



ENVIRONMENTAL ASSESSMENT

for the

Big Hole River Diversion Dam

in

Silver Bow and Beaverhead Counties, Montana

APPENDIX J

SUMMARY OF AGENCY COORDINATION MEETINGS



MEMORANDUM

Physical Address:
104 East Broadway, Suite G-1
Helena, MT 59601

Mailing Address:
PO Box 1009
Helena, MT 59624

Phone: (406) 442-0370

Fax: (406) 442-0377

To: Rick Larson
Butte-Silver Bow

From: Sarah Nicolai
DOWL HKM

Date: September 17, 2009

Subject: **Big Hole River Diversion Dam**
Summary of Agency Coordination Meeting on September 1, 2009

An Agency Coordination Meeting was held on September 1, 2009. The following were in attendance:

Project Team:

| | |
|----------------|------------------------|
| Rick Larson | Butte-Silver Bow (BSB) |
| Marty Hovan | Butte-Silver Bow (BSB) |
| Dick Talley | DOWL HKM |
| Sarah Nicolai | DOWL HKM |
| Kristen Hansen | DOWL HKM |

Agency Representatives:

| | |
|----------------|---|
| Steve Hess | Butte-Silver Bow (BSB) |
| Jeff Ryan | MT Dept. of Environmental Quality (DEQ) |
| Terry Eccles | MT Dept. of Natural Resources & Conservation (DNRC) |
| Bruce Rich | MT Fish, Wildlife & Parks (MFWP) |
| Jim Olsen | MT Fish, Wildlife & Parks (MFWP) |
| Pat Cunneen | Natural Resource Damage Program (NRDP) |
| Vicki Sullivan | U.S. Army Corps of Engineers (USACE) |
| Steve Potts | U.S. Environmental Protection Agency (EPA) |
| Doug Peterson | U.S. Fish and Wildlife Service (USFWS) |

The meeting began at approximately 1:00 p.m. and ended at approximately 4:15 p.m.

Introduction

The meeting started with an introduction of the project team, followed by an introduction of agency representatives.

Project Location, History, and Funding

The project team provided a brief introduction to the project, including a description of the project area and the history of the Butte water system. It was noted that no federal funding will be involved in this project. Primary funding is being provided through NRDP, with matching funds provided by BSB.

Draft Purpose and Need Statement

As described during the meeting, the Purpose of the project is twofold: to provide a reliable source of water for the Butte service area and to improve safety at the site. There is a strong Need for the project due to the risk of dam failure or malfunction and due to unsafe conditions at the site for maintenance personnel and recreational users. No agency comments were received on the proposed Purpose and Need statement.

Project Goals

The project team presented the preliminary list of goals. Apart from elements covered under the Purpose and Need statement, additional goals include improved fish passage, minimization of impacts to environmental resources, and minimization of project costs. No agency comments were received on the proposed Purpose and Need statement.

Environmental Assessment Process

It was noted that the team is currently in the scoping phase of the project, which involves gathering baseline data and requesting information from members of the public and regulatory agencies. The project team held a public meeting on Thursday, August 27, 2009. USACE asked whether members of the public had voiced any opposition to the project. In response, the project team noted that the public was largely in support of the project, although there were a number of questions regarding the technical design of the alternatives and anticipated project impacts.

Following scoping activities, the design team will further develop and analyze a set of project alternatives and ultimately choose a Preferred Alternative. Members of the public and regulatory agencies will have an opportunity to review and comment on the draft Environmental Assessment (EA) document during a public review period; the project team will also hold a formal public hearing. If supported by the analysis and documentation, the team will prepare a Finding of No Significant Impact (FONSI).

As required under the National and Montana Environmental Policy Acts (NEPA/MEPA), the EA document will consider project impacts to a number of resource areas. While no concerns are anticipated in relation to some resource areas, the team will pay special attention to water quality, fisheries, wetlands, floodplains, and wildlife and habitat issues. The existing Pumphouse is listed on the National Register of Historic Places; accordingly, the team will also pay close attention to historic and cultural resource issues.

