Comment Sheet for the
Intake Diversion Dam
Lower Yellowstone Project
Environmental Assessment

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Comments should be sent to Paula Holwegner, Bureau of Reclamation, Montana Area Office, P.O. Box 30137, Billings, MT, 59107.
Comments should be postmarked by March 16, 2010.

(Please Print Clearly)

Name Raymond Bell

Organization and Address Land owner / Farmer
1101 11th St Sw
Sidney MT. 59270

Phone (406) 489-2627 FAX _____ E-mail rayb@midrivers.com

Comments:

I Attended your Public meeting in Sidney on The 25th which I Felt was Presented very well. My Concern is I Don't Feel The Irrigation Project Should Have To Pay For Increased Annual O+M's to Keep the Screens in Operation. I See This Being a major Expence that should be Paid For By The Agency's Requiring to Put the Screening in Place. The Irrigators Have a System that is working Good now Don't need Additional Expenses. Thanks For your Consideration to my Request.

*Attach additional sheets if necessary

Please mail your comments to the address on the back of this form, or FAX your comments to 406.247.7338, or e-mail your comments to IBR6MTADLWRYELL@gp.usbr.gov. Thank you.

The names and comments of those making written or oral statements on this process will become part of a public record. You may request that your name and/or address be withheld from public release. Those requests will be honored to the extent permissible by law.

U.S. Department of the Interior
Bureau of Reclamation

US Army Corps
of Engineers

Comment Sheet for the
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Comments should be sent to Paula Holwegner, Bureau of Reclamation, Montana Area Office, P.O. Box 30137, Billings, MT, 59107.
Comments should be postmarked by March 16, 2010.

(Please Print Clearly)

Name Kenny Nemitz

Organization and Address 422 Snyder
Glendive MT. 59330

Phone (406) 377-3295 FAX _____ E-mail _____

Comments:
I support the "No Action" policy. The amount of money being spent should be spent on Human Services or renewable resources, so there would be some good realized from it. Don't put that money to keep a -- fish, that is worthless! You can't eat it and seldom see it!
The money already spent on the people working on this is enormous. Plus, the multi-millions for the project is mostly for job security. The economy can't stand this type of spending when ~~stupidity~~ stupidity prevails over common sense. This is what we get! Why can't we learn from what happened in Oregon and Calif. to those hard working people and their irrigation. The same thing is headed that way with this "fishy" deal! Our farmers and irrigators need to be helped not a -- worthless fish!

*Attach additional sheets if necessary

Please mail your comments to the address on the back of this form, or FAX your comments to 406.247.7338, or e-mail your comments to IBR6MTADLWRYELL@gp.usbr.gov. Thank you.

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U.S. Department of the Interior
Bureau of Reclamation

US Army Corps of Engineers

From:	Henry Mischel
To:	MTA Lower Yellowstone Project
Subject:	Intake
Date:	Wednesday, March 03, 2010 10:12:28 AM

To Whom it may concern:

Several members of the Dawson County Rod & Gun Club attended the meeting held in Glendive on 2/24/2010, after reviewing all the information and discussing the issues; the DC R&G club members support the rock ramp proposal. This is the best over all solution, with the lease amount of impact. This project we feel will also improve all the fishing above Intake which will benefit many for years to come.

Sincerely

Henry Mischel
President: Dawson County Rod & Gun Club

From:	Hafele, Troy
To:	MTA Lower Yellowstone Project
Subject:	Intake Diversion Dam
Date:	Thursday, February 25, 2010 5:20:48 PM
Attachments:	intake diversion dam.doc Intake Bureau.docx

I thought these meetings were to determine if the public is in favor of the proposed altercations at Intake? It is apparent that this work is going to be done whether it has public support or not. Dates for construction have been given and apparently funding is not an issue either. Bureau of Reclamation is just going through the legal steps of holding these meetings. The meeting in itself was disorganized, what happened to starting at 7 pm as stated??

I am opposed to any work being done to the dam or the canal. How a fish can have more precedence than taxpaying people is beyond my ability to logically comprehend. There is no species worth wasting $ 50 million dollars on when no one can guarantee that this will save the pallid sturgeon.

Here are copies of previous letters I have written in protest to any changes or modifications at Intake.

December 5, 2008

Bureau of Reclamation Montana Area Office
Box 30137
Billings, MT 59107

Subject: Intake Diversion Dam

I am writing this letter to inform whoever that is in favor of altering the dam is acting on their irrational emotions based on one-sided testimony.

I am an avid fisherman and in 38 years of fishing and catching thousands of other fish including much shovelnose sturgeon neither I nor anyone else that I know have ever caught a pallid sturgeon either. So even if they do go extinct, 99% of the people will never know other than a few Fish and Game biologists.

I have many questions about data that Fish and Game have collected and based their evidence on.

- Fish and Game can not prove that the dam is what is putting the pallid sturgeon at risk.

- Other species of fish can and do cross the dam for whatever purpose they desire, so why can't the pallid sturgeon.

- Fish that do enter the canal provide good fishing / recreation opportunities for the entire length of the canal, plus all the spillways along the way including the canal itself that allows for fish to reenter the Yellowstone River.

- The Yellowstone River already has another natural passage around the dam via the slough around Joe's island.

- Why not try releasing more water out of Ft. Peck dam to duplicate natural spring runoff flows on the Missouri River to encourage spawning? No expense to anyone and will even create some electricity. Forget about the Mississippi River's barges.

- Who is going to fund this project, and how much will it cost? The Yellowstone River and mother nature are unmanageable. The initial cost will be enormous but maintenance and future costs will also be huge and unpredictable.

Is a handful of pallid sturgeon worth the millions of dollars that is going to be placed on the farmers taxes of the lower Yellowstone Irrigation Project?

If a few green conservationists with no common sense want all these radical ideas, studies and projects done, then they should find their own funding.

Leave the dam alone and quite wasting my tax dollars on senseless studies.

Troy Hafele

To: Bureau of Reclamation Montana Area Office
Box 30137
Billings, MT 59107

From: Troy Hafele
311 East Raymond St.
Glendive, MT 59330

Date: December 21, 2009

Subject: Intake Diversion Dam

I am strongly against any efforts to modify or change the current diversion dam on the Yellowstone River at Intake, MT.

I am tired of environmentalists using endangered species to back their motives and or ideas. Pallid sturgeon happens to be there species of unease for this agenda of removing diversion dams on the Yellowstone River. It has already been published in the newspaper that diversion dams further up the Yellowstone and Tongue Rivers are also being targeted. Namely 12 Mile Dam, Southeast of Miles City on the Tongue River and diversion dams at Forsyth and Huntley Project on the Yellowstone River.

These dams were created for irrigation purposes and have and still are functioning as designed. Without these diversion dams there would be great economic loss in taxes and jobs that these dams create from many thousands of acres of irrigated farm land. Many communities exist solely because of these diversion dams.

This amazing ecosystem that was created by these diversion dams has benefited hundreds or more of species of animals than it has ever harmed.

Why hasn't the shovelnose sturgeon been effected by these diversion dams? The shovelnose sturgeon is a close relation to the pallid and the shovelnose is abundantly abound in the river along with many other fish that have no problem swimming past these diversion dams.

The cost will be many millions of dollars to alter any one of these dams. The maintenance that will be required to repair these altercations will be astonishing when taking into account the ice flows during spring break-up and the June rise from melting snow pack.

