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Managing Water in the West

Draft Environmental Assessment

Repairs to Deadwood Dam Access Bridge and Operational Changes to Support Research Activities in the Deadwood River

Valley County, Idaho

U. S. Department of the Interior
Bureau of Reclamation
Snake River Area Office
Boise, Idaho

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Draft Environmental Assessment

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1.0 Purpose and Need for Action

1.1 Purpose and Need

The Bureau of Reclamation (Reclamation) is proposing to repair erosion of the foundation of the valve house access bridge below Deadwood Dam. Dive inspections of the abutment have recorded active erosion and undermining of the foundation rock below the abutment retaining wall on the left upstream side, jeopardizing its stability. The purpose of the proposed project is to permanently stabilize the area and prevent future erosion.

In order to take advantage of the reduced releases from Deadwood Dam required for construction, Reclamation proposes to conduct bull trout research activities in the Deadwood River downstream from the dam. The research activities would be in support of terms and conditions for bull trout Reclamation received in its Biological Opinion from the U.S. Fish and Wildlife Service (FWS) for future operations and routine maintenance at 12 Federal projects in the upper Snake River basin above Brownlee Reservoir (FWS 2005). Data collection at low flows is important in determining the effects of different winter operation of the Dam for bull trout. The research activities would begin approximately two weeks prior to the construction work and require an additional period of minimal releases from Deadwood Dam.

1.2 Background

Deadwood Dam is a concrete thick arch dam located on the Deadwood River, a tributary to the South Fork Payette River, approximately 55 air miles northwest of Boise, Idaho. It was constructed between 1929 and 1931. The dam stores water for irrigation, power generation (at Black Canyon dam downstream) and flow augmentation for anadromous fish. Water is released through two jet flow gates at the base of the dam into a stilling basin which also serves as the spillway plunge pool (Figure 1).

The valve house access bridge is located about 200 feet downstream from the dam (Figures 1 and 2). It provides vehicle access for operation and maintenance purposes and is not open to vehicle use by the public. The river channel where the bridge crosses the river is constricted by the concrete retaining wall and abutment on the left side (looking downstream) and a rock retaining wall supporting the access road on right side of the channel (Figure 2). Water released from the dam or coming over the spillway deflects off the left retaining wall as the channel narrows. Water velocities can be quite high even in normal controlled releases from the dam (Figure 2). The combination of the angle of the bridge abutment wall and the water velocity is what is causing the erosion problem.

Figure 1 - Deadwood Dam and valve house access bridge

Figure 2 - Access bridge showing area of erosion during normal irrigation releases

Reclamation repaired the area of erosion previously in fall of 1993. This repair involved shutting off releases from the dam and placing a concrete patch over the actively eroding area (Figure 3). The area currently eroding is located below and upstream of the concrete repairs made in 1993.

Figure 3 – Bridge foundation immediately after patching erosion in 1993. Current erosion is below and extends to the left of the concrete patch.

1.3 Scoping

Through internal scoping Reclamation determined that the effects of the project were primarily localized and confined to the Deadwood River from Deadwood Dam downstream. Issues related to changes in hydrology, aquatic species, water based recreation and potential construction-related impacts to water quality were known to be of concern.

The proposed project was discussed with U.S. Fish and Wildlife Service (FWS) and Idaho Department of Fish and Game (IDFG) to identify potential issues to threatened bull trout and other aquatic species. Reclamation also presented the proposed project to the Payette River Watershed Council, including representatives from commercial whitewater boating, local and state government representatives and irrigation interests. The primary concern expressed at the meeting was by commercial whitewater boating interests would experience a shorter floating season on the South Fork Payette River.

2. Proposed Action and Alternatives

2.1 No Action

Under the No Action alternative, no repairs would be made to the bridge abutment. Operation of Deadwood Dam would continue as it has in the past. Reclamation would not alter normal operations to conduct bull trout studies below Deadwood Dam.

2.2 Proposed Action

The proposed project consist of two related and overlapping actions: (1) making repairs to the bridge foundation which requires dewatering a portion of the river channel and (2) taking advantage of the low flows during construction and extending the low flow period to conduct bull trout research activities.

Dewatering of the River Channel

Bull trout research activities would begin prior to repair of the bridge foundation. Releases from Deadwood Dam would be ramped down from approximately 800 cfs to 5 cfs (the amount passing through the dam's small hydro generator) over a 24-hour period beginning on August 22, 2010. Releases would remain at 5 cfs until the beginning of the construction phase on September 7, at which time releases would be reduced to zero and the construction area dewatered. Releases would remain at zero throughout the construction phase however seepage from the dam would contribute about 2-3 cfs flow.