Preliminary Alternatives

Meeting attendees discussed the five alternatives under consideration for the project. There were a number of questions and comments on this topic, which are presented in bullet format below.

- Regulatory agencies asked if Silver Lake, the Georgetown system, or groundwater had been considered as an alternative source of water either to supplement or replace the Big Hole water source. In response, Dick Talley and BSB noted that new or additional water rights would be very difficult to obtain in a timely manner; time is of the essence due to the near-term risk of dam failure at the Big Hole site. BSB's existing Silver Lake water right would not be sufficient to supply both domestic and industrial uses currently supplied by the combined Silver Lake and Big Hole River sources. Groundwater in the Butte vicinity is contaminated; there is some question whether existing technology could treat contaminated groundwater to drinking water standards. Further, Butte is located in a controlled groundwater area and a closed basin; it likely would not be possible to obtain new water rights before the existing Big Hole River Diversion Dam fails. Regulatory agencies requested documentation of these considerations in the EA in order to justify why the list of alternatives exclusively considers the Big Hole River as a source of water for this project and why other surface water and groundwater sources would not be feasible. Dick noted that BSB previously prepared a Master Plan, which discussed these issues in detail.
- With regard to rip-rap, there was some discussion regarding whether it will actually be needed on both the north and south banks, and over what distance from the new facility. USACE noted that any rip-rap included in the final project design must be justified.
- DNRC noted that if the existing point of diversion is moved, the project team will need to file a notice for change for the point of diversion, which can be a very lengthy process. Additionally, in doing so, this will trigger a review of the water right itself. The new water right would likely be determined based on actual historic usage as opposed to the water right provided on paper. The date used for this new water right assessment would be 1973. There was some discussion regarding leaks associated with BSB's 100-year old distribution system, and BSB's efforts to replace aging infrastructure and to conserve water in recent years. The project team will take this issue under advisement and may make adjustments to the design in order to avoid a lengthy review process and potential loss of BSB's original 1901 water right. Rick Larson stated that there will be no change to BSB's water right as a result of this project. Any planned upgrades or modifications to the existing diversion dam, intake, or pump station will not impact BSB's existing water rights.
- DEQ and MFWP asked whether an additional alternative could be considered upstream near an abandoned irrigation weir on the south side of the river below Silver Bridge. The thought was that since it would be located at a higher elevation, this alternative could provide sufficient head without the two to four additional weirs presented in Alternatives 4A and 4B. Dick Talley noted the suggested alternative would not be located on BSB-owned land, and would therefore involve right-of-way negotiations not contemplated with the other alternatives. Further, by providing a single drop, this alternative would result in the same "keeper wave" and associated safety concerns as the existing dam. The single suggested drop would still need to meet a minimum elevation in order to ensure water entry into the intake pipe. Agencies requested documentation of this issue in the EA in order to justify why such an alternative would not be feasible.

- USACE noted that removal of the abandoned irrigation weir could be considered a mitigation technique for the project as a whole. Dick noted that nature has already removed most of the abandoned structure.
- MFWP asked if there would be any advantage from an engineering standpoint to going upriver to a riffle section, since such an area would have a lower fisheries habitat value. As noted previously, an upriver alternative would gain elevation and could provide additional head. It was noted that there is currently a pool that attracts grayling near the existing dam structure. There was some discussion regarding whether the existing diversion dam created the pool in question. Dick believes that by removing the existing dam facility as is contemplated under several of the alternatives, the river may naturally wash away the current bed and form a long stretch of riffles at the existing dam site. Dick also noted that the step pools in Alternatives 4A and 4B would likely form high-quality fish habitat.
- USACE noted that it would be beneficial from an environmental standpoint to remove the existing diversion dam. The historic significance of the existing structure was discussed. It may be possible to preserve the site through documentation and thereby sufficiently meet SHPO's mitigation requirements. The project team will engage in consultation with SHPO to determine appropriate mitigation strategies.
- Regulatory agencies agreed that it would be preferred to minimize the in-stream footprint of any new structure.
- USACE requested consideration of alternative bank stabilization measures in addition to or in place of traditional rip-rap. Such measures could include dense, horizontal soil layers lined with dormant willow whips. This method has provided dense, stable vegetation in a relatively short time period on previous projects. Discarded Christmas trees can also be used for armoring. Although such a method would be labor intensive, it is often possible to find volunteers.
- There was discussion of whether fish could become trapped in the rest pools in Alternatives 4A and 4B. Dick noted that the design team will carefully consider this issue. There was also discussion of the size and type of fish screens on the intake structure.
- USACE reiterated that each design element must be justified and the project team must demonstrate need. USACE is required to identify the least damaging practicable alternative; the project team must ultimately demonstrate that the Preferred Alternative meets this definition.
- Regulatory agencies requested documentation of the modeling efforts in the EA.

