US Army Corps
of Engineers®
Walla Walla District

Report of the Secretary of the Army on Civil Works Activities For Fiscal Year 2012

Mill Creek Dam and Reservoir
Project Office Building Replacement

Department of the Army Corps of Engineers Extract Report of Walla Walla District

WALLA WALLA, WA, DISTRICT

The U.S. Army Corps of Engineers (Corps / USACE), Walla Walla District (District) consists of all Corps activities in the Columbia River drainage and tributaries thereto between the head of McNary Reservoir (Lake Wallula) (river mile 345.4) and Umatilla Bridge (river mile 290.5) below McNary Lock and Dam (McNary), except the Yakima River Basin above Van Giesen Street Bridge (river mile 8.4) near Richland, WA. The primary tributary drainage area is the Snake River, which includes more than 107,000 square miles in six states: Washington, Oregon, Idaho, Wyoming, and small portions of Nevada and Utah.

IMPROVEMENTS

Flood Control

1. COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS

Location. Improvements included in this project are along the Columbia River and its tributaries.

Existing project. The Flood Control Act of 1950 approved a general comprehensive plan for the Columbia River Basin for flood control and other purposes based on plans in H. Doc. 531, 81st Congress, 2nd Session, and authorized $75 million to be appropriated for partial accomplishment of certain projects. From that authorization, an amount (not to exceed $15 million) was allotted for construction of local flood protection works throughout the Columbia River Basin, subject to conditions that all work undertaken pursuant to authorization would be economically justified prior to construction, and local cooperation specified in the Flood Control Act of 1936, as amended, should be required.

Local cooperation. Section 3, Flood Control Act of June 22, 1936, applies.

Operations during fiscal year (FY). No projects were de-authorized.

2. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Federal law requires local interests to maintain and operate completed local protection projects in accordance with regulations prescribed by the Secretary of the Army. Inspections were made to determine the extent of compliance and advise local interests, as necessary, of measures required to correct deficiencies. (See Table 30-E, Inspection of Completed Flood Control Projects.)

The FY costs were $539,655. Total costs through September 30, 2012, were $5,268,515.

3. JACKSON HOLE, WY

Location. This project is located on the banks of the Snake River, Teton County, west of Jackson, WY.

Existing project. On the Snake River, there are approximately 23.5 miles of federally constructed levees consisting of the following: (1) On the right bank: a series of levees, off-set levees, and bank protection structures, all with full riprap protection from 10 miles upstream of the Jackson-Wilson Bridge to 3.5 miles below the bridge, for a total of 13.5 miles; and (2) On the left bank: a series of federally constructed levees and bank protection structures, all with full riprap protection, extending from 10 miles upstream of the Jackson-Wilson Bridge to 5 miles further upstream. The project resumes 1.5 miles immediately upstream of the bridge and continues to 3.5 miles below the bridge, for a total of 10 miles. In addition, a series of federally and non-federally constructed levees, with a total length of approximately 5 miles, most having some or full riprap protection, are interspersed along both banks of the Snake River from the Highway 26 Bridge to 4 miles downstream of the Jackson-Wilson Bridge.

The project also includes riprap-protected levees on the left and right banks of the Gros Ventre River. The left bank levee begins 1.5 miles west of Cattlemen's Bridge and extends 0.5 mile east of the same bridge. The right bank levee begins 0.5 mile west of Cattlemen's Bridge and extends 0.3 mile east of the same bridge.

The project is authorized by Public Law (PL) 81-516, Flood Control Act of 1950, for flood control protection by channel improvements consisting of channel rectification, levees, and revetments along the Snake River in the vicinity of Wilson, WY. The Water Resources Development Act (WRDA) of 1986, PL 99-662, authorized the Secretary of the Army to assume responsibility for operation and maintenance of the "Federal Levees" and additions and modifications thereto. It states, "the project for Jackson Hole … is modified to provide that the operation and maintenance of the project … shall be the responsibility of the Secretary: Provided, that the … sponsors shall pay the initial $35,000 in cash or materials … plus inflation ...."

The WRDA 1996 (PL 104-303) amended PL 99-662 by including in-kind services and adding "… the Secretary may enter into agreements with the non-Federal sponsor permitting the non-Federal sponsor to perform operation and maintenance for the project on a cost-reimbursable basis."

Since 1978, $398,444,000 (cumulative nominal $) in potential flood damages have been prevented by the levees. Potential damages prevented by the Jackson Hole levees in FY12 were $37,614,000.

Local Cooperation. Provided by Local Cooperative Agreement with Teton County, WY.

Operations during FY. Teton County worked with the Corps to assess levee maintenance requirements and develop project work plans. Per the cooperative agreement, the county performed

maintenance of the wear course of the Solitude Levee by resurfacing approximately 4 miles. In May, the District awarded a contracted for the emergency repair of the Imeson Access Road, resulting in the placement of 910 cubic yards of armor stone. A contract was awarded for the removal and repair of 8 project culverts; 3 culverts were modified under this contract, and another 5 were removed as they served no project purposes. A 3-year requirements contract was awarded in the FY for the rehabilitation of project levees; using this contract, 5 miles of levee vegetation was removed, and 2,000 tons of armor stone was placed to bring approximately half a mile of the levee back to Corps standards. Using the 5-year supply contract for the purchase of revetment rock, 15,376 tons of rock was delivered to project stockpiles.

The FY costs were $1,169,920. (See Table 30-A, Cost and Financial Statement.)

