of the spring of 2001, 8,145 acres were part of this national wildlife refuge, and is authorized to include up to 60,000 acres.

5. **Bank Stabilization and Navigation Project Mitigation** - "The Missouri River Mitigation Project is designed to mitigate, or compensate, for fish and wildlife habitat losses that resulted from past channelization efforts on the Missouri River. The Project extends from Sioux City, Iowa to the mouth of the Missouri River near St. Louis, a length of 735 river miles. The purpose of this mitigation effort is to acquire, restore and preserve aquatic and terrestrial habitat on individual sites found along the project length. New wildlife areas will be created. Existing areas will be improved. And historic river features may be returned to historic conditions. The project will develop approximately 166,750 acres of land in separate locations along the river in Nebraska, Iowa, Kansas and Missouri. Preservation or restoration will be accomplished by means of land acquisition from willing sellers, dredging filled-in areas, reopening historic chutes, bank stabilization, dike notching, pumping, dike/levee construction, vegetative plantings, and vegetation and land management." (http://www.nwk.usace.army.mil/projects/mitigation/Intro.htm) Other 162 (cont.)

6. **Operations and maintenance** - Cumulative effects of reservoir operations and maintenance (including tributary reservoir operations) should be analyzed for each alternative presented. For example, higher flows may increase the frequency of bank stabilization efforts and/or accelerate bed degradation.

Mitigation

RDEIS section 7.20.1, "Mitigation," is not sufficient and needs to be reworked to comply with CEQ regulations on mitigation, 40 CFR 1502.14, which state, "In this section agencies shall:..(f) Include appropriate mitigation measures not already included in the proposed action or alternatives." For instance, the Tribal and Environmental Justice Concerns section of our letter discusses the insufficiency of the analysis of cultural resource impacts. Without a sufficient impact analysis it is not possible to properly discuss means to mitigate operational impacts. What the RDEIS page 7-223 does state is "Because the Corps has existing programs to address the protection of sites or their documentation if protection cannot be accomplished, new efforts to mitigate the effects of the operations of the Mainstem Reservoir System on known sites are not required. Continued efforts to protect the sites are necessary to limit the adverse effects of the exposure or loss of the known sites." This is confusing and not helpful to the public and decision-maker when considering and trying to understand the risks to these resources for each alternative. Other 148

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Appendix A

Figure 2

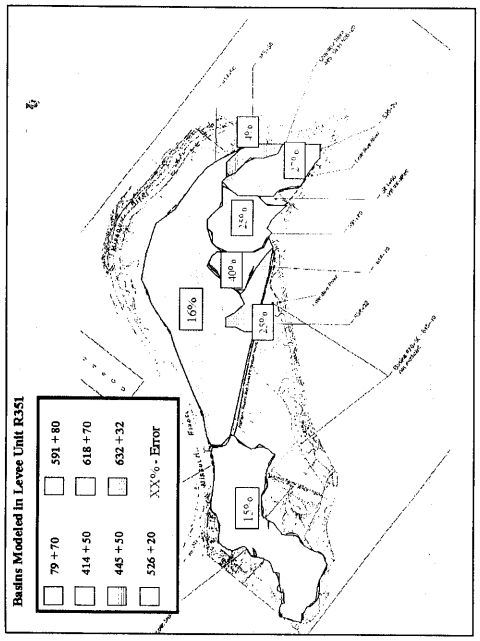
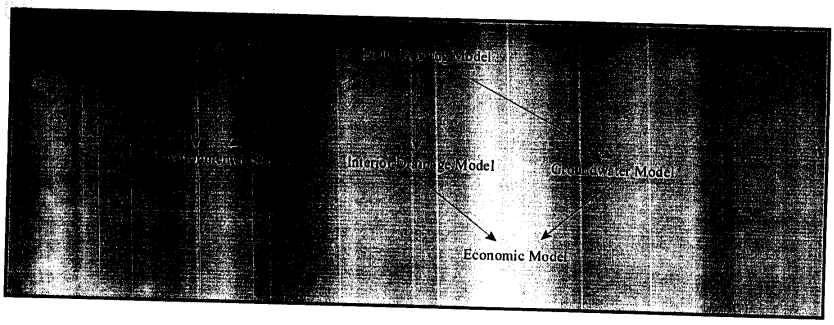


Figure 1 : Schematic of Hydraulic Model Integration



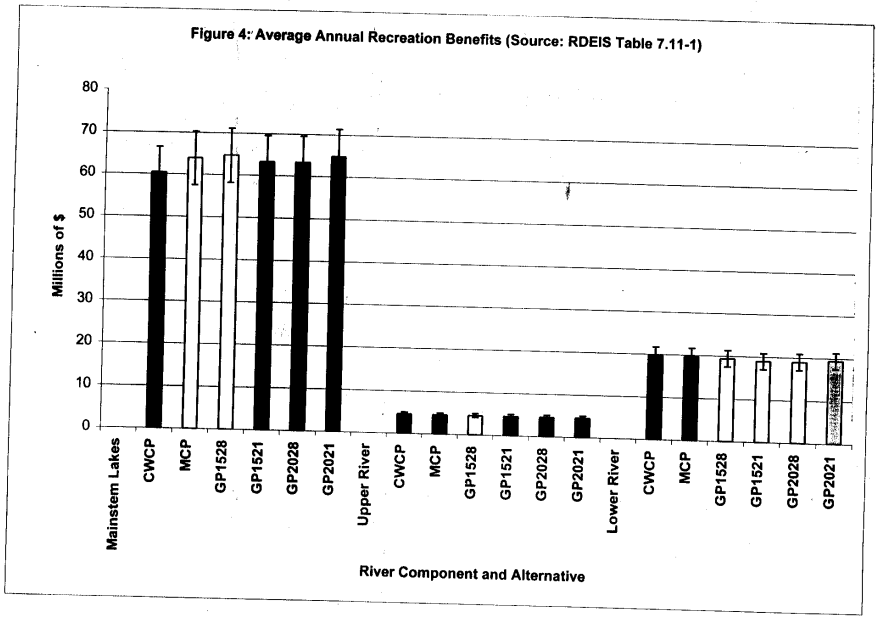


Figure 4: Average Annual Recreation Benefits (Source: RDEIS Table 7.11-1)
Millions of $
80
70
60
50
40
30
20
10
0
Mainstem Lakes
CWCP
MCP
GP1528
GP1521
GP2028
GP2021
Upper River
CWCP
MCP
GP1528
GP1521
GP2028
GP2021
Lower River
CWCP
MCP
GP1528
GP1521
GP2028
GP2021
River Component and Alternative

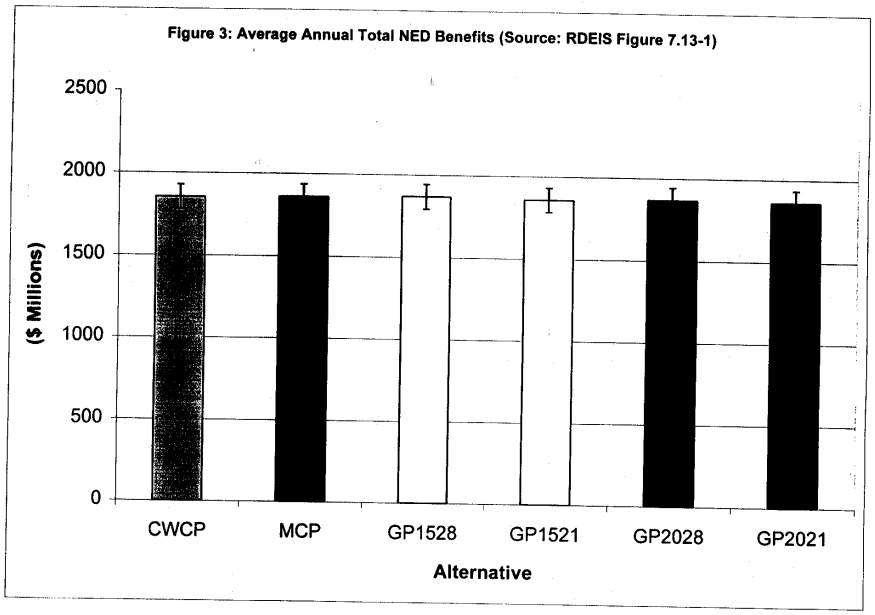


Figure 3: Average Annual Total NED Benefits (Source: RDEIS Figure 7.13-1)
($ Millions)
2500
2000
1500
1000
500
0
CWCP
MCP
GP1528
GP1521
GP2028
GP2021
Alternative

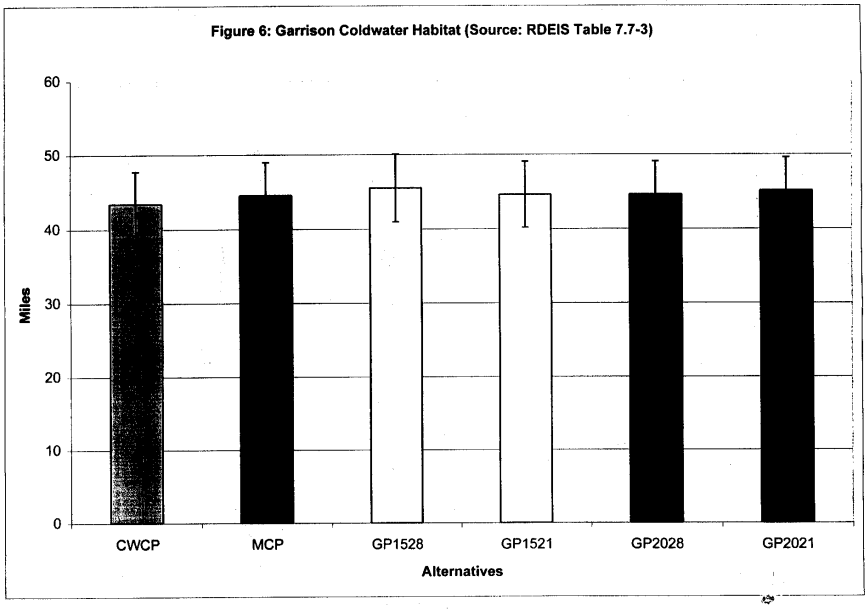


Figure 6: Garrison Coldwater Habitat (Source: RDEIS Table 7.7-3)
60
50
40
30
20
10
0
Miles
CWCP
MCP
GP1528
GP1521
GP2028
GP2021
Alternatives

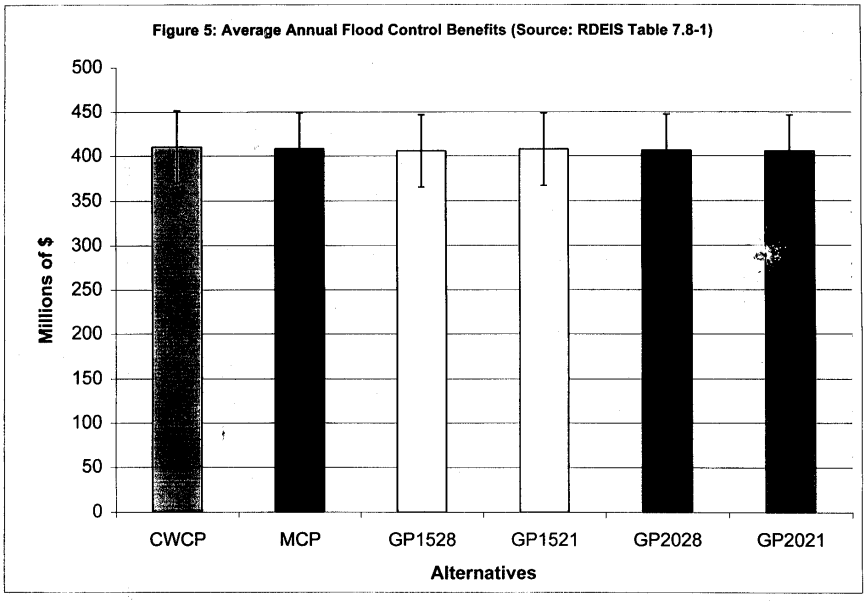


Figure 5: Average Annual Flood Control Benefits (Source: RDEIS Table 7.8-1)
500
450
400
350
300
250
200
150
100
50
0
Millions of $
CWCP
MCP
GP1528
GP1521
GP2028
GP2021
Alternatives

Figure 8: Average Annual Hydropower Benefits (Source: RDEIS Table 7.10-1)

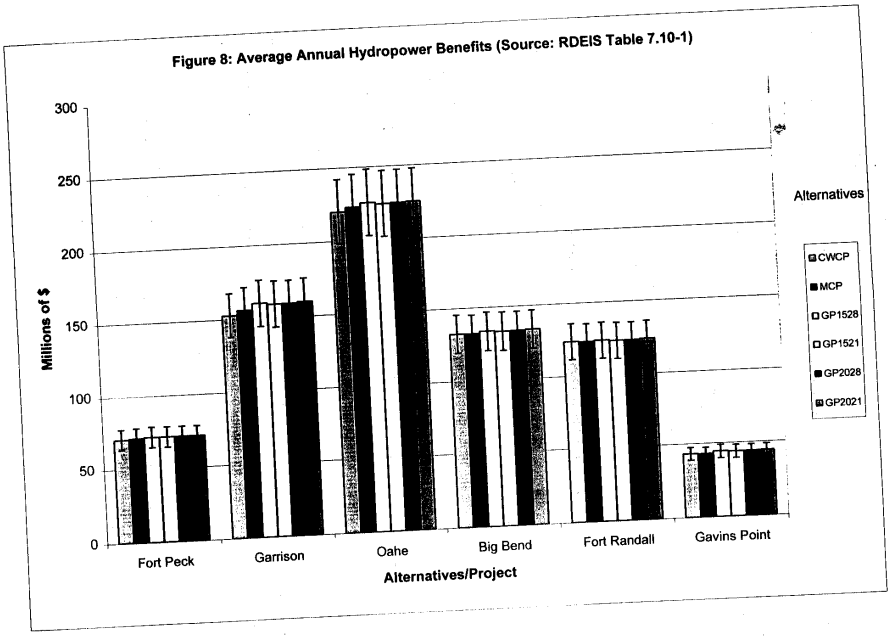
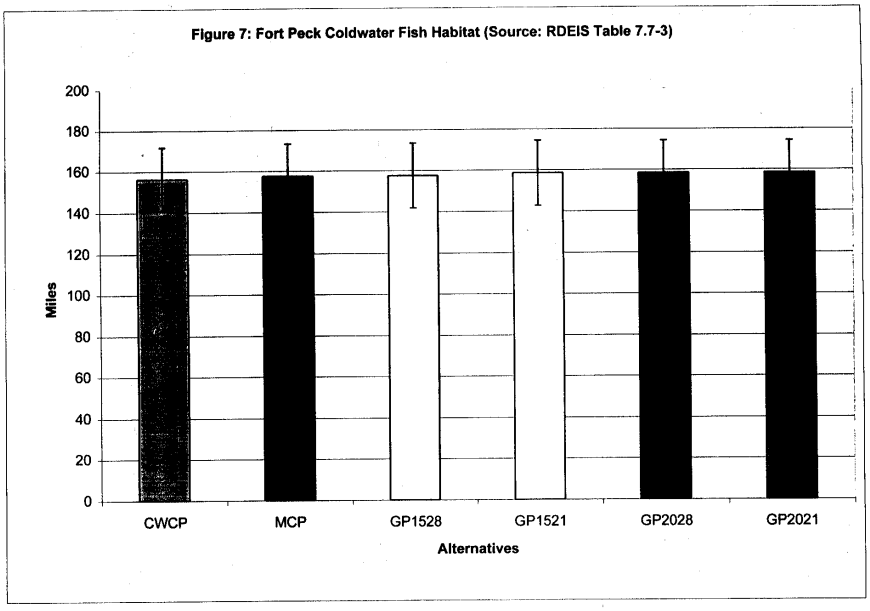


Figure 7: Fort Peck Coldwater Fish Habitat (Source: RDEIS Table 7.7-3)



Detailed Comments

The following are detailed comments are from EPA's review of the RDEIS. The comments have been subdivided into the following eight categories: 1) EPA Tribal and Environmental Justice concerns; 2) Clean Water Act concerns; 3) Environmental Concerns related to Fish and Wildlife; 4) Concerns Related to Ease With Which the Reader can Understand the RDEIS; and 5) RDEIS Analysis and Error 6) Economic analysis concerns, 7) Adaptive Management, 8) Cumulative impacts Analysis, 9) Mitigation.

General Comments

1 The RDEIS does not adequately discuss all federal laws and their impacts to the Master Manual process. For example, in Section 6.3.5, the document discusses legal considerations related to the Endangered Species Act (specifically, the process required for obtaining a legal exemption from compliance with that Act). A similar, albeit more thorough discussion of all applicable laws (for example, the 1944 Flood Control Act, the Clean Water Act, the Fish and Wildlife Coordination Act, the Winter's doctrine, tribal treaties, and others) should be included to provide an understanding of the legal background against which the Corps is operating the River. EPA suggests a separate section devoted to this legal background. A tabulated list of laws and impacts may aid the reader's understanding.