Preliminary Research Results

The project team briefly discussed the preliminary research results. Analyses are ongoing; sub-consultants will be completing biological and cultural resource reports in the coming weeks.

Next Steps

Sarah noted that she will be in contact with agency representatives in the coming weeks and may request individual appointments to discuss the permit application process and ensure that the project team addresses regulatory agency concerns in the EA document. Dick also noted that there will likely be another agency meeting before the final EA has been completed.

cc: Meeting attendees
file



MEMORANDUM

Physical Address:

104 East Broadway, Suite G-1
Helena, MT 59601

Mailing Address:

PO Box 1009
Helena, MT 59624

Phone: (406) 442-0370

Fax: (406) 442-0377

To: Rick Larson
Butte-Silver Bow

From: Sarah Nicolai
DOWL HKM

Date: November 16, 2009

Subject: **Big Hole River Diversion Dam**
Summary of Second Agency Coordination Meeting on November 3, 2009

A second Agency Coordination Meeting was held on November 3, 2009. The following were in attendance either in person or by telephone:

Project Team:

Rick Larson Butte-Silver Bow (BSB)
Marty Hovan Butte-Silver Bow (BSB)
Dick Talley DOWL HKM
Sarah Nicolai DOWL HKM

Agency Representatives:

Steve Hess Butte-Silver Bow (BSB) Planning Department
Jim Jarvis Butte-Silver Bow (BSB) Historic Preservation Commission (HPC)
Jeff Ryan MT Dept. of Environmental Quality (DEQ)
Terry Eccles MT Dept. of Natural Resources & Conservation (DNRC) Water Resources
Dana Boruch MT Dept. of Natural Resources & Conservation (DNRC) Trust Lands
Fred Staedler MT Dept. of Natural Resources & Conservation (DNRC) Trust Lands
Jim Olsen MT Fish, Wildlife & Parks (FWP)
Vicki Sullivan U.S. Army Corps of Engineers (USACE)
Steve Potts U.S. Environmental Protection Agency (EPA)
Doug Peterson U.S. Fish and Wildlife Service (USFWS)

The meeting began at approximately 9:00 a.m. and ended at approximately 12:30 p.m.

Introduction

The meeting started with an introduction of meeting attendees.

Project Location and Funding

The project team provided a brief overview of the project area and an update on project funding. In addition to funding provided through the Natural Resource Damage Program (NRDP), USACE has committed to provide funds for the environmental and design phases of the project.

Purpose and Need Statement

The project team briefly provided an overview of the Purpose and Need for the project. It was stressed that although this project will provide benefits to fisheries and recreational users, the primary purpose of the project is to provide a reliable source of water for Butte. It was also stressed that the project team considers this an emergency project, which is being fast-tracked because the existing diversion dam could fail at any time.

Agency Roles and Responsibilities

There was a lengthy discussion on agency roles and responsibilities. DNRC Trust Lands proposed the idea of having all involved state and federal agencies develop a formal written agreement before moving forward with the environmental compliance effort. The agreement would specify that the agencies would play the role of decision maker. The EA document would contain appropriate signature blocks, and each agency would have veto power over this document and the manner of its development. The intent of this agreement would be to develop consensus on one single environmental document that would satisfy all state and federal requirements.

EPA suggested that perhaps a formal agreement would not be necessary since the EA currently being developed by DOWL HKM on behalf of BSB would address NEPA and MEPA concerns.