Environmentalists and government bureaucrats think there is no end to the money. Our economy and the future of our government may be at risk because of nonsense spending like this.

I will not stand for my tax dollars to be spent and wasted funding the environmentalists extreme dreams of saving every animal.

Outdoor enthusiast

Cc: Jon Tester
Max Baucus
Bureau of Reclamation

1601 2nd Ave. North, Ste. 601
Great Falls, MT 59401

MISSOURI RIVER
CONSERVATION DISTRICTS
COUNCIL

Phone: (406) 454-0056
mrcdc@MissouriRiverCouncil.info
www.MissouriRiverCouncil.info

March 11, 2010

Thomas G. Sawatzke
Deputy Area Manager
Bureau of Reclamation
P.O. Box 30137
Billings, MT 59107-0137

RE: Draft Environmental Assessment for the Intake Diversion Dam Modification

Dear Mr. Sawatzke:

The Missouri River Conservation Districts Council, a collaboration of the 15 Conservation Districts along the Missouri River, supports the Rock Ramp Alternative for the Intake Diversion Dam Modification on the Yellowstone River. The Council recognizes the importance of the Yellowstone River for Pallid Sturgeon recovery efforts. Given the Yellowstone River's unique free-flowing nature, it may serve as the Pallid Sturgeon's best opportunity for recovery throughout the entire Missouri River basin. Modification of the Intake Diversion Dam is necessary to open the Yellowstone River's important habitat for the Pallid Sturgeon and the Rock Ramp Alternative is the most cost effective, timely, and appropriate proposal for completing the modifications.

The Council appreciates the Bureau and Corps efforts to work together on the project and especially the efforts by both agencies to include and work with the local stakeholders. The Council urges you to continue working with the irrigators, Conservation Districts, and the Glendive Chamber of Commerce to ensure successful completion of the project with minimal negative impacts to the local stakeholders.

Thank you for your time and attention. If you have questions regarding our support for the Rock Ramp Alternative to modify the Intake Diversion Dam, please contact our office by telephone at (406) 454-0056 or by e-mail at mrcdc@missouririvercouncil.info.

Sincerely,

Dana Darlington
Chairman

112 Ist Street NE
Glendive, Mt. 59330
3/11/10

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Intake Draft TA
Montana Area Office
Bureau of Reclamation
P.O. Box 30137
Billings, Montana 59107 – 0137

Dear Sirs,

I would like to comment on the draft environmental; assessment for the Intake Diversion Dam on the lower Yellowstone River.

I am disappointed in the selection of the preferred alternative - the rock ramp, new head works and location of a fish screen and also the huge costs associated with these projects.

I would have preferred an alternative in this draft EAS to clean out the existing old channel to the southeast called the "slough". This overflow channel has always been here and flows water every year and fish move through this natural channel. Over time this channel has silted and has more vegetation in it, but certainly runs a lot of water. Cleaning this out and widening it would cost less than the alternative to excavate a huge new channel. It seems that the EAS team has picked the most expensive alternative and preferred alternative.

I am opposed to a new head works when the existing one has functioned so well for 105 years. The depth of excavation required, bedrock and difficult soil types will add huge construction costs. I saw no discussion of an alternative to place a fish screen down the canal at a much better site. It was pointed out at a public meeting and by comment that there are much better places for a fish screen down the canal than right in the bottom of a huge new diversion excavation just so it can be right next to the river. At canal mile 6 is an existing canal spill site that would work well as a fish screen site where fish can go back to the river very easy. At mile 7 is the Burns Creek siphon where again a fish screen would be much cheaper and easier to build and maintain and the fish caught can go directly back to the river. At both sites a screen would cost less than $500,000 – far less than if it is built in the deep abyss next to the river diversion. These two sites need to be analyzed and become part of an alterative. If it is necessary to stop every fish that gets into the canal. Let's find a better cost effective way that requires less maintenance and who will pay for this – Lower Yellowstone farmers?

It is amazing that canals are looked at positively in other parts of the world for aquaculture and food for millions – especially in the Far East and China. In large canals fish can live and return to the river in the fall when the canal is drained. I seriously question the study that said ½ million fish are entrained and die each year in this canal. Long time Farmers who take their water from this canal have almost never seen fish in their irrigation ditches. I also have serious reservations about the timing and methodology used to determine fish entrainment. The study was done during a severe low water period (drought) in the late summer when the river was the lowest in years... It seems a worst case scenario was used to justify the ends with the use of some very

questionable data and interpolation. I would like to see another study at a normal river flow period using an independent biologist with better techniques.

This project's preferred alternative will have a negative effect on the paddlefishing activity which occurs at Intake during the spring. This activity brings may fisherman from all over to Glendive each year. It is necessary to study the effect the unnecessary rock chute will have on paddle fishing and the local economic impact. It is estimated anywhere from 5,000 to 8,000 fisherman days are spent at the Intake FAS plus the financial impact to the community. Also the Yellowstone Caviar program has bought in $3million since it's inception in 1990 and distributed $750,000 in grants to small community projects in Eastern Montana. How will the massive rock chute alternative affect out local economy and paddlefishery?

I also object to the news releases that said the dam was 12 feet high when the wooden check is only four feet high with a concrete base extending another 8 foot deeper. It makes this diversion sound like a huge obstruction. One side of the diversion is silted in and the other side has rocks right up to it.

I believe fish stocking of pallid sturgeon to meet objectives of ESA should be considered and would be far cheaper. There is no guarantee that this costly project will help these fish increase in numbers. It is noted that a study over 100 years before Intake was built showed few pallid sturgeon at that time in the Yellowstone River and was used in a FW&P report in 1999. Water quality, quantity and habitat have a much bigger effect on fish populations than irrigation diversions such as Intake.

The selection of the preferred alternative will have serious impacts on our local economy and spends a tremendous amount of tax dollars without much improvement to a remarkable irrigation diversion project that has functioned well for over 100 years.

Thank you

Mike Carlson

Waters, Alicia L

From: Vanosdall, Tiffany K NWO [Tiffany.K.Vanosdall@usace.army.mil]
Sent: Monday, March 01, 2010 3:06 PM
To: Waters, Alicia L
Cc: Kucera, Justin
Subject: Intake Comment

Alicia - Paul Jarvis (406-486-5444) called me to submit a comment on Intake. He wanted to propose that we build a fish hatchery/fish farm for pallid sturgeon and paddlefish at the Intake site as a part of the project. Please include as a public comment.

Thanks,
Tiffany

Tiffany Vanosdall
Lead Plan Formulator/Project Manager
402-995-2695
tiffany.k.vanosdall@usace.army.mil

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8EPR-N

MAR 16 2010

Mike Ryan, Regional Director
Great Plains Regional Office
Bureau of Reclamation
P.O. Box 36900
Billings, Montana 59107-6990

Re: Intake Diversion Dam Modification,
Lower Yellowstone Project, Montana,
Draft Environmental Assessment (EA)

Mike

Dear ~~Mr. Ryan~~:

In accordance with Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4332(2)(C), Section 309 of the Clean Air Act, 42 U.S.C. § 7609, the Council on Environmental Quality (CEQ) regulations, 40 CFR Parts 1500-1508, and Section 404 of the Clean Water Act (CWA), the United States Environmental Protection Agency (EPA) Region VIII has reviewed the Intake Diversion Dam Modification (subsequently referred to as "Intake"), Lower Yellowstone Project, Montana, Draft Environmental Assessment (EA), dated February 2010.