Legal

2 Similarly, there are 'congressionally mandated uses' of the River (e.g., Navigation, Flood Control, etc) which are mentioned but never clearly defined. A similar, well structured discussion of these uses should also be provided.

Other

3 **All figures are enclosed in Appendix A.**

EPA Tribal and Environmental Justice Concerns

1 **The Corps has not, but should... perform a thorough analysis of the social effects on Tribes and other minority and/or low income populations for all alternatives presented in the FEIS (including the CWCP).** This recommendation derives from the February 11, 1994 White House memorandum whose subject is, "Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

Tribal

This memorandum directs, "The Environmental Protection Agency, when reviewing environmental effects of proposed action of other Federal agencies under section 309 of the Clean Air Act, 42 U.S.C. section 760, shall ensure that the involved agency has fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects."

This memorandum also directs that, "Each Federal agency shall analyze the environmental effects, in including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. section #321 et seq." The Master Manual is a case in which such an analysis is required (please see definitions of significance in Council on

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DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20250

FEB 25 2002

Ms. Rose Hargrave
Master Manual Project Leader
U.S. Army Corps of Engineers
Northwestern Division
12565 West Center Road
Omaha, Nebraska 68144-3869

Dear Ms. Hargrave:

The Department of Agriculture (USDA) commends the effort of the U.S. Army Corps of Engineers (Corps) on the Revised Draft Environmental Impact Statement for the Missouri River Master Water Control Manual (Master Manual). USDA appreciates the manner in which the Corps has attempted to collect a wide range of public opinion as input to selecting a Master Manual plan that achieves the necessary environmental imperatives while satisfying other Missouri River project purposes, such as navigation, irrigation, and flood control.

USDA believes that every effort for continued navigation should be considered since the U.S. grain transport system relies heavily on barges. Barge transportation is unrivaled as the least expensive, most environmentally friendly, and safest mode for moving bulk commodities to export. The water flow on the Missouri River can be essential to maintaining adequate river levels on the Mississippi River for transport of grains and oilseeds from the Midwest to the Gulf of Mexico. USDA is concerned that modified releases from dams to produce spring rises that promote threatened or endangered wildlife habitat could stop navigation on the Missouri River and reduce river levels on the Mississippi River between the St. Louis area and the mouth of the Ohio River. These spring rises could also flood farm lands causing delays in planting crops or completely stopping some farm operations along the river.

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Miss 4
FC 2

Disruptions of post-harvest barge shipments during a surge in export demand can have an adverse effect on grain and oilseed exports. A U.S. policy stopping water flows and hindering barge exports could send the signal to importers that the U.S. is an unreliable supplier of grain and oilseeds.

Ms. Rose Hargrave
Page 2

The United States is the world's largest exporter of corn and soybeans. In the most recent marketing year, the U.S. exported 49 million metric tons of corn, which represented 57 percent of the total world exports. In the same year, the U.S. exported 27 million metric tons of soybeans or 49 percent of the world trade. The Upper Mississippi River (above the mouth of the Ohio River) supplies the Gulf of Mexico exporters with about half of all corn exports and a third of all soybean exports. Therefore, the stretch of the Mississippi River between the Missouri and Ohio Rivers is extremely critical to U.S. agriculture.

It is important that we continue to recognize the advantages that the inland waterway navigation system offers U.S. agriculture, and the related benefits to rural economies throughout the Nation. Keeping the Missouri River navigable also provides competition for other modes, prevents flooding of farm lands, and maximizes the irrigation benefits. USDA urges that Endangered Species Act implementations be done in a manner that minimizes any reduction of navigation on the Missouri River and subsequent low water conditions on the Mississippi River.

Nav 6, 8
Miss 4
FC 2

Sincerely,

Bill Hawks

Bill Hawks
Under Secretary
Marketing and Regulatory Programs

F0400001

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
Box 25046 M.S. 150
Denver Federal Center
Denver, Colorado 80225

February 19, 2002

Brigadier General David A. Fastabend
Project Manager
Master Manual Review and Update
12565 West Center Road
Omaha, Nebraska 68144

Dear General Fastabend:

Thank you for the opportunity to participate in the US Army Corps of Engineers public workshops on the Revised Draft Environmental Impact Statement for the Missouri River Master Water Control Manual. Your staff has been very accommodating and helpful. Discussions with basin stakeholders and your staff have provided insights we can use to plan our science activities on the Missouri River to help address some of the key scientific questions. We have a renewed appreciation for the complexity of the issues and the passion of the Missouri River stakeholders.

Our science capabilities in the areas of hydrology, biology, mapping, and geology have been used to address national and regional issues. We have a long history of working on Missouri River issues and providing information to stakeholders. From stream gages, land cover change, and sediment and water quality studies, to our current work in groundwater modeling, habitat change assessments, pallid sturgeon life history studies, and hydraulic modeling, we are working to provide information that can help stakeholders and resources managers find common ground. We are interested in helping design and implement monitoring and research activities on the Missouri River.

Although our agency does not support nor oppose any of the alternatives identified in the Revised Draft Environmental Impact Statement, we do support the use of sound science in making good resource management decisions, and the need for an ongoing monitoring plan along the Missouri River. We also support adaptive management approaches to making decisions regarding the Missouri River. Such management approaches require solid science objectives to monitor effects resulting from any implemented changes to the Missouri River system.

Other - 21

Other - 21

Please call upon us to help in providing the scientific basis for management decisions concerning the Missouri River.

Sincerely,

Thomas J. Casadevall

Thomas J. Casadevall
Regional Director, Central Region

F0400002

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER 01/945

MAR 4 2002

Ms. Rosemary Hargrave
Project Manager
U.S. Army Corps of Engineers, Northwestern Division
ATTN: Missouri River Master Manual RDEIS
12565 West Center Road
Omaha, NE 68144-3869

Dear Ms. Hargrave:

The U.S. Department of the Interior (Department) has reviewed the Revised Draft Environmental Impact Statement for Missouri River Master Water Control Manual Review and Update, [Mainstem Reservoir System and Lower River, from Fort Peck Lake in eastern Montana downstream to Mississippi River at St. Louis], Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas, and Missouri. The Department offers the following comments on the RDEIS.

GENERAL COMMENTS

We applaud the U.S. Army Corps of Engineers (Corps) for an admirable job of summarizing 13 years of study in the RDEIS and providing the reader with a sense of the complexity of Missouri River system management. Although the consideration of numerous alternatives is somewhat confusing, the document makes a reasonable attempt to use the range of alternatives to illustrate the effects of specific operational features under consideration. We view the four Gavins Point (GP) alternatives as significant improvements over current operations and environmentally acceptable from a National Environmental Policy Act (NEPA) perspective. As the Corps nears the selection of a Master Manual preferred alternative (PA), we recommend that the Corps consider an adaptive management approach by characterizing the PA as a "range of flows" encompassing the maximum and minimum flows for Gavins Point alternatives addressed in the RDEIS and selecting a starting point within this range. Regardless of the approach for selection of a PA and flexibility to accommodate change, the Corps should fully explain in the Final EIS and Record of Decision how the PA and potential changes within the identified range will comply with NEPA.

Other - 3

Other - 3

Other- 3

We urge the Corps to continue to coordinate with the Department and particularly the Fish and Wildlife Service (FWS) on the final selection of a preferred alternative that will minimize risks to threatened and endangered species and ensure the likelihood of non-jeopardy to those species. However, in the event that the Corps selects the current water control plan (CWCP), the modified

Other- 13, 7

drought conservation plan (MCP), or a similar alternative without an acceptable Gavins Point flow regime as the preferred alternative, the Department will consider any bureau recommendation that this action be referred to the Council on Environmental Quality in accordance with 40 CFR 1504.

Other 97

Since 1989, the Master Manual study has undergone four different versions of environmental impact statements, including the current RDEIS; three biological opinions (two finals and one draft document) on Missouri River operations; several lawsuits; and countless meetings, workshops, hearings, and conferences with participation from Federal and State agencies, tribes, conservation organizations, and other basin stakeholders. During this period, the FWS and the Corps have cooperated diligently to address mutual fish and wildlife resource and endangered species responsibilities. In recent years, the FWS believes that this interagency cooperation has developed into a working partnership with mutual goals directed toward improving the health of the Missouri River system. As such, the FWS was a partner with the Corps at most of the nearly 20 Master Manual workshops and hearings held throughout the basin during the public review period for the RDEIS.

In the last 2 years, the Corps has made significant progress in its NEPA analysis of the social, economic, and environmental effects of alternative Missouri River operations and has effectively addressed these issues in the RDEIS. The FWS commends the Corps for significant improvement over the three previous EIS documents. The Corps has taken a very complex issue and developed a public disclosure document that is much more user friendly and less technical than in the past. In general, the RDEIS adequately describes the existing environment and presents a logical progression from Chapter 5 (alternatives submitted to the Corps for consideration and analysis of effects) through Chapter 6 (selection of alternatives for detailed analysis) and Chapter 7 (analysis of effects of the selected alternatives).

The FWS believes that existing impacts from the CWCP to fish and wildlife resources and their habitats, including endangered species, will be reduced substantially by selection of an environmentally acceptable alternative and continued implementation of the Missouri River Biological Opinion. However, additional evaluations might be needed in the future to optimize benefits of Missouri River flow changes on the pallid sturgeon and aquatic habitats in both the Lower Missouri River and the Middle Mississippi River. We encourage the Corps to continue to work cooperatively with the FWS to complete ongoing investigations, identify data needs, monitor habitats and biological responses, and, through adaptive management, identify measures to conserve fish and wildlife resources, including listed species.

EnSp 8

Other- 13

Other- 13

Tribal Concerns

The United States has a trust responsibility to assert and protect the Federal reserved water rights and claims of Indian Tribes and individual allotted members. These reserved rights and claims are held in trust by the United States for the exclusive benefit of Tribes and individual allotted

members residing on or having ownership in Federal trust lands, reservations and/or allotments, within the upper tributaries and along the main-stem of the Missouri River. These reserved lands and allotments include: the Blackfeet Indian Reservation, Rocky Boy's Indian Reservation, Fort Belknap Indian Reservation, Fort Peck Indian Reservation, Northern Cheyenne Indian Reservation, Crow Indian Reservation, Wind River Indian Reservation, The Fort Berthold Reservation, Standing Rock Reservation, Cheyenne River Reservation, Lower Brule Reservation, Crow Creek Reservation Yankton Reservation, Ponca Tribal Lands, Santee Reservation, Winnebago Reservation, Omaha Reservation Iowa and Sac Fox Reservations, and Turtle Mountain Public Domain Allotments. These Reservations, the tribal holdings, and allotments contain a significant and complex combination of Indian trust assets that must be carefully considered in changing operations for the Missouri River.

Tribal 10

The Bureau of Indian Affairs (BIA) has determined that any and all of the alternatives examined in the RDEIS may adversely impact the tribal and individual allotted lands and the water rights and claims including those that have been quantified and those that remain to be quantified along the main stem of the Missouri River. Not all potential impacts were evaluated for all of the federally recognized tribes with the potential for harm caused by any and all of the alternatives examined in the RDEIS. For example, the Fort Peck Reservation, which is located on the main stem of the Missouri River, has a quantified water right of over one million acre feet per year.

Tribal 12

Tribal 13

This Federal reserved water right is recognized and decreed by the state of Montana Water Court. The BIA, as the primary agency of the United States for managing Indian land and charged with the protection of Indian water rights, is entrusted to ensure that the Tribe has the right and opportunity to utilize their allotment of Missouri River water at their leisure.

The predominant situation of Indian tribes located in the Missouri River Basin with respect to water rights consists of those with unquantified water rights, for example, the Turtle Mountain Tribe has allotted land-tracts located on the main stem of the Missouri River. The Turtle Mountain Tribe has reserved water rights that are not yet quantified. Another example is the Standing Rock Sioux Tribe, which has significant but unspecified water rights typically referred to as Winters rights, demonstrated by the Supreme Court case of *Henry Winters v. United States* (207 U.S. 564) in which the Court found that reservation of water for the purpose of civilization was implied in the establishment of the Reservation. The RDEIS has essentially ignored the Indian water rights in this category. In fact, only a cursory analysis of Indian water rights has been conducted that considered only existing consumptive uses with exception for three Indian tribes who have established water rights by decree or Congressionally recognized settlements.

Tribal 12, 13, 14

Another significant concern is the issue of elevated Spring releases for Fort Peck Dam. Water pumped from the Missouri River is the primary irrigation source for the Wiota and Frazer-Wolf Point Units. The Wiota Unit pumping plant is located approximately 8 miles below the confluence of the Milk and Missouri Rivers. The Frazer-Wolf Point Unit pumping plant is located approximately 16 miles west-southwest of Wolf Point near the town of Frazer, Montana.

Tribal 15 ErSd 25

Historically, the issues of sediment scour, bank erosion and deposition have created special maintenance problems at these pumping facilities. By increasing Spring releases, there will be extended periods of elevated flows which will increase the potential for damaging erosion and/or sediment deposition at the two pumping plants.

Tribal (cont)

The BIA believes that the "adaptive management" concept proposed in the DEIS has merit. The dynamics of the entire reach of the Missouri River mandate responsive actions and learning from the changing scenarios.

Other-67

We expressly urge that the U.S. Army Corps of Engineers insert the following in any Final Draft Environmental Impact Statement and Missouri River Master Water Control Manual for any alternative selected.

> The Missouri River Master Water Control Manual and the operational parameters found herein are subject to change caused by any decrease in water availability brought about by the use of water associated with Federal Indian reserved rights or treaty rights of Indian tribes and allotees in the source of supply – the Missouri River Basin. Any economic investments made in reliance upon this Preferred Alternative does not create in an appropriator any equity or vested rights against the United States, Indian Tribes, or individual Indian Allottees. The appropriator is hereby notified that any financial outlays or works invested in projects pursuant to this Master Manual are at their own risk. The finalization of this Preferred Alternative does not reduce the appropriator's potential liability for damage resulting from conflicts with the exercise of Federal Indian reserved water rights.

Tribal-13

National Academy of Science (NAS) Missouri River Study

In early January 2002, the National Academy of Science's National Research Council issued a report entitled, *"The Missouri River Ecosystem: Exploring the Prospects for Recovery."* That study echoed FWS concerns related to the ecological condition of the Missouri River. The report highlights the large body of scientific research that identified the ecological changes to the river, including declines in many native species and a general decline in the overall integrity of the ecosystem, that have accompanied the construction and operation of the main stem dams. The report emphasizes that the main stem dams and reservoirs, channelization, and existing management regime promote hydrologic stability and, thus, have all contributed to reductions in the ecosystem's dynamic properties. The report goes on to say that if further declines in the Missouri River ecosystem are to be halted and reversed, the time for implementing management actions aimed at ecosystem restoration is at hand.

Other- 8

The most significant finding of the report may be that restoration of some portion of the Missouri River's preregulation physical processes is the key to ecological improvement. These restoration efforts should be implemented within a basin-wide framework that recognizes the relationship of

Other 8

tributaries to the main stem, of upstream and downstream areas, and of the river system's main channel and floodplain. This system-wide perspective on Missouri River management must be part of river recovery efforts. Other 8 (con't)

The FWS encourages the Corps to embrace the concept of adaptive management outlined in the report that promotes the notion that management policies should be flexible and should incorporate new information as it becomes available. This adaptive management approach recognizes that ecological systems like the Missouri River are not static, but evolve in ways that are often unpredictable. New management actions should build upon the results of previous experiments in an iterative process that uses scientific information and monitoring to aid in any policy change deemed necessary to achieve specific environmental objectives. In this way, science and monitoring efforts are not ends in themselves, but rather are clearly linked to management decisions and policy changes. Other-14

Adaptive Management

Although the RDEIS has many good qualities, the FWS believes a significant flaw is the short, vague, and inadequate explanation of adaptive management and its role in each alternative. Aside from the CWCP, adaptive management is a critical component of the GP alternatives (and the FWS's November 2000 Missouri River Biological Opinion and reasonable and prudent alternative (RPA) to avoid jeopardy). The Corps should expand significantly its description of how adaptive management will be used in its river management (Page 6-14), rather than provide vague references of adaptive management implemented by some future, unknown basin-wide stakeholders group. The FWS believes the Corps has the framework for an adaptive management program in its Draft Implementation Plan, which should be refined to include the preferred alternative and included in the Final EIS document. The NAS study emphasizes that adaptive management should be adopted as an ecosystem management paradigm and decision-making framework for modifying water resources and reservoir management for the Missouri River ecosystem.