USACE provided a brief overview of the 404 permit process, noting that it would prepare its own environmental document in support of the 404 process. USACE cannot begin to act until the Preferred Alternative is selected. Generally, the Individual Permit (IP) process requires 120 days, while the Nationwide Permit (NP) process requires 45 days. The funding arm of USACE would follow a separate process to satisfy its environmental requirements.

For clarification, agencies requested an overview of the proposed project timeline. DOWL HKM noted that a final EA/FONSI was intended for the December 2009 / January 2010 timeframe in order to allow time for permitting and bidding prior to the intended construction season beginning in June 2010. This timeframe was developed in order to ensure in-stream work would be conducted during periods of low flow with completion by December 2010.

Returning to the issue of agency roles and responsibilities, DNRC Water Resources noted that agencies cannot tell the project team how to move forward, but can only provide guidance regarding agency requirements.

FWP noted that it is generally their position to accept the environmental document prepared by the project sponsor and that a formal agreement wouldn't be necessary for FWP.

DEQ also agreed that it would not be necessary to have a formal agreement between agencies, nor would DEQ need to sign the EA currently being prepared.

DNRC Trust Lands raised the issue of whether an EIS should be prepared, noting that this would be the safest approach. DOWL HKM responded that an EIS would be pursued only if impacts to one or more resources in the project area were identified as being significant. To date, no significant impacts have been identified. The issue of significance was discussed briefly. EPA noted that controversy is one of the factors that is used to determine if a project has potentially significant impacts. If there is a high degree of controversy associated with the Big Hole Diversion Dam project, this could make it difficult to make a Finding of No Significant Impact (FONSI). An EIS should be conducted for projects with potentially significant impacts. The factors used to determine significance in regard to NEPA can be found at 40 CFR 1508.27.

It is also important to note that if a proposed project has opponents who are willing to litigate in regard to project implementation, it is often easier to legally defend a project for which an EIS has been prepared, since the EIS acknowledges that the project has potentially significant environmental impacts and discloses those impacts along with measures proposed to mitigate the impacts. When an agency makes a FONSI, the burden of proof is on the agency making such finding to prove that there are no significant impacts.

At the end of this discussion, it was agreed that the project team would continue to work informally with most agencies, but would develop a more formal arrangement with DNRC. DNRC will continue to play the lead state agency role, and will ultimately sign the EA prepared by DOWL HKM on behalf of BSB. The project team considers this issue fully resolved at this time.

Environmental Assessment and Permitting Phases

Meeting attendees discussed a number of topics relating to the environmental compliance and permitting efforts.

DEQ noted that permitting for this project would likely proceed smoothly as long as the Preferred Alternative provides boat and fish passage and minimizes construction impacts. The EA document should mention efforts to minimize construction impacts.

BSB Planning asked if the proposed project timeframe was achievable. DNRC Trust Lands noted that it seemed aggressive. DOWL HKM responded that there is sense of urgency because the Big Hole River provides over 60 percent of Butte's water supply and is necessary for the continued health and safety for the population of Butte. In addition to potable water, the Big Hole River also provides essential fire protection for the city and outlying areas.

DNRC Water Resources asked if there are a different set of NEPA/MEPA requirements for an emergency situation, especially one that could threaten human health and property. USACE responded that it doesn't issue emergency permits. In emergency situations, an NP Category 3 (Maintenance) could be issued following emergency repairs, although USACE prefers not to advertise this possibility.

FWP noted that there is no such thing as a planned emergency. FWP does not foresee any problems with the proposed schedule from its perspective.

BSB noted that the dam has already failed by its estimation. There are already large holes in the dam which BSB has filled with boulders on two occasions in recent years. BSB stated that the city would be negatively affected by failure of the dam.

USACE agreed that BSB has been applying bandaids to the problem, and needs a permanent solution. The goal would be to replace the structure such that continual maintenance and repairs are not required. USACE would see this as a long-term benefit because BSB wouldn't need to be working in the river time and time again to conduct repairs.