During the construction phase, loose rock downstream from the stilling basin would be moved aside to promote lowering of the stilling basin water level to dewater the work area. If needed, the pool would be pumped to maintain a suitable water level. Figure 4 shows the stilling pool, pump location, and work area during the 1993 bridge foundation erosion repair.

Bull Trout Research Activities

Bull trout research activities would begin on August 23 and continue concurrently with construction work until about October 12. Research activities associated with the drawdown would include: fish salvage in the stilling basin and any stranding pools downstream, estimate frequency of stranding pools and loss of fish biomass associated with stranding pools, estimate available habitat in main channel, macro invertebrate biomass and distribution, validate the mass balance equation (flow), fish sampling for bull trout density and movement, ground validation of green LiDAR data, and R1/R4 type habitat surveys. Planned research work will collect data for the formulation of predictive models that will be used to address Terms and Conditions 3a – 3e in the 2005 Opinion (FWS 2005). Research activities are expected to last throughout the time flows are reduced – approximately 52 days.

Construction Activities

In order for equipment to gain access to the foot of the bridge abutment, a ramp would be constructed downstream of the bridge on the right side of the river channel by pushing over

excess bank material and filling the recessed area. A small track hoe would gain access to the channel bottom via the ramp and be used to remove loose material near the eroded area of the abutment foundation. The loose material, which may contain fines, would be deposited in an upland location. The track hoe is the only vehicle that would need access to the channel bottom.

Figure 4 – Deadwood River channel during dewatering for work in 1993.

Forms would be constructed and concrete would be placed well under the foundation and upstream of the concrete patch placed in 1993 (Figure 3). The overall dimensions of the concrete block would be approximately 30 feet long and 3 feet high. After the concrete cures and forms are removed, the large riprap material that was pulled away from the work area would be replaced upstream of the new concrete to offer further protection from wave action. Rock in the channel bottom that was moved aside to promote lowering of the stilling basin would be replaced. The access ramp on the right side of the channel would be restored to original grade and as much of the fine material would be removed from the river channel as possible.

Construction is expected to last approximately 35 days from the time the work area is dry enough to move equipment in. After completion of the project flows would be ramped up to 50 cfs over a one day period. The dam will be operated normally afterwards.

3.0 Affected Environment and Environmental Consequences

3.1 Reservoir Operations and Hydrology

Affected Environment

Deadwood Dam is a concrete arch dam with a structural height of 165 feet that impounds approximately 153,992 acre feet of water when full. The dam has two jet flow gates to release water and an unregulated spillway. Storage space in Deadwood Reservoir is under contract for irrigation (56,600 acre feet), or allocated minimum winter pool (49, 900 acre feet), streamflow maintenance (30,000 acre feet), or salmon flow augmentation (25,400 acre feet). There are 100 acre feet of dead storage in the reservoir.

Deadwood Reservoir usually fills in mid to late June and spills water through the jet flow gates in average to high water years. The reservoir is drafted through the summer as releases for irrigation and power generation are made. In good water years irrigation releases are made concurrently with spill beginning in June and typically range from 300-1300 cubic feet per second (cfs) in June, 300-700 cfs in July and 500 – 1100 cfs in August. In very poor water years, especially in successive dry years with little reservoir carryover storage, irrigation releases may be delayed until mid June to July. Reclamation attempts to release water for irrigation through Labor Day to benefit whitewater boating on the South Fork Payette River; however this is not possible in some dry years.

Since 1994, Reclamation has released a minimum flow of approximately 50 cfs through the fall and winter from 30,000 acre feet of uncontracted storage in Deadwood Reservoir to benefit aquatic resources in the Deadwood River. Releases from Deadwood dam are reduced to approximately 50 cfs, usually in late August or early September. Releases are held at approximately 50 cfs until the reservoir spills in June or flood control requires releases in the spring in high water years. During very dry years, releases may be held to the 50 cfs minimum until as late as July.

The river channel and side surfaces immediately below Deadwood Dam are composed primarily of granitic boulders and bedrock as shown in Figure 4, and the stream gradient is 3.7 percent. Flows from the Deadwood Dam outlet works are the primary source of water for approximately .3 miles of river channel from the dam to the confluence of Wilson Creek (Figure 5). Wilson Creek contributes approximately 2 cfs to the main channel during the fall (Table 1). There are a number of springs along the east side of the channel that also contribute to stream flows between Wilson Creek and Warm Springs Creeks. Warm Springs and Whitehawk creeks have contributed a minimum of 4.6 and 3.6 cfs, respectively since measurements have been taken (Table 1).