The information in the RDEIS indicates that the GP alternatives increase most environmental parameters over the CWCP, in some cases almost doubling values. The Corps should take advantage of the flexibility of implementing all GP alternatives, as appropriate, through an adaptive management approach. The Annual Operating Plan public review process would appear to be an existing mechanism, familiar to basin interests, that could serve as a good mechanism for public review and input. The Corps could use its proposed monitoring programs to track system performance and biotic response of management measures until a more rigorous river monitoring system (e.g., Missouri River Environmental Assessment Program) is in place. Regardless of the details of an adaptive management program, the Corps must articulate more details in the Final EIS to address numerous public concerns regarding the sideboards and uncertainties associated with the Corps' proposed adaptive management. The FWS recommends the Corps review the recent NAS study for suggestions regarding implementation of adaptive

management on the Missouri River.

Models and Analyses

The RDEIS is comprised of a main report (Volume 1), new appendices (Volume 2) relating to water quality and tribal information, and approximately 30 additional volumes of supportive background material relating to environmental and economic analyses conducted since 1990. Throughout the Master Manual study, the Corps has refined the technical models to improve the alternatives analyses. Both the FWS and Corps recognize the limitations of some models, but agree that the models provide an acceptable tool for alternatives evaluation. The FWS had addressed these shortcomings with the Corps in previous meetings and correspondence and, thus, will not provide detailed comments on this topic. Several individual issues will be addressed in the specific comments. Hydro-26

Most importantly, the FWS agrees, in general, with the Corps' contention that more emphasis should be placed on the relative difference in values among the alternatives than on the absolute value for each alternative (Page 5-1 and 7-2). The FWS also recognizes that small differences of 1 to 2 percent may not be true differences, but merely a reflection of the sensitivity of a model and background noise of the model. Hydro-26

Since early 2000, the Corps has been responsive to FWS analytical needs and provided insightful information related to spawning cues, floodplain connectivity, and shallow-water slow-velocity habitats on the Lower Missouri River. This information was useful in development of the November 2000 Missouri River Biological Opinion, as well as to display effects of the submitted alternatives and the alternatives selected for detailed analysis in the RDEIS.

The completion of the FWS's Missouri River Biological Opinion and the pending selection of a preferred alternative for the Master Manual represents a major opportunity for change in management of the Missouri River system. The FWS issued a jeopardy opinion on the least tern, piping plover, and pallid sturgeon in November 2000 and an RPA to avoid jeopardy. The RPA included a Gavins Point spring rise and summer low flow, Fort Peck spring rise and warm water releases, unbalanced intrasystem regulation, adaptive management, habitat restoration, and a monitoring and assessment program. Thus, the biological opinion provided a template to the Corps for consideration in the development of a Master Manual preferred alternative (system storage and systems release out of Gavins Point).

In Chapter 5 of the RDEIS, the Corps compared five submitted alternatives, including the biological opinion alternative for flows out of Gavins Point (BIOP), to the current water control plan alternative. Based on the values in Table 5.17-1, BIOP generally performed as expected for the environmental resource parameters and when considering impacts and benefits, performed best overall among the three environmental alternatives. BIOP either maximized or provided EnSp 9

significant benefits in tern and plover sandbar habitat, floodplain connectivity, shallow-water habitat, and spawning cue at Gavins Point Dam. The economic analysis revealed insignificant impacts to flood control, water supply, and total National Economic Development; moderate localized effects to interior drainage and groundwater; significant effects to navigation; and benefits to hydropower, recreation, and Mississippi River navigation efficiency. EnSp 9 (cont)

In Chapter 6, the Corps explained the rationale and process used in the selection of five alternatives for detailed analyses. The Corps established three goals that alternatives would need to meet in order to be presented in the RDEIS (Page 6-1). The alternative would have to meet congressionally authorized project purposes, meet the contemporary needs of the basin, and not jeopardize threatened or endangered species. The FWS supports the Corps' process which is highly influenced by the elements of the RPA in the biological opinion. Other- 6

Based on the identification of a Gavins Point flow scenario in the biological opinion RPA, the performance of that alternative in the alternatives analysis in Chapter 5, and one of the Corps' stated objectives to analyze alternatives they believed would avoid jeopardy to listed species, BIOP was carried forward for further consideration. The Corps identified one plan that includes four basic components, including three elements of the RPA. This modified conservation plan (MCP) includes modified drought conservation measures (the dominant feature), and some RPA elements including adaptive management, unbalanced intrasystem regulation, and a Fort Peck spring rise and warm water release. The other four alternatives include another RPA element (i.e., modifications to releases from Gavins Point Dam) with varying levels of spring rise above full service navigation (first number in thousands cubic feet per second) and summer low flows (second number). These are labeled the GP alternatives - GP1528, GP1521, GP2028, and GP2021. They encompass the range of the Gavins Point flow recommendations in the biological opinion RPA. The Corps identified GP1528 as a potential starting point for the Gavins Point releases. The FWS concurs with the Corps (Page 6-4) that the GP options represent a reasonable compromise for the operation of the Main Stem Reservoir System. By virtue of the Corps' three stated goals and analysis in Chapter 7, the FWS assumes that the Corps believes that all of the GP alternatives meet the authorized project purpose for navigation. Nav 13

Chapter 7 presents the effects of the five alternatives selected for detailed analysis compared to the CWCP. The environmental and economic effects are summarized in Table 7.17-1. The data appears to provide a reasonable expectation of relative differences among the alternatives, with a couple of exceptions. The cold water and warm water analyses are incorrect and, as presented, should not be considered in comparison of alternatives. This issue is addressed further under "Specific Comments" on Pages 5-56 through 5-59, 5-67 and 5-68, 7-54 through 7-56, and 7-65. In general, all five alternatives reflect an improvement for environmental resources. The MCP provides significant benefits to tern and plover habitat because of drought conservation measures and intrasystem unbalancing, but provides few other environmental benefits. All four GP options include the same operational components as MCP, but also include the Gavins Point spring rise and summer low flows. In general, the GP alternatives provide significant benefits to Fish 6

almost all environmental parameters, especially those affecting listed species. Consequently, the FWS views all the GP alternatives as environmentally acceptable from a NEPA perspective. Compatibility with the RPA of the Missouri River Biological Opinion is addressed in a subsequent section. Other- 3

Differences in the effects of the GP alternatives relate to the magnitude of the spring rise and the level of the summer low flow. Those alternatives with the higher spring rise, GP2028 and GP2021, logically optimize the spawning cue from Gavins Point Dam. As expected, GP2021 (which has the widest range of flows) provides the greatest benefits to tern and plover habitat and shallow-water slow-velocity habitat, and generally the highest overall benefits to listed species and the ecosystem. EnSp 9

Preferred Alternative

The FWS understands that a PA will be identified in the Final EIS following the completion of the public review process. Through the section 7 consultation process and interagency coordination, the FWS believes the Corps fully understands the primary biological components needed in a PA for the Master Manual to adequately address fish and wildlife resource issues, including endangered species. Therefore, the PA needs to be an environmentally acceptable alternative and one that complies with the Endangered Species Act. Furthermore, the FWS has promoted a PA and an adaptive management philosophy to provide a degree of variability and flexibility in the operation of the Missouri River system. The FWS believes the Corps needs to embrace a NEPA process that will readily accommodate adaptive management and associated changes in river operations without returning to another 13-year-long Master Manual study. EnSp 8 Other- 3

Several times in the RDEIS (e.g., Page 7-93), the Corps indicates that GP1528 serves as the potential starting point for Gavins Point releases. If implemented, the GP1521, GP2028, and GP2021 options represent the range in changes from GP1528 that could be made under adaptive management without going through the NEPA process again. Likewise, the same scenario would apply if the Corps selected GP1521 or GP2021, alternatives closer to the FWS's biological opinion alternative. This approach appears to provide necessary flexibility for change without a new NEPA evaluation and would be applicable regardless of the GP alternatives selected. Alternatively, the FWS recommends that the Corps consider the PA as a "range of flows" encompassing the maximum and minimum flows addressed in the RDEIS and select a starting point within this range. Either option, if selected, would appear to provide NEPA coverage under the Corps' EIS document and should be fully explained in the Final EIS and Record of Decision. Other- 3

Endangered Species Act Compliance

Since 1998, the Corps and FWS have worked cooperatively as partners through the informal and formal section 7 consultation process to meet mutual Endangered Species Act responsibilities.

During this process, the FWS and Corps successfully reached agreement on the science used to support the biological opinion. These efforts are reflected in the FWS's November 2000 Missouri River Biological Opinion and the Corps' incorporation of endangered species elements into some of the alternatives selected for detailed analysis in the RDEIS. The FWS's biological opinion provided the endangered species framework for the Corps' development of alternatives. The FWS is encouraged that recommendations in the biological opinion relating to adaptive management, unbalanced intrasystem regulation, and Fort Peck and Gavins Point flows were considered in the development of the four GP alternatives for the RDEIS. In summary, the FWS believes the Corps has done an excellent job in its attempt to develop several alternatives to meet its three objectives, including the avoidance of jeopardy to listed species.

At this time, the FWS assumes that a PA will be chosen from among those alternatives fully evaluated in the RDEIS that complies with the RPA in the biological opinion. The selection of a PA not previously addressed in the RDEIS or selection of the CWCP or MCP alternatives as the PA, could cause delays to the point of not meeting the requirement in the biological opinion to implement flow changes by spring 2003. Such delays would further hamper actions required to remove ongoing jeopardy to the three listed species.

Other- 98

Mississippi River Effects

The Corps has indicated in the RDEIS that changes in the stage of the Mississippi River at St. Louis and Cairo may result from changes in Missouri River flows for all the alternatives except the Current Water Control Plan. The potential effect (positive or negative) of these stage changes on aquatic habitats in the Middle Mississippi River, including pallid sturgeon habitat, likely will be dependent on the timing, duration, and magnitude of these stage changes. It is our understanding that the Corps is currently conducting studies that will further define and evaluate the effects of these flow changes (for each project alternative), including specific aquatic habitats on the Middle Mississippi River. The FWS also understands that the results of these studies will be presented in the Final EIS. To provide the public with a full assessment and comparison of these flow changes, the FWS recommends that the Corps include in its analysis run-of-the-river conditions for the Missouri River and the Mississippi River below the confluence with the Missouri River.

Miss 6

Visualization of Flow Alternatives

The visual display of flow-management alternatives is a complex and difficult task. Therefore, the U.S. Geological Survey (USGS), Columbia, Missouri, developed an approach to present flow-management alternative model results in a way that can be easily visualized and understood. Visualization graphs were developed for the alternatives under consideration in the RDEIS, as well as a reference alternative for a run-of-river scenario. These graphs were displayed during the Master Manual workshops and hearings throughout the basin and have been posted on the USGS web site. The FWS received positive feedback on the graphs and urges the

Other- 99

Corps to incorporate these graphs into the Final EIS to improve the understanding of the differences among flow-management alternatives. We also recommend the graphs developed by USGS for the Middle Mississippi River be included in the Final EIS.

Other (cont)- 99

National Park Resources

The National Park Service (NPS) supports the Corp's establishment of procedures and practices that enhance restoration of the Missouri River and its flood plain ecosystem. In 1999, a record of decision was signed by the NPS and the Corps of Engineers for the Missouri National Recreational River General Management Plan (GMP). A stated objective of this GMP was ". . .to protect and enhance Missouri River values and in accordance with the Master Water Control Manual and Operating Plan, allow for the seasonal high river flows necessary for maintaining important river habitats and species."

Other- 100

The Missouri National Recreational River GMP is consistent with the existing Master Water Control Manual. However, the GMP states: "In reaching a decision on the update of the Master Water Control Manual, the Corps will consider the needs of the Missouri National Recreation River along with the other needs of the Missouri River basin." The Department of the Interior and the Department of Army have a cooperative agreement (1980) that details the respective roles of the Corps and the NPS in administering the designated segment as a recreational river under provisions of the Act.

Other- 100

The NPS is mandated to protect, preserve, and interpret nationally significant sites within the United States. The agency realizes that the degradation of the natural values of the Missouri River will continue, unless some of the natural hydrologic processes that once sustained the river and its flood plain ecosystem are restored. As was expressed in the GMP , ". . .the NPS favors a hydrograph that simulates pre-dam conditions because it would likely provide measurable benefits to native plants, fish, and wildlife."

Other- 100

Several findings involving flow regime were expressed in the draft National Research Council Report, *The Missouri River Ecosystem, Exploring the Prospects of Recovery.* The natural flow regime of rivers is composed of flow magnitude, and the recurrence, timing, duration, and rates of change of flow magnitudes. Each element of the natural flow regime is critical and inherently variable through time. If either the variability of, or an entire element of, the natural flow regime is lost, a river's ability to support natural ecological processes and native species is diminished. Because the Missouri River's flow regime is regulated, changes to current dam and reservoir operations policies are necessary to preclude additional ecological degradation and enhance ecosystem recovery.

Other- 100

The NPS recognizes the recommendations on flow management provided by the FWS related to endangered species protection. The growing societal values of recreation, aesthetics, and cultural history of the Missouri River require more flexibility in flow management. Just as the Missouri

Other- 100

River was gradually harnessed to provide necessary services to a growing human population, recovery efforts must also be incremental to reflect the changing values people place on the river. It is clear that the Corps has considerable legal discretion to operate flows more flexibly than has yet occurred under its management. We therefore urge the Corps to restore the natural flow regime to the extent possible to ensure ecosystem recovery . Other (cont)-100

SPECIFIC COMMENTS

Page 2-7, Section 2.1.2, Water Releases from the Lakes, Water Release Constraints for Threatened and Endangered Species – The comment that release constraints take the form of additional releases to encourage nesting at higher island elevations may appear contradictory. On Pages 3-15 and 3-16 (Section 3.3.12, Missouri River from Gavins Point Dam to St. Louis), the rationale for the additional releases, as related to support navigation needs later in the summer, is better explained. Therefore, the discussion on Page 2-7 should be clarified. Hydro 38

Page 2-12, Section2.2.2, Release Criteria for System Water in Storage, Intrasystem Regulation, Page 4-5, Section 4.2.3, Missouri River Basin Association, Environmental Recommendations, Page 6-3, Section 6.2, Formulation of the Alternatives for Detailed Presentation – All three referenced pages characterize intrasystem unbalancing of the upper three reservoirs, but with differing degrees of success. Page 2-12 is technically correct, but likely difficult for most to understand. Page 4-5 provides the best characterization. Page 6-3 provides a confusing characterization. These sections should be rewritten to provide consistency to the reader, with consideration given to using the characterization on Page 4-5 as a template. Hydro 38

Page 3-8, Section 3.2.9, Mississippi River from the mouth of the Missouri to the Gulf of Mexico – Channel Improvement Features – Because of differences in type and acreage of wetland and riparian habitats, placement of levees, and other environmental conditions, the middle and lower reaches of the Mississippi River should be addressed separately. The Middle Mississippi River is generally considered the reach from the mouth of the Missouri River to the mouth of the Ohio River. The Lower Mississippi River is considered the reach of river from the mouth of the Ohio River downstream to the Gulf of Mexico. Therefore, narrative on the Mississippi River should specify the Middle or Lower Mississippi River, as appropriate. This comment is applicable to all sections of the RDEIS that address the Mississippi River (i.e., 3.2.9, 3.3.13, 3.6.16, 3.7.14, 3.8.13, 3.9.15, 3.10.18, 3.11.8, 3.12.16, 3.13.6, 5.15, 6.5.4, and 7.15). WRH 3

Page 3-19, Section 3.4.1, Sedimentation, Erosion, and Ice Processes, River Channels – Paragraph 2 also should note that channel degradation has contributed to headcutting not only at the mouths, but also up many tributaries. Headcutting has led to erosion, aquatic habitat degradation, reduced fish access up those tributaries, and increased public expenditures to retrofit infrastructure in those areas. ErSd 34

Page 3-61, Section 3.6.1, Wetland and Riparian Vegetation, General – The model reflects a combination of the total wetland/riparian acreage and relationship between flows, vegetation types, and redistribution of this acreage from riparian to wetland habitat or vice versa. However, it does not account for a net increase or decrease in acreage of these habitat types, as is more likely the case than merely a finite acreage and a redistribution of types within the total acreage. In addition, recent research along the Lower Missouri River has documented the importance of farmed wetlands to numerous wildlife species, including migratory birds and herpetofauna. In the lower river, farmed wetlands may account for a substantial acreage; however, they generally are not included in the FWS's National Wetlands Inventory. Therefore, the evaluation of existing conditions and potential impacts resulting from the various alternatives likely greatly underestimate total wetlands along the lower river and their importance to fish and wildlife. This should be acknowledged in this section. WRH 13

Page 3-81, Section 3.7.1, Wildlife Resources, Threatened and Endangered Species – References to the peregrine falcon as an endangered species are incorrect and should be deleted. The peregrine falcon was removed from the Federal endangered species list in 1999. EnSp 10

