

# **COVER SHEET**

FEDERAL ENERGY REGULATORY COMMISSION

DRAFT ENVIRONMENTAL IMPACT STATEMENT  
FOR THE HELLS CANYON PROJECT

Docket No. P-1971-079

Section 2  
Proposed Action and Alternatives  
Pages 7 through 38  
DEIS

## **2.0 PROPOSED ACTION AND ALTERNATIVES**

### **2.1 NO-ACTION ALTERNATIVE**

Under the No-action Alternative, the project would continue to operate under the terms and conditions of the existing license and of existing settlement agreements or memoranda of understanding or agreement. No new environmental measures would be implemented. We use this alternative to establish baseline conditions for comparison with Idaho Power's Proposal and other alternatives and to judge the benefits and costs of any measures that might be required under a new license. The effects of the No-action Alternative contribute to the character of existing environmental conditions, and we describe them in our discussion of the affected environment (refer to section 3.0). A description follows of the existing project facilities, current operations, and current environmental measures.

#### **2.1.1 Existing Project Facilities**

The Hells Canyon Project consists of three hydroelectric developments on the segment of the Snake River that forms the border between Idaho and Oregon. The three developments are Brownlee, Oxbow, and Hells Canyon (see figure 2). River mile (RM) 343 just above the upstream margin of Brownlee reservoir marks the upstream boundary; RM 247 of the Snake River downstream of Hells Canyon dam marks the downstream boundary of the project. The project lies approximately 20 miles northwest of Cambridge, Idaho; 90 miles northwest of Boise, Idaho; and 45 miles east of Baker City, Oregon.

Brownlee dam is farthest upstream at RM 284.6. Flow past Brownlee dam discharges into Oxbow reservoir. Oxbow dam is about 12 miles downstream of Brownlee dam, at RM 272.5. Flow past Oxbow dam discharges into Hells Canyon reservoir. Hells Canyon dam is about 25 miles downstream of Oxbow dam, at RM 247.6. The river downstream of Hells Canyon dam is unobstructed by artificial structures until it reaches the headwaters of Lower Granite reservoir, approximately 100 miles downstream of Hells Canyon dam.

##### **2.1.1.1 Brownlee Development**

The existing Brownlee development (figure 3), completed in 1958, consists of: (1) a 1,380-foot-long, 395-foot-high, clay-core, earth and rockfill dam with a single reinforced concrete spillway with seven radial gates, comprising four crest gates and three low-level outlet gates and a 173-foot-wide concrete-lined chute, which impounds (2) the approximately 57-mile-long Brownlee reservoir, with a surface area of 14,621 acres and a total volume of 1,420,062 acre-feet at elevation 2,077 feet mean sea level (msl); (3) a 500-foot-long intake channel excavated into the right rock abutment of the dam, leading to (4) five welded steel penstocks, which carry water to (5) a reinforced concrete powerhouse, containing five vertical Francis turbine generators, having a combined rated capacity of 585.4 MW, releasing flow into (6) two separate tailraces, comprising one 800-foot-long tailrace from the powerhouse section housing units 1 through 4 and one 1,350-foot-long tailrace from the powerhouse section housing unit 5; and (7) appurtenant facilities.

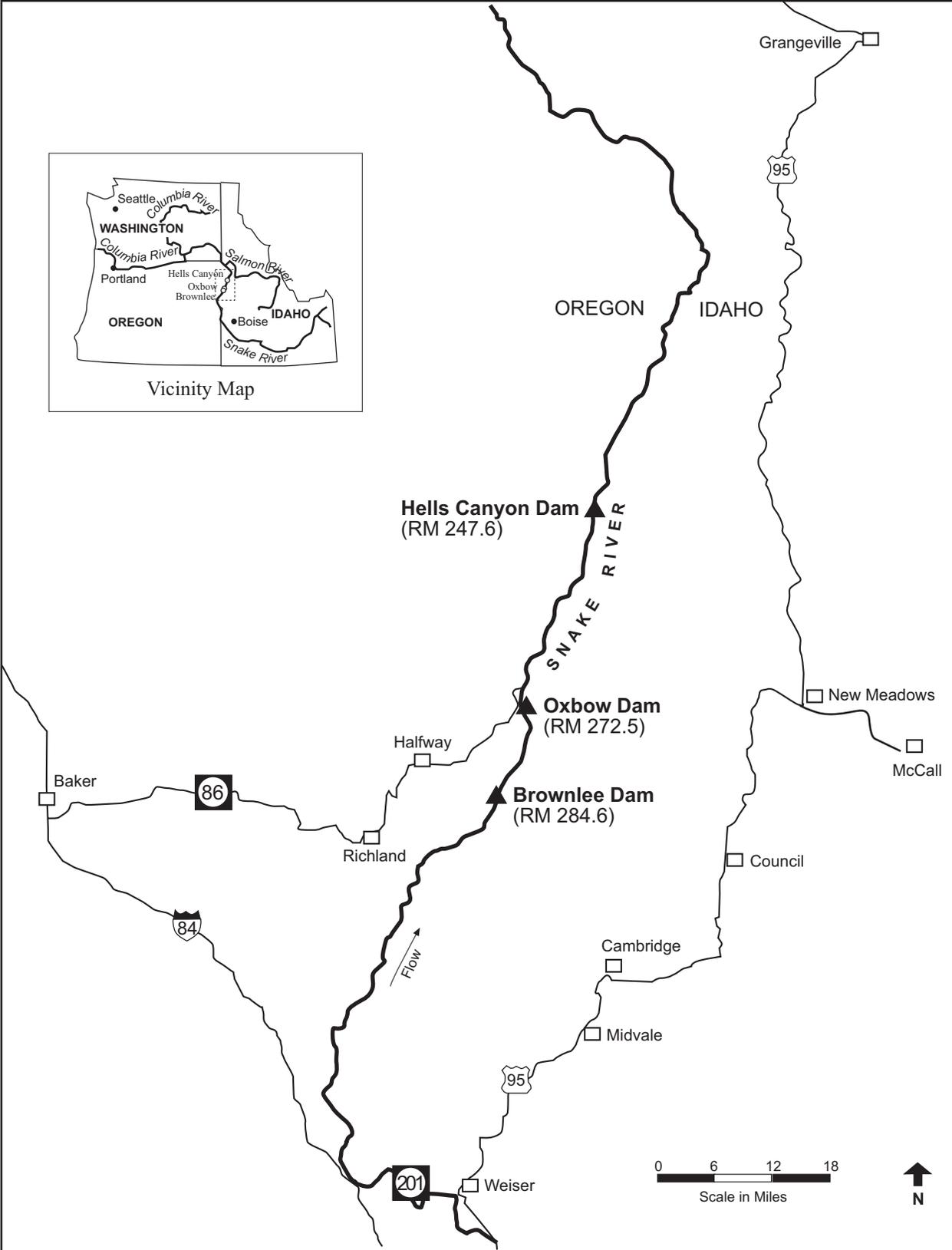


Figure 2. Hydroelectric developments of the Hells Canyon Project. (Source: Staff)

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### **2.1.1.2 Oxbow Development**

The existing Oxbow development (figure 4), completed in 1961, consists of: (1) a 960-foot-long, 209-foot-high, clay-core earth and rockfill dam with two spillways, comprising a 112-foot-wide concrete-lined primary spillway chute on the Oregon side and a 450-foot-long erodible “fuse plug” embankment and a 75-foot-wide concrete-lined emergency spillway chute on the Idaho side, which impounds (2) the 12-mile-long Oxbow reservoir, with a surface area of 1,150 acres and a total volume of 58,385 acre-feet at elevation 1,805 msl; (3) a 106-foot-high reinforced concrete intake structure and two 36-foot-diameter tunnels, one 781-foot-long and one 841-foot-long, connecting the intake structure to two surge tanks; (4) two 173-foot-long, 23-foot-diameter concrete-encased steel penstocks carrying water from the surge tanks to; (5) a reinforced concrete powerhouse containing four vertical Francis generators, having a combined rated capacity of 190 MW, releasing water into (6) a negligible tailrace; and (7) appurtenant facilities. This development has a 2-mile-long bypassed reach, most of which is inundated when Hells Canyon reservoir is at its maximum elevation.

### **2.1.1.3 Hells Canyon Development**

The existing Hells Canyon development (figure 5), completed in 1967, consists of: (1) a 910-foot-long, 330-foot-high, cast-in-place concrete gravity dam with integral spillway, intake, and powerhouse sections, which impounds; (2) the 25-mile-long Hells Canyon reservoir, with a surface area of 2,412 acres and a total volume of 167,720 acre-feet at elevation 1,688 feet msl; (3) three 24-foot-diameter, 164-foot-long, steel penstocks, which carry water to (4) a reinforced concrete powerhouse constructed against the downstream face of the dam, containing three vertical Francis generators, having a combined rated capacity of 391.5 MW, releasing water into (5) an unlined tailrace excavated into the original river channel and bedrock; (6) a reinforced concrete fish trap excavated into the bedrock of the left river bank, immediately downstream of the powerhouse; and (7) appurtenant facilities.

### **2.1.1.4 Transmission Facilities**

One 19-mile-long, 69-kilovolt transmission line (transmission line 945) is included in the license application (figure 6).<sup>9</sup> The line runs from the Oxbow switchyard to the Pine Creek substation and then to the Hells Canyon substation.

### **2.1.1.5 Fish Hatcheries and Related Facilities**

The project includes four fish hatcheries and three adult fish traps. These facilities, from downstream to upstream, include: (1) the Hells Canyon adult upstream migrant fish trap (see section 2.1.1.3, above); (2) the Oxbow fish hatchery; (3) the Rapid River fish trap; (4) the Rapid River fish hatchery; (5) the Niagara Springs fish hatchery; (6) the Pahsimeroi fish hatchery; and (7) the Pahsimeroi upstream migrant fish trap.