DNRC Trust Lands noted that although BSB has a sense of urgency, this project has already been sitting for a year and a half. BSB responded that this perceived delay has been due in part to BSB's attempts to identify funding for the project. The project team is now moving forward in a more visible way because funding has been secured.

DNRC Trust Lands noted a lack of comfort with the environmental compliance effort and the process used to date. DNRC Trust Lands would like to study the notes from public involvement activities to ensure that sufficient outreach has been conducted. Conducting proper outreach efforts is essential to avoiding conflicts later in the process.

DOWL HKM noted that a public meeting has been held, newsletters have been widely distributed, and the project team has engaged a group of stakeholders regarding the project. BSB noted a general consensus that no one likes the structure that currently exists, and that any new structure would be an improvement in the public's view.

DNRC Trust Lands will need to reach a comfort level with the public process, but will make it a priority to work with the team on this project. Again, it was noted that this process has already extended a number of years. The project team noted that although meetings have not been recorded to date, there are brief summaries of the discussion items and public comments received.

DNRC Trust Lands again brought up the issue of whether an EA or an EIS would be needed for this project. The issue of Threatened and Endangered Species was discussed. USFWS noted that although the arctic grayling is not listed today, USFWS is currently conducting a 12-month finding to be completed in August 2010. Based on the finding, a listing may be appropriate. Projects fully completed before a proposed listing would not require consultation, whereas ongoing projects may require consultation.

DNRC Trust Lands recommended attempting to complete the project by the summer or fall of 2010.. DNRC Water Resources noted that there are no shortcuts to the environmental compliance process. DNRC Trust Lands advised the project team should acquiesce to complete an EIS in order to avoid any future issues.

DOWL HKM reiterated that an EA is required to identify important resources, resultant impacts, and mitigation strategies for a project. Should significant impacts be encountered that are not or cannot be mitigated, then an EIS is required to be finalized through a Record of Decision. To

date, no significant impacts have been identified and mitigation strategies are being developed for the other minor impacts that have been determined.

The issue of alternative sources of water was discussed. DNRC Water Resources noted that this should be discussed in the EA. DOWL HKM provided a summary of the project team's assessment of this issue. BSB has been aggressively replacing leaking system components and implementing water usage metering over the past five to ten years. These efforts have had a positive effect on the amount of water required from the Big Hole River source, however, these improvements are not sufficient to supplant the Big Hole source.

With regard to groundwater, it is believed that sufficient volumes of groundwater are not available to supplant the Big Hole River source. Furthermore, Butte is located in a "closed" basin and any resultant new groundwater sources would require mitigation or replacement prior to acquiring a permitted and approved status. Lastly, there are known groundwater contamination issues in and around the Berkley Pit and the Upper Clark Fork Basin resulting from years of mining.

The Silver Lake water system is a highly adjudicated surface water source and the timing to re-adjudicate this water from industrial customers and uses to public water supply is unknown, but could take years. Moreover, the amount of unclaimed water is not of sufficient volume to supplant the Big Hole source.

For these reasons, BSB has focused on preserving its water right on the Big Hole River, which has served as a source of water for Butte for over 100 years.

Returning to the issue of public input, USACE noted that it will be important to document feedback from recreationalists, who may not live in Butte. They will likely have more concern regarding fishing and recreation, and less concern for the Butte water supply. DNRC Trust lands requested a list of issues that the project team has developed in order to gain a greater level of comfort with the scoping process conducted to date.

Project Alternatives

DOWL HKM presented the five alternatives under consideration for this project and discussed the various design components relating to each of the alternatives. There were a number of questions and comments on this topic, which are presented below.

Alternative 1: No Build

- The issue of floodplains was discussed. DOWL HKM noted that there is an inundation map for Silver Bow County, but it does not provide for 100-year flood elevations or cross sections. There is no floodplain mapping for Beaverhead County. In order to assess impacts, the project team has modeled water surface elevations for various flood events at various cross-sections of the river both up and down stream of the dam for both existing conditions and proposed conditions as anticipated under each of the alternatives. The agencies agreed with this approach and confirmed that if there are not significant changes in water surface elevations at these sections, then it is correct to assume that there will not be significant changes in areas of inundation.