Page 3-81, Section 3.7.1, Wildlife Resources, Threatened and Endangered Species, Bald Eagle – The first paragraph should be revised to reflect nationwide recovery of bald eagle populations and a proposal in 1999 by the FWS to delist or remove the bald eagle from the Federal endangered species list. The proposal is still under review. EnSp 10

Page 3-83, Section 3.7.1, Wildlife Resources, Threatened and Endangered Species, Indiana Bat and Gray Bat – In the last paragraph, the reference to "Columbus, Missouri" is incorrect and should be replaced with "Columbia, Missouri." EnSp 10

Page 3-83 and 3-84, Section 3.7.1, Wildlife Resources, Threatened and Endangered Species, Peregrine Falcon – Because the peregrine falcon is no longer a federally listed species, this section is inaccurate and should be deleted. EnSp 10

Page 3-90, Section 3.7.12, Missouri River from Gavins Point Dam to Ponca – This section should also note that snow geese and wild turkey are important game species along the lower river. Other- 102

Page 3-90, Section 3.7.12, Missouri River from Gavins Point Dam to Ponca – The last paragraph regarding the November 2000 Missouri River Biological Opinion and proposed river operational changes at Gavins Point does not appear to fall within the scope of this section on the existing environment and should be removed. The paragraph is more appropriately addressed in Chapter 4, Alternatives Submitted to the Corps for Consideration. In this paragraph, the statement that the "USFWS mandated the spring rise" is inaccurate. In the 2000 Missouri River Biological Opinion, the FWS identified a spring rise as one element of the reasonable and prudent alternative to avoid jeopardy to listed species. A reasonable and prudent alternative is not Other- 101

mandatory; the action agency has the prerogative to implement the alternative, not implement and risk noncompliance with the Endangered Species Act, or demonstrate another alternative to avoid jeopardy. [Other (cont)]

Page 3-93, Section 3.8.1, Fish, Riverine Fish Community – The paddlefish was evaluated several years ago and the FWS concluded in 1990 that the species was not warranted to list. Paddlefish numbers are low in some areas of the river, but paddlefish are sought by both recreational and commercial fishermen in other areas. Also, commercial fishing for catfish continues in some reaches of the lower river. This section should be modified accordingly. [Fish 7]

Page 3-95, Section 3.8.1, Fish, Riverine Fish Community – The discussion on pallid sturgeon populations can be strengthened by including the reference to a recent study by the FWS's Columbia Missouri Fisheries Resources Office (Grady et al. 2001), which documented the decreasing number of pallid sturgeon captured over the last few decades. [Fish 7]

Grady, J. M., J. Milligan, C. Gemming, D. Herzog, G. Mestl, L. Miller, D. Hernig, K. Hurley, P. Wills, and R. Sheehan. 2001. Pallid and Shovelnose Sturgeon in the Lower Missouri and Middle Mississippi Rivers. Final Report prepared for Mississippi Interstate Cooperative Resources Association. FWS Columbia Fishery Resources Office, Columbia, Missouri. 45pp.

Page 3-95, Section 3.8.1, Fish, Riverine Fish Community – The paragraph on the November 2000 Missouri River Biological Opinion and the Fort Peck spring rise and warm water release does not appear to fall within the scope of this section on the existing environment and should be removed. The paragraph is more appropriately addressed in Chapter 2 – Current and Alternative Water Control Plans and in Chapter 4 – Alternatives Submitted to the Corps for Consideration. [Other 144]

Page 3-96, Section 3.8.1, Fish, Riverine Fish Community – In the first column, second paragraph, the sentence, "In 2001, the facility has successfully spawned two female pallid sturgeon" should be modified to add, "however; all progeny were lost to an unknown disease." [Other- 103]

Page 3-96, Section 3.8.1, Fish, Riverine Fish Community – The second paragraph in column two discusses a sturgeon virus and stocking. New information is now available and should be incorporated into this paragraph. The Missouri River Iridovirus should be renamed the Shovelnose Sturgeon Iridovirus. In the third sentence, change "hinges" to "hinged" and add the following: "In 2001, testing revealed the presence of the Shovelnose Sturgeon Iridovirus in wild captured adult shovelnose sturgeon in Montana. In addition, during 2002, an iridovirus was also found in wild pallid and shovelnose sturgeon in Louisiana." The statement regarding additional pallid sturgeon workgroups should be revised to reflect that the groups were established several years ago and became functional in 2001. [Other- 104]

Page 3-97, Section 3.8.1, Fish, Riverine Fish Community – The FWS has determined that the paddlefish, sicklefin chub, and sturgeon chub are not warranted to list and, therefore, are no longer candidates for Federal listing under the Endangered Species Act. [Other- 105]

Page 3-99, Section 3.8.1, Fish, Riverine Fish Community – See our comments above regarding Page 3-90, Section 3.7.12. [Other- 106]

Page 3-103, Section 3.8.13, Mississippi River from St. Louis to Mouth – (See comment on Page 3-8, Section 3.2.9). The Middle Mississippi River is that portion of the river from the mouth of the Missouri River downstream to the mouth of the Ohio River. Please revise text accordingly. [Other- 107]

Page 3-103, Section 3.8.13, Mississippi River from St. Louis to Mouth – Revise the reference to the collection of a young-of-the-year pallid sturgeon by the Missouri Department of Conservation to "1998." [Other- 108]

Page 3-116, Section 3.10.1, Water Supply, Power Plants – The second paragraph on this page addresses variable costs that can be incurred when lake or river levels fall below the elevation required for normal intake operation. This paragraph is fairly speculative. The paragraph would be improved if specific problems and solutions from previous low water periods were described, along with the stages when they occurred. The same comments are applicable to subsequent sections on Municipal and Industrial Supply, and Irrigation Intakes. [WS 1]

Page 3-137, Section 3.12.13, Missouri River from Sioux City to Omaha – The text should read "DeSoto National Wildlife Refuge." [Other- 126]

Page 3-147, Table 3.13-2 – Some of the figures in this table on Missouri River commodity tonnage do not appear to be accurate. For example, the farm product tonnage in 1984 for Sioux City to the Mouth is identical to Kansas City to the Mouth. If interpreted correctly, the Sioux City to Mouth reach should be a cumulative total of the other three reaches. Please correct or add clarifying footnotes. [Nav 14]

Page 3-149, Figure 3.13-1 – This figure attempts to show the pattern of commercial tonnage movement by month on the Missouri River (1994). Display of several years data would help to provide a more complete understanding of river traffic, particularly recent patterns. [Nav 15]

Page 4-2, Section 4.1 – The first paragraph references March 2000 regarding FWS comments to the Corps on the Northwestern Division's preferred alternative. The FWS provided two letters to the Corps on this issue in January and March 2000. Please add January 2000. [Other- 109]

Page 4-9, Section 4.2.7, U.S. Fish and Wildlife Service – The second full paragraph should be corrected to reflect that a Corps letter dated March 30, 2000, requested initiation of section 7 [Other- 110]

formal consultation begin on April 3, 2000.

Page 5-47, Section 5.6, Wildlife Resources – Although the tern and plover model has shortcomings because it cannot quantify creation of new sandbar habitat under high flow scenarios or acreage of reservoir habitats, the model does a good job of showing the relative differences in habitat in the four river reaches for each alternative and performs as expected for the biological opinion alternative. However, because of the shortcomings, the values in Table 5.6-1 underestimate the total sandbar habitat in both the river and reservoir system. This should be acknowledged and addressed narratively in this section or other tern and plover sections. EnSp 10

Although Volume 7H: Environmental Studies includes the details related to the tern and plover models and analyses, the reader might benefit from a brief description of tern and plover nesting and foraging habitat. This section should also contain some discussion regarding shallow-water habitat and its importance to terns and plovers because the shallow-water habitat component of the RPA is important, not only to pallid sturgeon, but also for terns and plovers. EnSp 61

Pages 5-56 through 5-59, Section 5.7.3, Cold Water Fish Habitat in River Reaches and Section 5.7.4, Warm Water Fish Habitat in River Reaches – From a biological perspective, warmer water than currently exists below main stem dams is a desirable habitat attribute for native fish and wildlife resources. One element of the reasonable and prudent alternative in the November 2000 Missouri River Biological Opinion identifies a warm water release at Fort Peck Dam to benefit pallid sturgeon and other native aquatic resources. The Corps' model does not account for the warm water release out of the Fort Peck spillway. Therefore, the data presented is misleading, inaccurate, and does not properly represent the biological opinion alternative. Table 5.7-3 overestimates the miles of cold water fish habitat and Table 5.7-4 underestimates the miles of warm water fish habitat for the biological opinion alternative. The Corps should emphasize this point further and provide additional explanation of the beneficial effects of the warm water release from Fort Peck. Fish 6,7

Page 5-60, Section 5.7.6, Missouri River Connectivity to Low-Lying Lands during the Spring Rise – To improve accuracy of the discussion on pallid sturgeon larval fish, the FWS suggests the last two sentences of paragraph one be replaced with the following: "As the pallid sturgeon hatched, the larval fish would float downstream during the first few days of life. After 5 to 8 days, which coincides with the absorption of the yolk sac, the larval sturgeon would settle out into suitable habitat downstream from the spawning site and begin foraging (Kynard 1998)." EnSp 10

Kynard, B., E. Henyey, and M. Horgan. 1998. Studies on pallid sturgeon. Progress report, U.S. Geological Survey, Biological Resources Division, Conte Anadromous Fish Research Center, Turners Falls, Massachusetts.

Page 5-64, Section 5.7.7, Shallow-Water Habitat along the Lower River – The Corps correctly notes in the last paragraph of this section the modeled increase in acres of shallow-water habitat EnSp 25

attributed to the biological opinion alternative. The Corps notes that the gains provided by release changes alone will not meet the target of 20-30 acres per mile and acknowledges the FWS's reasonable and prudent alternative recommendation for the Corps to construct additional shallow-water habitat. This reinforces the point that hydrological release changes from the dams and physical habitat restoration measures are both needed to improve the health of the Missouri River system. EnSp 25 (cont)

Page 5-64, Section 5.7.8, Spawning Cue for the Lower River – The reference that the Corps and FWS staff determined that the "spawning cue requirements of the pallid sturgeon are basically unknown" should be qualified. The agencies do not know the "specific" spawning cue, but we do have sufficient biological science to support the identification of a reasonable starting point in the November 2000 Missouri River Biological Opinion. The citation in this section should be (USFWS 2001). EnSp 37, 24

Pages 5-67 and 5-68, Section 5.7.9, Fish Resources for Tribal Reservations, Cold Water Fish Habitat in the River, Warm Water Fish Habitat in the River – See previous comments on Pages 5-56 through 5-59, Section 5.7.3, regarding the accuracy of data and benefits of Fort Peck warm water releases. The text on Pages 5-67 and 5-68 more accurately characterizes the effects. Modify these sections accordingly. Fish 6,7

Page 5-126, Section 5.12, Navigation – In the first paragraph, second column, "MRDA" should be "MRBA." Other- 111

Page 5-142, Section 5.15.1, Hydraulic Impacts to the Mississippi River – Our comments below concerning Page 7-190, Section 7.15.1, are applicable here. Miss 7

Page 5-144, Section 5.15.2, Navigation – Our comments below concerning Page 7-196, Section 7.15.4, are applicable here. Miss 8

Pages 5-144 and 5-145, Section 5.15.3, Mississippi River Channel Improvement Features – Our comments below concerning Page 7-197, Section 7.15.5, are applicable here. Miss 9

Page 6-4, Section 6.2, Formulation of the Alternatives for Detailed Presentation – In this section, the Corps references the pending National Academy of Sciences study. This section should be revised to reflect the release of the completed study in January 2002. Other- 112

Page 6-5, Section 6.2, Formulation of the Alternatives for Detailed Presentation – The first paragraph should be modified to better reflect the Corps' objectives for tern and plover habitat. It should recognize that flows high enough to support minimum service to navigation may be acceptable as long as sufficient sandbar habitat is available to meet the tern and plover population and fledge ratio goals. Otherwise, summer releases would have to be curtailed the next year to ensure the availability of greater acreage of nesting habitat. High flows force the EnSp 2

initial nesters to nest at the highest elevations. With declining flows, additional sandbar habitat becomes available during the nesting and rearing season, which is beneficial to hatching success, forage availability, and reduced predation. Also, additional shallow-water habitat, beneficial to pallid sturgeon and other native fish, is created. EnSp 2 (cont)

Page 6-6, Section 6.3.5, Gavins Point Dam Flow Changes, Summary of Exemption Process Under the ESA – The sentence stating "Since the MCP does not include the Gavins Point Dam flow changes, based on the BIOP RPA, it may not preclude jeopardy . . . " is inaccurate. Based on the Missouri River Biological Opinion, it should say "will not preclude jeopardy." Other- 101

The next paragraph regarding the Endangered Species Act, reinitiation of consultation, and the exemption process, as well as the entire section summarizing the exemption process, is confusing, inaccurate, and inappropriate in this section describing alternatives under consideration. Accordingly, these sections should be deleted from the RDEIS. The narrative does not meet the spirit of agency cooperation to achieve compliance with the Endangered Species Act and is counter to the Corps' stated objectives on Page 6-1 and the bottom of 6-4 to develop some alternatives that would not jeopardize the continued existence of threatened and endangered species. Other- 113

Page 6-8, Section 6.4, Features of the Four GP Options – Comments above on Page 6-5 are applicable to paragraph three. EnSp 2

Page 6-9, Section 6.5.1, Implementation of the USFWS Biological Opinion – This section should be revised to indicate that the Corps prepared a Draft Implementation Plan that is on hold pending completion of the NEPA process on the Master Manual. In lieu of that document, the Corps provided the FWS a letter, dated October 25, 2001, documenting its current plan to respond to the biological opinion. Other- 114

Page 6-10, Section 6.5.4, Mississippi River Concerns – The reference to the Mississippi River Division receiving a biological opinion from the FWS in April 1999 on the Operation and Maintenance of the Upper Mississippi River is incorrect. The biological opinion was issued in April 2000. Other- 115

As referenced earlier in comments in the general section titled "Mississippi River Effects", the FWS encourages the Corps to complete ongoing studies to assess effects (positive and negative) related to shallow-water habitat, side-channel habitat and connectivity, restoration of aquatic habitats, dredging, channel regulating structures, and floodplain wetlands. The FWS believes this information, combined with monitoring efforts, will be useful in the design and planning associated with habitat restoration projects or modification of structures on the river. Miss 10

Page 6-10, Section 6.5.5, Depletions – This section is confusing. It should clarify whether the results of the GP1528 and GP2012 alternatives in the next sections include the effects of Hydro-6

depletions, or whether those effects were evaluated separately.