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<sup>9</sup> On March 21, 2005, the Commission amended the license to delete the Boise-Brody No. 2 and Boise-Bench-Midpoint transmission lines from the projects after finding that these lines are not primary transmission lines. On October 28, 2005, the Commission further amended the license to delete the Oxbow-Brownlee, Oxbow-Palette Junction-Hells Canyon, Palette Junction-Imnaha, Boise-Brownlee-Baker, Brownlee-Boise Bench Nos. 3 and 4, and Palette Junction-Enterprise transmission lines, effective on the date Idaho Power receives all necessary permits/approvals from the Forest Service and BLM, as appropriate, for the continued use of National Forest System lands and BLM lands.

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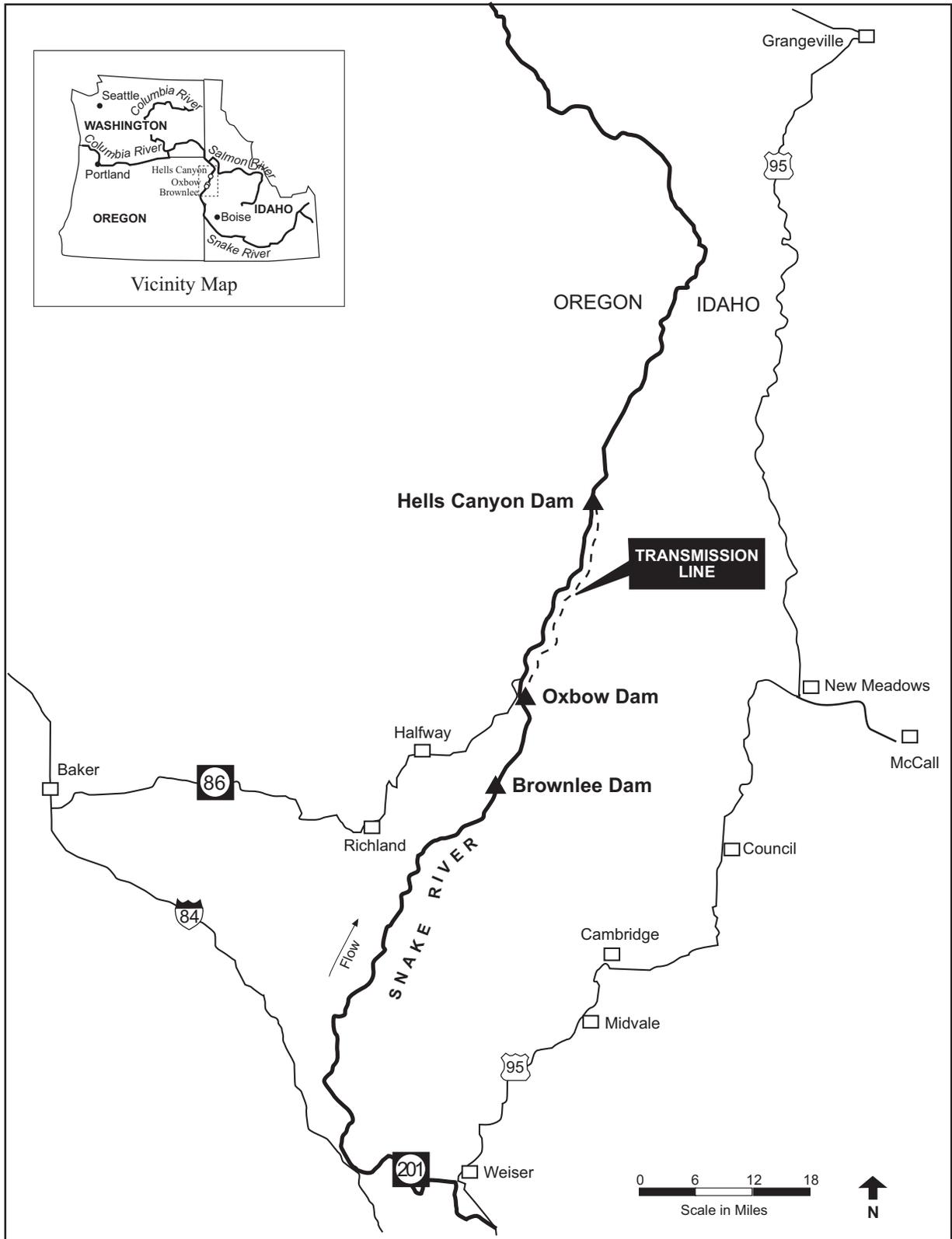


Figure 6. Transmission line associated with the Hells Canyon Project. (Source: Staff)

### **2.1.1.6 Recreation Facilities**

Idaho Power-owned recreational facilities at the project are as follows: (1) Woodhead Park; (2) McCormick Park; (3) McCormick Overflow; (4) Old Carters Landing; (5) Hibbards landing; (6) Copperfield Park; (7) the Copperfield boat launch; (8) Hells Canyon Park; (9) Airstrip A&B; and (10) several informal camping and access sites. Together, the sites provide numerous opportunities for launching boats; fishing; camping in tents, recreational vehicles (RV)s, and rental cabins; picnicking; and accessing hiking trails.

### **2.1.1.7 Project Safety**

The project has been operating for 49 years under the existing license and during this time Commission staff has conducted operational inspections focusing on the continued safety of the structures, identification of unauthorized modifications, efficiency and safety of operations, compliance with the terms of the license, and proper maintenance. In addition, the project has been inspected and evaluated every 5 years by an independent consultant and a consultant's safety report has been submitted for Commission review. As part of the relicensing process, the Commission staff would evaluate the continued adequacy of the proposed project facilities under a new license. Special articles would be included in any license issued, as appropriate. Commission staff would continue to inspect the project during the new license term to ensure continued adherence to Commission-approved plans and specifications, special license articles relating to construction (if any), operation and maintenance (O&M), and accepted engineering practices and procedures.

## **2.1.2 Current Project Operations**

The three-dam, three-reservoir Hells Canyon Project is operated to optimize its power and energy production value, subject to compliance with license requirements, flood control mandates, and environmental considerations. Because most of the usable reservoir capacity in the Hells Canyon Project is contained in Brownlee reservoir, operations of all three powerhouses and dams are driven by operations at the Brownlee development. All three developments are typically operated in a load-following mode.

### **2.1.2.1 Brownlee Development**

Operation of the Brownlee development varies both seasonally and daily. During the course of a year, the seasonal operation is typically as shown in figure 7. The seasonal fluctuations are the result of the following operational procedures:

- Idaho Power attempts to have a full reservoir by the first week in December to meet winter peak power demands. From early December when the fall Chinook spawning period ends through fry emergence in the spring, flows past Hells Canyon dam are maintained voluntarily to keep the river downstream of Hells Canyon dam above the target flow level selected in the fall. The effect of these maintained flows on Brownlee reservoir depends on the amount of runoff received. With medium and higher-than-normal inflows, minimum target flows downstream of Hells Canyon dam can be maintained without drafting (i.e., lowering) Brownlee reservoir before the spring flood-control draft in mid-January. Under drought conditions, Brownlee reservoir might be drafted during this period to provide the minimum target flow downstream of Hells Canyon dam.

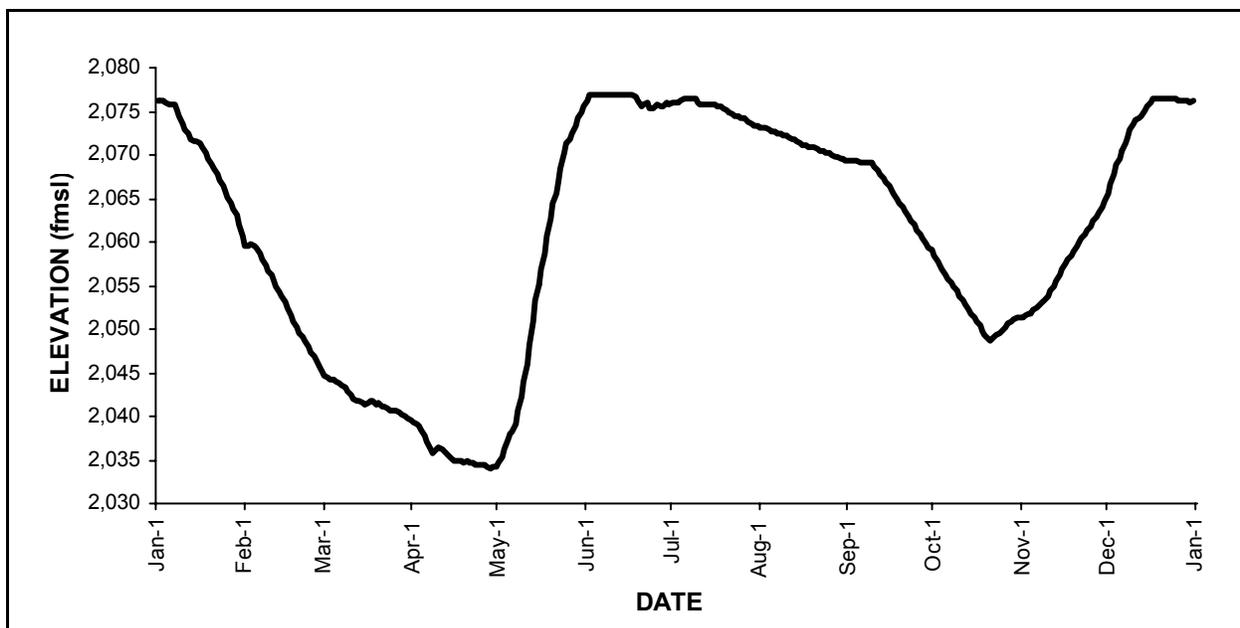


Figure 7. Simulated Brownlee reservoir levels for proposed operations under medium water conditions. (Source: Bowling and Whittaker, 2005, as modified by staff)