Alternative 2: Reconstruct Existing

- DOWL HKM noted that Alternative 2 would involve reconstructing the existing diversion dam slightly upstream of the current location. The dam would be constructed of concrete and function in the same manner as the existing structure.
- The existing point of diversion was discussed. DNRC Water Resources noted that in order for the system to work, it pulls water from several different places depending on flows. This is a different situation than a point of diversion consisting of a single headgate. Accordingly, DNRC Water Resources agrees that the point of diversion is not actually a single point, but the existing footprint of the area enclosed by the system defined as the diversion dam face on the east, the south wall of the concrete race way, the west wall of the upstream weir and the north river bank. The DNRC legal department agrees with this assessment. As long as the new intake is located within that same footprint, there would be no need for a point of diversion change. If the intake were to move one foot up or downstream, however, a change would be required. The EA should specifically define the footprint of the existing system. Since the intake position would change under Alternative 2, a point of diversion permit would be required.
- Agencies noted that Alternative 2 would not be preferred due to a lack of boater and fish passage.
- USACE noted that Alternative 2 would not fall under an NP Category 3 (Maintenance) because it would involve construction of an entirely new structure; further the location of the new structure would not be identical to the footprint of the existing diversion dam. Although this alternative may not require extensive fill material in the river, USACE would consider it to have large impacts because it would block boat and fish passage. Some mitigation would be achieved by removing the existing diversion dam. This alternative would likely require an IP.
- DEQ concurred that permitting for this alternative would be more difficult due to lack of fish and boater passage.
- With regard to USACE permitting, DOWL HKM noted that the existing diversion dam must continue to function during construction of the new structure in order to maintain service to Butte. This precludes construction within the same footprint. DOWL HKM requested clarification regarding whether an NP Category 3 (Maintenance) would be appropriate under any circumstance, given that the existing structure must remain functional during replacement or construction of a new structure. USACE responded that the Category 3 permit is only for maintenance of existing structures, not construction of an entirely new structure. A Category 3 permit would only be appropriate if the project team were exploring ways to repair and retrofit the existing structure. USACE advised that the team shouldn't be afraid of the IP process. Ultimately, a new structure would likely be the least environmentally damaging.
- DNRC Trust Lands noted that fish and boater passage is critical. In order to move forward with Alternative 2, the project team would have to demonstrate that it is the only reasonable alternative, which is unlikely.
- With regard to the point of diversion issue, BSB asked if the footprint could include the entire area where the existing diversion dam affects the river flow. DNRC Water Resources responded that this is too broad an interpretation; the footprint includes only the area defined by the location of the system components.

- The issue of passage was discussed. DNRC Trust Lands noted that ideally, the project should allow boaters to float past the structure without having to portage or get out and assess how to maneuver the stretch. DNRC Trust Lands has jurisdiction over this project because the Big Hole River is defined as a navigable waterway by DNRC based on historic commerce. It was also noted that passage has a positive economic value, as recreation is a growing sector for the state. BSB asked how this issue is addressed during low flows when boat passage is not possible. DNRC Trust Lands responded that the alternative must be reasonable and low flows are taken into consideration. It was agreed that the design should attempt to provide fish and boat passage during normal water flow conditions, as opposed to extreme high or low water flows. FWP asked if the project team had heard from boaters during the public involvement process regarding what flows would be prohibitive. BSB has heard boaters will not attempt to float in conditions less than 300 cfs. FWP noted that these minimum design criteria should be defined in the EA document in coordination with recreational users.
- Intake screen size was discussed. The current designs include 100 micron screens (i.e. screens with 0.10 inch openings). FWP may consider increased screen size beyond the 0.10-inch screen openings should the final design determine that increased screen opening size is necessary to facilitate intake operations.
- FWP asked about icing issues. DOWL HKM responded that the screens would be submerged to avoid icing and the design would maintain minimum velocities to keep water moving past the system.
- FWP asked about the settling basin design. DOWL HKM responded that the current diversion and sedimentation removal system is complicated, but it performs well in maintaining low amounts of debris and sediment entering the pump station. The proposed designs would not be as complicated and they are reviewing the impacts that additional debris and sediment loading may have on the pumps and downstream water treatment facilities.