There are several other unmeasured tributary streams to the Deadwood River between Wihtehawk Creek and the confluence with the South Fork Payette River (Figure 5). It is

estimated that tributaries to the Deadwood River downstream from the dam contribute approximately 50 cfs in late summer and
fall.

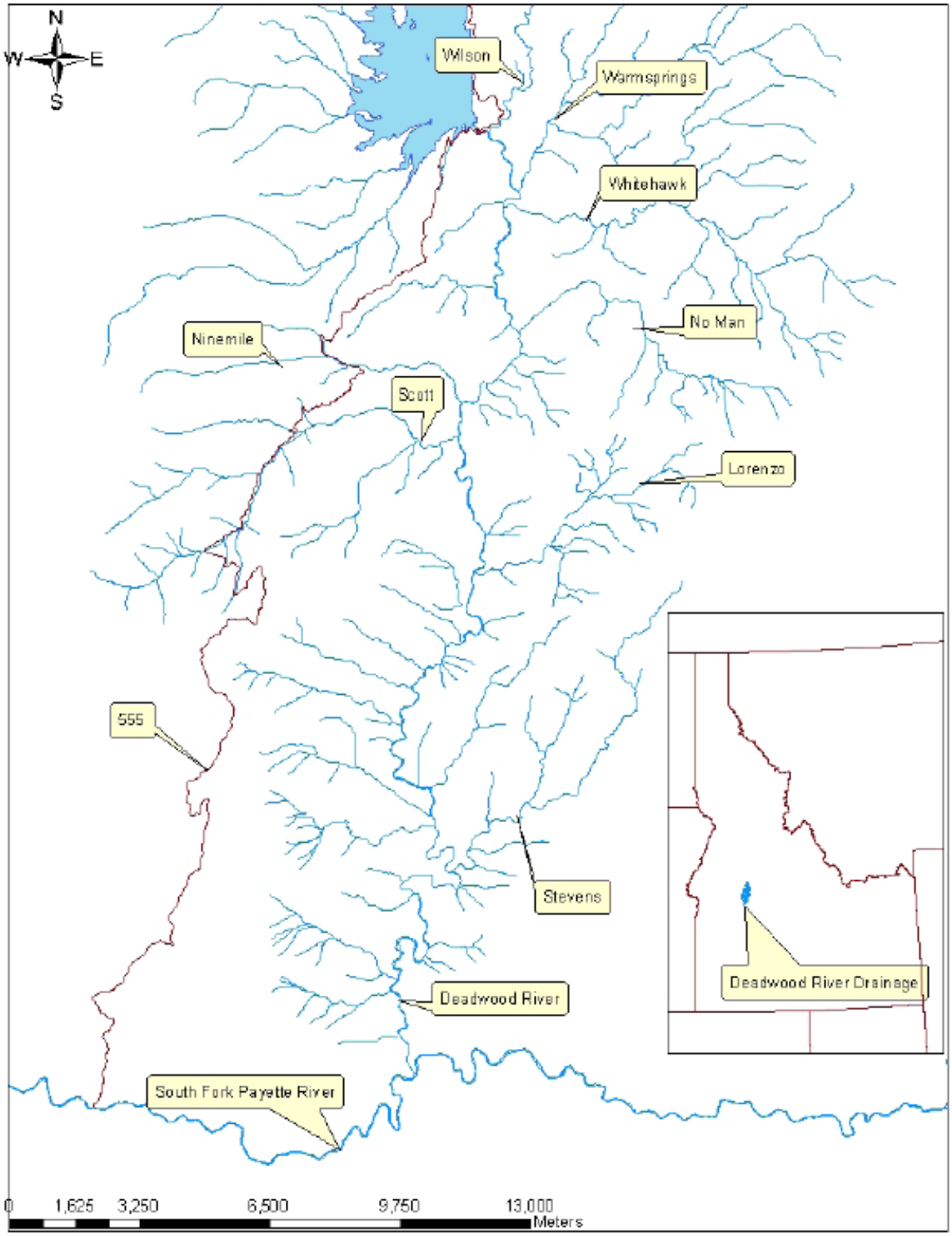

Figure 5 – Major tributary drainages to Deadwood River below Deadwood Dam.

	Discharge estimates (cfs)		
	Wilson Creek	Warm Springs Creek	Whitehawk Creek
2006	2	6.1	4.6
2007	2	4.6	4.4
2008	2.4	7	3.6
2009	1.9	7	4.1
average	2.1	6.2	4.2

Table 1. Discharge in cfs from Deadwood tributaries within the first 1.4 miles downstream of Deadwood Dam. Most discharge data is averaged from 30 minute readings taken between August 15 and October 1. Readings in 2009 differed between tributaries, Wilson (Aug 15 - October 1), Warmsprings (Aug 15-25) and Whitehawk (Aug 15-Sept 23). Methods described in Deadwood Feasibility Study Proposal (Reclamation 2008).