EPA appreciates the efforts of the Bureau of Reclamation (BOR) and U.S. Army Corps of Engineers (USACE) to prepare this draft EA to evaluate improved passage alternatives for endangered pallid sturgeon and other native fish in the lower Yellowstone River and reduce entrainment of fish into the Lower Yellowstone Project main canal. The Rock Ramp Alternative is identified as the preferred alternative and consists of construction of: 1) a concrete weir to replace the existing timber and rock dam; 2) a rock ramp for fish passage; 3) an irrigation canal extension; and 4) a new headworks with screens to minimize entrainment.

EPA supports the purpose of this proposed project to improve fish passage and reduce fish entrainment. We appreciate the process conducted by both the BOR and USACE to evaluate alternatives, and the highest probability approaches to avoid extirpation of the pallid sturgeon in the Yellowstone River.

We would like to encourage the BOR and USACE to consider further opportunities to optimize the proposed project and enhance the overall aquatic ecosystem, as discussed below and in our detailed comments.

EPA is concerned about impacts to natural stream migration, floodplain access and the overall aquatic ecosystem. To contribute to ecosystem restoration, we recommend optimizing the rock ramp proposal, and mitigating adverse impacts to riverine processes and the overall aquatic ecosystem. This is in addition to the mitigation proposed for adverse effects to fish passage and entrainment at Intake Diversion Dam. We would propose adding mitigation for impacts to other aquatic species besides the pallid sturgeon, loss of natural channel migration and wetlands.

EPA notes the CWA Section 404(b)(1) Guidelines (40 CFR Part 230) and April 10, 2008 Mitigation Rule (40 CFR 230, Subpart J) require consideration of impacts to aquatic resources. The direct and indirect adverse effects associated with loss of natural stream channel migration and river floodplain access as well as wetlands impacts and other potential aquatic impacts should be more clearly addressed within the Adaptive Management Strategy and mitigation proposal. We note that the Mitigation Rule identifies streams as difficult-to-replace resources for which compensation should be required, if practicable, through in-kind rehabilitation, enhancement, or preservation (40 CFR 230.93(e)(3)).

One way to provide compensation for loss of natural channel migration and floodplain access would be to make contributions to the Montana Channel Migration Zone Program through the Montana Department of Fish, Wildlife, and Parks (MDFWP) and Montana Department of Environmental Quality (MDEQ). This program promotes maintenance of natural channel migration processes by paying land owners for easements along the river to allow natural bank erosion and channel migration processes to take place. Purchase of sloughing easements for an equivalent nearby floodplain area to preserve other natural channel migration opportunities nearby could compensate for loss of natural channel migration at Intake. This would likely require only a small amount of additional funding in comparison to the estimated $36.5 million construction cost for the Rock Ramp Alternative.

Another option is to consider using the draft Montana Stream Mitigation Process (SMP) – February 24, 2005, being developed by the USACE Montana Regulatory Office as a means of evaluating and addressing river/stream mitigation needs.

EPA recognizes that timely implementation of modifications at the Intake Dam is needed to avoid potential extirpation of the genetically distinct Upper Missouri River and Yellowstone River population of the endangered pallid sturgeon. To avoid delays in project implementation, we suggest optimizing the aquatic benefits of the project by compensating for loss of natural channel migration and river floodplain access and any impacts to wetlands or other aquatic impacts, which could be addressed in the Adaptive Management Strategy and evaluated by the interagency Environmental Review Team. The details regarding compensation for aquatic impacts can take place while the project design details are taking place. This should help avoid unnecessary delays.

The eight-year monitoring period proposed for the Adaptive Management Strategy may not provide for adequate evaluation of the long-term natural recruitment success of pallid sturgeon because of female breeding ages, river flows variation and ice impacts. We recommend that the project be monitored for 15-20 years.

We are enclosing with this letter our more detailed comments, and questions regarding the analysis, documentation, or potential environmental impacts of the draft Intake Dam Modification EA for your review and consideration as you complete the final EA. We appreciate the opportunity to review and provide comments on the draft EA.

If you have any questions regarding our comments, please call me, or you may contact the following who are the most knowledgeable on this subject: Mr. Larry Svoboda, Director of our NEPA Compliance and Review Program at 303-312-6004, or you may call Mr. Stephen Potts of our Montana Office at 406-457-5022 in Helena or 406-329-3313 in Missoula.

Thank you for your consideration.

Sincerely,

Carol L. Campbell

Carol L. Campbell
Acting Deputy Regional Administrator

Enclosure

cc: Mr. Todd Tillinger, Montana Regulatory Office, Corps of Engineers, Helena
Ms. Tiffany Vanosdall, Planning Division, Corps of Engineers, Omaha
Mr. Jeff Ryan, Montana DEQ, Helena
Mr. George Jordan, USFWS, Billings
Mr. Burt Williams, The Nature Conservancy, Billings
Mr. Dan Jewell, Montana Area Office, Bureau of Reclamation

EPA Comments on Intake Diversion Dam Modification
Lower Yellowstone Project, Montana,
Draft Environmental Assessment (EA), February 2010

1) The EA discloses that the terms of the Bureau of Reclamation (BOR) contract with the Board of Control of the Lower Yellowstone Project (Board) for operation and maintenance (O&M) would likely need to be revisited to accommodate any changes in O&M needs and requirements for a modified intake and diversion structures (EA page 1-6). It is important that future contracts with the Board for O&M be planned and designed to consider potential effects on pallid sturgeon passage, other aquatic species and healthy aquatic functions and values of the riverine ecosystem. We are concerned that O&M activities have been carried out in the past without adequate consideration for pallid sturgeon passage and the overall eco-health of the Lower Yellowstone ecosystem.

   Rocks have been repeatedly placed on top of the existing dam during operation and maintenance activities over the last 100 years (page 2-4). The EA states that from 500 - 7,000 tons of rock, with the average being approximately 2,500 tons, has been placed annually on the dam crest (page 2-4), and that a boulder field created by this placement of rocks over the past 100 years now comprises about 6 acres of the river bottom, with the total rock placed estimated at 45,000 cubic yards of rock since dam construction (pages 2-4, 4-13). We are concerned that continued placement of rocks on the Intake Diversion Dam and proposed Rock Ramp during dam maintenance by the Irrigation District may add to the river turbulence. EPA understands that turbulence in the river presents particular difficulties for pallid sturgeon attempting to swim upstream. We recommend that future O&M contracts include provisions that would avoid creating conditions that would impair pallid sturgeon passage.

   In addition, EPA understands that there are powerful and damaging effects of ice jams and ice gouging on structures in the river during spring break-up. We believe it is likely that river ice will gouge the new dam and rock ramp resulting in the need for periodic dam and rock ramp maintenance to assure that pallid sturgeon passage is maintained over the long-term. EPA believes appropriate O&M measures to address this issue should be considered by the BOR, U.S. Army Corps of Engineers (USACE), and Board, and identified in the final EA.

   We recommend that dam and rock ramp maintenance activities be carefully planned and carried out in coordination with the lead agencies for this project, as well as with the U.S. Fish and Wildlife Service and Montana Department of Fish, Wildlife and Parks (MDFWP) to better assure that O&M activities over the years maintain pallid sturgeon passage. O&M activities will likely need to be carefully performed, reviewed and monitored over the long-term, including after the proposed 8 year monitoring and adaptive management period, to assure that pallid sturgeon passage is not impaired by future dam and rock ramp O&M.