- Starting in mid-January, Brownlee reservoir is drafted, under the direction of the U.S. Army Corps of Engineers (Corps), to provide storage space for springtime flood waters. The Northwest River Forecast Center produces the monthly final water-supply forecasts that are used to derive the draft needed by the flood control target dates of February 28, March 31, April 15, and April 30.
- In May, operations depend on hydrologic conditions. During low and medium to low flow years, there is typically no flood control requirement in May. During May, Idaho Power continues to provide minimum flows for fall Chinook protection through their spring emergence. If emergence is completed in May, Idaho Power continues to provide minimum flows and a higher daily pulsed maintenance flow to prevent the stranding of fall Chinook fry that have not yet moved downstream. During medium to high flow years, Brownlee reservoir is typically filling in May, capturing inflows as part of the spring flood control operation. The rate of refill for Brownlee reservoir and outflow from Hells Canyon reservoir are directed by the Corps and vary yearly. Once the elevation of Brownlee reservoir reaches 2,069 feet msl on or after May 20, Idaho Power initiates a 30-day period for protection of Brownlee reservoir resident warmwater fish spawning. During this period, the reservoir is typically not drafted more than 1 foot from the highest elevation reached during the 30-day period. Depending on hydrologic conditions, Brownlee reservoir may be full on May 20 and remain within the top 1 foot for the 30-day period. Idaho Power tries to achieve a reservoir elevation of 2,069 feet msl or higher by June 7.
- June operations also depend on hydrologic conditions. During low and medium to low flow years, there is typically no flood control requirement in June. If fall Chinook emergence has been completed in May, Idaho Power continues to provide minimum flows and a higher daily pulsed maintenance flow to prevent stranding. During medium to high flow years, Brownlee reservoir may continue to refill in June as part of the spring flood control operation, as directed by the Corps. The 30-day Brownlee reservoir resident warmwater fish

spawning period is generally in effect until June 20, during which time the reservoir is typically not drafted more than 1 foot from the highest elevation reached during the 30-day period.

- During July, Idaho Power typically tries to keep Brownlee reservoir nearly full throughout the month to conserve storage for August, which usually has an above-average monthly system power load, lower market energy availability, and higher average market energy prices. The target elevation for July 4 is 2,069 feet msl or higher, and, typically, Brownlee reservoir is full or nearly full at 2,077 feet msl on that date.
- During August, Idaho Power typically drafts Brownlee reservoir to meet system power loads. In the latter part of August, Idaho Power examines the streamflow forecast to begin planning reservoir target elevations and Hells Canyon outflows for the upcoming fall Chinook spawning period, which generally starts around the second or third week of October.
- During late August and through September, Idaho Power adjusts Brownlee reservoir's draft rate so as to be able to achieve the necessary starting elevation for the fall Chinook program. This starting elevation ensures a stable spawning flow during the spawning period and a nearly full reservoir at the end of the spawning period around the first week of December. This drafting typically requires that flows past Brownlee dam be increased during this period.
- Beginning in mid-October and lasting through early December, Idaho Power voluntarily maintains a constant flow from Brownlee reservoir, normally designed to maintain a flow between 8,000 and 13,000 cubic feet per second (cfs) downstream of Hells Canyon dam to ensure that fall Chinook construct their redds (nests) below a certain target flow level. The spawning season and minimum flows vary from year to year.
- Throughout the year, flows are managed to meet a required 1-foot-per-hour ramping rate at Johnson Bar, 18 miles downstream of Hells Canyon dam.

On a daily basis, Idaho Power operates the Brownlee powerhouse to meet the flow and reservoir targets described above while maximizing the power and energy production value of the Hells Canyon Project. Normally, flow through the powerhouse is ramped up and down during the course of each day to follow regional electricity demands. Peak flow through the Brownlee powerhouse is 35,000 cfs. Minimum flow may fall to zero during the middle of the night when regional electrical loads are at their minimum. Because of the large size of Brownlee reservoir (14,621 acres at full pool elevation 2,077 feet msl), the daily fluctuation in the reservoir level is 3 feet or less.

#### **2.1.2.2 Oxbow Development**

The hydraulic capacity of the Oxbow development is less than the hydraulic capacity at the Brownlee development immediately upstream, and the Oxbow reservoir has limited usable storage capacity. Therefore, Oxbow operations are largely dictated by Idaho Power's operation at Brownlee dam. Specifically, Oxbow reservoir is normally drafted late in the day to provide some storage room for the next day's peak generation period. As system loads climb early the following day, flows through the Oxbow powerhouse are ramped up in concert with the ramping up of flows through the Brownlee powerhouse. The previous night's drafting of Oxbow reservoir enables Oxbow to absorb the peaking flows at Brownlee dam during daily periods of heavy load without having to spill at Oxbow. In keeping with existing license requirements, Idaho Power maintains a 100-cfs year-round minimum release to the bypassed reach.

### **2.1.2.3 Hells Canyon Development**

Because of the limited usable capacity in Hells Canyon reservoir, operations at Brownlee dam and minimum flow and ramping rate restrictions that apply downstream of the development substantially control and limit daily operations at the Hells Canyon development.

Under normal hydrologic conditions, flows through Hells Canyon powerhouse are ramped up in the morning, concurrently with the ramping up of flows at the Brownlee and Oxbow powerhouses, to follow the regional electrical load. Flows through the Hells Canyon powerhouse are ramped down late in the evening to retain as much inflow as possible to use for generating electricity during heavy load periods the following day.

During spring runoff when flow through the Hells Canyon Project exceeds the hydraulic capacity of the power plants, the flow below Hells Canyon dam is controlled by the amount of flow through the project and does not vary by how the powerhouses are operated.

Under Article 43 of the current license, Idaho Power must operate the project in the interest of navigation to maintain 13,000 cfs in the Snake River at Lime Point (RM 172), at least 95 percent of the time, when the Corps determines it to be necessary for navigation. Regulated flows of less than 13,000 cfs at Lime Point are to be limited to July, August, and September. The Corps does not require Idaho Power to draft Brownlee reservoir to meet the 13,000-cfs Lime Point flow requirement.

Under the same navigation-related license article, Idaho Power is required to maintain a year-round, 5,000-cfs minimum flow downstream of Hells Canyon dam at Johnson Bar (RM 230). However, as noted above, Idaho Power voluntarily maintains a constant flow from Brownlee reservoir from mid-October through early December that is designed to maintain a flow between 8,000 and 13,000 cfs downstream of Hells Canyon dam. The intent is to ensure that fall Chinook construct their redds below a certain target flow level.

### **2.1.3 Current Environmental Measures**

Currently, in addition to the operation-related measures identified in the preceding section, Idaho Power provides the following environmental mitigation and protection measures:

- preferential use of the upper spillgates at Brownlee dam during spill periods to minimize elevated total dissolved gas (TDG) concentrations (voluntary),
- anadromous fish production at four hatchery facilities (current license requirement),
- O&M of monitors to provide flow information about river flows downstream of Hells Canyon dam, (voluntary),
- implementation of the Memorandum of Understanding between the Forest Service and Idaho Power with regard to staffing the Hells Canyon Visitor Center (voluntary),
- O&M of Idaho Power-managed parks and recreational facilities (current license requirement),
- a litter and sanitation program, which includes recreational waste disposal to prevent waste from contaminating the river (voluntary),
- public safety programs (current license requirement), and
- aid to local law enforcement in Adams County, (voluntary).

### 2.1.4 Current Project Boundary

The project boundary extends just over 95 river miles, from just above Porter Island at RM 343, within Malheur County, Oregon, about 5 miles northwest of Weiser, Idaho, to Hells Canyon dam (RM 247.6) in Wallowa County, Oregon. On private lands the project boundary is based on reservoir elevations (contour lines). On federal lands the project boundary follows surveyed section lines or sectional subdivision lines of the United States Public Land Survey. The existing project boundary on federal lands thus includes about 3,800 acres above the contour line. Except in a few places where Idaho Power has larger areas of ownership, the project boundary normally measures several hundred feet in width. Notable exceptions are on the lower Burnt River, near Spring Recreation Area; at the upper end of the Powder River pool; and at Brownlee and Oxbow villages.

## 2.2 IDAHO POWER’S PROPOSAL

### 2.2.1 Proposed Project Facilities

Idaho Power’s proposed modifications to existing project facilities are limited to those associated with protecting, mitigating, or enhancing environmental conditions (see section 2.2.3, below).

### 2.2.2 Proposed Project Operations

With one exception, Idaho Power proposes to operate all three developments under the same constraints as those that characterize existing current operations. These operating constraints are summarized in table 1. The exception, where Idaho Power’s Proposed Operations differ from current operations, relates to winter flood control requirements. Specifically, upon a request from the Corps, Idaho Power would provide flood storage at Brownlee reservoir earlier than is currently required. The early flood storage draft would be equivalent to a maximum drawdown rate without spill of 3 feet per day over a 2- or 3-day period, not to exceed a total of 9 feet of drawdown. This provision would apply only to the months of December and January, and it would occur only on a case-by-case request from the Corps.