Page 6-14, Section 6.5.7, Adaptive Management Strategy Directed Toward Missouri River Ecosystem Recovery as Compared to Adaptive Management Directed Toward Recovery of Threatened and Endangered Species – On Pages 6-11 through 6-13, the Corps has done a good job of outlining the framework of an adaptive management strategy, but should carry the concept forward to Missouri River management. This section should be expanded to include a fairly detailed description of how the Corps will use adaptive management in Missouri River management, ideally incorporating some of the recommendations from the recent National Academy of Sciences study. Until authority is provided for a basin-wide management/recovery body, this section should focus on the Corps' responsibilities and specific examples of proposed adaptive management for Main Stem Missouri River operations and maintenance. Other- 14, 29

Paragraph two suggests that the FWS consider allowing stakeholders participation in defining jeopardy thresholds. The jeopardy analysis by the FWS, based on the best scientific information available, is a statutory responsibility and cannot be abrogated to other parties. Therefore, related sentences should be deleted. Other- 116

Pages 7-35 through 7-43, Section 7.5.1, Wetland Habitat and Section 7.5.2, Riparian Habitat These sections, Tables 7.5-1 and 7.5-3, and Figures 7.5-1 and 7.5-5 indicate that all of the GP and the MCP alternatives have more wetland habitat and less riparian habitat compared to the CWCP, BIOP, or FWS30 alternatives. These habitat conditions likely change during the vegetation growing season. A clearer picture of these effects could be achieved if the Corps would address the relative changes primarily due to the spring rise or summer low flow. The difference in the GP and MCP alternatives versus the BIOP and FWS30 alternatives is likely due to addition of the modified drought conservation measures. This should be explained further in the narrative. Also refer to comments on Page 3-61. WRH 14

Page 7-45, Section 7.6, Wildlife Resources – See previous comments on Page 5-47. The text notes that the tern and plover model does not measure suitable habitat on the reservoirs. The text should note the significance of this limitation, and perhaps include a qualitative evaluation of the effects of drought conservation and intrasystem unbalancing in the various alternatives on tern and plover habitat along the reservoirs, if possible. EnSp 20,22

Pages 7-54 – 7-56, Section 7.7.3, Cold Water Fish Habitat in River Reaches and Section 7.7.4, Warm Water Fish Habitat in River Reaches – See previous comments on Pages 5-56 through 5-59, Section 5.7.3, regarding the accuracy of data and benefits of Fort Peck warm water releases. The text on Pages 5-67 and 5-68 more accurately characterizes the effects. Modify these sections accordingly. Fish 6,7

Page 7-57, Section 7.7.6, Missouri River Connectivity to Low-Lying Lands during the Spring Rise – Regarding pallid sturgeon larval drift, please refer to previous comments on Page 5-60. EnSp 10

Page 7-59, Section 7.7.6, Missouri River Connectivity to Low-Lying Lands during the Spring Rise – The concluding paragraph tends to downplay the gains in connectivity. It should be rewritten to indicate the spring rise alone will be insufficient to achieve all the habitat goals identified in the November 2000 Missouri River Biological Opinion, nor was that the intent. The hydrologic component must be coupled with an aggressive habitat restoration program. EnSp 38

Page 7-59 through 7-61, Section 7.7.7, Shallow-Water Habitat along the Lower River – Refer to comments on Page 5-64, Section 5.7.7 EnSp 25

Page 7-61, Section 7.7.8, Spawning Cue for the Lower River – Refer to comments on Page 5-64. EnSp 37,24

Page 7-63, Section 7.7.8, Spawning Cue for the Lower River – The first paragraph interprets the spawning cue information presented in Figure 7.7-32 in several ways, mostly from a lower river perspective. The text should be expanded and note that GP alternatives 1528 and 2021 provide the desired spawning cue one-third of the years, but the CWCP and MCP do not. EnSp 39

Page 7-63, Section 7.7.8, Spawning Cue for the Lower River – The last paragraph includes a coincident analysis of spawning cues and shallow-water habitat which further supports the GP alternatives. The text speculates that a lower spawning cue may be acceptable if more shallow-water habitat is available and vice versa. No data exists to support such speculation; therefore, the FWS recommends this statement be deleted. The importance of the spawning cue for pallid sturgeon and the uncertainties of its needed frequency and length underscore the importance of adaptive management, that is, monitoring, research and assessment to modify system operations as appropriate. EnSp 5

Pages 7-65, Section 7.7.9, Fish Resources for Tribal Reservations, Cold Water Fish Habitat in the River, Warm Water Fish Habitat in the River – See previous comments on Pages 5-56 through 5-59, Section 5.7.3 regarding the accuracy of data and benefits of Fort Peck warm water releases. The text on Pages 5-67 and 5-68 more accurately characterizes the effects. Modify these sections accordingly. Fish 6,7

Page 7-80, Chapter 7, Tables – Many of the tables in this section and throughout the document are difficult to read in black and white. Please revise to include color or more distinctive line patterns. Other- 117

Page 7-88, Section 7.8.1, Flood Control – The FWS notes that the models indicate little differences in flood control benefits between all alternatives for the 100-year period of record, and in specific years where major differences do occur, the differences are not due to the Gavins Point spring rise. FC 4

Page 7-95, Section 7.8.3, Groundwater, Groundwater Effects at Levee Unit L575 – This section references the distribution of the groundwater damages in Figures 7.8-22 through 7.8-45. These figures are a bit confusing. While the underlying message is that annual damages do not significantly differ among the alternatives, we question the accuracy of some of the areas showing damages. Neither the text nor the figures indicate whether the grids include areas under various easements (e.g., Wetlands Reserve Program, Conservation Reserve Program, Emergency Wetlands Reserve Program), State lands, or Corps' mitigation properties, and therefore, may be overestimating the amount of farmed areas sensitive to water level changes. In addition, we note that some of the figures depict damages in blew holes, in perennial streams, forested tracts, sloughs, riparian borders, and in the river itself, below the high bank. This should be checked, and if warranted, Table 7.8-6 should be revised to accurately reflect only those areas actually "damaged" by elevated water levels, not just those areas that experience elevated water levels. GW 8

Page 7-185, Section 7.14.1, Historic Properties for Tribal Reservations – In the second paragraph, last sentence, the reference to "known sites" appears to be incorrect, and likely should be "unknown sites." CR 10

Page 7-190, Section 7.15.1, Hydraulic Impacts on the Mississippi River, St. Louis, Missouri – This section states that Figure 7.15-5 shows virtually no difference in the stage duration at St. Louis for the CWCP, the MCP, and the four GP options. This should be qualified as virtually no change in the "average annual" stage duration. See the section on Mississippi River Effects under the "General Comments." Miss 7

Pages 7-191 through 7-194, Section 7.15.2, Side Channel Impacts and Table 7.15-1 – The analysis compared four alternatives only, the CWCP, MCP, and GP1528 and GP2021. We understand the ongoing analysis will be completed for all side channels. The analysis should include the other two GP alternatives, or provide the rationale for excluding them. Miss 11

Page 7-192 through 7-194, Section 7.15.2, Side Channel Impacts, Impacts on Wetted Areas – See the section on Mississippi River Effects under the "General Comments." Miss 6

Page 7-195, Section 7.15.3, Dredging – Because the Corps has indicated that channel maintenance initially becomes a problem starting at 2.0 feet on the St. Louis gage, please clarify why the gage reference in question number 2 is 0.0 feet instead of 2.0 feet? Miss 12

Page 7-195, Section 7.15.3, Dredging – The last paragraph addresses potential impacts associated with a lower Low Water Reference Plane (LWRP) and additional channel maintenance dredging. The FWS recognizes that limitations existed on development of some information in the RDEIS, and, thus, this information is insufficient to quantify effects and is speculative at this time. Therefore, any new information from the ongoing studies should be incorporated into the Final EIS to provide a more detailed analysis of dredging effects based on developing a new LWRP as Miss 13

a result of the various alternatives. A discussion of the potential environmental impacts of increased dredging should be included along with information on how these might be addressed, including consideration of an adaptive management strategy.

Miss 13 (cont)

Page 7-196, Section 7.15.4, Navigation – The reference to an increase in the probability of low-water navigation conditions in the Mississippi River system south of Lock and Dam 27 upstream from St. Louis is confusing. A more appropriate statement would be that reduced Missouri River flows increase the probability of low-water navigation conditions in the Middle Mississippi River from the mouth of the Missouri River to the mouth of the Ohio River.

Miss 8

Page 7-197, Section 7.15.5, Mississippi River Channel Improvement Features, Mouth of Missouri River to Gulf of Mexico – Because of the potential environmental impacts from re-engineering navigation structures along the Middle Mississippi River, it is imperative that the Corps include a full computation (i.e., rating curves for each year 1982-1991) of the LWRPs associated with each project alternative. In addition, there should be some discussion regarding the environmental impacts which would occur should reengineering of navigation structures be necessary.

Miss 9

Page 7-222, Section 7.17, Summary of Impact of Alternatives Selected for Detailed Analysis – Table 7.17-1 provides a good summary of the relative differences in effects of the alternatives. Recognizing that additional environmental analyses on the Mississippi River are underway, completed analyses, if compatible with the summary format, should be included in this table. In addition, any ongoing, incomplete analyses should be identified.

Miss 14

Page 7-225, Section 7.18.1, Complexities in Selecting a Water Control Plan and Need for Awareness of Water Level Changes – Although the Corps views the spring rise and lower summer releases from Gavins Point Dam as benefits primarily to listed species, the Corps should modify the last paragraph to also recognize the benefits to other native fish and wildlife and the ecosystem upon which they depend. Such benefits could ultimately preclude listing of additional species onto the Federal endangered species list.

EnSp 5,40

In the last paragraph, the Corps states that based on the data in the RDEIS, the spring rise does not provide island building for terns and plovers. Based on past observations, the FWS agrees that the proposed spring rise likely will not build habitat more commonly associated with much higher flows (e.g., 1997). The Corps' model does not account for creation of sandbar islands from spring rises; therefore, the statement should be based on observations and not data.

EnSp 41

Page 7-226, Section 7.18.1, Complexities in Selecting a Water Control Plan and Need for Awareness of Water Level Changes – The text of the first paragraph notes many of the uncertainties of the proposed GP alternatives on endangered species, but does not acknowledge that most environmental parameters increase under those alternatives. This should be emphasized. The Corps should again emphasize that the Master Manual flows are one

EnSp 5

component of a total package identified in the November 2000 Missouri River Biological Opinion as necessary to avoid jeopardy to listed species. The habitat gained and ecosystem benefits from a spring rise and lower summer releases may be considered minor in some cases when compared to the habitat goals, but in the opinion of the FWS, are significant when compared to existing habitat conditions under the CWCP.

EnSp 5 (cont)

Page 7-227, Section 7.18.2, Projects Currently Being Considered – The text implies that all the GP alternatives could eliminate a new excursion company, River Barge Excursion, from using the river because it would require full navigation service. This type of rhetoric is only true if the company is unwilling to adaptively manage its business (e.g., change to barges with a shallower draft). The example provided for the Winnebago Tribe represents good planning and willingness to be in a position to adapt to changing conditions on the Missouri River. The Corps should emphasize in this section that many effects can be mitigated and addressed by adopting the adaptive management philosophy.

Nav 16

Page 7-228, Section 7.18.2, Projects Currently Being Considered – The text discusses construction of fish and wildlife habitat under the Mitigation Project for the Missouri River Bank Stabilization and Navigation Project and how this project also can help to meet endangered species habitat needs and utilize adaptive management strategies. Likewise, the Corps is embarking upon the development of a habitat restoration program on the Middle Mississippi River in response to the jeopardy opinion issued in April 2000. This section may be the appropriate place to include a brief description of that program, how it will be designed to address habitat needs and problem areas along the Mississippi River, and opportunities for the Corps to integrate adaptive management into the program over the next several years.

Miss 15

Page 7-233, Section 7.20.1, Mitigation – In general, the Corps has adequately identified mitigation of alternative impacts from a qualitative perspective, and when data is available, from a quantitative perspective. As addressed in the comments on Page 7-222, additional impact analyses on the Mississippi River are underway and, if incorporated into the Final EIS, should be accompanied by mitigation discussions. This section should include a discussion of any impacts identified by those analyses and how they will be addressed.

Miss 16

Page 7-233, Section 7.20.2, Monitoring – This section specifically discusses monitoring on the Missouri River, which is key to successful adaptive management of our Nation's big river systems. Therefore, we recommend that this section be moved to the part of the document that describes adaptive management. Further, the Corps should expand the monitoring section to address how it will implement such a monitoring plan and use the results in adaptively managing the main stem system. We suggest the Corps include monitoring components identified in your Implementation Plan for the Biological Opinion as an initial framework to build on.

Other- 118

Pages 7-234, Section 7.20.2 Monitoring - "An earlier Missouri River Natural Resources Committee effort to identify monitoring needs and to identify a program to accomplish them

resulted in the recommendation for the Missouri River Environmental Assessment Program (MoREAP). Authorization of this program has not yet been accomplished; however, the recommendation has been included in several legislative bills considered by Congress. MoREAP would provide a sound monitoring program that could supplement existing efforts by the Corp, and other Federal and State agencies, basin Tribes, and numerous private and public entities and institutions. Existing monitoring in the basin is likely only a fraction of the monitoring that will be accomplished as the entities in the basin work together to save the three endangered species and to create an ecosystem that benefits all of the resources relying on the Missouri River. MoREAP could become the nucleus of this monitoring." Our U.S. Geological Survey fully supports the monitoring recommendations presented in the MoREAP contained in Appendix B of the Revised Draft EIS and recommends that they be implemented.

Other 119, 143

Page 7-235, Section 7.21, Modifications That May Be Included in the GP Options – Modifications to the spring rise and minimum navigation service releases during the summer low flow period seem to be concrete examples of how adaptive management may refine operations in the future. The Corps should consider using them as such, perhaps to aid the reader in visualizing the kinds of changes that may occur under the umbrella of adaptive management.

Other- 119

CONCLUSION

After 13 years of study, the Corps is nearing completion of the NEPA process to change the management of the Missouri River system to improve the health of the river for the benefit of fish and wildlife resources, including threatened and endangered species, and the citizens of the basin. The recognition for change in management is nearly universal. Status quo or continued operation under the Current Water Control Plan and Master Manual is environmentally unacceptable.

Other- 7, 13

Through the November 2000 Missouri River Biological Opinion, the FWS identified actions necessary to avoid jeopardizing the continued existence of the least tern, piping plover, and pallid sturgeon. The recent National Academy of Sciences report on the Missouri River provides additional scientific basis for operational changes to initiate ecosystem restoration on the river.

The Corps has done an admirable job of developing and analyzing a reasonable group of alternatives in the RDEIS and establishing a positive direction for selection of a preferred alternative. The Corps has presented four GP alternatives that meet their objectives, are environmentally acceptable, and dependent upon the alternative finally selected as the PA, hopefully they will meet the attributes identified in the FWS's biological opinion to achieve nonjeopardy to listed species. Based on the analysis presented in the RDEIS, the FWS is confident that an alternative(s) is represented in the RDEIS that will be selected for presentation in the Final EIS as the preferred alternative that will meet the contemporary needs of the basin, meet the authorized project purposes, and avoid jeopardy to listed species.

The FWS looks forward to a continued partnership with the Corps to address our mutual responsibilities and the needs of the Missouri River ecosystem through the Master Manual Study. If further information or clarification is needed on FWS comments, please contact Al Sapa (701-250-4481) or Roger Collins (701-250-4492) at the North Dakota Ecological Services Field Office in Bismarck. For the NPS comments you may contact Gary Vequist, Associate Regional Director for Natural Resources, Midwest Regional Office. His phone number is 402-221-4856. For tribal concerns, please contact Jeff Loman, BIA Division of Natural Resources, at 202-208-7373.

Sincerely,

Willie R. Taylor, Director
Office of Environmental Policy
and Compliance

F0500001

U.S. Department of Transportation
Maritime Administration
Great Lakes Region

February 28, 2002

Colonel Kurt Ubbelohde – District Engineer
U.S. Army Corps of Engineers
106 S 15th Street
Omaha, NE. 68102-1618

Dear Colonel Ubbelohde,

The U.S. Department of Transportation, Maritime Administration (MARAD), is concerned that the Corps of Engineers (COE) Revised Draft Environmental Impact Statement, Master Water Control Manual Review and Update dated August 2001 (RDEIS) contains several deficiencies and fails to give due consideration to navigation and economic interests throughout the Missouri River and the entire Mississippi River Basin. As such, MARAD does not concur with the RDEIS.

As a matter of Departmental policy we fully endorse the concept of interagency coordination and consultation whereby all interested elements of the Executive Branch are able to communicate directly yet informally, off the public record. This correspondence is such a communication, and in the spirit of interagency cooperation we ask that the COE give full consideration to the concerns expressed herein. If the COE is not prepared to incorporate our views into the RDEIS, we would like to meet with the appropriate officials for further discussions in order to reach an appropriate resolution of these challenging issues. Our concerns are outlined below.

Other 1

The COE's transportation analysis of commercial navigation traffic continues to diminish the actual volume of the "real life day to day activity". Page 15 of the RDEIS Summary states "in 1994, commercial barge traffic on the river was 1.5 million tons". However, this does not appear to count the total traffic as published by the COE Waterborne Commerce Data Center. See Attachment A. The actual total traffic on the Missouri River in 1994 was 8.5 million tons. Updating the data to 1999 reflects that the Missouri River handled 9.3 million tons, including nearly 52,000 barge trips between Kansas City and the mouth at the Mississippi River. Further, it remains unclear why the COE continues to exclude the majority of traditional traffic moving on the river – sand and gravel. This commodity, in 1999, made up 7.7 million tons, or 83 percent of the total river traffic. This traffic alone accounts for an estimated $ 31 million in sales value ($4 per ton). The use of out of date and incomplete data distorts the value of commercial navigation.

Nav 1

Page 16 of the RDEIS Summary states..."2L assumes that Missouri River navigation is limited to local sand and gravel throughout the normal 8 month season". The basis for this assumption is unclear given that the sand and gravel operators have boats and barges with a 6 to 7-foot operating draft. With that draft, all of the Alternatives will force this operation out of existence due to the reduced water flow. In addition, the spring high flow proposed is a problem for the sand and gravel operators because of the difficulties and danger posed by the higher than normal river currents. I recommend that the COE consider a meeting with the navigation industry to better determine their operating needs before completing the analysis. I would be happy to set up such a meeting.

Nav 2

The proposed "split-season" also presents a no win situation for navigation. A split season would require commercial enterprises to "shut down" for two or three months out of an already short 8-month season. Barge and towboat equipment would be idled waiting for the water to flow again. Many of the operators already function on tight margins and further time restrictions will likely put many out of business. The sand and gravel operations (83 percent of the business) would be further impacted by a spring flood and a summer draught. Vessel operators will be forced to reposition equipment in other rivers and may not be able to rely on the water level recovery or position of equipment during this shut down period. These are important economic and navigation impacts that must be considered.

Nav 3

The COE's analysis of "transportation savings" does not include the 83 percent of sand and gravel traffic. The sand and gravel commodities should be included along with all other commodities by price value of the commodity, transportation freight rate savings, and capital investment in vessels and port facilities in order to offer a complete economic impact assessment throughout the river basin.