Alternative 3: Rock Weir with New Pump House

- DOWL HKM noted that Alternative 3 would involve a rock weir instead of a concrete dam, and would not move the point of diversion. A two-drop channel would be constructed down the center to provide fish and boat passage. A new pump house would be constructed such that the new pumps could be located at a lower elevation to gain the sufficient head afforded by the dam. Given that the proposed dam would be located in the same location as the existing and that the crest is set so as to not increase the upstream water surface elevation unduly at flood stages, the available head remains similar to existing conditions; hence, there is a need to relocate the pumps to a lower elevation to alleviate cavitation potential. It was noted that boater passage was designed to provide calm floating instead of whitewater conditions, as requested by members of the public.
- This alternative would not require a point of diversion application as the new intake would be located within the existing intake system footprint.
- Velocities were discussed. FWP noted that fish can migrate through water traveling at 5 to 6 fps.
- DNRC Trust Lands asked if additional grants would be available to fund the pump house. FWP noted that there is a funding program for projects providing fish passage. USACE noted that it would not consider cost in its assessment, as they are required to identify the least damaging practicable alternative. USACE also noted that although

Alternative 3 would require more fill material it would be preferred over Alternative 2 because it provides fish and boat passage. USACE noted that this alternative would likely require an IP.

- FWP asked about fish passage during low flows. DOWL HKM responded that at 200 cfs, water would still flow through the middle chute as evidenced in the 200 cfs upstream water profile elevation of 5420.8 feet and the weir elevation of 5418 feet. The amount or depth of water over the weir is controlled by the position of the butterfly gate valve in the intake structure. FWP noted that no matter how much or how little water is in the river, fish will still want to move. Grayling will be looking for slow, cold water (thermal refuge). FWP asked if the velocities in the chute would be impassable (considered 6 fps or greater). DOWL HKM confirmed that the velocities would be 6 fps or lower, and the design could potentially open the chute slightly to lower velocities even further. FWP noted that the chute downstream of the intake structure could be re-designed to provide a fish ladder using rock instead of concrete. DOWL HKM noted that the chute only drops about a foot, and that the exit channel is currently planned to be constructed of rock instead of concrete. EPA noted that all fish passage issues, including life stage considerations, water flows, and velocities should be defined in the EA document.
- DOWL HKM requested clarification regarding the new pump house and asked if a discharge permit would be required if the pump station was operated in a continuous flow through of the wet well. DEQ responded that it would have to look into this issue further. USACE would regulate the structure only if fill were placed below the high water mark. USACE would be concerned with fill discharge, while DEQ would be concerned with water quality of the discharge volume.

Alternative 4: Rock Weir with Floating Intake

- DOWL HKM noted that Alternative 4 would look just like Alternative 3, except the point of diversion would be located upstream about 400 feet, hence requiring a point of diversion change. It would provide similar boat and fish passage as Alternative 3, would reduce ice problems, and would provide a reliable system. The intake would consist of a series of T-screens attached to sleds that would be located in the bottom of the river in the deeper upstream pool. These intake screens would convey water to the north bank via two pipes and would continue into the existing pump station and connect to the existing header. The location of the T-screens is such that sufficient head would be afforded to the existing pumps.
- The point of diversion change was discussed. FWP noted that members of the public likely wouldn't care that the point of diversion was moving slightly. DNRC Trust Lands noted that DNRC is trying to avoid lawsuits. There are laws that need to be followed. USACE will not take the point of diversion issue into consideration; from their perspective, the Preferred Alternative must be the least environmentally damaging alternative. DOWL HKM noted that the 2009 legislature enacted new point of diversion legislation. DNRC Trust Lands noted that rules will likely be written with regard to this new legislation. In response to a question by BSB Planning, DOWL HKM confirmed that the concern regarding a point of diversion change relates to potential adjudication of BSB's water right, in addition to the time required to move through the process (approximately 16 months). DOWL HKM noted that the project has moved in a positive direction in that DNRC Water Resources had previously defined the point of diversion as a specific latitude and longitude, whereas it is now defined as a footprint. The legal

determination as to what constitutes a change in point of diversion in light of the new legislation is needed prior to selection of the preferred alternative as it weighs heavily on the development of alternatives.