Table 1. Summary of operating constraints for Idaho Power’s Proposed Operations. (Source: Staff)

Operating Constraint	Brownlee	Oxbow	Hells Canyon
Maximum reservoir elevation	2,077 feet msl	1,805 feet msl	1,688 feet msl
Minimum reservoir elevation	1,976 feet msl	1,795 feet msl	1,678 feet msl
Flood control requirement	Corps flood control rule curve, supplemented with case-by-case request for extra 9 feet during December and January	NA	NA
Daily reservoir level fluctuation	3 feet, except 1 foot during 30-day resident fish spawning period (approximately May 21 thru June 21)	5 feet, except 10 feet under atypical conditions <sup>a</sup>	5 feet, except 10 feet under atypical conditions <sup>a</sup>
Ramping rate restriction	NA	NA	1 foot per hour (both up and down) <sup>b</sup>
Daily limit between minimum and maximum release	NA	NA	

Operating Constraint	Brownlee	Oxbow	Hells Canyon
6/1–9/30			10,000 cfs, except 16,000 cfs under atypical conditions <sup>a</sup>
10/21–12/11 <sup>c</sup>			No load following per fall Chinook plan
Minimum flow	NA	100-cfs bypass flow year-round	
10/21–12/11 <sup>c</sup>			8,000–13,000 cfs per fall Chinook plan <sup>d</sup>
12/12–5/31 <sup>c</sup>			Dependent on most critical shallow redd per fall Chinook plan
6/1–10/20			6,500 cfs, except 5,000 cfs under atypical conditions <sup>a</sup>

Note: NA – not applicable

<sup>a</sup> Atypical conditions, as defined by Idaho Power, are conditions when Idaho Power determines that operation of the project (which operation may occur automatically or manually) is needed to: (1) protect the performance, integrity, reliability, or stability of Idaho Power’s electrical system or any electrical system with which it is interconnected; (2) compensate for any unscheduled loss of generation; (3) provide generation during severe weather or extreme market conditions; (4) inspect, maintain, repair, replace, or improve Idaho Power’s electrical systems or facilities related to the Project; (5) prevent injury to people or damage to property; or (6) assist in search-and-rescue activities.

<sup>b</sup> Compliance would be measured at Johnson Bar, located approximately 18 miles downstream of Hells Canyon dam.

<sup>c</sup> Actual dates vary per fall Chinook plan.

<sup>d</sup> The constant fall Chinook flow releases can vary between 8,000 and 13,000 cfs, depending on water-year conditions, forecasts, or turbine performance to minimize unnecessary wear during operation.

### 2.2.3 Proposed Environmental Measures

Idaho Power proposes the following environmental measures. These measures are grouped by resource topic.

#### Water Use and Quality

1. Continue 100-cfs minimum flow in Oxbow bypass to help maintain water quality in the bypassed reach.
2. Continue recreation waste disposal to prevent waste from contaminating the river.
3. Continue preferential use of the upper spillgates at Brownlee dam during spill periods to minimize elevated TDG concentrations.
4. Improve dissolved oxygen (DO) conditions within the Hells Canyon Project by injecting an average of 1,125 tons of oxygen during the summer into the transition zone of Brownlee reservoir.
5. Install Hells Canyon dam spillway flow deflectors to reduce TDG concentrations in the tailrace of Hells Canyon dam and the Snake River downstream of the dam.

## **Fish and Snails**

6. Continue the fall Chinook plan.
  - 6a. Continue reservoir operations in the fall, winter, and early spring for protection of fall Chinook salmon spawning and salmon incubation.
  - 6b. Continue fall Chinook salmon redd and temperature monitoring to avoid the risk of dewatering developing salmon embryos, but discontinue deep-water redd monitoring until fall Chinook escapement increases significantly. Re-evaluate the use of deep-water habitat during the first year that escapement reaches increments of 10,000, 15,000, and 20,000 adults.
7. Implement the warmwater fish plan.
  - 7a. Protect peak spawning periods for smallmouth bass and crappie by limiting Brownlee reservoir drafts to no more than 1 foot from the highest elevation reached during a 30-day period starting on May 21, and by maintaining an elevation of at least 2,069 feet msl from the end of the 30-day period through July 4.
  - 7b. Continue warmwater fish population monitoring to detect long-term effects on fish populations.
8. Implement native salmonid plan.
  - 8a. Conduct pathogen survey in the Pine-Indian-Wildhorse core area to support development of a pathogen risk assessment plan.
  - 8b. Prepare and implement a plan to allow for the capture of resident salmonids and other species migrating upstream and for their transfer to areas above Hells Canyon and Oxbow dams. The plan includes modification of the Hells Canyon fish trap to capture juvenile salmonids, construction of facilities for sorting and holding fish and for scanning PIT-tag returns, and potentially expansion of year-round operations. The plan also includes a provision to construct a fish trap at Oxbow dam a minimum of 5 years after the Hells Canyon trap has been modified.
  - 8c. Prepare and implement a tributary habitat enhancement plan within the Pine Creek, Indian Creek, and Wildhorse River basins and smaller tributaries to the Hells Canyon Complex reservoirs.
  - 8d. Supplement marine-derived nutrients to enhance the forage base within bull trout rearing areas (Pine, Indian, and Wildhorse core area).
  - 8e. Conduct Eagle Creek presence/absence survey to determine, with statistical probability, the presence or absence of bull trout within the Eagle Creek Basin.
  - 8f. Design, construct, and monitor a permanent monitoring weir at Pine Creek to establish a long-term monitoring program of fluvial fish migrating upstream and downstream in the Pine Creek System. This measure is incorporated in the description of Idaho Power measure 8b.
  - 8g. Evaluate the feasibility of, and possibly implement, an experimental brook trout suppression program in Indian Creek.

9. Continue anadromous fish production at hatchery facilities.
  - 9a. Continue to operate the Oxbow fish hatchery.
  - 9b. Continue to operate the Rapid River fish hatchery.
  - 9c. Continue to operate the Niagara Springs fish hatchery.
  - 9d. Continue to operate the Pahsimeroi fish hatchery.
10. Upgrade and enhance anadromous fish hatchery facilities.
  - 10a. Make improvements to the Pahsimeroi fish hatchery to control pathogens, develop a locally adapted steelhead broodstock, and monitor and evaluate hatchery performance.
  - 10b. Make improvements to the Oxbow fish hatchery by constructing adult holding pond and spawning facilities, expanding the fall Chinook rearing program, distributing carcasses, generally upgrading the hatchery facilities, and monitoring and evaluating hatchery performance.
  - 10c. Make improvements to the Niagara Springs fish hatchery by expanding the hatchery building, acquiring an additional smolt tanker, acquiring a fish marking unit, upgrading employee housing, and monitoring and evaluating hatchery performance.
  - 10d. Make improvements to the Rapid River fish hatchery by constructing an adult holding pond and spawning facilities, distributing carcasses, upgrading employee housing, generally upgrading the hatchery facilities, constructing an offsite smolt acclimation/adult collection facility, and monitoring and evaluating hatchery performance.
11. Implement Snake River White Sturgeon Conservation Plan.
  - 11a. Assess water quality-related effects on early life stages of white sturgeon in the Swan Falls-Brownlee reach.
  - 11b. Translocate reproductive-sized white sturgeon into the Swan Falls-Brownlee reach to increase spawner abundance and population productivity, if water quality is found to be adequate.
  - 11c. Develop an experimental conservation aquaculture plan to maintain adequate population size and genetic variability of white sturgeon in the Swan Falls-Brownlee reach, if approved by Idaho Department of Fish and Game (IDFG) and Oregon Department of Fish and Wildlife (ODFW).
  - 11d. Make periodic population assessments to monitor white sturgeon populations in the Swan Falls-Brownlee, Brownlee-Hells Canyon, and Hells Canyon-Lower Granite reaches of the Snake River.
  - 11e. Monitor genotypic frequencies of white sturgeon between Shoshone Falls and Lower Granite dams.

## **Wildlife**

12. Acquire, enhance, and manage approximately 22,761 acres of upland and 821 acres of riparian habitat near the Hells Canyon Project reservoirs and downstream of Hells Canyon dam to mitigate for the estimated effects of project operations on wildlife.
13. In cooperation with ODFW and IDFG, enhance habitat on four Snake River islands (Gold, Hoffman, Patch, and Porter) for waterfowl and for threatened, endangered, candidate, and special status species.
14. Cooperate with state and federal wildlife management agencies to enhance low-elevation riparian habitat and reintroduce mountain quail in areas adjacent to the Hells Canyon Project reservoirs.
15. Through an interdisciplinary team, develop and implement an integrated wildlife habitat program (IWHP) to manage wildlife resources on Idaho Power-owned lands associated with the Hells Canyon Project to ameliorate identified effects and provide general land stewardship.
16. Develop and implement an O&M plan for the Pine Creek-Hells Canyon transmission line to minimize effects on wildlife, protect wildlife resources, and enhance habitat conditions.

## **Botanical Resources**

17. Acquire, enhance, and manage upland and riparian habitat to mitigate for the estimated effects of project operations on botanical resources.
18. Formalize cooperative relationships to accomplish noxious weed control and non-native invasive weed management, site monitoring, and re-seeding along the Snake River corridor from Weiser downstream to the confluence of the Salmon River.
19. Formalize cooperative relationships, including establishment of a rare plant advisory board, to protect and monitor sensitive plant sites along the Snake River corridor from the headwaters of Brownlee reservoir downstream to the confluence of the Salmon River.
20. Develop and implement an O&M plan for the Pine Creek-Hells Canyon transmission line and service road and adaptively manage O&M activities to minimize adverse effects on botanical resources and manage noxious weeds.
21. Implement cooperative projects recommended by agencies and included in the transmission-line O&M plan.

## **Historic and Archaeological Resources**

22. Monitor sites along transmission line 945 that are eligible for inclusion on the National Register of Historic Places (National Register).
23. Monitor the known burial site on Oxbow reservoir.
24. Monitor known eligible sites on Oxbow and Hells Canyon reservoirs.
25. Monitor known eligible sites on Brownlee reservoir.
26. Monitor known eligible sites downstream of Hells Canyon dam.
27. Stabilize approximately 20 archaeological sites downstream of Hells Canyon dam after identifying sites requiring stabilization.
28. Stabilize seven archaeological sites on Brownlee reservoir.