Nav 4

Another critical point that does not appear to have been given due consideration is the fact that reduced water flow on the Missouri will impact the Mississippi River and other basin rivers including the Upper Mississippi, Illinois Waterway, Ohio, McClellan - Kerr Arkansas River, and Lower Mississippi, which all form what President Bush recently called the "Spine of America". According to COE staff, the Missouri River accounts for about 60 percent or more of the water volume moving past St. Louis in low-water years. This is an important factor that continues to be ignored by the RDEIS. According to COE Waterborne Commerce data, the commercial traffic passing St. Louis in 1999 was about 125 million tons in 172,000 barge trips. In addition to this traffic, the through navigation is impacted on all connecting rivers and particularly downstream from St. Louis. Reducing flows on the Missouri will have a significant effect on this entire navigation system. We are enclosing Attachment A – which uses Corps data from the Waterborne Commerce publication indicating the regional impact of tonnage, barge trips, and adjacent states.

Miss 1

The RDEIS continues to use pre-flood (1993) river flow data. We understand that this information is no longer valid because of the destruction of various levees or dikes along an estimated combined area of 100 miles that was caused by the 1993 flood. Several stakeholders have expressed their concern about the need for updates to the "anticipated depletion analysis" for the entire Missouri and Mississippi River Basin. The use of outdated data undermines the COE's analysis.

FC 5
Nav 5
Other- 27

The analysis on endangered species raises a number of questions that must be answered. The various spring rise alternatives are intended to benefit the mating habit of the endangered Pallid Sturgeon. According to Missouri Department of Natural Resources representatives, over 7,000 fingerlings were recently introduced into the

EnSp 42

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Missouri River from a shore-based hatchery. Yet, it is not apparent that there has been an analysis of the survival rate from that introduction and whether the introduction of fingerlings is a useful alternative. EnSp 42 (con't)

The alternatives for reduced river water flow in June, July, and August are said to benefit the threatened Piping Plover and Least Tern nesting habits by adding 164 acres in the upper reservoir section of the river basin. We have been unable to find any indication in the RDEIS of the count of these birds or their relationship to the National total. Moreover, the RDEIS does not provide a clear scientific analysis demonstrating the reduction of water flow benefits to these birds at this location. Additional specific comments are included in Attachment B. EnSp 43,46

In looking at the water flow analysis, it appears that several significant elements are missing. There are numerous rivers and streams in Iowa and elsewhere, such as the Little Sioux, East Nishnabotna, Keg, etc. that apparently are not being considered in the Alternative plans. The tributary streams are an important factor in calculating water flow to the Missouri. We understand that during the major flood of 1993 the Corps of Engineers had a Mississippi River Basin model that could predict rainfall throughout the basin and its impact on water level on the Middle and Lower Mississippi. That type of model for the Missouri River Basin and the resulting information should be included in the RDEIS. Miss 2

Earlier reports of the Master Manual excluded the water storage reservoirs in the Kansas River Basin at Tuttle Creek and Perry Reservoir. Several years ago, stakeholders suggested that "evaporation" of the large reservoirs should be taken into account when calculating the total water supply and flow to the lower Missouri River. It does not appear that evaporation has been considered. Based upon our experience with water levels in the Great Lakes, we suggest that this data be included as part of the analysis. Miss 3

In summary, the Maritime Administration is concerned that navigation and economic interests have not been given due consideration in the Revised Draft Environmental Impact Statement, Master Water Control Manual Review and Update dated August 2001 and that additional analysis is required. We believe that the Missouri Master Water Control Manual – Current Water Control Plan should be left in place. Nav 6

We look forward to your response about this very important project of National importance. If you have any questions, please contact Robert Goodwin (314) 539-6783 or Julianna Cruz (847) 298-4535.

Yours truly,

Al Ames
Region Director

Cc: Brigadier General David Fastabend – Commander
Northwestern Division
U.S. Army Corps of Engineers
220 N.W. 8th Avenue
Portland, Oregon 97209-3589

ATTACHMENT - A

MISSOURI RIVER FACT SHEET **February 11, 2002**

Missouri River Water Flow Impact on - Other Regional/National Waterway Systems

Background: The Corps of Engineers is attempting to change the Missouri River Master Water Control Manual – Current Water Control Plan (CWCP) and is offering several alternatives to the present management plan. These various alternatives are designed to halt Missouri River commercial navigation for two to three months in mid-season due to the lower water release from upper basin reservoirs. This reduction in water flow is "expected" (yet to be proven) to aid endangered and threatened plovers, terns, the pallid sturgeon in addition to benefiting upper basin recreational activities during the summer months. Since the proposed plan alternatives reduces the water flow in the Missouri River, it also impacts the Mississippi River and the other connecting river basins supporting commercial navigation. The mouth of the Missouri historically supplies up to two-thirds of the water flowing into the Mississippi River during low water periods. Any change to the Current Water Control Plan will have significant negative impact on the vessel operators, shippers, state economic resources, and the region and National economy in general. The data shown below indicates the degree of impact in commodity tonnage carried through the area impacted as well as number of barge trips that operated in 1999.

River Transportation System	Tonnage Carried – net tons	Barge trips
Missouri River traffic	9,252,000 **	54,927
Upper Mississippi – Mpls to mouth of Missouri	85,652,000	140,482
Illinois Waterway – Chicago to Grafton	43,724,000	68,630
Middle Mississippi – mouth of Missouri to mouth of Ohio	124,692,000	172,049
Ohio River	240,789,000	506,121
McClellan – Kerr Arkansas River	11,716,000	29,444
Lower Mississippi – mouth of Ohio to Baton Rouge	204,857,000	506,121

Waterway States Impacted by Missouri water flow:

Missouri River – Nebraska, Iowa, Kansas, Missouri

Upper Mississippi River – Minnesota, Wisconsin, Iowa, Illinois

Middle Mississippi River – Missouri, Illinois, Kentucky

Ohio River – Illinois, Indiana, Kentucky, Ohio, West Virginia, Pennsylvania

McClellan-Kerr Arkansas River – Oklahoma, Arkansas

Lower Mississippi River – Missouri, Tennessee, Arkansas, Mississippi, Lousiana

Note: ** Corps of Engineers counts only 1.5 million tons in Master Manual study and claims balance is internal traffic – sand and gravel. This analysis is being disputed because it distorts the importance of the waterway transportation on the Missouri and as well as the importance of the water flow to the Mississippi River Basin.

Source: USACOE – Waterborne Commerce Data
Maritime Administration – USDOT

ATTACHMENT – A

MISSOURI RIVER, FORT BENTON, MT TO THE MOUTH (CONSOLIDATED REPORT)

Section Included: Fort Benton, MT, to the mouth of the Missouri River, 2073.2 miles. For controlling and project depths see individual stretches.

Comparative Statement of Traffic (thousand short tons)

Year	Total	Year	Total	Year	Total	Year	Total
1990	5,841	1993	5,631	1996	8,165	1999	9,252
1991	5,729	1994	8,501	1997	8,172		
1992	5,783	1995	6,884	1998	8,379*		

* Revised after original year of publication

Freight Traffic, 1999 (thousand short tons)

Commodity	Grand Total	Internal				
		Inbound		Outbound	Intra	
		Upbound	Downbnd	Downbnd	Upbound	Downbnd
Total, all commodities	**9,252**	**841**	**5**	**879**	**4,005**	**3,524**
Total petroleum and petroleum products	**278**	**278**	—	—	—	—
Subtotal petroleum products	**278**	**278**	—	—	—	—
2350 lube oil & greases	5	5	—	—	—	—
2430 asphalt, tar & pitch	253	253	—	—	—	—
2540 petroleum coke	20	20	—	—	—	—
Total chemicals and related products	**343**	**336**	—	—	—	**7**
Subtotal fertilizers	**325**	**318**	—	—	—	**7**
3110 nitrogenous fert.	170	163	—	—	—	7
3120 phosphatic fert.	10	10	—	—	—	—
3190 fert. & mixes nec	144	144	—	—	—	—
Subtotal other chemicals and related products	**19**	**19**	—	—	—	—
3274 sodium hydroxide	14	14	—	—	—	—
3276 metallic salts	4	4	—	—	—	—
Total crude materials, inedible except fuels	**7,743**	**61**	**5**	**168**	**3,996**	**3,513**
Subtotal soil, sand, gravel, rock and stone	**7,676**	**2**	**5**	**160**	**3,996**	**3,513**
4331 sand & gravel	7,532	2	5	160	3,966	3,399
4335 waterway improv. mat	145	—	—	—	31	114
Subtotal non-ferrous ores and scrap	**2**	**2**	—	—	—	—
4670 manganese ore	2	2	—	—	—	—
Subtotal sulphur, clay and salt	**18**	**10**	—	**7**	—	—
4782 clay & refrac. mat.	18	10	—	7	—	—
Subtotal other non-metal. min.	**47**	**47**	—	—	—	—
4900 non-metal. min. nec	47	47	—	—	—	—
Total primary manufactured goods	**156**	**152**	—	—	**4**	—
Subtotal lime, cement and glass	**121**	**117**	—	—	**4**	—
5220 cement & concrete	121	117	—	—	4	—
Subtotal primary iron and steel products	**36**	**36**	—	—	—	—
5320 i&s primary forms	2	2	—	—	—	—
5330 i&s plates & sheets	3	3	—	—	—	—
5360 i&s bars & shapes	6	6	—	—	—	—
5390 primary i&s nec	25	25	—	—	—	—
Total food and farm products	**730**	**11**	—	**711**	**4**	**3**
Subtotal grain	**356**	—	—	**355**	**1**	—
6241 wheat	66	—	—	66	—	—
6344 corn	206	—	—	205	1	—
6447 sorghum grains	84	—	—	84	—	—
Subtotal oilseeds	**317**	**2**	—	**315**	—	—
6522 soybeans	240	—	—	240	—	—
6590 oilseeds nec	77	2	—	75	—	—
Subtotal processed grain and animal feed	**48**	**1**	—	**41**	**3**	**3**
6747 grain mill products	6	—	—	6	—	—
6782 animal feed, prep.	43	1	—	35	3	3
Subtotal other agricultural products	**8**	**8**	—	—	—	—
6865 molasses	8	8	—	—	—	—
Total all manufactured equipment, machinery and products	**3**	**3**	—	—	—	—
7110 machinery (not elec)	2	2	—	—	—	—
7500 textile products	1	1	—	—	—	—
Ton-miles (x1000)	**699,744**	**324,867**	**38**	**334,621**	**6,856**	**33,361**

Tons All Traffic (x1000)	**9,252**
Ton-miles All Traffic (x1000)	**699,744**

ATTACHMENT – A

Trips and Drafts of Vessels, 1999 (draft in feet)

Draft	Self Propelled Vessels				Non-Self Propelled Vessels		Self Propelled Vessels				Non-Self Propelled Vessels	
	Total	Pass & Dry Cargo	Tanker	Tow or Tug	Dry Cargo	Tanker	Total	Pass & Dry Cargo	Tanker	Tow or Tug	Dry Cargo	Tanker
MISSOURI RIVER, FORT BENTON, MT TO THE MOUTH (CONSOLIDATED REPORT)		Upbound						Downbound				
Grand Total	**27,335**	**202**	—	**14,376**	**12,620**	**137**	**27,592**	**202**	—	**14,594**	**12,678**	**118**
DOMESTIC												
Total	**27,335**	**202**	—	**14,376**	**12,620**	**137**	**27,592**	**202**	—	**14,594**	**12,678**	**118**
10	123	—	—	61	55	7	109	—	—	61	48	—
9	135	—	—	9	43	83	171	—	—	1	167	3
8	2,254	—	—	250	1,978	26	456	—	—	201	255	—
7	2,005	100	—	815	1,086	4	1,035	100	—	311	624	—
6	3,123	—	—	1,878	1,245	—	4,859	—	—	1,878	2,981	—
5	9,375	—	—	7,147	2,222	6	10,517	—	—	7,618	2,899	—
4	1,714	—	—	1,171	543	—	1,860	—	—	1,589	271	—
3	2,139	102	—	1,933	104	—	2,023	102	—	1,828	89	4
2	4,407	—	—	8	4,388	11	4,505	—	—	7	4,388	110
1	2,060	—	—	1,104	956	—	2,057	—	—	1,100	956	1
										Total trips:		54,927
MISSOURI RIVER, KANSAS CITY TO THE MOUTH		Upbound						Downbound				
Grand Total	**26,092**	—	—	**12,700**	**13,255**	**137**	**25,786**	—	—	**12,645**	**13,026**	**115**
DOMESTIC												
Total	**26,092**	—	—	**12,700**	**13,255**	**137**	**25,786**	—	—	**12,645**	**13,026**	**115**
10	123	—	—	61	55	7	109	—	—	61	48	—
9	135	—	—	9	43	83	168	—	—	1	167	—
8	1,377	—	—	236	1,115	26	1,249	—	—	188	1,061	—
7	1,422	—	—	563	855	4	1,418	—	—	563	855	—
6	3,973	—	—	1,878	2,095	—	3,972	—	—	1,878	2,094	—
5	8,081	—	—	6,099	1,976	6	8,159	—	—	6,100	2,059	—
4	1,922	—	—	1,380	542	—	1,534	—	—	1,380	154	—
3	1,436	—	—	1,372	64	—	1,455	—	—	1,372	79	4
2	5,550	—	—	—	5,539	11	5,648	—	—	—	5,538	110
1	2,073	—	—	1,102	971	—	2,074	—	—	1,102	971	1
										Total trips:		51,878
MISSOURI RIVER, OMAHA TO KANSAS CITY		Upbound						Downbound				
Grand Total	**5,266**	**202**	—	**2,305**	**2,719**	**40**	**4,792**	**202**	—	**2,306**	**2,244**	**40**
DOMESTIC												
Total	**5,266**	**202**	—	**2,305**	**2,719**	**40**	**4,792**	**202**	—	**2,306**	**2,244**	**40**
10	15	—	—	—	13	2	28	—	—	—	28	—
9	28	—	—	9	6	13	115	—	—	1	111	3
8	153	—	—	39	108	6	176	—	—	44	132	—
7	118	100	—	15	1	2	116	100	—	13	3	—
6	4	—	—	—	4	—	564	—	—	—	564	—
5	2,484	—	—	2,227	251	6	3,419	—	—	2,237	1,182	—
4	1	—	—	—	1	—	150	—	—	—	150	—
3	150	102	—	8	40	—	120	102	—	6	11	1
2	2,312	—	—	7	2,294	11	100	—	—	5	59	36
1	1	—	—	—	1	—	4	—	—	—	4	—
										Total trips:		10,058
PORT OF KANSAS CITY		Inbound						Outbound				
Grand Total	**11,638**	—	—	**5,784**	**5,776**	**78**	**11,614**	—	—	**5,757**	**5,794**	**63**
DOMESTIC												
Total	**11,638**	—	—	**5,784**	**5,776**	**78**	**11,614**	—	—	**5,757**	**5,794**	**63**
10	12	—	—	—	7	5	11	—	—	—	11	—
9	60	—	—	—	5	55	33	—	—	—	33	—
8	140	—	—	74	49	17	86	—	—	40	46	—

Attachment - B
February 14, 2002

Maritime Administration – Review of Environmental Impact Studies

Upon review of the Revised Draft Environmental Impact Statement (RDEIS), it appears that the United States Corps of Engineers has not met the requirements of several sections of the National Environmental Policy Act (NEPA). The issues are outlined below:

Issue 1: 1500.1 (b); 1500.2, (a), (e), & (f); and 1500.3.

Other- 121

The action that triggers NEPA is the change from the CWCP (the existing plan) to some alternative (a new action proposed) mentioned in RDEIS report. Therefore, each alternative is to be evaluated for compliance with NEPA to include the "no action" alternative. The restriction of water flow on a seasonal basis was in every alternative and therefore appears to be the preferred alternative with only limited options evaluated as they related to the restriction of water flow. (Chapter 4.1 of RDEIS report). 1500.1(b)

Note: Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. (Memorandum on Questions & Answers about the NEPA regulations, from the, "Memorandum for Federal NEPA Liaisons, Federal, State, And Local Officials And Other Persons Involved In The NEPA Process" per Nicholas C. Yost, General Counsel.)

Issue 2: 1501.2 (a) & (b), 1502.6, 1502.16.

Other- 122

These sections of NEPA state that the evaluator is to: (a) "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural (i.e., geology, biology, chemistry, etc.), and social (i.e. economics, geography, sociology, etc.) sciences, and the environmental design arts in planning and in decision-making which may have an impact on man's environment", as specified by Sec.1507.2., and (b) Identify environmental effects and values in adequate detail so they can be compared to economic and technical analyses. Environmental documents and appropriate analyses shall be circulated and reviewed *at the same time* as other planning documents.