2) Do the estimated O&M costs (page 2-20) for the rock ramp of $272,807 annually ($163,671 for the concrete weir and ramp, $108,002 for the headworks and screens, and $1,133 for the first mile of the main canal) include any costs for continued placement of rocks on top of the new dam and rock ramp? As noted in the comment above, we believe such continued placement of rocks on the dam and rock ramp should be avoided to reduce turbulence that would impair pallid sturgeon passage.

   Do the estimated O&M costs for the rock ramp include removal of floating objects like trees that would catch on the bollards in front of the headworks structure?

3) In regard to the Chapter 2 description of the rock ramp it is stated, "see pages 2-10 to 2-11 for a description of the new headworks structure" (page 2-16). Included with the description of the new headworks structure, starting on the bottom of page 2-11, are descriptions of tieback levees upstream and downstream from the new headworks structure. EPA understands these tieback levees are only proposed with the Relocation of Main Channel Alternative, and would not be proposed with the Rock Ramp Alternative. It would be helpful to clarify this proposal in the final EA.

4) Thank you for including Appendix A.1 with the EA, describing the history and process for development of the alternatives, and the screening criteria used to identify the action alternatives evaluated in the Intake EA. This information promotes improved public understanding of the extent to which many potential alternatives to address the project purpose and need were considered and evaluated.

   We are pleased that Appendix A.1 includes discussion of the alternative suggested by EPA of removing Intake Dam and constructing an infiltration gallery to allow pumping of irrigation water from Yellowstone River alluvial groundwaters (pages A.1-19 to 21). We note that one of the reasons for eliminating the infiltration gallery/pumping alternative from further consideration in Appendix A.1 is the expectation that a significant amount of back-flushing of the infiltration gallery would be needed due to sediment deposition over the buried pipes (pages A.1-20, A.1 -21). The EA discussion on page 3-11 and Figure 3-6, however, appears to suggest that the problem of sediment deposition on infiltration gallery piping system perhaps may not be as much of a problem or require as much back-flushing as suggested in Appendix A.1. The EA states that sediment deposition in the canal while continual, is not a severe problem, and the irrigation district only cleans sediment from the main and lateral canals every 10 years. It is also stated that bathymetry data indicates there is not a characteristic wedge of sediment deposited directly upstream of the dam structure, as often occurs with such structures.

   Is this EA discussion regarding sediment deposition on page 3-11 consistent with the discussion of sediment deposition and infiltration gallery backflushing in Appendix A.1? Would an infiltration gallery placed along the north bank of the river in the deepest part of the river, where there is active erosion rather than deposition, and where there is not a characteristic wedge of sediment deposited directly upstream of the dam structure, require as much back-flushing as suggested in Appendix A.1?

5) The EA indicates that preliminary estimates are that 119,000 tons of rock varying in size from 1 – 4 ft probably would be needed to build the rock ramp (page 2-18), yet Table 2.3 (page 2-26) indicates that 400,000 tons of rock or 500 railroad carloads of rock would be required for the Rock Ramp Alternative. Consistent estimates for rock requirements for the Rock Ramp Alternative should be included in the final EA.

6) The final design of the rock ramp likely would have a variable slope of 0.2% - 0.9% (0.002 ft/ft – 0.009ft/ft), with the final slope to be determined by physical modeling (page 4-12). EPA understood that this meant that ramps with slopes from 0.2% to 0.9% were being considered, with the final slope to be determined during final design. However, during the public meetings in Glendive and Sidney it was stated that the proposed rock ramp would likely have a slope of 0.2% at the upstream end of the ramp, and the ramp slope would vary with steepened segments toward the downstream end, with the bottom segment of the ramp having an estimated slope of 0.9%. In addition, a 70 foot wide low flow channel with a bottom elevation of approximately 3 feet below the dam crest would be included in the ramp, with the upstream end of the low flow channel located to coincide with the river thalweg near the north bank of the river and the downstream end of the low flow channel near the thalweg on the south river bank. This information was not clearly presented in the Chapter 2 discussion of the Rock Ramp Alternative.

   Also, Appendix A.2 seems to suggest that 3 to 4 ft sized rock may be needed (pages A.2-39 to A.2-41) vs. the 1- 4 ft sized rock size noted in Chapter 2 (page 2-18).

   We recommend that a clearer and more detailed description of the proposed rock ramp be provided in Chapter 2 to improve public understanding. This description should include information on the likely rock ramp rock sizes on each segment of the ramp, rock placement, rock to be used for interstitial areas between large rock, ramp slopes for each segment and likely length of each ramp segment, location, configuration and description of ramp low flow channels, ramp heights/bank stabilization at the river banks, etc..

7) The discussion of rock size for the Rock Ramp in Appendix A.2 states that a rock size in excess of 4 ft is recommended for the ramp boulders to assure stability of the rock ramp given the high flows and ice jamming and gouging that occur on the Yellowstone River, although constructing the entire ramp from 4 ft boulders is probably cost prohibitive (page A.2-39). Rocks approaching 3 ft diameter are recommended for the entire upper portion of the ramp for stability, and smaller rock would be used to form the ramp bottom between the boulders. The smaller rock is stated to be integral to fish passage (page A.2-40), and it is probable that Yellowstone River sediment load would naturally fill the rock ramp voids with small cobbles and normal bed load (page A.2-41).

   The EA also states that conversion of native bed materials to large stones, and changes in substrate(s) associated with the project would be highly localized and would not negatively impact aquatic organisms at the species level; and that large increase in the amount of interstitial spaces resulting from the placement of stones for ramp construction would likely provide substantial improvement for macroinvertebrates (page 4-26).

We are uncertain whether a substantial improvement for macroinvertebrates would actually occur over the long-term. It appears that the filling in of the interstitial spaces between the ramp boulders with smaller rocks and cobbles, and later with deposition of river sediment and bed load (page A.2-41), would likely reduce the extent of improvement in macroinvertebrate habitat. Over time deposition of river sediment and bedload on the low gradient, low velocity rock ramp would likely result in a rock ramp bottom that resembled native bed materials more so than large stone. The rock ramp would likely only consist of a large stone bottom for a short period of time after construction, before sediment and bed load deposition occurred.

We also note that the supposition that the rock ramp would result in substantial improvement in macroinvertebrate habitat was mentioned in a letter sent by the Corps of Engineers Omaha District Planning Branch to EPA Region 8 to support the concept that no additional mitigation is needed for the rock ramp proposal. As discussed in our subsequent comments, we believe that further opportunities to optimize the proposed project and enhance the overall aquatic ecosystem should be considered (comments #10, 11).

8) Table 4.3 "Comparison of Bank Stabilization Features by Alternative" (page 4-15) shows that the preferred alternative will include 1475 feet of bank stabilization (i.e., 285 feet of bank stabilization associated with the existing headworks, 440 feet associated with the new headworks, and 750 feet associated with the control structure and weir). This table also shows that the amount of bank stabilization associated with the No Action Alternative is 1643 feet (i.e. 285 feet associated with the existing headworks, 664 feet associated with the existing dam, and 694 feet of riprap).