29. Recover archaeological data at four archaeological sites on Brownlee reservoir to prevent possible damage by reservoir operations.
30. Establish Native American interpretive sites on Brownlee reservoir to enhance visitors' awareness of Native American presence and land use in the project area.
31. Establish Native American interpretive sites on Oxbow and Hells Canyon reservoirs to enhance visitors' awareness of Native American presence and land use in the project area.
32. Establish European-American interpretive sites on Brownlee, Oxbow, and Hells Canyon reservoirs to enhance visitors' awareness of European-American presence and land use in the project area.
33. Establish Asian-American interpretive sites on Brownlee, Oxbow, and/or Hells Canyon reservoirs to enhance visitors' awareness of Asian-American presence and land use in the project area.
34. Support European-American and Asian-American interpretive projects by assisting local community museums with collections acquisition, display, and curation related to Hells Canyon area trappers, miners, homesteaders, ranchers, and river runners of European and Asian descent.
- 35-40. Provide support for Native American programs of the Burns Paiute Tribe, Confederated Tribes of the Warm Springs Indian Reservation, Nez Perce Tribe, Umatilla Tribes, Shoshone-Paiute Tribes, and Shoshone-Bannock Tribes in their efforts to obtain funding for participating in and/or administering cultural resources protection, mitigation, and enhancement measures, educating their youth by providing scholarship/training funds, and providing funds to facilitate several cultural enhancement programs.
41. Fund additional section 106 projects to protect sites and mitigate for any unforeseen adverse effects attributed to Hells Canyon Project operations.

### **Recreational Resources**

42. Continue to operate and maintain monitors to provide flow information about river flows downstream of Hells Canyon dam.
43. Continue the Memorandum of Understanding between the Forest Service and Idaho Power with regard to staffing the Hells Canyon Visitor Center.
44. Continue existing general measures for all zones.
  - 44a. Continue the litter and sanitation program.
  - 44b. Continue public safety programs.
  - 44c. Continue aid to local law enforcement in Adams County.
  - 44d. Continue road maintenance.
  - 44e. Continue O&M of Idaho Power-managed parks and recreational facilities.
45. Provide additional boat moorage on Hells Canyon Project reservoirs to improve angling access.
46. Enhance litter and sanitation plan to improve litter cleanup and access to portable and vault toilets at dispersed recreational sites.

47. Develop and implement an integrated Information and Education (I&E) Plan to promote protection and preservation of cultural, natural, and historic resources through education.
48. Coordinate the prioritization of law enforcement resource use among appropriate law enforcement agencies to address public safety issues.
49. Develop and implement a Recreation Adaptive Management Plan (RAMP) to identify and address the adequacy of Idaho Power's Recreation Plan over the life of the new license.
50. Enhance road maintenance to improve public safety and further protect at-risk cultural and natural resources.
51. Perform O&M at Idaho Power-enhanced BLM and Forest Service reservoir-related recreational sites to benefit recreation, provide public access, enhance visitor services and user satisfaction, and reduce the responsibilities of federal agencies to provide O&M services.
52. Enhance Eagle Bar dispersed recreational site and improve boat ramp access to Hells Canyon reservoir.
53. Develop site plan for Big Bar recreational site to accommodate recreational use and provide cultural and natural resource protection.
54. Enhance boat ramp and associated facilities at Big Bar Section D recreational site to improve access to lower Hells Canyon reservoir and provide cultural and natural resource protection.
55. Develop site plan and enhance Eckels Creek dispersed recreational site to benefit recreation and provide cultural and natural resource protection.
56. Supplement the existing O&M budget to accommodate enhancements at Idaho Power-managed parks and recreational facilities.
57. Develop and implement a site plan for the Copper Creek dispersed recreational site to benefit recreation and provide cultural and natural resource protection.
58. Reconstruct Hells Canyon Park to benefit recreation, improve public access, and protect cultural and natural resources.
59. Develop Airstrip A&B dispersed recreational site to benefit recreation, improve public access, and protect cultural and natural resources.
60. Develop and implement a site plan for Bob Creek Section A dispersed recreational site to benefit recreation, improve public access, and protect cultural and natural resources.
61. Develop and implement a site plan for Bob Creek Section B dispersed recreational site to benefit recreation, improve public access, and protect cultural and natural resources.
62. Develop and implement a site plan for Bob Creek Section C dispersed recreational site to benefit recreation, improve public access, and protect cultural and natural resources.
63. Develop and implement a site plan for Westfall dispersed recreational site to benefit recreation, improve public access, and protect cultural and natural resources.
64. Enhance Copperfield boat launch area to benefit day-use activities.
65. Implement a site plan for Oxbow boat launch to benefit recreation, improve public access, and protect cultural and natural resources.
66. Implement a site plan for Carters Landing and Old Carters Landing recreational sites to benefit recreation, improve public access, and protect cultural and natural resources.

67. Reconstruct McCormick Park to meet current standards of services, benefit recreation, improve public access, and protect cultural and natural resources.
68. Develop and implement a site plan for Hewitt and Holcomb Parks to accommodate recreational use and provide cultural and natural resource protection.
69. Develop and implement a site plan for a low-water boat launch at or near Swedes landing to improve boat access to Brownlee reservoir during seasonal reservoir drawdowns and periods of low reservoir levels.
70. Develop and implement a site plan for Swedes landing to benefit recreation, improve public access, and protect cultural and natural resources.
71. Develop and implement a site plan for Spring recreational site to enhance recreational facilities and improve boat ramp access to Brownlee reservoir.

### **Land Management and Aesthetics**

72. Implement the Hells Canyon Resource Management Plan (HCRMP), creating virtual buffer zones between some otherwise incompatible uses, to establish or maintain compatibility between and among the various land and water uses near the Hells Canyon Project.
73. Incorporate aesthetic concerns when upgrading or repairing the existing transmission line 945.
74. Develop standards and guidelines for designing new physical structures and modifying existing structures to achieve aesthetic and other goals.
75. Establish standards and guidelines for the design of vegetation and hardscape elements and structures in developed areas to control noxious weeds and to achieve aesthetic and other goals.
76. Implement a general aesthetic clean-up plan to enhance the quality of the recreational experience in specific areas.
77. Replace guardrails and Jersey barriers with barriers of corten steel or other visually acceptable material, except where Jersey barriers function as barriers to slides and falling rocks along roads and developed areas.
78. Reduce the visual contrast of certain project facilities with their environment to improve aesthetics and enhance the recreational experience near those facilities.
79. Cooperate with BLM and the Forest Service to develop and assist them with implementing proposed design standards and guidelines at specific BLM and Forest Service facilities, including the Spring recreational site on Brownlee reservoir (BLM), Copper Creek trailhead on Hells Canyon reservoir (BLM), and Big Bar and Eagle Bar on Hells Canyon reservoir (Forest Service).
80. Provide signs and/or facilities that interpret some elements of the Hells Canyon Project that cannot be effectively modified to reduce their visual contrast.
81. Implement the common policies of the HCRMP to provide for the management, protection, and/or conservation of natural and cultural resources.

#### **2.2.4 Proposed Project Boundary**

Idaho Power proposes to change its project boundary to exclude 3,800 acres of federal land surrounding the project reservoirs above an established reservoir elevation that it believes are no longer needed for project purposes.

## **2.3 MODIFICATIONS TO THE PROPOSED ACTION**

### **2.3.1 Mandatory Conditions**

#### **2.3.1.1 Water Quality Certification**

Under section 401 of the Clean Water Act (CWA), 33 U.S.C. § 1341, a license applicant must obtain certification from the appropriate state pollution control agency verifying compliance with the CWA. In July, 2005, Idaho Power initially filed requests for water quality certification with the Idaho Department of Environmental Quality (IDEQ) and the Oregon Department of Environmental Quality (ODEQ), which Idaho Power subsequently withdrew. On December 27, 2005, Idaho Power filed new water quality certification requests with the two agencies; the two agencies received the re-filed request on the same day. On February 22, 2006, ODEQ requested additional information pertaining to the revised application, and Idaho Power provided the agency with addenda addressing temperature, DO, and TDG on March 31, 2006. Decisions by the two state water quality agencies are pending, with the certifications due by December 27, 2006.

#### **2.3.1.2 Section 18 Fishway Prescriptions**

##### **Federal Section 18 Fishway Prescriptions**

Section 18 of the FPA, 16 U.S.C. § 1341, states that the Commission must require the construction, maintenance, and operation by a licensee of such fishways as the Secretaries of Commerce and Interior may prescribe.

In its January 26, 2006, filing, the U.S. Department of the Interior (Interior) (for the U.S. Fish and Wildlife Service [FWS]) provided preliminary prescriptions for fishways for bull trout. Interior prescribed that the licensee shall: (1) continue to rehabilitate, operate, maintain, and monitor the Hells Canyon trap-and-haul fishway; (2) construct, operate, and maintain a future fishway/trap at the base of Oxbow dam; (3) construct, operate, maintain, and monitor permanent weirs and trap and haul fishways near the mouths of Pine Creek, Indian Creek and Wildhorse River for the downstream transport of bull trout to a suitable release point downstream of Hells Canyon dam; and (4) develop a Bull Trout Passage Plan for implementing the foregoing measures. We discuss these measures further in sections 3.6.2.8, *Resident Fish Passage*; 3.6.2.6, *Anadromous Fish Restoration*; and 3.6.2.7, *Fish Passage Facilities*.

Interior's January 26, 2006, filing also requests that the Commission include as a license condition a general reservation of authority to prescribe fishways during the term of a new license. The reservation of authority includes, but is not limited to, authority to prescribe fishways for spring/summer Chinook salmon, summer steelhead trout, Pacific lamprey, bull trout, redband trout, fall Chinook salmon, white sturgeon, and any other fish to be managed, enhanced, protected, or restored to the Snake River Basin during the term of the license.