It does not appear that national, regional, and local impacts have been thoroughly analyzed for each alternative. These impacts should at least address/include potential: economic costs, benefits, and burdens (consequences, i.e. loss of commerce, jobs, water quality, etc.), if implemented.

Issue 3: 1501.6 (a) & (b) and 1502.6.

Other- 123

We are concerned about the absence of formal consultation on water commerce/transportation with the US Department of Commerce/Economics and Statistics Administration and or the U.S. Department of Transportation/Maritime Administration to obtain additional information on these alternatives' impacts if implemented. See Chapter 4 in the RDEIS, for details.

Issue 4: 1500.1 (a) & (b); 1500.2, (a) & (e); 1500.3, 1501.2 (b), 1502.1, 1502.22, 1502.24,

Other- 49

These sections require the consideration of the best scientific data available when deriving conclusions that will be the basis for regulatory action. The data in the RDEIS is outdated and does not include certain commodities in its estimates.

US Fish and Wildlife Service – Biological Opinion

EnSp 47

The United States Army Corps of Engineers' (USACE) Revised Draft Environmental Impact Statement (RDEIS) of the Current Master Water Control Manuel Plan (CWCP) of the Missouri River received a final Biological Opinion (BiOp) from United States Fish & Wildlife Service (USFWS) in November 2000. This "BiOp" evaluates **only** the CWCP for compliance with the Endangered Species Act (ESA), Section 7. The BiOp's evaluation is based on 10-12 year old data (pre –1992 data) for the three species of concern: Piping Plover, Least Tern, and the Pallid Sturgeon.

Issue 1: The derived conclusions based on the BiOp (November 2000), produced by the U. S. Fish and Wildlife Services (USFWS), are not based on the best scientific and commercial data available.

Other- 124

The information contained in this BiOp is not current and at a minimum should be updated or not used as input into the Modified Conservation Plan (MCP). The USACE should not rely upon a flawed BiOp to select the reasonable prudent alternative (RPA). If the USACE is to be in compliance with the spirit of NEPA, it is to use the best scientific and commercial data available when deriving conclusions that will be the basis for regulatory action. Until the USACE can obtain the best scientific and commercial data available, the present Water Control Plan should remain in place.

Issue 2: The Endangered Species Act (ESA) section 4: (c) (2), (f) (1), (g) (1); requires a review of endangered & threatened species listed at least once every five years. Recovery plans should have objective, measurable criteria which, when met, would result in a determination, that the species be removed from the list. The estimates of time and costs required to carry out such measures should be included within the recovery plans.

The analysis does not appear to consider the extent of species recovery due to efforts of federal (i.e. USACE), state, and local governmental agencies over the last 10 years. The value of those recovery efforts should be considered. If recovery plans are to be continued, objective, measurable criteria are needed which, when met, would result in a determination that the species should be removed from the list. Also, the estimates of time and costs required to carry out such measures within the recovery plans should be included.

Issue 3: In reviewing comments from our stake holders concerning the above listed issues, it appears that several questions remain unanswered:

- Has a "Critical Habitat" been designated and updated by the Secretary of Commerce and or the Secretary of the Interior for these species of concern (Pallid Sturgeon, Least Tern & Piping Plover)? Have such designations been based on the best scientific and commercial data available?
- An ecosystem consultation approach is consistent with Sec.7 (2) (b) of the ESA per BiOp at 37. The agencies (Secretaries of Commerce & Interior) cooperative interpretations supporting this statement do not appear.
- What is the best scientific rationale basis for rejecting these other proposed alternatives actions?
- BiOp at 272 – "Given the importance of shallow water habitat to the maintenance of the aquatic ecosystem, and the large disparity between pre-development aquatic habitat

condition and the habitat provided under the current operations and maintenance, the summer and fall habitat needs of the pallid sturgeon and other native river fishes are not being adequately met. They will only be met by a combination of improvements in the main stem reservoir operations to help create sufficient form and function of the river for the survival and recovery of the species." The scientific authorities or objective standards to support this section of the BiOp are unclear.

EnSp 47

- Have commercial and recreational fish harvest effects on pallid sturgeons been evaluated and assessed for the percentage of risk towards these species? And if so could these effects (risks) be controlled or minimized with existing laws?

- Have all potential risks (of commercial & fish harvesting, contaminants, dissolved oxygen concentration water levels, etc.) and not just the Missouri River's flow patterns been quantified for these species of concern (See BiOp at 111 & 124, selenium concentration levels)?

- Has an analysis been conducted of the relationship between "reasonable and prudent measures" to minimize take and " reasonable and prudent alternative" to avoid jeopardy? This question is asked, because no analysis is presented from which to determine whether "jeopardy" would be avoided if such measures as predator management techniques (BiOp at 362) or a host of other measures (i.e., the USFWS's measures to minimize "Take" numbers one through six in the BiOp) were implemented. Instead the USFWS concludes, without analysis, that all of the identified measures must be implemented, rather than considering the " reasonable and prudent alternative" to avoid jeopardy.

- Data to support the USFWS's conclusion that the loss of high spring runoff is a major impediment to pallid sturgeons' spawning success appears to be missing. (see BiOp at 365). This conclusion appears inconsistent with the fact that photoperiodicity rather than flow rates trigger most fish spawning. It also seems inconsistent to conclude that spring-runoff is a major impediment without knowing what level of "take" would sufficiently minimize impacts to pallid sturgeons so as to avoid "jeopardy". (per BiOp at 369)

- It does not appear that current "actionable measures" were factored into the BiOp, which are designed to minimize impacts on the listed species. (See BiOp at 63-64) The USFWS acknowledges that the least tern's population has been increasing, a 100 percent increase (BiOp at 105-106). What is allowing their population to flourish? Can this be quantified scientifically? Could this host of measures including habitat conservation and enhancement, predator control, etc. be responsible for achieving population increases in least terns?

F0600001
Other 148

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

February 28, 2002

Rosemary Hargraves
Project Manager
Northwest Division, Army Corps of Engineers
12565 West Center Road
Omaha, NE 68144-3869

ATTN: MASTER MANUAL RDEIS

Dear Ms. Hargraves:

We have reviewed the Missouri River Mainstem Reservoir System Master Manual Revised Draft Environmental Impact Statement (RDEIS), prepared by the Corps pursuant to the National Environmental Policy Act (NEPA).

The Corps will need to comply with Section 106 of the National Historic Preservation Act for its approval of this Master Manual update. Unfortunately, the RDEIS does not clarify how or when the Corps intends to do so. The many problems we identify with the Corps' consideration of historic properties in the RDEIS lead us to question if the Corps fully appreciates the severity of Mainstem System impacts to historic properties or how inadequately its current cultural resources program addresses them. Because the Corps' Section 106 consultation for the Master Manual will have to confront these problems, we hope that you will take the following thoughts on the RDEIS as early warnings.

We strongly disagree with the overall impression that the level of impacts to historic properties of the Corps' current and future operations of the Mainstem System is acceptable and that the Omaha District's current cultural resources program acceptably mitigates these impacts. In fact, the RDEIS drastically underestimates the impacts of all alternatives, including the Current Water Control Plan (CWCP), on historic properties. Further, we believe that

1

historic properties and, instead, misleadingly presents them as zero in the various historic property analysis tables and discussion. Rather, the RDEIS needs to describe and disclose these system-wide impacts and the estimated costs of doing so. We believe that the RDEIS should consider these costs on both an annual basis and for the entire period that the Master Manual is in effect, e.g., 20 years.

We provide a more detailed list of issues raised by the RDEIS in the attachment to this letter.

Sincerely,

Dan L. Klima
Director
Office of Federal Agency Programs

Cc:

SHPOs-MT, ND, SD, NE

Tribes - all tribes in Omaha District region list - see attached list

Kurt F. Ubbelohde, District Engineers, Omaha District

Michael White, NW Division, Portland w/ special note.

SD/Missouri River Master Manual/COE-C/Review and Update
DB#1459
Sdmmrdeis021901min.doc

the Omaha District's cultural resources program inadequately addresses Mainstem System historic properties.

By the Corps' own estimate, at least 40-80 archaeological sites per year will be lost by Mainstem System shoreline erosion, based on a 1989 Waterways Environmental Station report for the Omaha District (Ebert et al. 1989; page 3-170, RDEIS). Over the approximate 20-year period that the Master Manual is likely to be in effect, this means that at least 1,600 archaeological sites would be destroyed. Thus, it is clear that the operation of the Missouri River Mainstem System has and will continue to have severe impacts on thousands of historic properties that are included in or eligible for inclusion the National Register of Historic Places. Many of these properties are nationally significant, including National Historic Landmarks, and properties of religious and cultural significance to Indian tribes.

We strongly disagree with the statement that the Corps' cultural resources program adequately mitigates the current and future adverse effects of Mainstem System operations on historic properties. Given that at least an estimated 40-80 archaeological sites are destroyed by shoreline erosion per year, it is difficult to see how the Corps' stabilization of about 18 sites in 23 years would be adequate. The Omaha District has made little or no progress to identify and evaluate historic properties along the Mainstem System, monitor historic properties affected by erosion, or develop measures to mitigate impacts to historic properties through cultural resources management plans or other means. Also, the Corps' consultation with State and Tribal Historic Preservation Officers (SHPOs and THPOs), affected Indian tribes, and others is inadequate. The Omaha District's cultural resources program has serious problems that need to be resolved if the Corps is to responsibly address the considerable historic preservation challenges of the Mainstem System.

The RDEIS does not assess the scope of overall system-wide impacts on historic properties, describe or disclose what measures the Corps will take to mitigate impacts to historic properties, or describe and disclose the costs of such measures. The entire NEPA historic property analysis takes current impacts of the CWCP as baseline, and all alternatives as incremental to it. Yet, the RDEIS neglects to quantify the scope of CWCP system-wide impacts on

Review of Missouri River Master Manual, Revised Draft Environmental Impact Statement.

Advisory Council on Historic Preservation, February 2002

Our review of the NEPA historic property analysis of the Missouri River Master Manual RDEIS is divided into five sections.

Section A: Historic Properties and the Operation of the Mainstem System

Missouri River historic properties are and will be impacted by all proposed operational alternatives. We object to the overall impression of the RDEIS that current Mainstem System operations have an acceptable level of impact on historic properties or that the Corps has acceptable measures in place to mitigate for the loss of historic properties.

Section B: The Historic Properties Model

The model does not capture most of the known or the as yet unidentified historic properties being eroded by the Mainstem System. As we understand it, the model counts the number of times that known historic properties located within 3 feet above or 5 feet below a given water level of an alternative will be "hit" by water. Such "hits" are recorded monthly, e.g., on the last day of each month, and are thought to be estimates of rates of direct erosion of historic properties. Indices constructed from these "hits" are intended to indicate the relative rate of erosion of a given alternative to known historic properties.

The model, however, is faulty for the following reasons:

First, its "band" concept ignores the topographical contexts in which historic properties occur and the typical erosive processes of the Mainstem System - so it ignores most historic properties and impacts to them. It does not capture archaeological sites located on steeper beaches or nearly vertical cut bank terraces that have been subject to bank slumpage and other erosion. These are very common topographical situations throughout the Mainstem System. Ironically, these situations are discussed both in the erosion and historic property sections of the RDEIS, as well as in the RDEIS historic property appendix. As presented on page 3-170 of the RDEIS, the Waterways Environmental Station (WES) study that was commissioned by

the Omaha District (Ebert, et al., 1989) estimates average Mainstem System shoreline erosion at 8.25 feet annually and in some cases as much as 25% higher due to excessive ice and wind. In contradiction with the RDEIS model, this WES study aerially measures the erosion of shoreline surfaces and, thereby, considers all erosive processes such as bank slumpage from water, wind, ice, or other sources. The WES study provides a more realistic, albeit alarming, and understandable view of historic property impacts than the "band" and "hits" approach of the RDEIS model.

Second, the model considers "no data" (e.g., lack of historic properties surveys) to be the same as "no historic properties" (e.g., a survey was done, but no historic properties were found to exist). The RDEIS needs to estimate affected historic properties by extrapolating from best information on known historic properties to whole reservoir erosive zones of the entire Mainstem System. Using raw historic property data without extrapolating to the whole System gives faulty conclusions that underestimate affected historic properties. The larger lakes with less area adequately surveyed for historic properties, such as Lakes Peck, Oahe, and Sakakawea, are most skewed in the Corps' analysis.

Third, the model needs to recognize more than direct impacts to historic properties from immediate reservoir erosion. Bank slumpage, terrace backwash/cutting, sheet flow, rills and gullying, and drawdown zone exposure also impact historic properties. Even historic properties in a drawdown situation are impacted because their constituent materials (strata, features, materials such as charcoal, wood, pottery, human remains if present) are compromised through the wet-dry and freeze-thaw cycles and having been made more vulnerable to indirect effects such as looting and vandalism. The White Swan (St. Phillips) Cemetery on the Frances Case Reservoir, that remains unprotected today, is an example. As an alternative to the limited types of impacts captured by the RDEIS model, we suggest analyzing a broader zone of shoreline erosion as advocated by the WES study for the Omaha District (Ebert, et al. (1989) plus the drawdown zone of the reservoir (see above).

Fourth, while we appreciate the concept of "hits" to approximate direct reservoir erosion, the WES study for the Omaha District (Ebert, et al. 1989) suggests that factors such as amount and direction of wind, ice, topography, and

geomorphology may be as important as direct water contact, e.g., "hits." If this is true, the fundamental assumptions of the model, including "bands" and "hits" will need to be abandoned.

Fifth, the model needs to recognize impacts to historic properties on the lower three reservoirs of the System, as well as the upper lakes. While the water levels of Lakes Lewis and Clark, Francis Case, and Sharpe theoretically may not fluctuate substantially, historic properties are being impacted and will continue to be under the CWCP and all proposed operational regimes because of the broader erosive processes, such as wind-driven currents and ice movements.

Sixth, the model fails to recognize cumulative impacts on historic properties over the entire period that the Master Manual is in effect, not just a single year. Impacts should be multiplied by at least the 20 years that the Master Manual would be in effect.

Seventh, the model fails to disclose historic property impacts from the CWCP, while comparing all proposed alternatives relative to the CWCP. The historic property impact tables and discussion based on them erroneously present historic property impacts of the CWCP as zero, which is clearly untrue. Thus, compounded with the many other historic property analysis problems, the RDEIS does not accurately describe and disclose the overall System-wide impacts to historic properties.

Section C: The Data

Historic property data used in the RDEIS appears to consist of pre-1994 survey data from the upper four reservoirs only that was entered into the Corps' database prior to 1994 and that fit the 8-foot elevation band. These data are too limited and faulty from which to make reliable and predictable conclusions about relative effects to historic properties from the CWCP and all proposed alternatives. Also, the RDEIS would have benefited from the Corps' most up-to-date historic property data.

In our review of the RDEIS, we find the following problems with this data:

First, Mainstem reservoirs have undergone very limited survey for historic properties. For instance, only 2.3% of the Lake Fort Peck shoreline has been surveyed, resulting

in the discovery of 149 historic properties. However, extrapolating from this data, the Corps estimates that 2,000 historic properties actually exist at Fort Peck Reservoir. If this estimation proportion holds true for the other reservoirs, the number of historic properties on Lake Sakakawea may be closer to 18,000 than the 1,402 reported in the RDEIS. Presumably, an equivalent estimation proportion exists for the 1,114 properties recorded for Lake Oahe. Even existing surveys of historic properties may be of questionable utility today. Some were completed years ago according to outdated methods and approaches. Others may have been completed for special purposes that required a lower level of intensity or ground coverage. Certainly, surveys did not reflect knowledge about or the participation of Indian tribes about historic properties that may be of religious and cultural significance to them. We are encouraged that the Omaha District has evaluated the reliability of existing historic property surveys and survey documents through a recent contract with the Corps' Center for Excellence in St. Louis. The results of these evaluations should be shared with the State and Tribal Historic Preservation Officers, Indian tribes, the Council, and others.

Second, the RDEIS did not look at historic properties identified since 1993 or at information on previously identified historic properties that has been updated in the Corps' cultural resources database since 1994. It is unfortunate that the Corps' updating of the cultural resources database began with the lower reservoirs of the System, while the Master Manual erroneously emphasizes the upper four reservoirs to the expense of those lower lakes.

Third, existing historic property surveys do not consider the traditional cultural or religious and cultural values of Indian tribes or other groups that can be a basis for a property's eligibility to the National Register of Historic Places. Thus, tribal values are not considered in the identification and evaluation of historic properties. The 1992 Amendments to the National Historic Preservation Act clarified that properties of religious and cultural significance to Indian tribes may be considered eligible for the National Register of Historic Places.