   Table 4.3 shows 694 lineal feet of riprap with the No Action Alternative and no riprap with the Rock Ramp Alternative. However, it is also stated that displaced rip-rap in the Rock Ramp must be replaced or repaired by a contractor (page 4-37); and that replacement rip-rap for the Rock Ramp Alternative would not be quarried locally and would be imported at an increased cost. This implies that riprap will be used in association with the Rock Ramp, even though Table 4.3 shows no riprap for the Rock Ramp Alternative. It would be helpful to explain these apparent inconsistencies, and also to identify where the 694 feet of existing riprap with the No Action Alternative will be removed with the Rock Ramp Alternative.

   In the cumulative effects discussion it states that the Rock Ramp would provide a minor decrease of -0.1% in the length of stabilization on the Lower Yellowstone River from Cartersville Dam to the confluence of the Missouri River (page 4-18). The total amount of bank stabilization will be reduced by 168 feet with the Rock Ramp Alternative (page 4-17). It is also stated that compared to No Action, the Rock Ramp Alternative would add a total of 11 new structures in or next to the river channel, and remove, bury, or replace 4 of them for a net gain of 7 structures; and that the total number of man-made structures in the Rock Ramp Alternative is 12 (page 4-17).

The small reduction in bank stabilization with the Rock Ramp Alternative does not seem evident if one compares Figure 2-2 (page 2-5) depicting the No Action Alternative, with Figures 2-9 (page 2-13) and 4-4 (page 4-16) depicting the Rock Ramp Alternative. It is surprising that a small decrease in bank stabilization is predicted with the Rock Ramp Alternative, since there would be a net gain of 7 man-made structures in or next to the river channel, and the Rock Ramp Alternative would permanently affect 32 additional acres in the channel migration zone (page 4-17).

In addition, it would appear that the rock ramp may have to be built up in height at the river banks to provide enough bank stabilization to assure that the river does not flow around the ramp. At the Glendive and Sidney public meetings the possibility of flooding of the fishing access and camping area below Intake Dam was mentioned, and agency representative indicated that the need for additional bank stabilization or even levees may need to be further evaluated to prevent such flooding.

9) Accordingly, we are uncertain whether the Rock Ramp Alternative would result in the decrease in bank stabilization reported on page 4-18. The EA acknowledges that a number of man-made structures have affected the geomorphic character of the river, noting that artificial alteration of the river and riparian areas includes riprap, diversions, closing side channels, and clearing bank vegetation (page 3-10). It appears that bank stabilization and geomorphic modifications may even increase with the Rock Ramp proposal when compared to No Action due to extending the headworks structure upstream and extending the rock ramp downstream, as well as modifying 32 additional acres of natural river bottom when compared to No Action (page 4-18), and the potential need to build up the rock ramp at the banks to avoid having the river migrate around the rock ramp and diversion. Additional discussion and explanation would be helpful to more clearly describe the specific areas where river banks are currently stabilized and where existing riprap and other bank stabilization will be removed with the rock ramp alternative. The complete range of impacts for the ramp and project variations should be clarified and fully disclosed.

10) It appears that much of the natural channel migration zone of the Yellowstone River near Intake Dam, shown in Figure 3-5 (page 3-10), may no longer be available for channel migration. The EA shows that most of the river corridor on Joe's Island is classified as the historic migration zone, representing a zone of historic channel occupation over approximately the past 50 years (page 3-10). Alluvium and avulsion potential zones are also shown upstream and downstream of the existing dam. The estimated acreage of the historic migration zone and alluvium and avulsion potential zones that may no longer be available for natural channel migration are not disclosed. It would be of interest to disclose the approximate acreage of these historic channel migration zones no longer available for natural channel migration.

The EA states that the Rock Ramp Alternative would affect a total of 63 acres within the channel migration zone compared to No Action (page 4-14), and that of these 63 acres, 38 acres would have long-term effects from construction of the new weir and rock ramp,

with remaining 25 acres having short-term effects from temporary features, such as construction zones and haul roads (Table 4.2). As noted earlier, a number of man-made structures have affected the geomorphic character of the river, including riprap, diversions, closing side channels, and clearing bank vegetation (page 3-10). The discussion on page 4-13 indicates that 6 acres of river bottom have been modified by the placement of rock on the dam over the years creating a boulder field downstream of the dam, and that an additional 32 acres would be permanently affected in the channel migration zone when compared to No Action with the Rock Ramp Alternative (page 4-18). The Rock Ramp Alternative would add a total of 11 new structures in or next to the river channel, and remove, bury, or replace 4 of them for a net gain of 7 structures (page 4-17).

We are concerned that there is an existing adverse effect on natural hydrology and geomorphology due to occupation or modifications to the channel migration zone that will be exacerbated by the proposed additional structures and modifications in the channel migration zone. The river would not appear to have access to its full floodplain, and the natural riverine process of channel migration has been impacted, and would be further impacted at the Intake Dam location. Natural channel migration has probably been limited to some degree for the past 100 years since the original Intake Diversion Dam was constructed around 1905.

Hydrology and geomorphology are intricately linked through erosional and depositional processes that create a dynamic equilibrium in healthy rivers and watersheds. The dynamic equilibrium of the physical system establishes the dynamic equilibrium of the biological system, thus maintaining the ecological integrity of the system as a whole, http://www.epa.gov/healthywatersheds/examples/hydrologic_geomorphic.html. When this dynamic equilibrium is upset adverse effects to the aquatic ecosystem can occur.

An important element of the purpose and need for this project is to contribute to ecosystem restoration (page 1-5). Accordingly we believe it is appropriate to make efforts to optimize the rock ramp proposal, and mitigate for adverse effects to natural riverine processes such as channel migration in addition to the proposed efforts to mitigate for adverse effects to fish passage and entrainment at Intake Dam.

We acknowledge that the proposed rock ramp will likely result in net benefits to fisheries from improved fish passage and reduced fish loss due to entrainment, and increase in available habitats on the Yellowstone River, including major tributaries such as the Tongue and Powder Rivers. However, we do not believe that these benefits should preclude addressing the loss of other riverine functions and values, and the need to mitigate for other aquatic impacts. We note that natural channel migration create or result in enhancement of sparsely vegetated floodplain areas or sandbars that provide habitat for other species, including threatened and endangered species such as the interior least tern and piping plover. Preservation of such natural habitats may aid recovery of these species.

The EA does not clearly disclose the extent of mitigation currently proposed. The Adaptive Management Strategy would focus on two specific areas: 1) monitoring of the effectiveness of the fish screens installed in the headworks; and 2) evaluation of the effectiveness of the alternative's passage of pallid sturgeon (page 4-4). The Strategy does not mention the need to monitor for overall impacts to the aquatic ecosystem, and to mitigate other existing adverse effects from the prior construction of the original Intake Dam or additional adverse effects associated with the rock ramp proposal (i.e., loss of natural channel migration).

The EA states that river morphology will be monitored to assess potential changes to the stream channel resulting from construction of the selected alternative; and that the interagency Environmental Review Team will be consulted regarding specific measures to mitigate impacts if substantive changes are determined to have been caused by the Intake Project (page 4-18). Appendix I states that the Environmental Review Team will conduct field reviews (annually or as needed) prior to construction to identify environmentally sensitive areas where site-specific mitigation may be required; will review previous construction activities to determine if required mitigation measures are sufficient and have been accomplished; and prepare an annual environmental mitigation/progress report for the Intake Project (pages I-1, I-2).