Environmental Consequences

No Action

Under No Action, with 2010 a relatively dry year there would be a possibility that releases at Deadwood Dam would be reduced to 50 cfs earlier than normal water years. Since Labor Day weekend is relatively late in September in 2010, there would be no assurance that irrigation releases could be maintained through Labor Day.

Proposed Action

Under the proposed Action, releases from Deadwood Dam would be similar to No Action until August 23, when they would be reduced to 5 cfs to accommodate bull trout research activities. Flows would be held at 5 cfs until September 7 when construction activities begin. Flows immediately below the dam would consist of seepage, estimated to be 2-3cfs. Flows would be 2-3 cfs between the work area and Wilson Creek, 4-5 cfs from Wilson Creek to Warm Springs Creek, approximately 10 cfs between Warm Springs and Whitehawk Creeks, and 14 cfs below Whitehawk Creek. Other tributaries would contribute flow to the river farther downstream.

The proposed action will primarily impact river flows in the first 0.3 miles downstream from the stilling basin of Deadwood Dam to the confluence of Wilson Creek, however, the reduction in flow will be detectable further downstream. Impacts will be lessened between Wilson and Whitehawk creeks (1.9 miles downstream of the dam) because of flow contributions from these tributaries. A flow reduction of 50 cfs represents approximately 50% of the total flow at the mouth of the Deadwood River and South Fork Payette River.

3.2 Threatened and Endangered Species

Federally listed and proposed species and designated critical habitat that occur in Valley County include bull trout, Canada lynx, northern Idaho ground squirrel, spring/summer Chinook salmon, steelhead trout, and designated critical habitat for bull trout (FWS 2009).

Affected Environment

Bull trout

Bull trout within the Columbia and Klamath River basins were listed by the FWS as threatened in June 1998 (63 FR 31647). Bull trout within the Deadwood River basin are included in the Payette River Recovery subunit and are part of the Columbia River Basin listing. Bull trout designated critical habitat does not include the action area downstream of Deadwood Dam (70 FR 56212).

Bull trout exhibit two life history forms: migratory and resident. Migratory fish emigrated from the small headwater streams where they emerged and reared as juveniles to larger rivers (fluvial forms) or lakes (adfluvial forms). Resident fish remain in the spawning and rearing streams throughout their entire lives (Pratt 1992).

Bull trout have been documented throughout the Deadwood River Basin (FWS 2005) and have been captured in the stilling basin downstream of Deadwood Dam during the summer and fall 2007-2009 (Reclamation 2010). Most tributary populations within the Deadwood Basin are composed of small bull trout that appear to be resident. Although bull trout larger than 300 mm total length have been encountered in the mainstem Deadwood River and within the mouths of tributary streams, they appear to be extremely rare in the headwaters (Salow 2004).

Scott and Warm Springs creeks, tributaries to the Deadwood River downstream from Deadwood Dam, support strong numbers of bull trout (FWS 2002), although it is not known to what extent those fish may use the mainstem Deadwood River. Based on information prior to 2005, the FWS concluded that bull trout likely occur in depressed numbers in the Deadwood River below Deadwood Dam (FWS 2005). Data collected since 2005 continues to support this conclusion.

The Deadwood River downstream from the dam may function as a migratory corridor and summer rearing habitat for bull trout. Water temperature downstream from the dam under past and current operations has been substantially colder during the summer and warmer during the fall/winter and has lacked the variability of other unregulated streams within the same areas of Idaho. The change in temperature and flow regimes has most likely altered the aquatic community and has accounted for the scarcity of fish and macroinvertebrates observed (Allen 1998). Recent productivity work (Reclamation 2008) in the Deadwood River below Deadwood Dam has described the macroinvertebrate fauna as having average densities as compared to other sites in the northwest, but low numbers of species (Rosenberger, USFS, pers. comm.).

Canada Lynx

The Canada lynx (*Lynx canadensis*) was listed as threatened for the contiguous United States on April 24, 2000 (65 FR 16052). Canada lynx occurs in subalpine coniferous forests in Idaho that

receive deep snowfall. There is habitat suitable for Canada lynx in the area of Deadwood Dam and Reservoir; however the lodgepole/ponderosa pine forest in the immediate vicinity of Deadwood Dam is marginal habitat.

Canada lynx primarily prey on the snowshoe hare (*Lepus americanus*) that inhabit forests with dense understories. The hare has evolved to survive in areas that also receive deep snow. Lynx use downed logs and windfall trees for denning sites that provide thermal cover and security for kittens. (65 FR 16052).