Section D: Recommendations for More Accurate Estimates of Impacts to Historic Properties for NEPA purposes

It is possible to come up with a more accurate estimate of erosive damage to historic properties from Mainstem System operations for NEPA purposes based on existing information. We suggest establishing an erosive "zone" along the shoreline of the System, the width of which would be 3.2 meters back from the current edge plus the entire drawdown zone. The 3.2 meter width is based on the 2.5 meter average erosion plus the 25% additional margin of exceptional ice and wind conditions common on Mainstem reservoirs, as recommended in Ebert et al (1989). Best and most recent information about historic properties from a specific segment(s) of this erosive zone would be used to extrapolate to number of historic properties likely to exist within the erosive zone for all six Mainstem System reservoirs. This estimate of historic properties would be multiplied by the number of years that the Master Manual is expected to be in effect, e.g., approximately 20 years. Note that additional historic properties beyond the 40-80 per year on page 3-170 of the RDEIS would be estimated to be lost from Mainstem System operations using this method because this approach also includes the drawdown zone.

We suggest reporting this estimate of historic property to be impacted by overall Mainstem System operations for NEPA purposes in four ways:

- estimated number of historic properties to be impacted System-wide per year;
- estimated number of historic properties to be impacted System-wide during the period of implementation of the Master Manual, eg., 20 years;
- estimated costs to stabilize in-place historic properties System-wide that would be impacted by operations per year and for the period that the Master Manual is in effect;
- estimated costs to recover archeological data at all of the historic properties impacted by Mainstem System operations.

Section E: Tribal Concerns:

Volume II of the RDEIS contains 500+ pages of tribal comments on the operations of the Mainstem System. Consistently since 1989, tribes have expressed serious concerns about the effects of the Mainstem System operations on historic properties, many of which are religious and cultural significance to them. The Omaha District needs to develop a structured and consistent program by which the tribes' concerns can be heard, understood, and addressed as part of the Corps' management practices.

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Other 148

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DATE: March 1, 2002

PAGES: Cover plus 7

RE: Missouri River Master Manual Revised Draft EIS Comments from Elizabeth Merritt and Anita Canovas.

PLEASE DELIVER THIS FAX IMMEDIATELY — THANK YOU!

NATIONAL TRUST
for HISTORIC PRESERVATION

February 28, 2002

BY FAX 402-697-2504

Ms. Rosemary Hargrave
Project Manager
Missouri River Master Manual RDEIS
U.S. Army Corps of Engineers
12565 West Center Road
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RE: Missouri River Master Water Control Manual, *Review and Update*
Revised Draft Environmental Impact Statement

Dear Ms. Hargrave:

The National Trust for Historic Preservation appreciates the opportunity to comment on the Revised Draft Environmental Impact Statement (RDEIS) for the Missouri River Master Water Control Manual, which outlines how the Army Corps will manage the six Mainstem Missouri River dam flows to accommodate hydroelectric power, flood control, endangered species, navigation, recreation, and other concerns.

Thirty Native American tribes are located within the Missouri River Basin, and 13 of these tribes have reservations or land directly adjacent to the river. The history of this area is extremely rich, and extends back in time more than 10,000 years. Unfortunately, however, the cultural legacy of that history – including sites with significant artifacts, remains, and ongoing traditional cultural importance – has been threatened and sacrificed for decades as a result of the Army Corps' failure to manage and maintain these resources in a way that considers the preservation of their historic, archaeological, and cultural values. In the RDEIS, the Army Corps has compounded that injury by evaluating a set of alternative water management strategies – *all* of which will exacerbate harm to historic properties – in a manner that fails to address ways to avoid, minimize, or mitigate the resulting adverse effects. Additional steps must be taken by the Corps to protect the historic resources in the Missouri River basin.

Introduction and Summary

The RDEIS is incomplete, misleading, and severely underestimates the adverse effects of the Missouri River Mainstem Reservoir system on historic properties along the Missouri River. The RDEIS indicates that nearly 3,000 archaeological sites have been identified along the Missouri River basin. (Summary at 24.) While this may sound like a fairly large number, we believe it is just a small fraction of the actual number of sites in the area. For example, a 1992 cultural resource survey at Fort Peck Lake, which covered just 2.3 percent of the lake perimeter

and adjacent lands, concluded by extrapolation that approximately 2,000 sites may be located at Fort Peck Lake alone. (RDEIS at 3-169.) With the exception of the Fort Peck survey, the remaining cultural resource surveys relied upon in the RDEIS appear to be, in some cases, more than 30 years old. (*See id.* (citing Lehmer, 1971).) Because of significant advancements during the past few decades in the evaluation of both archaeological and traditional cultural resources, those old inventories do not satisfy current standards. The RDEIS also fails to identify any traditional cultural properties (TCPs). As a result, impacts to historic resources are dramatically understated in the RDEIS, and in many cases, are not evaluated, disclosed, or understood in any meaningful way.

There are certainly many more historic properties[1] that will be affected by the Corps' proposed alternatives, including TCP resources, which have not been identified due to the fact that the archaeological surveys are incomplete and outdated, and the Army Corps has failed to consult adequately with the tribes. This violates the Corps' long-standing legal responsibility to identify, evaluate, and nominate these resources to the National Register of Historic Places, and to consult with the tribes in doing so. 16 U.S.C. §§ 470a(d)(6), 470h-2(a)(2)(A).

In addition, the RDEIS fails to comply with the National Environmental Policy Act (NEPA), 42 U.S.C. § 4332(2)(C), and the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, 470h-2(a), because it fails to discuss any measures to avoid or mitigate adversely affected historic properties.[2]

The National Trust believes that a Supplemental DEIS is essential in order to understand the historic values of the properties within the Missouri River basin. Such an understanding is critical in order to disclose and evaluate the impacts of any prospective alternatives.

Interests of the National Trust

The National Trust for Historic Preservation is a private, non-profit membership organization chartered by Congress in 1949 to lead the private historic preservation movement in this country, to promote public participation in the preservation of our nation's heritage, and to further the historic preservation policy of the United States. *See* 16 U.S.C. § 468. With almost 250,000 members nationwide, the National Trust provides leadership, education, and advocacy to save America's diverse historic and cultural places. In addition to its headquarters in Washington, D.C., the National Trust has seven regional offices, including its Mountains/Plains Office in Denver, which is specifically responsive to issues involving cultural resources within

[1] The term "historic properties" includes all resources potentially eligible for the National Register of Historic Places, such as prehistoric and historic archaeological sites, artifacts, material remains, and places with traditional religious and cultural importance to Indian tribes. *See* 16 U.S.C. §§ 470a(d)(6), 470w(5); 36 C.F.R. § 800.16(*l*).

[2] *See* Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989); *see also* 40 C.F.R. § 1502.16(h); 36 C.F.R. § 800.6.

the Missouri River basin. The National Trust has also been designated by Congress as a member of the Advisory Council on Historic Preservation, 16 U.S.C. § 470i(a)(8), which is responsible for overseeing the implementation of Section 106 of the National Historic Preservation Act.

RDEIS Discussion

I. The Corps has failed to comply with Section 110 and Section 106 of the National Historic Preservation Act.

Federal agencies have special stewardship responsibilities with respect to historic properties on land under their jurisdiction or control. Section 110(a) of the National Historic Preservation Act requires that federal agencies "shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency." 16 U.S.C. § 470h-2(a)(1). All historic properties under federal jurisdiction or control must be "managed and maintained in a way that considers the preservation of their historic, archaeological, . . . and cultural values . . . ." and those properties must be "identified, evaluated, and nominated to the National Register." *Id.* §§ 470h-2(a)(2)(A), (B), and (E)(ii). The Army Corps' long-standing failure to comply with these legal responsibilities is discussed in more detail below.

In addition to an agency's Section 110 duties, Section 106 of the NHPA requires that the agency must, "prior to" the approval of any federal undertaking, take into account the effects of the undertaking on historic properties, and must provide the federal Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. *Id.* § 470f; 36 C.F.R. Part 800. In the RDEIS, the Army Corps concedes that "[k]nown historic properties, which include but are not limited to prehistoric sites, Tribal cultural resources, and historic sites, are *adversely affected* by all the alternatives." RDEIS at 7-233 (emphasis added). Notwithstanding this determination, the Corps has yet to begin the Section 106 review process. It is clear that the Corps has failed to meet its legal obligations under Section 106 and Section 110 of the NHPA.

II. The RDEIS is misleading, incomplete and understates the adverse effects of the Missouri River Mainstem Systems operations on historic properties.

A. The cultural resource surveys relied upon by the Corps are incomplete and outdated.

Approximately 3,000 archaeological sites have been identified by the Army Corps within the Missouri River basin. (RDEIS Summary at 24.) These sites include homesteads, trading posts, prehistoric villages, sites with fortifications, historic forts and townsites, battle sites, sites visited by Lewis and Clark, and several prehistoric and historic cemeteries and burial mounds containing human graves and funerary objects. (RDEIS at 3-169.) On the lands around Lake Sakakawea surveys have identified approximately 1,402 sites, and on lands around Lake Oahe 1,114 sites have been recorded. On lands surrounding Lake Sharpe, Lake Francis Case, and Lewis and Clark Lake, 165 archaeological sites have been identified. In any event, these

numbers are just the tip of the iceberg because most of the lands within the Missouri River basin have never been inventoried, and the surveys used for the RDEIS are completely outdated; many were conducted 20-30 years ago. (*See id.* (citing Lehmer, 1971 and Lenihan, et al., 1981).)

Without an adequate and current inventory of historic properties, it is not possible for the Army Corps to comply with the NHPA or NEPA.[3] By relying on grossly outdated surveys, the RDEIS analysis is defective and fails to take into consideration substantial changes that have occurred since the time the surveys were completed. In fact, the RDEIS references the steady rate of erosion of banks and shorelines due to fluctuating water levels and wave and frost action, (RDEIS at 3-169 to 3-170), and estimates that the average annual erosion at all the Mainstem Reservoir System lakes is "between 1 and 2 square miles, resulting in the loss of 40 to 80 sites per year." (*Id.* at 3-169.) How can the data used in analyzing adverse effects on historic properties be accurate if so many sites are being lost?

The inadequacy of the existing surveys must be remedied by the Corps, through a comprehensive inventory that will not only include previously unsurveyed areas, but will also update prior surveys. Without a current and comprehensive survey of historic resources, the basis for analyzing alternatives is fatally flawed.

B. The RDEIS fails to take into account impacts on traditional cultural properties.

The National Historic Preservation Act specifically recognizes the importance of identifying and considering effects on properties of traditional religious and cultural importance to Indian tribes. 16 U.S.C. § 470a(d)(6). When evaluating the historic significance of a property, the agency must "acknowledge that Indian tribes . . . possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance to them." 36 C.F.R. § 800.4(c)(1). Contrary to these requirements, the RDEIS fails to identify or consider effects on traditional cultural properties (TCPs). *See* RDEIS at 3-169 to 3-170.

Instead, adverse effects within the lands along the Mainstem Reservoir System are treated solely as if they were effects on discrete, isolated sites, with value only for their archaeological features and artifacts. *Id.* While the Corps has met with tribes having an interest in the land area, the RDEIS does not explain whether or how the tribes were consulted regarding the religious and cultural significance of affected sites was raised during these meetings. RDEIS at A-10. It is difficult to see how the Corps can exclude these sites from its analysis, particularly when Native Americans of many tribes have inhabited the Missouri River corridor for centuries. Consultation with the tribes should be reinitiated, specifically raising the question of tribal participation in the identification of traditional cultural properties. The results of this consultation and identification effort must be included in a Supplemental Draft EIS.

[3] *See* 36 C.F.R. § 800.4; 40 C.F.R. § 1502.1.

C. The assessment of effects on historic properties in the RDEIS is cursory and inadequate.

The RDEIS cites to 3,000 archaeological sites located within the Missouri River Basin. (RDEIS, Summary at 24.) Although the actual number of sites is likely to be much higher, the RDEIS does not adequately consider the potential effects of the alternative water control operations plans even on the known sites already identified. For example, the RDEIS has one table for each of 12 Indian Reservations, purporting to summarize and compare impacts from the five alternatives. (RDEIS at 7-213 to 7-219.) However, the tables are misleading and confusing, and are not supported by any detailed information or discussion about how historic properties will be adversely affected.

Rather than attempting to identify the number of sites that will be adversely affected, the tables purport to quantify the percentage changes in terms of impact on resources from the five proposed alternatives, as compared to the current water control plan. Yet 7 of the 12 tables are completely lacking any entries on historic properties, characterizing this data as "not available or not applicable," with no further explanation.[4] These cursory tables are highly inadequate in presenting any basis for comparing or analyzing the impacts of the alternatives on historic properties. (RDEIS at 7-213 to 7-219; *see also id.* at 5-138 to 5-139.) What they do show is that, for three reservations, Fort Berthold, Standing Rock, and Cheyenne River, all of the alternatives will be worse than the status quo in terms of their effects on historic properties. (RDEIS at 7-214 to 7-215.)

The tables are also misleading because they do not reflect current and ongoing adverse effects. In many areas, the current water control plan is literally washing away historic sites. (RDEIS at 3-170.) It is crucial that a more detailed assessment of effects is prepared for the specific historic properties affected by the Missouri River Mainstem operation plan.

III. The RDEIS is inadequate for purposes of NEPA and NHPA as it fails to discuss mitigation measures.

NEPA implicitly requires the discussion of mitigation measures in impact statements by requiring the discussion of "any adverse effects which cannot be avoided." 42 U.S.C. § 4332(2)(C). The Supreme Court has held that the omission of a "reasonably complete discussion" of mitigation measures would undermine NEPA's action-forcing function, even when the agency may have no direct control over implementation of the mitigation measures.

[4] Reservations for which historic properties data is omitted include the Fort Peck Reservation (RDEIS at 7-213), even though a survey of cultural resources along Fort Peck Lake was conducted in 1992 (*id.* at 3-169), and the Yankton Reservation (*id.* at 7-216), even though the Yankton Sioux Tribe has been involved in litigation against the Army Corps over the Corps' failure to protect historic properties. It is difficult to understand why no data would be available for these reservations.

See Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989). Without a discussion of mitigation, neither the agency, nor the tribes, nor the public can properly evaluate the severity of the adverse effects of the proposed alternatives. *Id.*

Similarly, Section 106 of the NHPA requires consideration of mitigation measures, by requiring agencies to seek ways to avoid, minimize, or mitigate adverse effects on historic properties. *See* 36 C.F.R. § 800.1(a).

The Corps has violated both NEPA and the NHPA by failing to satisfy its legal obligations to address mitigation measures for affected historic properties in the RDEIS. *Id.* § 800.6. Even though the RDEIS acknowledges that known historic properties will be adversely affected by *all* of the alternatives, it nevertheless concludes, "new efforts to mitigate the effects of the operation of the Mainstream Reservoir system on known sites *are not required*" because the Corps has an "existing program" to address protection and documentation of sites. (RDEIS at 7-233 (emphasis added).) That existing program, however, has been found to be inadequate by the Advisory Council on Historic Preservation.

Indeed, the RDEIS confirms the ineffectiveness of the Army Corps' "existing program" for protecting historic sites. The Corps estimates that 40-80 historic sites per year are destroyed as a result of erosion along the banks of the lakes. (RDEIS at 3-170.) More than 36 miles of shoreline with known earthlodge and burial mound sites are exposed to damaging erosion, including 43 earthlodge village sites that are "immediately threatened with destruction due to lake action" and another 91 village sites that are "suffering some lake erosion." (*Id.*) Needless to say, the "existing program" has not been very successful.

The Army Corps concedes that "[s]ite-stabilization work is contingent upon available funds," and that additional sites will be protected only "as funding becomes available." (RDEIS at 3-170.) However, since the Corps fails to budget adequately for the protection or stabilization of historic sites, the lack of funding becomes a self-inflicted disability. In the context of the Corps' long-term failure to manage and maintain these resources in a manner that considers their cultural values, the Corps' refusal to address mitigation for adverse effects to historic properties from the water control plan is not only unlawful, but fundamentally unacceptable.

IV. Conclusion

As it now stands, the RDEIS is a fatally flawed document, because it fails to satisfy the Army Corps' legal responsibilities under NEPA and the NHPA. On behalf of the National Trust, we strongly urge the Corps to prepare and circulate a Supplemental Draft EIS, which includes a comprehensive and current inventory of historic properties, and an analysis of alternatives to avoid, minimize, and mitigate adverse effects to these resources. In addition, we urge the Corps to begin immediate and intensive consultation under Section 106. Unless immediate steps are taken to comply with NEPA and the NHPA, we believe the Missouri River Mainstem Reservoir Systems operations will be vulnerable to legal challenge.

Thank you for considering the views of the National Trust. The Trust is committed to protecting the cultural resources of the Missouri River Basin, and we would be happy to work with the Army Corps in an effort to bring this project into compliance with the law. We also urge the Corps to work closely with the Advisory Council on Historic Preservation in attempting to address the issues raised by our comments.

Sincerely,

Elizabeth S. Merritt
Deputy General Counsel

Anita Canovas
Assistant General Counsel

cc: Don Klima, ACHP
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