In its January 26, 2006, filing, the U.S. Department of Commerce (for the National Marine Fisheries Service, NMFS) elected not to use its fishway authority to require fish passage at any of the project's dams, but, like Interior, requested that the Commission include as a license condition a general reservation of authority to prescribe fishways during the term of a new license.

##### **Alternative Section 18 Fishway Prescriptions**

The Energy Policy Act of 2005 (EPAct) provides parties to this licensing proceeding the opportunity to propose alternatives to preliminary prescriptions. In a February 28, 2006, filing in accordance with section 241 of EPAct, Idaho Power presented an alternative prescription under which Idaho Power would prepare a Bull Trout Passage Plan that would include: (1) final design plans for the Hells Canyon trap modifications; (2) final engineering design plans for the Pine Creek monitoring weir

and trap fishway; (3) specific protocols for the period of operation, location of release point, and handling of all life-stages of bull trout and other fish captured at these two facilities; (4) provisions for transport of bull trout between Pine Creek and Hells Canyon dam; (5) an assessment of monitoring necessary to evaluate the potential and risk of introducing deleterious pathogens; and (6) a post-construction monitoring plan. Under this alternative condition, the plan would include a description of specific triggers related to the timeline of construction and implementation of the Oxbow upstream trap fishway, the Indian Creek permanent weir and trap fishway, and the Wildhorse River weir and trap fishway. The plan would also include the specific monitoring necessary to determine when established triggers have been satisfied. The measures are discussed further in sections 3.6.2.8, *Resident Fish Passage*; 3.6.2.6, *Anadromous Fish Restoration*; and 3.6.2.7, *Fish Passage Facilities*.

Pursuant to section 241 of EPA Act, Public Law 109-58, and 50 CFR section 221, American Rivers (AR), Idaho Rivers United (IRU), and the Shoshone-Bannock Tribes on February 27, 2006, filed an alternative prescription to NMFS' reservation of authority under section 18 of the FPA. Their alternative prescription calls for: (1) establishment of a technical advisory committee to guide the development and implementation of a fish passage program; (2) modifying and improving the Hells Canyon dam fish trap; (3) providing safe, timely and effective upstream and downstream passage for spring Chinook and steelhead to and from tributaries above and within the project reach; (4) implementing a fish pathogen risk assessment; (5) providing safe, timely, and effective upstream passage for fall Chinook populations above the project. The measures are discussed further in sections 3.6.2.8, *Resident Fish Passage*; 3.6.2.6, *Anadromous Fish Restoration*; and 3.6.2.7, *Fish Passage Facilities*.

The Oregon Water Resources Department (OWRD) also filed an alternative prescription to NMFS' reservation of authority. OWRD's alternative prescription calls for Idaho Power to provide for the safe, timely and effective upstream and downstream passage of spring and fall Chinook salmon and summer steelhead by: (1) developing and implementing a fish passage plan; (2) modifying and improving the Hells Canyon dam fish trap; (3) constructing and operating a downstream passage and collection facility at Hells Canyon dam; (4) implementing fish health monitoring; (5) providing summer steelhead and spring Chinook salmon passage into Pine Creek; (6) providing summer steelhead and spring Chinook salmon passage into the Powder River Basin (Eagle, Daly, and Goose creeks); and (7) studying and providing fall Chinook salmon passage into the Swan Falls to Brownlee reach of the Snake River. The measures are discussed further in sections 3.6.2.8, *Resident Fish Passage*; 3.6.2.6, *Anadromous Fish Restoration*; and 3.6.2.7, *Fish Passage Facilities*.

### **2.3.1.3 Section 4(e) Federal Land Management Conditions**

#### **Federal Section 4(e) Conditions**

Section 4(e) of the FPA, 16 U.S.C. § 797(e), provides that any license issued by the Commission for a project within a federal reservation shall be subject to and contain such conditions as the Secretary of the responsible federal land management agency deems necessary for the adequate protection and use of the reservation. Within the proposed project boundary, the Hells Canyon Project occupies approximately 1,510 acres of BLM-administered land and 330 acres of Forest Service land (see section 3.12.1.2, *Land Ownership and Management Jurisdictions*).

In January 26, 2006, and May 15, 2006, filings with the Commission, Interior, on behalf of BLM, submitted preliminary terms and conditions pursuant to section 4(e). Interior's preliminary conditions are listed here and discussed further in section 3.0 within the relevant resource subsections; in section 5.2, *Discussion of Key Issues*; and in section 5.3.2, *Interior and Forest Service 4(e) Conditions*. Appendix B includes the complete text of each of Interior's preliminary 4(e) conditions.

1. General requirements for Idaho Power activities on or affecting BLM-administered land;
2. Preparation of a report documenting and/or evaluating measures necessary for the continued protection and use of BLM-administered land and resources affected by the project;
3. Development and implementation of a Travel and Access Management Plan;
4. Development and implementation of a Law Enforcement and Emergency Services Plan;
5. Periodic review and adaptive revision of the Historic Properties Management Plan;
6. Development and implementation of an integrated Comprehensive Recreation Management Plan;
7. Development and implementation of a Litter and Sanitation Plan;
8. Development and implementation of a Project Boat Moorage Plan;
9. Development and implementation of a Site Enhancement Plan for BLM's Airstrip, Bob Creek section C, and Westfall sites;
10. Development and implementation of a Swedes Landing Enhancement Plan;
11. Development and implementation of a Spring Recreation Site Enhancement Plan;
12. Development and implementation of a Steck Recreation Site Enhancement Plan;
13. Development and implementation of a Jennifer's Alluvial Fan Site Enhancement Plan;
14. Development and implementation of an Idaho Dispersed Sites Plan;
15. Development and implementation of an Oxbow Boat Launch and Carter's Landing Enhancement Plan;
16. Development and implementation of an Oasis Site Enhancement Plan;
17. Development and implementation of a Copper Creek Site Enhancement Plan; and
18. Development and implementation for a Low Water Boat Launch Plan for a facility at or near Swedes landing.

In January 26, 2006; May 10, 2006; and June 9, 2006, filings, the Forest Service provided preliminary section 4(e) terms and conditions. The preliminary measures are listed here and discussed further in section 3.0 within the relevant resource subsection; in section 5.2, *Discussion of Key Issues*; and in section 5.3.2, *Interior and Forest Service 4(e) Conditions*. Appendix B includes the complete text of each.

1. Forest Service approval of site-specific designs prior to implementation of Idaho Power activities on National Forest System lands;
2. Preparation and implementation by Idaho Power of a Resource Coordination Plan;
3. Preparation and implementation of a Fire Prevention Plan;
4. Creation of a Sandbar Maintenance and Restoration Fund;
5. Preparation and implementation of an IWHP and a Wildlife Mitigation and Management Program;
6. Preparation and implementation of a Land Acquisition and Management Program to meet the purposes of the Integrated Wildlife Habitat and Wildlife Mitigation and Management Programs;

7. Preparation and implementation of an Integrated Weed Management Plan;
8. Preparation and implementation of a Threatened and Endangered Species Management and Monitoring Strategy;
9. Preparation of a Threatened, Endangered, and sensitive Species Management Plan;
10. Implementation of the Mountain Quail Habitat Enhancement Program;
11. Development and implementation of a transmission line O&M plan;
12. Finalization and implementation the Hells Canyon Complex Comprehensive Recreation Management Plan;
13. Development and implementation of a Big Bar Site Development Plan;
14. Implementation of the Eagle Bar Site Development Plan;
15. Implementation of Idaho Power's proposed Eckels Creek Dispersed Site Development Plan;
16. Condition and safety inspection of Deep Creek Stairway/Trail #218 and correction of any deficiencies;
17. Improvement and maintenance of parking and signage at four Forest Service roadside parking areas along the Hells Canyon reservoir;
18. O&M over the term of a new license at Eagle Bar, Eckels Creek, Big Bar, Hells Canyon reservoir parking areas, Black Point Viewpoint, and dispersed areas pursuant to the Recreation Plan;
19. Management of Hells Canyon reservoir drawdown to minimize effects on recreation resources during the summer months;
20. Trail maintenance on specified trails;
21. Design, construction, and maintenance of facility enhancements at the Hells Canyon Creek launch site and Visitor Center;
22. Development and implementation of an aesthetic improvement plan for enhancing the upper deck, entrance, and egress areas of Hells Canyon dam;
23. Finalization and implementation of Idaho Power's proposed Comprehensive Management Plan relating to design standards and landscaping for project zones on Forest Service lands;
24. Preparation and implementation of a Scenery Management Plan for Forest Service lands within the project boundary;
25. Finalization and implementation of the Historic Properties Management Plan for cultural resources on Forest Service lands;
26. Assurance that any Forest Service land within a modified project boundary is agreed to by the Forest Service, is located on the ground with monuments tied to a Public Land Survey System, and encompasses necessary land for project purposes; and
27. Reservation of authority by the Commission to require any additional measures necessary to ensure the adequate protection and utilization of the public land reservations under Forest Service authority.

## **Alternative Section 4(e) Conditions**

EPAct provides parties to this licensing proceeding the opportunity to request trial-type hearings regarding issues of material fact that support the conditions developed under FPA section 4(e). EPAct also allows parties to propose alternatives to preliminary conditions. On February 27, 2006, Idaho Power filed alternative conditions for all of Interior's preliminary 4(e) conditions and, in accordance with section 241 of the EPAct and 7 CFR Part 1, requested a hearing on six of the preliminary conditions (Nos. 3, 4, 11, 12, 16, and 19). All six of these issues were resolved prior to hearing, and that resolution is reflected in Interior's preliminary conditions listed above.<sup>10</sup> Thirteen of Idaho Power's alternative conditions remain as stated in its February 27, 2006 filing (Nos. 1, 2, 5, 6, 7, 8, 9, 10, 13, 14, 15, 17, and 18). The alternative conditions are directed primarily toward limiting the scope of the conditions to BLM-administered lands on which project-related activities take place, lands within the project boundary, and/or activities and facilities that are directly related to the project.