- It was noted that Alternative 4 would maintain an existing pool located upstream of the current diversion dam structure. Per FWP, this pool is of excellent habitat value. FWP also noted that in addition to preserving the existing pool, this alternative would create new pools downstream of the dam.

Alternative 5: Upstream Rock Weir and New Diversion Structure

- DOWL HKM noted that Alternative 5 would also involve construction of a rock weir approximately 700 feet upstream to take advantage of a natural pocket in the north bank of the river for placement of a concrete diversion structure similar to the one proposed in Alternative 3. Under this alternative, a two drop chute would be constructed in the thalweg of the river providing fish and boat passage similar to Alternatives 3 and 4. More piping from the intake to the existing pump station would be required for this alternative. A new point of diversion would be required for this alternative.
- It was noted that Alternative 5 would directly impact the pool upstream of the existing dam. If this alternative were selected, USACE would require that the project team demonstrate why it was chosen, given this impact.

Comparison of Alternatives and Further Discussion

- As a means of summarizing and comparing the alternatives, it was noted that Alternatives 2, 4, and 5 would require a change in the point of diversion. Alternatives 3, 4 and 5 were generally perceived to provide the adequate fish passage, with Alternative 4 being the most friendly for fish and boater passage. Alternatives 2, 4, and 5 would be the most cost effective in the \$4 to \$5 million range, while Alternative 3 may be prohibitively costly at over \$8 million. Alternatives 2, 3, 4, and 5 would provide mitigation by removing the existing diversion dam.
- The issue of mitigation was discussed. USACE noted that wetland mitigation can be provided off-site, but it is not possible to mitigate for lack of passage. Under the IP process, both temporary and permanent impacts would be assessed.
- Jurisdictional wetlands were discussed. USACE noted that wetlands are defined by three criteria (hydric soils, hydrophytic vegetation, and wetland hydrology). Areas located within the high water mark should not automatically be considered wetlands. USACE offered to verify the wetland delineation conducted for this project.
- A poll was conducted of meeting attendees regarding their Preferred Alternative, with results as follows:
 - DEQ prefers Alternative 4
 - USACE prefers any alternative that provides boat and fish passage (Alternatives 3, 4, and 5), although Alternative 4 appears to have the least impacts by maintaining the existing pool upstream of the existing dam
 - FWP prefers Alternative 4, as is appear to be the most fish-friendly
 - EPA prefers Alternative 4
 - DNRC Trust Lands prefers any alternative that provides boat and fish passage (Alternatives 3, 4, and 5)

- There was a discussion of priorities. DOWL HKM again noted that over 30,000 people depend on this water source, and further, that the Preferred Alternative must be within range of the budgetary constraints of BSB.
- USACE and DNRC Trust Lands noted that regulations must be followed.
- FWP noted that it would not consider cost or schedule as a factor. An alternative should not be eliminated due to the point of diversion issue, which would only require approximately 16 months to address. The new structure could be in place for 100 years. Environmental impacts must be weighted heavily.
- DOWL HKM noted that it may not be possible to get through another spring runoff. This is an important issue for the residents of Butte who depend on the Big Hole River as a source of water. DNRC Trust Lands noted that unless the dam fails tomorrow, there are laws and processes that must be followed.
- The process for selection of the Preferred Alternative was discussed. DNRC Trust lands stated that BSB and DOWL HKM will select their Preferred Alternative, but that DNRC, as decision maker, will ultimately select the single alternative that moves forward. EPA noted that the funding agencies (NRDP, BSB, USACE) should agree on the Preferred Alternative. DOWL HKM noted that it will be imperative to close the public review period before the end of the year, or we will miss our window of opportunity for construction next summer.

cc: Meeting attendees
file