Northern Idaho Ground Squirrel

The northern Idaho ground squirrel *(Spermophilus brunneus brunneus)* was Federally listed as a threatened species on April 5, 2000 (65 FR 17779). This subspecies is known to exist only in Adams and western Valley Counties of western Idaho. The entire range of the subspecies is about 32 by 108 kilometers (20 by 61 miles), and as of 2002, 34 of 40 known population sites were extant (FWS 2003).

Chinook salmon, steelhead trout

Chinook salmon and steelhead trout do not occur in the Deadwood or Payette Rivers except for occasional stocking in Deadwood Reservoir as described in Chapter 3.2. Reclamation does provide salmon flow augmentation water to benefit these species from Deadwood Reservoir. This water is usually released in the summer months.

Environmental Consequences

No Action

Under the No Action alternative, releases from Deadwood Dam would be similar to past operations. Effects to bull trout below the dam would be similar to what has occurred in the past. Issues related to water temperature and entrainment through Deadwood Dam would persist in the near term.

Proposed Action

Bull Trout

Adverse impacts to bull trout are expected to occur from the reduction of flows from Deadwood dam. There are no measurable adverse impacts anticipated from construction work at the bridge abutment or from construction and removal of the temporary access ramp. The work associated with site preparation and concrete placement along the eroded bridge abutment and the construction of the temporary access ramp would result in a very small amount of sediment that cannot be effectively removed from the river channel. This sediment would be mobilized once dam releases are returned to 50 cfs. The amount of sediment would be negligible and probably undetectable and is not likely to adversely affect bull trout, proposed critical habitat, or prey base.

Habitat impacts due to reduction of flow - The proposed action would primarily impact the first 0.3 miles downstream from the stilling basin of Deadwood Dam to the confluence of Wilson Creek, however, the reduction in flow may be detectable further downstream. Impacts would be lessened between Wilson and Whitehawk creeks (1.9 miles downstream of the dam) because of tributary flow contributions. Adverse affects below Whitehawk Creek are not expected, although a flow reduction of 50 cfs represents approximately 40-50% of the total flow at the mouth of the Deadwood River and South Fork Payette River.

Direct impacts to bull trout are expected to be related to flow reductions resulting in habitat disconnect and stream temperatures during the estimated 52 day duration of proposed action (August 22 – October 12). Reduced flows could affect bull trout by potentially disconnecting deep pool habitats limiting their ability to move between habitats, and exposing them to increased predation. Indirect impacts are likely to occur but not at levels that would likely impact bull trout, these include: changes in water quality, prey base, predation, and fish handling.

Very few bull trout are expected to be in the mainstem river, but if present are likely confined to the stilling basin. Bull trout present in the stilling basin are likely entrained and if captured during the proposed salvage effort (described below) would be relocated to suitable habitat upstream of the dam.

Effects to habitat are expected to occur throughout the duration of the proposed action (estimated 52 days) but vary within the action area. Habitat disconnect at zero flow (plus groundwater seepage into the channel) would occur from the base of the dam to Wilson Creek (0.3 miles). Wilson Creek provides an average inflow of 2.1 cfs during the time of the proposed action (Table 1). The river channel downstream of Wilson Creek is rocky and constricted, concentrating flows into a narrow channel presumably allowing access between deep pool habitats during reduced flows. Reclamation staff performed habitat surveys in 2009 and identified 17 pool habitats within the first 1.9 miles downstream of the dam that are assumed to provide cover at reduced flows (Reclamation internal data). Inflows within the first 1.9 miles downstream of the dam also minimize effects of low flow including approximately 11.5 cfs combined from Wilson (2.1 cfs), Warmsprings (6.2 cfs) and Wilson (4.2 cfs) creeks, seepage from the dam, and multiple riparian springs between Warmsprings and Whitehawk creeks.

Water temperature impacts due to a reduction of flow- Reduced flow from Deadwood Dam would positively affect bull trout by reducing water temperatures to a level within their preferred range. Deadwood Reservoir is known to discharge warmer temperature water than unregulated tributaries when reservoir levels are low in late summer (Reclamation 2010). By reducing discharge, water temperatures in the Deadwood River downstream of the dam would be lower because natural flows would no longer be mixing with reservoir outflow. Based on current water forecasts for 2010, discharge water temperatures would likely exceed 15° C during August approaching the conditions observed in 2007 (Reclamation 2010). After the proposed construction is complete (October 12) and outflow from Deadwood Dam is increased water temperatures in the reservoir have cooled and are more similar to temperatures in the tributaries.