On February 27, 2006, Idaho Power filed alternative conditions for 20 of the Forest Service preliminary conditions and requested a hearing on 10 of the preliminary section conditions (nos. 4, 5, 6, 7, 8, 9, 12, 20, 21, and 25). All 10 of the issues were resolved prior to hearing, and that resolution is reflected in the Forest Service preliminary conditions listed above. Ten of Idaho Power's alternative conditions remain as stated in its February 27, 2006 filing (nos. 1, 2, 3, 13, 16, 18, 22, 23, 24, and 26). The alternative conditions are directed primarily toward limiting the scope of the conditions to National Forest System lands on which project-related activities take place, lands within the project boundary, and/or activities and facilities that are directly related to the project.

### **2.3.2 Other Recommendations by Agencies and Interested Parties**

#### **2.3.2.1 Section 10(j) Recommendations**

Under section 10(j) of the FPA, each hydroelectric license issued by the Commission must include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, or enhancement of fish and wildlife resources affected by the project. The Commission is required to include these conditions unless it determines that they are inconsistent with the purposes and requirements of the FPA or other applicable law. Before rejecting or modifying an agency recommendation, the Commission is required to attempt to resolve any such inconsistency with the agency, giving due weight to the recommendations, expertise, and statutory responsibilities of the agency.

Section 10(j) fish and wildlife recommendations were filed by the IDFG, Interior, NMFS, and ODFW. Their recommendations are discussed further in section 3.0 within the relevant resource subsections; section 5.2, *Discussion of Key Issues*; and section 5.3.1, *Fish and Wildlife Agency Recommendations*.

#### **2.3.2.2 Section 10(a) Recommendations**

Under section 10(a) of the FPA, in issuing a hydroelectric license, the Commission must be satisfied that the project to be licensed is best adapted to a comprehensive plan for improving or developing the waterway. In making this judgment, the Commission considers comprehensive plans prepared by federal and state entities, and it considers the recommendations of federal and state agencies exercising administration over flood control, navigation, recreation, cultural, and other relevant resources; the recommendations (including fish and wildlife recommendations) of Native American tribes affected by the project; and the recommendations of local governments, NGOs, and the public.

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<sup>10</sup> Interior's preliminary condition 19 was withdrawn, so that 18 of Interior's preliminary conditions remain to be addressed in this EIS.

Section 10(a) recommendations were provided by the Idaho State Historical Society, State of Oregon, NMFS, Forest Service, Corps, State of Idaho, Interior, and the Burns Paiute, Umatilla, Shoshone-Paiute, Nez Perce, and Shoshone-Bannock Tribes. The measures are discussed further in section 3.0 within the relevant resource subsections and in section 5.2, *Discussion of Key Issues*.

### 2.3.3 Staff Alternative

After evaluating Idaho Power's proposal and recommendations from resource agencies, tribes and other interested parties, we compiled a set of environmental measures that we consider appropriate for addressing the resource issues raised in this proceeding. We call this the "Staff Alternative." The Staff Alternative includes some measures included in Idaho Power's proposal as well as some of the section 18 and alternative section 18 fishway prescriptions, section 4(e) and alternative section 4(e) conditions, section 10(j) recommendations, section 10(a) recommendations, and measures developed by the staff.

Under the Staff Alternative, the project would be operated as proposed by Idaho Power (see section 2.2.2), but with the following operational changes: (1) reservoir refill targets after the flood control season, (2) flow augmentation to enhance juvenile fall Chinook salmon migration conditions, (3) additional ramping restrictions during the fall Chinook rearing period, (4) navigation target flows to promote safe recreational and commercial boating conditions downstream of Hells Canyon dam, and (5) warmwater fish spawning protection levels in Brownlee reservoir. The operational modifications included in the Staff Alternative are as follows:

1. Idaho Power would refill Brownlee reservoir to within 1 foot of the April 15 and April 30 minimum elevations necessary to meet the Corps' flood control requirements. After April 30, Idaho Power would coordinate the refill of Brownlee reservoir with the Corps and NMFS to ensure that the refill of Brownlee reservoir does not result in unnecessary reductions of spring flows as measured at Lower Granite dam. This measure would not in any way diminish the Corps' discretion over the project's flood control operation.
2. Subject to reconfirmation in 2009, Idaho Power would refill Brownlee reservoir to full pool (elevation 2,077 feet msl) by June 20 of each year and, in order to enhance migration conditions for juvenile fall Chinook salmon, would release 237 thousand acre-feet (kaf) of stored water from Brownlee reservoir (draft to elevation 2,059 feet msl) between June 21 and July 31. Idaho Power would release at least 150 kaf (draft to elevation 2,066 feet msl) of this water no later than July 15 of each year, but would maintain Brownlee elevations through the Fourth of July holiday to enhance recreational use of the reservoir. Idaho Power would not refill Brownlee reservoir at any time between June 21 and August 31.
3. The maximum variation in river stage would not exceed 1 foot per hour as measured at the Snake River at Johnson's Bar gaging station 13290460 (RM 230), except during the March 15 to June 15 fall Chinook rearing period when the maximum variation in river stage would not exceed 4 inches per hour.
4. Idaho Power would protect warmwater fish spawning locations in Brownlee reservoir from May 21 through July 4. For the initial 30-day period beginning May 21, Brownlee reservoir would not be drafted more than 1 foot from the highest elevation reached during the 30-day period. From the end of the 30-day period through July 4, the reservoir could be drafted more than 1 foot, but an elevation of at least 2,069 feet msl would be maintained.<sup>11</sup>

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<sup>11</sup> The requirement for warmwater fish spawning protection (item 5) would be secondary to any conflicting operational requirement.

In addition to the foregoing operation-related measures, the Staff Alternative incorporates Idaho Power's proposed environmental measures (refer to section 2.2.3), modified as follows:

- #4—modified to require the licensee to: (1) develop a plan to determine whether reservoir DO supplementation is the preferred method for meeting Idaho Power's TMDL DO allocation and to protect downstream beneficial uses including fall Chinook spawning; (2) implement the plan; and (3) monitor the effectiveness of the measures implemented.
- #5—supplemented to also require spillway deflectors at Brownlee dam
- #8a—included within Idaho Power measure 8b
- #8b— modified to incorporate Idaho Power's alternative to the FWS preliminary fishway prescription in which Idaho Power would prepare a bull trout passage plan that would include: (1) final design plans for the Hells Canyon trap modifications; (2) final engineering design plans for the Pine Creek monitoring weir and trap fishway; (3) specific protocols for the period of operation, location of release point, and handling of all life-stages of bull trout and other fish captured at these two facilities; (4) provisions for transport of bull trout between Pine Creek and Hells Canyon dam; (5) an assessment of monitoring necessary to evaluate the potential and risk of introducing deleterious pathogens; and (6) a post-construction monitoring plan. Under this alternative condition, the plan would include a description of specific triggers related to the timeline of construction and implementation of the Oxbow upstream trap fishway, the Indian Creek permanent weir and trap fishway, and the Wildhorse River weir and trap fishway. The plan would also include the specific monitoring necessary to determine when established triggers have been satisfied. Construction of the Pine Creek weir would be deferred until 5 years after license issuance to allow the success of initial brook trout control efforts in Indian Creek to be evaluated for possible implementation in Pine Creek.
- #8f—included within Idaho Power measure 8b
- #8g—modified to include implementation of brook trout suppression in the Wildhorse River, and possibly Pine Creek, using techniques proven effective in Indian Creek
- #10—modified to note that hatchery upgrades and enhancements are to be in keeping with a hatchery management plan for each hatchery that considers production goals, effects to federally listed stocks, and distribution of surplus fish
- #11a— not included; study of water quality effects on early lifestages of sturgeon not needed given immediate implementation of the white sturgeon conservation aquaculture plan and future improvements in water quality (Idaho Power 11c)
- #11b— not included; translocation of adult sturgeon to the Swan Falls-Brownlee reach not needed given immediate implementation of the white sturgeon conservation aquaculture plan (Idaho Power measure 11c)
- #11c—modified to indicate that the plan is also to include stocking to rebuild sturgeon populations in project reservoirs
- #11e—not included; monitoring of genotypic frequencies not needed given restoration of gene flow from downstream sturgeon populations through implementation of the white sturgeon conservation aquaculture plan
- #13—modified to include consultation with ODFW and habitat enhancement on only the two islands that are inside the project boundary and are affected by the project. Idaho Power

could contract with the agency to implement the improvement projects, but Idaho Power would retain ultimate responsibility for complying with the terms of the license

- #14—modified to include consultation with state and federal wildlife management agencies to develop and implement on-the-ground habitat improvements on lands within the project boundary. Idaho Power could contract with the agencies to implement the improvement projects, but Idaho Power would retain ultimate responsibility for complying with the terms of the license.
- #15—clarified to indicate that Idaho Power would establish a terrestrial resource work group to provide consultation in finalizing and implementing the management plan and to indicate that it would apply only to lands within the project boundary.
- #16—combined with Idaho Power measure 20 and reflected in staff measure 13, below
- #18—supplemented to include agency consultation in the development and implementation of a project-wide integrated weed management plan to cover NFS and BLM lands within the project boundary as well as Idaho Power’s ownership. The plan would cover pesticide reporting to BLM.
- #19—supplemented to include agency consultation in the development and implementation of a project-wide threatened, endangered and sensitive species management plan for plants and animals to cover NFS and BLM lands within the project boundary, as well as Idaho Power’s ownership, as described in staff measure 12, below
- #20—combined with Idaho Power measure 16 and reflected in staff measure 13, below
- #21—clarified to indicate that the measure includes agency consultation in the development of the O&M plan
- #24—expanded to include all known eligible resources in the areas of potential effects (APEs) of these reservoirs
- #25—expanded to include all known eligible resources within the APE of the reservoir
- #26—expanded to include all known eligible resources in the APE
- #35 to 40—modified to delete the funding of scholarships and clarify that support for tribal programs is intended to support the tribes’ participation in natural and cultural resource management
- #45—modified to include details of the boat moorage plan as part of the final Recreation Plan
- #46—modified to address the need for, location of, and maintenance standards for floating restrooms; to develop maintenance and service standards for trash receptacles; and to design, install, and maintain a graywater carryout system in the vicinity of the Hells Canyon Creek put-in/take-out area
- #47—modified to require that the I&E plan specify the location and type of information materials to be provided and include information about anadromous fish, invasive species, and sensitive wildlife
- #48—modified to have Idaho Power provide coordination by planning and hosting biannual meetings of the parties responsible for law enforcement in the project, but not funding law enforcement by third parties