These statements are encouraging, but still leave it unclear if all overall adverse impacts to the aquatic ecosystem will be monitored and mitigated. The proposed mitigation for effects to the overall aquatic ecosystem should be more clearly presented. A letter sent by the USACE Omaha District Planning Branch to EPA Region 8 CWA Section 404 Permit staff, dated January 25, 2010, stated that no additional mitigation is needed for the rock ramp proposal.

EPA believes consistency with the Clean Water Act Section 404(b)(1) Guidelines (40 C.F.R. Part 230) and April 10, 2008 Mitigation Rule (40 C.F.R. Part 230, Subpart J), should include consideration of the adverse effects associated with loss of natural stream channel migration, as well as wetlands impacts should be more clearly addressed within the Adaptive Management Strategy and mitigation proposal. We note that streams are identified as difficult-to-replace resources for which compensation should be required, if practicable, through in-kind rehabilitation, enhancement, or preservation (40 CFR 230.93(e)(3)). We recommend the EA explicitly state that impacts such as loss of natural channel migration and river access to the floodplain, and impacts to wetlands and other potential aquatic impacts will be monitored and evaluated, and unavoidable impacts mitigated.

A simple and reasonable means of providing compensation for loss of natural channel migration and floodplain access may be available by making contributions to the Montana Channel Migration Zone Program being developed by the MDFWP and Montana Department of Environmental Quality (MDEQ). This program promotes maintenance of natural channel migration processes by paying land owners for easements along the river to allow natural bank erosion and channel migration processes to take place. Costs per acre for such river sloughing easements could be estimated for the loss

of natural channel migration at Intake, and funds could then be provided to purchase sloughing easements for an equivalent nearby floodplain area in an attempt to compensate for loss of natural channel migration at Intake with preservation of other natural channel migration opportunities nearby. It would likely require only a small amount of additional funding in comparison to the estimated $36.5 million construction cost for the Rock Ramp Alternative. Efforts to compensate for loss of natural channel migration and floodplain access would make the proposed project more of an ecosystem restoration project rather than just a fish passage improvement and entrainment reduction project.

Another suggestion is to consider using the Montana Stream Mitigation Process being developed by the USACE Montana Regulatory Office as a means of evaluating and addressing mitigation needs at Intake, https://www.nwo.usace.army.mil/html/od-rmt/smp.pdf.

We recognize that timely implementation of Intake Dam Modifications is needed to avoid potential extirpation of the genetically distinct (page 4-31) Upper Missouri River and Yellowstone River population of the endangered pallid sturgeon. To avoid delay in implementation of the proposed project we suggest that our recommendation about optimizing the aquatic benefits of the project by mitigating for loss of natural channel migration and impacts to wetlands be addressed by clearly including these impacts among the environmental impacts to be monitored evaluated and mitigated with the Adaptive Management Strategy by the Environmental Review Team. The details regarding compensation for these aquatic impacts can take place while the project design details are taking place. We believe this should avoid unnecessary delays.

11) The Adaptive Management discussion states that all constructed features will be monitored for no longer than 8 years to ensure that they are operating as designed to improve fish passage and reduce entrainment (page I.2). We are concerned that the 8 year monitoring period may not be long enough. The female pallid sturgeon does not reach breeding age for 15 – 20 years, and an 8 year monitoring period may not adequately evaluate long-term natural recruitment of pallid sturgeon with access to reaches of the Yellowstone River above Intake. Also, 8 years may not cover the range of normal variation in river flows and ice impacts. We believe the project should be monitored for a longer period, and any changes to the project should also be monitored for long-term impacts. It is also not clear how monitoring results, changes to the currently proposed project, and impacts of future actions will be reported to the public and other federal and state agencies.

12) The wetlands impacts associated with the rock ramp proposal are not clear. Table 3.14 (page 3-53) and page 4-60 indicates that approximately 55 acres of riverine wetlands fall within the construction area footprint and could be impacted, however, in Appendix B it is stated that the project will result in no net loss of wetland area and function (page B-13). Other inconsistencies regarding the wetlands impacts of the Rock Ramp Alternative have been found, and are noted as follows:

- On page 4-60 it is suggested that 2 acres of riverine wetlands have been impacted by the existing dam structure and rock that has been added to the top of the dam and subsequently displaced downstream. However, on page 4-13 it is stated that the existing boulder field covers approximately 6 acres of riverbed. This creates some confusion regarding the actual acreage of riverine wetlands (waters of the U.S.) occupied by the existing dam and boulder field downstream of the dam. More consistent information should be presented in the final EA in regard to this boulder field area.

- On page 4-17 it is stated that the new rock ramp would cover approximately 38 acres, and on page 4-26 it is stated that approximately 55 acres of native bed materials (silt/sand/gravel) would be converted to large stones. These statements appear inconsistent, since if the rock ramp would occupy 38 acres, it would appear that 38 acres rather than 55 acres would be converted from native bed materials to large stone. These inconsistencies should be more clearly explained or corrected.

- Tables 4.2 and 4.3 (page 4-15) indicate that the new weir and rock ramp will permanently occupy 38 acres, and an additional 25 acres of the channel migration zone will be temporarily affected during construction by haul roads (i.e., 4 acres in the construction zone, and 21 acres by haul roads, including 1 acre of haul road impact in the main channel and 2 acres of haul road in the alluvium). On page 4-60 it is stated that addition of rock to build the ramp would temporarily impact about 24 acres of riverine wetlands; and the remaining 29 acres of riverine wetlands in the construction area could be temporarily impacted during project construction activities (e.g. equipment movement). Riverine wetlands are defined as wet areas within a channel (page 3-52). This information is confusing and does not appear to be consistent with the other statements indicating that 38 acres of river bottom would be occupied by the rock ramp.

  Also, if 55 acres of riverine wetlands are within the construction footprint and 38 of these acres are occupied by the rock ramp, where are the 17 acres of additional impacts to riverine wetlands? How do these 17 acres of riverine wetland impacts relate to the 24 and 29 acre wetland impacts discussed at the bottom of page 4-60? We suspect that the 25 acres of temporary impacts within the channel migration zone (page 4-15) would include the 17 acres of wetlands impacts from page 4-60, but it is not clear if these are impacts associated with haul roads or haul road plus construction zone impacts, so where would these impacts occur? Also, Appendix B states that there will be no net loss of wetland area and function (page B-16). This statement appears inconsistent with the other statements in Chapter 4 that discuss permanent and temporary impacts to wetland areas.

  The EA states in reference to the Rock Ramp Alternative that replacing the dam with a new concrete structure would not increase impacts, as compared to No Action Alternative (Continue Present Operation) (page 4-60). Yet it appears to us that the Rock Ramp Alternative would affect 32 acres of additional waters of the

U.S. (38 acres – 6 acres of boulder field = 32 acres impact), and would affect another 17 acres of waters of the U.S., including wetlands, at least temporarily (55 acres – 38 acres = 17 acres). Impacts to waters of the U.S., including wetlands, should be more clearly and consistently presented. We also suggest referring to impacts to areas within the river channel as impacts to waters of the U.S. rather than riverine wetlands, and impacts areas outside river channel areas as wetlands impacts.

- The EA states that wetland soils will be stockpiled for use when constructing new areas (page 4-64), but it is not clear where these wetland soils would be used. If wetland soils are to be stockpiled, where would they be used? Would they be used to construct new wetlands to replace lost wetlands? We did not see discussion of compensation for impacts to wetlands. Is any compensation for permanent or temporary impacts to wetlands proposed?