Prey base impacts due to a reduction of flow – Reduced flow from Deadwood Dam is expected to have minor impacts to benthic, immobile organisms and fishes other than bull trout throughout the Deadwood River below the dam. Impacts likely to occur would include stranding and the

subsequent loss of prey and increased predation due to increased biota densities in the reduced habitat. Increased predation would be mitigated somewhat by salvage efforts that would remove fish from some pools.

Effects to the bull trout prey base from dewatering would be mitigated by conducting the salvage efforts; however, all bull trout likely to be effected by a reduced prey base (those in the stilling basin) would be relocated to suitable habitat upstream of the dam.

Mitigation - Effects of reduced flow would be monitored by conducting two salvage efforts (described earlier in the flow impacts section). One salvage effort would occur in the tailrace pool preceding flow reductions (August 22-26). All fishes other than bull trout would be relocated into the Deadwood River downstream of Wilson Creek. Based on numbers of fish captured, salvaged fishes may be relocated into several pools to minimize resource competition.

A second salvage effort would occur concurrently with the first between the tailrace and Whitehawk Creek. This effort would focus on sampling stranding pools to quantify the volume of water in off channel stranding pools and to enumerate stranded fishes in those pools. All fishes captured in stranding pools would be identified, enumerated by species, and returned to the main river channel including bull trout. (Only bull trout sampled in the stilling basin would be relocated above the dam.) Sampling methods would be consistent with those described in the fish sampling and transport permits issued by the IDFG (Appendix D and E). Transporting and handling bull trout could expose the fish to additional stress but the proficiency of Reclamation staff to safely and quickly relocate fish would reduce the likelihood of injury.

During construction, best management practices would be used to minimize any input of sediment or pollutants such as waste concrete or fuel into the river. All material excavated from the eroded area of the bridge would be disposed in an upland site.

Canada Lynx

The proposed construction activities and biological studies would occur in a relatively disturbed and frequently used area in marginal habitat where Canada lynx have not been documented. Further, no evidence has been found to show that neither Canada lynx nor their primary prey requires the use of riverine habitats, and therefore would be unaffected by changes in river flows for the duration of the project. Reclamation has determined that the proposed action would have no effect on the Canada lynx.

Northern Idaho Ground Squirrel

The project area is outside of the current range and probable historic distribution of the northern Idaho ground squirrel, and does not contain suitable habitat. The proposed action would have no effect on the northern Idaho ground squirrel.

Chinook salmon, steelhead trout

The proposed project is not within the range of these species in Valley County. Operational changes under the proposed action would not impact Reclamation's ability to store and release water for flow augmentation. The proposed action would have no effect on Chinook salmon or steelhead.

3.3 Other Aquatic Resources

Affected Environment

Numerous fish species occur in the Deadwood River and associated tributaries. The community is primarily dominated by mountain whitefish and rainbow or redband trout. Other species found include redside shiner, and speckled dace. Chinook salmon, coho salmon Atlantic salmon, numerous strains of rainbow trout and steelhead hybrids, and kokanee salmon have all been stocked into Deadwood Reservoir in the past by Idaho Department of Fish and Game; however the Deadwood River has not been stocked for at least 15 years according to fish stocking information on IDFG's website (IDFG 2010). Some of the fish stocked in the reservoir are undoubtedly entrained into the river below.

The invertebrate community in the Deadwood River below Deadwood Dam is composed primarily of collectors and some predators from Plecoptera and Trichoptera. There are several predator and grazing genera as well. Oligocheata are entrained from the reservoir in large numbers in August. Zooplankton are dominated by Daphnia species.

Environmental Consequences

No Action

Under No Action, fish populations in the Deadwood River below Deadwood dam are expected to remain similar to the present conditions.

Proposed Action

Minor impacts are anticipated for fishes other than bull trout. Similar to bull trout potential impacts related to reduction of flow (habitat disconnect, predation, minor loss of prey base) would likely occur. Minor impacts are anticipated for benthic, immobile aquatic organisms within the first 0.3 miles of the Deadwood River due to dewatering of portions of the channel.

The fish salvage as described in Section 3.2 above would mitigate direct impacts to fish. Based on numbers of fish captured, salvaged fishes may be relocated into several pools downstream of the construction area to minimize resource competition. Ramping prior to shutoff may reduce the likelihood of stranding individual fish downstream of the construction area.

3.4 Recreation

Affected Environment

River oriented recreation activities in the affected area are primarily whitewater boating and fishing. Whitewater boating is popular on the South Fork Payette River below the confluence with the Deadwood River. Popular reaches for whitewater floating are the Canyon reach from Lowman to Garden valley and the Staircase area from the Middle Fork confluence to the confluence with the North Fork Payette at Banks. These river reaches are used by four commercial outfitters as well as many recreational rafters and kayakers.