- #49—supplemented to specify that the RAMP address dispersed site management and procedures for recreational use monitoring and reporting
- #51—modified to bring into the project boundary dispersed recreational sites that are within 200 yards of project waters as well as Airstrip, Steck Park, Swedes Landing, and Westfall recreational sites (see staff measure 23 below)
- #53—modified to include O&M for the Big Bar recreational site
- #59—modified to include O&M for the Airstrip A&B dispersed recreational site
- #62— modified to include O&M for the Bob Creek Section C dispersed recreational site
- #63— modified to include O&M for the Westfall dispersed recreational site
- #65— modified to include O&M for the Oxbow boat launch
- #66— modified to include O&M for Carters Landing and Old Carters Landing recreational sites
- #70— modified to include O&M for Swedes Landing
- #71— modified to include O&M for Spring recreational site
- #72—supplemented to include: (1) clarifications regarding consultation, coordination, and reporting; (2) specificity regarding management plans to be developed; and (3) resource maps, maps depicting road maintenance responsibilities, and maps for public use
- #73—supplemented to include a monitoring strategy, an estimated maintenance schedule, and a schedule for implementing aesthetic improvements
- #81—supplemented to address law enforcement, fire prevention, and road management in the Common Policies

Finally, the Staff Alternative would also include the following measures additional to those proposed by Idaho Power:

### **Sediment Supply and Transport**

1. Develop and implement a program to monitor beach and terrace erosion, substrate, and gravel.

### **Water Use and Quality**

2. Develop and implement a temperature management plan.
3. Develop and implement a TDG-abatement plan to adaptively manage TDG and monitor the effectiveness of TDG-abatement measures.
4. Monitor Snake River water quality just upstream of and in Brownlee reservoir, at the Brownlee dam discharge, and downstream of Hells Canyon dam.
5. Monitor bioaccumulation of mercury, dieldrin, and DDT/DDE in Brownlee reservoir fish.

### **Aquatic Resources**

6. Every 5 years, file a report that summarizes water quality changes in response to TMDL implementation upstream of Brownlee dam to determine when habitat becomes suitable to support any future reintroduction efforts.

7. Develop and implement a gravel augmentation pilot program downstream of Hells Canyon dam.
8. Prepare a flow augmentation evaluation report in 2009 that evaluates trends in adult fall Chinook salmon returns in relation to augmentation water provided from Brownlee reservoir; considers and evaluates the effects of flow augmentation water contributed from the Snake River Basin upstream from Brownlee dam and from Dworshak reservoir; and includes any recommendations, for Commission approval, for continuing flow augmentation releases.
9. Develop and implement a stranding and entrapment monitoring plan to evaluate, and if needed develop, approaches to reduce losses of juvenile fall Chinook salmon downstream of Hells Canyon dam.
10. Develop and implement a fall Chinook spawning and incubation flow management plan to determine appropriate monitoring methods to assist with determining flow levels to be maintained downstream of Hells Canyon dam during the fall Chinook spawning and incubation season.

### **Wildlife and Botanical Resources**

11. Develop and implement a long-term stabilization/revegetation program to address erosion sites around project reservoirs and along the river downstream of Hells Canyon dam.
12. Develop and implement a project-wide Threatened, Endangered, and Sensitive Species Management Plan to address plants and animals, including bald eagles, southern Idaho ground squirrel, bats, amphibians, and reptiles.
13. Develop and implement a transmission line O&M plan for transmission line 945 to address protection and enhancement of wildlife and botanical resources, including monitoring electrocution and collision mortality and scheduling O&M to minimize disturbance to wintering mule deer.
14. In coordination with Idaho Power measure 14, above, enhance 13 acres of riparian habitat along the Snake River downstream of Hells Canyon dam to mitigate for the loss of riparian habitat predicted to occur as the result of implementing the staff's alternative flow measures.
15. Extend the Wildlife Mitigation and Management Plan (WMMP) to apply to all lands within the project boundary, including National Forest System and BLM-administered lands, as well as Idaho Power lands. As part of the WMMP, develop and implement an I&E program to minimize risk of wildlife disturbance. As part of the plan, schedule O&M to minimize disturbance on deer winter range.

### **Historical and Archaeological Resources**

16. Renew the licensee's offer to arrange for oral histories for the Shoshone-Bannock and Shoshone-Paiute Tribes.
17. Develop and implement a monitoring plan for archaeological sites, rock art, and TCPs.
18. Develop a plan to implement Idaho Power's deferred monitoring program concerning effects of reservoir water level fluctuations on cultural resources.
19. Within 1 year of license issuance, finalize the HPMP and file with the Commission.

20. Update the 1984 National Register nomination for the Hells Canyon Archaeological District, and develop and implement a program to re-evaluate buildings and structures within the project boundary as they reach 50 years old.

### **Recreational Resources**

21. Finalize the proposed Recreation Plan to add specificity to implementation standards and expand the scope of the plan to address the following additional elements:
  - 21a. Oasis recreational site improvements;
  - 21b. Improved Brownlee reservoir communication system and, if recreational use demonstrates the need, expansion of Steck Park;
  - 21c. Control and removal of sediment accumulation at Farewell Bend State Park;
  - 21d. Improvements at Jennifer's Alluvial Fan, including toilet facilities, vehicular barriers, signage, and regular maintenance;
  - 21e. Safety review and improvements at the Deep Creek Trail, and boundary modification to include the trail to Deep Creek in the project boundary;
  - 21f. Improvements at Hells Canyon launch to enhance access and safety, provide potable water, and provide a portable human waste disposal system; and
  - 21g. O&M at primary recreational sites within the project boundary and clarification of O&M standards and responsibilities.

### **Land Management and Aesthetics**

22. Develop an aesthetics management plan within the HCRMP to be applied to all lands within the project boundary and to include Idaho Power's proposed aesthetic measures (see Idaho Power measures 73 through 80, above), a monitoring strategy using all viewpoints established in the Technical Report on Aesthetics, and an estimated maintenance schedule and schedule for implementing aesthetic improvements.
23. Include within Idaho Power's proposed boundary modification dispersed recreational sites that are within 200 yards of project waters; Airstrip, Steck Park, Swedes Landing, and Westfall recreational sites; Hells Canyon Creek launch area; Deep Creek trail; and all lands acquired for wildlife mitigation.
24. Provide the Forest Service with aerial photos at a scale acceptable to the Forest Service showing the approximate location of the project boundary throughout Forest Service-managed lands.
25. Consult with BLM and the Forest Service concerning project-related activities on lands managed by those agencies.
26. Develop and implement an aesthetic improvement plan for the upper deck, entrance, and egress areas of Hells Canyon dam.

## **Oversight and Adaptive Management**

27. Establish technical advisory committees to facilitate consultation on the development and implementation of plans required by the new license and to provide consultation on the ongoing implementation of license requirements using adaptive management principles.

## **2.4 OTHER ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY**

### **2.4.1 Federal Government Takeover of the Project**

We do not consider federal takeover to be a reasonable alternative. Federal takeover of the Hells Canyon Project would require Congressional approval. Although that fact alone would not preclude further consideration of this alternative, there is currently no evidence showing that a federal takeover should be recommended to Congress. No party has suggested that federal takeover would be appropriate, and no federal agency has expressed an interest in operating the Hells Canyon Project.

### **2.4.2 Issuance of Nonpower License**

A nonpower license is a temporary license the Commission would terminate whenever it determines that another governmental agency is authorized and willing to assume regulatory authority and supervision over the lands and facilities covered by the nonpower license. At this time, no government agency has suggested a willingness or ability to take over the project. No party has sought a nonpower license, and we have no basis for concluding that the Hells Canyon Project should no longer be used to produce power. Thus, we do not consider a nonpower license a reasonable alternative in this case.

### **2.4.3 Project Retirement**

Retiring the Hells Canyon Project would require denying Idaho Power's license application and would lead to the surrender and termination of Idaho Power's existing license with any necessary conditions. The project would no longer be authorized to generate power. The Hells Canyon Project is an integral part of Idaho Power's electric generation system, generating an average of about 6,053 gigawatt-hours of electricity annually<sup>12</sup> and providing about 40 percent of the utility's total generation. The project serves an important role in meeting both daily and seasonal peaks in power demand in the region and contributes to the reliability and stability of the regional electric system. These benefits would be lost if the project were retired.

Brownlee reservoir is one of several Northwest storage reservoirs that are coordinated to provide flood control protection for the lower Columbia River, a function that would be lost upon project retirement. Camping, flat-water boating and fishing, and other recreational pursuits associated with the reservoirs and reservoir-based recreational sites would also be lost. Additionally, there would be significant costs involved with retiring the project and/or removing any of the project's facilities. Finally, retirement would foreclose any opportunity to add environmental enhancements to the existing project. For these reasons, we do not consider project retirement to be a reasonable alternative.

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<sup>12</sup> Based on January 1, 1981, through December 31, 2001, a period when all three developments were operating.

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