- The EA states that all temporary impacts would be addressed by environmental commitments (page 4-60), but these environmental commitments are not clear. It is stated on page 4-64 and in Appendix I (page I-7) that, "the Environmental Review Team will play a role in oversight of actions to ensure compliance with Section 404 of the Clean Water Act and will suggest actions to minimize effects to wetlands." However, it does not appear that any compensation for permanent or temporary impacts to wetlands are being considered. We recommend that efforts be made to compensate for any unavoidable impacts to wetlands in accordance with the April 10, 2008 Mitigation Rule (40 C.F.R. Part 230, Subpart J).

14) A photo is shown on page 4-1 showing construction of a rock ramp near Miles City, yet we did not see discussion of this rock ramp in the EA. It would be of interest to provide more information about this rock ramp near Miles City, specifically where, when and why it was constructed, and how effective it has been, how similar it may be to the proposed rock ramp at Intake, and if any adverse effects from this rock ramp have been identified.

15) It is our understanding that pallid sturgeon may be among the poorest swimming fish for which a rock ramp has been constructed for fish passage. Table 2-2 (page 2-25) states that the rock ramp would allow passage of the endangered pallid sturgeon up and downstream. It is also stated that the rock ramp has higher pallid sturgeon hydraulic modeling scores, indicating that it would be easier for pallid sturgeon to navigate than the other alternatives (page 2-24, Appendix E). These statements express confidence that the rock ramp will be successful in providing upstream and downstream passage for the pallid sturgeon, evidencing little uncertainty about pallid sturgeon passage. Much information is provided about rock ramp design considerations relative to pallid sturgeon swimming ability in Appendix A.2. However, the draft EA disclosed little information about the other rock ramps have been constructed elsewhere to provide passage for other sturgeon species.

Accordingly we believe it would be helpful to describe in greater detail the other situations where rock ramps have been constructed at dam sites to facilitate fish passage, including information about river conditions, river flows and ranges of flows, widths, gradients, rock

ramp slopes, winter icing conditions, fish species used for design, estimated design flow velocities, success in providing fish passage, O&M needed to maintain fish passage, etc.. This information should then be related to the conditions likely encountered on the lower Yellowstone River at Intake, Montana, to further describe why it is believed that the proposed rock ramp will provide effective upstream and downstream passage for the pallid sturgeon at Intake.

For example, the Tehama-Colusa Canal Authority Fish Passage Improvement Project at the Red Bluff Diversion Dam on the Sacramento River is mentioned in the discussion of adaptive management (pages 4-3, 4-4). It would be of interest to know more about the success of this project in providing fish passage and the extent to which its results may be extrapolated to Intake Dam on the Yellowstone River. As noted above, it would also be of interest to know more about other rock ramp projects that were evaluated and the extent to which their results may be extrapolated to Intake Dam on the Yellowstone River. Such information is noticeably missing from the draft EA.

16) The EA indicates that the pallid sturgeon in the Upper Missouri River and Yellowstone River area are genetically distinct from other parts of the species range (Heist et. al. 2009), and that preserving their genetics is essential to the overall extinction vulnerability of the pallid sturgeon population (page 4-31). It is also noted that the U.S. Fish and Wildlife Service has noted that the upper basin sturgeon, as well as the entire population, is vulnerable to extinction. It would be helpful to explain more clearly why if the Upper Missouri River and Yellowstone River area are genetically distinct from other parts of the species range, this population is not considered a distinct population segment (DPS) by the U.S. Fish and Wildlife Service under the Endangered Species Act.

17) Thank you for providing Appendices with additional information and discussion of the many complexities and factors involved with determining the likelihood that the proposed project will provide effective upstream passage for the pallid sturgeon and improve pallid sturgeon spawning and recruitment success (e.g., Appendix E, Hydraulic Analysis and Pallid Sturgeon Evaluation; Appendix L and Appendix M, Missouri River Recovery Implementation Committee Questions and Answers; and Appendix M, Intake Diversion Dam Modification, Lower Yellowstone River Project Science Review Report, dated November 30, 2009).

While there appear to be questions and uncertainties regarding the likelihood that the project will be successful these Appendices provide helpful information that increases public understanding of the many complex factors involved (e.g., use of pallid sturgeon spawning sites above Intake Dam, larval maturation periods, river temperatures, river velocities, larval drift distances and times, larval survival, fish passage, etc.). At this time, EPA is deferring to the Missouri River Recovery Implementation Committee's evaluation of the best scientific information available regarding the pallid sturgeon. The Appendix L and Appendix M answers of this Committee and the conclusions of the Independent Science Review Panel indicate that:

-Suitable spawning habitat exists upstream of the project.

-Conditions at the potential upstream spawning sites are suitable for the development and survival of pallid sturgeon eggs.

-There is sufficient downstream drift distance for larval development for at least a portion of the larvae in some years for some level of natural recruitment might occur.

-Proposed fish screens will effectively decrease entrainment of adult, juvenile, larval, and embryonic pallid sturgeon and other fish species.

-Conditions in the Yellowstone and connected sections of the Missouri River are suitable conditions to support completion of the pallid sturgeon life cycle.

The EA also states that even if only 1 to 5% of the larvae make it to recruitment, it would be significantly greater than current conditions where recruitment of pallid sturgeon is zero (page L-17).

These answers also indicate that the proposed project will significantly reduce entrainment and increase survivability of hatchery and wild fish. Currently pallid sturgeon stocked above Intake Dam that move below the Dam cannot return upstream above the Dam. This project should correct that condition. Upstream passage will increase available habitats on the Yellowstone River by 165 miles and allow stocked fish to disperse into suitable habitats, including major tributaries such as the Tongue and Powder Rivers. The Committee considers the proposed project to be the best opportunity to facilitate pallid sturgeon toward recovery in the upper Missouri River Basin.

We also note that there appear to be two sets of Missouri River Recovery Implementation Committee Questions and Answers, one in Appendix L, and another one in Appendix M near the end of all the Appendices (i.e., following Appendix 2 of the Pallid Sturgeon Science Review Report, and just preceding the Appendix N Draft Finding of No Significant Impact). The second set of Questions and Answers appears perhaps to be a more recently edited version of the first set of Questions and Answers. We recommend that the final EA just include a single, most up-to-date set of Missouri River Recovery Implementation Committee Questions and Answers.

18) The EA indicates that sediment samples from sites upstream and downstream of Intake Dam were analyzed to evaluate potential impacts associated with construction (page 4-19). Sediment samples were thoroughly mixed with river water, and after settling, the water was analyzed for nutrients, trace elements, and organic compounds. Details of the sampling methods and testing methods were referenced in *Results of Elutriate Sampling Conducted Along the Yellowstone River at Intake Dam, Montana on April 29-30, 2009* (USACE 2009), but were not presented in the EA. The analytical results are presented in Appendix K, Table K.2 (page K-2), show:

Iron levels ranging from 2,872 ug/l to 11,731 ug/l, with the chronic criteria for warm water aquatic life being 1,000 ug/l;

Manganese levels ranging from 28 ug/l to 530 ug/l, with the secondary maximum contaminant level to avoid, taste, odor and staining of 50 ug/l; and

Aluminum levels ranging from 3,989 ug/l to 11,731 ug/l, with the acute criteria for aquatic life of 750 ug/l and chronic criteria 87 ug/l.