Irrigation releases from Deadwood Dam are particularly important for whitewater boaters in maintaining flows in the South Fork Payette in late summer as natural flows decrease. As explained in Section 3.1 above, Reclamation attempts to release water for irrigation through Labor Day to benefit whitewater boating on the South Fork; however this is not possible in some dry years. Once Deadwood Dam releases are dropped to the 50 cfs winter minimum, most whitewater boating ceases on the South Fork Payette.

Some fishing occurs on the Deadwood River near the dam and confluence where access is good, and fish entrained from the reservoir are available. IDFG has not stocked the Deadwood River in the last 15 years. The lack of access along much of the Deadwood River and relatively low numbers of fish keep angler numbers low.

Environmental Consequences

No Action

Under No Action, Reclamation would continue to release irrigation flows from Deadwood Dam through the Labor Day weekend when storage in Deadwood Reservoir is available to allow for commercial and recreational floating on the South Fork Payette River. Angling on the Deadwood River would be expected to continue at the level it has in the past.

Proposed Action

Under the Proposed Action, releases from Deadwood Dam would be reduced to 5 cfs by August 22 which would end most whitewater boating on the South Fork Payette River at that time. This would be a two week shorter floating season and would eliminate the Labor Day weekend which is one of the busiest of the year for both the four commercial outfitters and recreational boaters. Reclamation has notified the commercial boater through the Payette River Advisory Group of the planned low flows which may allow them to book trips on other rivers over Labor Day and minimize their loss of business on the South Fork Payette.

Fishing below the dam would be lost for the duration of the project. Fish salvage efforts would remove most catchable fish in this reach.

3.5 Cultural Resources

Affected Environment

Touted as one of the least accessible of Reclamation's engineering works in the Boise Project, Deadwood Dam was built in the isolated and mountainous Deadwood River Basin between 1929 and 1931 for the purpose of regulating stream flow for the hydroelectric plant at Black Canyon Dam on the Payette River. Deadwood Dam is a constant-radius, concrete-arch structure, and was the first true example of the concrete-arch type dam built in Idaho. On Dec. 28, 1989, Deadwood Dam was officially determined eligible for listing on the National Register of Historic Places, both individually and as a contributing property in the Boise Project Linear Historic District.

The Payette River Basin, has seen a limited amount of archaeological research, and the prehistory of the area has not been well-defined. A small number of discoveries of very early material in the Payette River Basin suggest that Paleoindians and Early Archaic peoples may have passed through or utilized the area between 5,000 and 12,000 years ago. More recently, Native American groups, including the Shoshoni and Nez Perce, visited and utilized the Deadwood River watershed as one part of a much larger cultural landscape. Their lifeway was cyclical and seasonal as they moved through different ecotones to collect various resources at optimum times of the year.

Historically, the Payette valley first saw non-native peoples in the form of fur trappers in the late 1820s. Mining brought more Euro-Americans into the area, commencing in 1863. The town of Deadwood City was booming in 1867, but placers generally stopped returning value over the next few years, and Deadwood City was a ghost town by 1876. Industrial mining in the area continued into the 1940's. The logging industry and extensive sheep grazing also impacted the area historically.

The present proposed project includes a small area immediately downstream of Deadwood Dam that is devoid of archaeological sites or material due to the extent of dam construction disturbance. The original bridge that granted access to the valve house was replaced in 1962 with the one still existing. In the 1962 Boise Project History, there are two photographs related to the bridge (see below). One photo shows the steel beams of the bridge being hauled up the road to the dam (dated July 1962), and the other photo is of the completed replacement bridge (dated October 1962). It appears the bridge has experienced very little change since its installation.

Under the National Historic Preservation Act, (Sec. 110(a)(2)(B)), Federal agencies are required to manage and maintain significant properties in a way that gives special consideration to preserving such properties having national significance. The significance of an historic property is based on established criteria to be considered for eligibility in the National Register of Historic Places (as outlined in 36 CFR part 60). Criteria can generally be applied only to historic properties of greater than 50 years of age. The installation date of August 1962 of the existing bridge makes it less than 50 years old, thus the existing valve house bridge cannot be considered a significant historic property and cannot be considered for eligibility for listing on the National Register of Historic Places.

Environmental Consequences

Given the age of the access bridge, and its lack of historical significance, neither the Proposed Action nor No Action alternatives would affect historic properties. There would be no effect to archeological resources for either alternative due to the level of disturbance form dam and bridge construction.

3.6 Indian Trust Assets

Affected Environment

Indian Trust Assets are legal interests in property held in trust by the United States for Indian tribes and individuals. The Secretary of the Interior, acting as trustee, holds many assets in trust for Indian tribes and individuals. Examples of trust assets are lands, minerals, grazing, hunting, fishing, and water rights. While most Indian Trust Assets are on-reservation, they may also be found off-reservation.