Analytical results reveal that high levels of total iron, manganese, and aluminum were present in the Yellowstone River water sample (presumably after sediment settled) and the prepared sediment samples (page 4-20). The high levels of total iron, manganese, and aluminum are attributed to "likely representing a natural condition associated with the geology and soils of the region." The footnote to Table K.2 states that Montana's water quality criteria for aluminum are based on dissolved concentrations and not directly comparable to the measured total concentrations; and that historic monitoring of total and dissolved aluminum levels in the Missouri River at Williston, North Dakota, indicates that ambient total aluminum levels are much higher than dissolved levels (i.e., > 1,000 times).

The sampling and testing protocols appear to have involved mixing sediment with river water and then analyzing the water after sediments settled, which is not a standard sampling and analysis protocol for water quality assessment and comparison to State Water Quality Standards. It is not fully clear, therefore, how to interpret the exceedances of aquatic life criteria shown in Table K.2. These results would appear to indicate that there may be potential for short-term exceedances of aquatic life criteria for aluminum, iron and manganese during construction as river bottom sediments are disturbed. Although in reality, the flow within the river and downstream mixing and dispersion may add additional dilution perhaps not accounted for in the sampling and testing methodology. Sediment that might normally be suspended during high flows and during construction may be deposited on the river bottom at lower flows. Bio-available metals potentially released during construction are not clear. The magnitude of exceedances of aquatic life criteria for aluminum and iron would appear to justify conduct of monitoring during construction to assure that more significant aquatic life impacts would not result from mobilizing aluminum and iron as river sediments are disturbed during project construction.

We are pleased that the proposed actions to minimize effects include water quality monitoring to ensure that water quality standards are not violated during construction (pages 4-22, I.2). The water quality sampling and analysis results discussed above indicate that there may be potential for at least short-term violations of water quality standards for aluminum, iron, and manganese.

The Yellowstone River segment below the Lower Yellowstone Diversion Dam downstream to the North Dakota border (71.1 mile river segment) is listed by the State of Montana as water quality impaired under Section 303(d) of the Clean Water Act, with impairments to warm water fishery and aquatic life uses. It is interesting that the water quality and sediment sampling results shown in Appendix K do not appear to show

exceedances of water quality criteria for chromium, copper and lead or pH, which are among the probable causes of Yellowstone River impairment listed by the MDEQ. Other probable causes of impairment listed by MDEQ include nitrogen, phosphorus, and total dissolved solids from unknown sources, and alteration in stream-side or littoral vegetative covers and sedimentation/siltation. The water quality assessment data in Appendix K appear to show some elevated nitrogen and phosphorus levels, and no data is shown for total dissolved solids. Again, because standard sampling and analysis protocols appear not to have been used the significance of the results are not clear.

It will be important for the proposed project to reduce/minimize the amount of sediment disturbance during construction, and be consistent with the MDEQ's TMDL and Water Quality Plan that will be prepared for the Yellowstone River from the dam downstream to the North Dakota border. It is our understanding the MDEQ has not yet developed this TMDL, but we suggest that the lead agencies coordinate with MDEQ TMDL program staff to assure that MDEQ considers the proposed dam modification project to be consistent with the TMDL that will be prepared (e.g., contact Dean Yashan of MDEQ at 406-444-5317).

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

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March 30, 2010

Intake *Draft* EA
Montana Area Office
Bureau of Reclamation
P.O. Box 30137
Billings, Montana 59107-0137

Re: Intake Diversion Dam Modification, Lower Yellowstone Project, Montana, ~~Draft~~ Environmental Assessment (EA)

To Whom It May Concern::

The Montana Department of Environmental Quality (DEQ) has reviewed the Intake Diversion Dam Modification, Lower Yellowstone Project, Montana, Draft Environmental Assessment (EA), dated February 2010.

The EA identifies the Rock Ramp Alternative as the preferred alternative. It consists of construction of a concrete weir to replace the existing timber and rock dam, a rock ramp for fish passage, an irrigation canal extension, and a new headworks with screens to minimize entrainment. Like the Bureau of Reclamation (BOR) and U.S. Army Corps of Engineers (Corps), we support the goal of improving passage for endangered pallid sturgeon and other native fish in the lower Yellowstone River and reducing entrainment of fish into the Lower Yellowstone Project main canal. One of DEQ's main functions is to improve beneficial uses in state waters. With this in mind, we have two concerns with the draft EA: 1) we believe the preferred alternative could be modified to take advantage of other opportunities to support beneficial uses for the proposed project and more fully mitigate adverse impacts to the overall aquatic habitat; and 2) the EA primarily addresses project benefits without adequate consideration of potential impacts or mitigation issues.

In terms of impacts, the preferred alternative's anthropogenic alterations of the Yellowstone River and riparian areas could contribute to loss of beneficial uses. As you will no doubt hear from state and federal fish and wildlife agencies, natural channel migration and the ability of the river to access its floodplain at Intake are critically important to overall river health and affect the river's ability to support pallid sturgeon and other species. The current diversion at Intake does not allow these functions to occur, and the proposed rock ramp will perpetuate those problems. We think the final EA should address this issue, and we will be happy to discuss ways to do this in the document. Also, the Rock Ramp Alternative adds new structures in or next to the river and affects a total of 63 acres within the channel migration zone compared to the No Action Alternative. The EA should address these issues and discuss mitigation measures.

The draft EA describes an Adaptive Management Strategy, but the strategy appears to only be pertinent to the effectiveness of pallid sturgeon passage. It does not mention the need to monitor for and mitigate adverse effects on such issues as wetland impacts. The Adaptive Management Strategy needs more detail about how it will be used to mitigate additional potential impacts.

We concur that the proposed rock ramp may result in net benefits to fisheries from improved fish passage, reduced fish loss due to entrainment, and increased available habitats on the Yellowstone River and major tributaries. Again, the EA still needs to address the loss of other riverine functions and values that would result from implementation of the preferred alternative, and it should include a plan to monitor them. It should discuss how monitoring, the Adaptive Management Strategy, and the actions of the interagency Environmental Review Team will be used to develop mitigation measures to address some of these unavoidable impacts. Potential impact measures include such things as contributions to the Montana Channel Migration Zone Program being developed by Montana Fish, Wildlife & Parks (FWP) in cooperation with DEQ, or purchase of sloughing easements to compensate for loss of natural channel migration at Intake. We'd be happy to discuss these and other options with you, but they should be included as mitigation options in the EA.

In closing, DEQ shares the belief of all the resource folks that timely implementation of modifications at Intake Dam is critical to avoid potential extirpation of the endangered pallid sturgeon. We hope that the effort can become a true ecosystem restoration project rather than just a fish passage improvement and entrainment reduction project. We believe that incorporating our suggestions into the EA can help this effort. The details regarding compensation for aquatic impacts can be worked out while the project design details are being finalized. DEQ's participation in the Adaptive Management Strategy as a member of the interagency Environmental Review Team should enhance those efforts and would complement our decisions relative to mitigation issues involving our 401 Water Quality Certification of the Corps 404 permit for the project.

Thank you for the opportunity to review and provide comments on the draft EA.
If you have any questions regarding our comments please call Jeff Ryan at 406-444-4626.

Sincerely,

Richard H. Opper
Director

Cc: Mr. Jeff Ryan, Montana DEQ, Helena