The United States has a responsibility to protect and maintain rights reserved by or granted to Indian tribes and Indian individuals by treaties, statutes and executive orders. These are sometimes further interpreted through court decisions and regulations.

Anderson Ranch Reservoir is located in an area historically used by many tribes. The Shoshone-Bannock Tribes, a Federally-recognized tribe at the Fort Hall Indian Reservation in southeastern Idaho, has trust assets both on- and off-reservation. The Fort Bridger Treaty was signed and agreed to by the Bannock and Shoshone headman on July 3, 1868. Article 4 of the 1868 treaty states that members of the Shoshone-Bannock Tribe "shall have the right to hunt on the unoccupied lands of the United States." This has been interpreted to mean unoccupied Federal lands.

The Fort Bridger Treaty for the Shoshone-Bannock has been interpreted in the case of State of Idaho v. Tinno, an off-reservation fishing case in Idaho. The Idaho Supreme Court determined that the Shoshone word for "hunt" also included to "fish." Under Tinno, the Court affirmed the tribal members' right to take fish off-reservation pursuant to the Fort Bridger Treaty (Shoshone-Bannock Tribes 1994).

The Nez Perce are a Federally-recognized tribe of the Nez Perce reservation in northern Idaho. The United States and the tribes entered into three treaties (Treaty of 1855, Treaty of 1863, and Treaty of 1868) and one agreement (Agreement of 1893). The rights of the Nez Perce Tribes include the right to hunt, gather and graze livestock on open and unclaimed lands, and fish in all usual and accustomed places (Nez Perce Tribe 1995).

The Northwestern Band of the Shoshone Indians, a Federally-recognized tribe without a reservation, has treaty-protected hunting and fishing rights that may be exercised on unoccupied lands within the area acquired by the United States pursuant to the 1868 Fort Bridger Treaty.

The Shoshone-Paiute Tribes are a Federally-recognized tribe located at the Duck Valley Reservation in southern Idaho and northern Nevada. The reservation was established by executive orders dated April 16, 1877; May 4, 1886; and July 1, 1910. The Shoshone-Paiute say the interests of the tribes are also reflected in the Bruneau, Boise, Fort Bridger, Box Elder, Ruby Valley, and other treaties and executive orders that the tribes' ancestors agreed to with the United

States. The tribe continues to observe these treaties and executive orders in good faith despite the fact that the Federal government failed to ratify some of them. Therefore, the tribes assert they have aboriginal title and rights to those areas. All such treaties and executive orders recognize the need for the tribes to continue having access to off-reservation resources because most of the reservations established were and continue to be incapable of sustaining their tribal populations. This need continues and has not diminished from the time of the first treaties and executive orders that established the Duck Valley Reservation (Cherokee Nation of Oklahoma and Shoshone-Paiute Tribes of the Duck Valley Reservation v. Leavitt, 543 U.S. 631, 2005).

Environmental Consequences

There is no universally accepted understanding of any specific tribal off-reservation treaty rights to hunt and fish in the vicinity of Anderson Ranch Dam. Thus the Indian Trust Assets considered are tribal hunting and fishing rights that might exist. The No Action Alternative and Proposed Action would not affect tribal hunting and fishing in the area.

3.7 Environmental Justice

Executive Order 12898 requires Federal agencies to achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations." To determine if environmental justice populations are present, the Federal agency examines the demographics of the affected area to determine if minority (including Native Americans) and/or low-income populations are present. If present, the agency must determine if construction of the Proposed Action would cause disproportionately high and adverse human health or environmental effects on the populations.

There are no minority or low income populations present in the area affected by the proposed action, and no impacts to these populations would occur under the proposed action or no action alternatives.

4.0 Consultation and Coordination

Reclamation is in formal consultation with FWS under Section 7 of ESA for the proposed project's effects to bull trout. Consultation activities have included meetings, preparation and review of a draft biological assessment for the project, and review of the final biological assessment, which is ongoing.

Reclamation has discussed the project's impacts to fish and other aquatic species with IDFG biologists. The project was presented to the Payette River Watershed Council, including representatives from commercial whitewater boating, local and state government representatives and irrigation interests during its annual meeting in May 2010.

Reclamation has also discussed the project with U.S. Army Corps of Engineers (Corps) regarding permitting under Section 404 of the Clean Water Act and the Corps' responsibilities under Section 7 of ESA. Reclamation is in the process of obtaining permits from the Corps and Idaho Department of Water Resources under the joint application process.

5.0 References

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