The WRDA 2000 (PL 106-541) authorized the Upper Snake River Restoration Project. Congress added new start funding in FY03 and FY04. The project is located in and along a 22-mile stretch of the upper Snake River near Jackson, WY, in Teton County. It is partially in and adjacent to Grand Teton National Park and the National Elk Refuge, and it is in close proximity to Yellowstone National Park.

The project restores fish and wildlife habitat that was lost as a result of construction, operation, and maintenance of levees constructed by Federal and non-Federal interests. Restoration measures include eco-fences, channel capacity excavation, spur dikes, anchored rootwads, rock grade control, secondary channels, and off-channel and channel stabilization pools. The project has a 14-year phased construction schedule and includes continuing construction, adaptive management, and monitoring to provide implementation flexibility. The rock grade structure, a separable element of site 9, completed in FY05, continued to perform as designed by protecting the island habitat during spring 2012 runoff conditions. Inspection of the completed construction at site 9 found that the previously damaged eco-fences were severely damaged during the spring runoff in 2011, leaving about two-thirds of the site 9 area at risk of further river erosion should the channel continue to move toward the left bank. The sponsor was notified of the inspection results but did not have funding to address the issue. The sponsor submitted a letter of interest in late FY11 to proceed with a bank protection feature in site 10 to protect a mature cottonwood site from further erosion. The site 10 project progressed in FY12 to a 60% design with a preliminary hydraulic analysis and a draft real estate map. The FY12 construction costs were $23,716. (See Table 30-A, Cost and Financial Statement.)

4. LITTLE WOOD RIVER, ID

Location. This project is located in the City of Gooding, ID, along approximately 1 mile of the Little Wood River canal, which runs east to west directly through the city. (See Table 30-B, Authorizing Legislation.)

Existing project. This project was originally constructed under the emergency conservation work program established under legislation enacted March 31, 1933. Subsequently, the project was reauthorized under Section 3057, WRDA 2007, and directs "… the Secretary to rehabilitate the Gooding Channel project for the purposes of flood control and ecosystem restoration if the Secretary determines that such rehabilitation is not required as a result of improper operation and maintenance of the project by the non-Federal interest and that the rehabilitation and ecosystem restoration is feasible …."

Local Cooperation. Provided by the City of Gooding, ID.

Operations during FY. The District continued work on the decision document, which includes required feasibility study and environmental compliance.

The FY12 construction costs were $57,427. Total project costs through September 30, 2012, were $132,042. (See Table 30-A, Cost and Financial Statement.)

5. LUCKY PEAK LAKE, ID

Location. Approximately 10 miles southeast of the city of Boise, ID, on the Boise River. (See Table 30-B Authorizing Legislation.)

Existing project. Lucky Peak Dam is a rolled earthfill dam, 250 feet above the streambed and 1,700 feet long at the crest. The lake behind the dam is 12 miles long with 45 miles of shoreline and provides total storage at an upper operating lake level of 306,000 acre-feet. The project provides flood control, irrigation, recreation, and fish and wildlife benefits.

Construction of the existing project was initiated in November 1949 and completed in June 1961. Since 1961, $2,351,555,000 (cumulative nominal $) in potential flood damages has been prevented by the project. During FY12, Lucky Peak

Dam prevented $455,790,000 in potential flood damages.

During a detailed study of outlet capacity and potential for adding hydropower to the existing project, a need for an auxiliary outlet became apparent. Construction of an auxiliary outlet was authorized in WRDA 1976. In FY78, *Columbia River and Tributaries, Lucky Peak Dam and Lake, Idaho, Modification Study – Feasibility Report* (on the addition of power generating facilities) was submitted to the Board of Engineers for Rivers and Harbors and approved. States, agencies, and the Chief of Engineers commented on the report to the Secretary of the Army. The report was forwarded to the Office of Management and Budget in February 1982.

A license to construct and operate power facilities at the project was issued by the Federal Energy Regulatory Commission (FERC) (Project #2832) to the Boise Project Board of Control on June 10, 1980. It was modified on October 9, 1980, and again in 1982. Construction of the auxiliary outlet facility began in May 1984 and was completed in August 1986. Construction of modifications to the existing outlet tunnel and powerhouse excavation began in August 1986 and was completed in January 1987. Powerhouse general contract construction began in April 1986. The project was completed and dedicated on October 7, 1988. Power on-line for all units was initiated on August 18, 1988. A federally authorized second outlet was de-authorized in FY90.

Recreation facilities at Lucky Peak Lake consist of 20 day-use/picnic areas, 4 boat launch ramps, and 3 swimming areas. The FY visitation to Lucky Peak Lake was 920,126.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance of the dam structures and recreation areas continued. Required Dam Safety Action Classification (DSAC) risk reduction measures were completed.

The FY costs were $2,739,101. (See Table 30-A, Cost and Financial Statement.)

6. MILL CREEK, BENNINGTON LAKE, WA

Location. This project is located in and upstream from Walla Walla, WA, on Mill Creek, a tributary of the Walla Walla River. (See Table 30-B, Authorizing Legislation.)

Existing project. The project includes an off-stream earthfill storage dam, about 125 feet above the streambed and 3,200 feet long at the crest; two concrete-lined outlet channels; an earthfill diversion dam; and diversion structures. The project provides flood control and recreation. Authorizing legislation to provide a channel through the city of Walla Walla was added to the project in 1941. Recreation was added to the project purposes through the Federal Water Project Recreation Act of 1965.

Construction of the dam and appurtenant works was completed in 1942. Paving of the channel through the city of Walla Walla was completed in 1966. Since 1942, $71,651,000 (cumulative nominal $) in potential flood damages have been prevented by the combined storage and channel operation. During FY12, potential flood damages of $472,000 were prevented by the Mill Creek project.

Rehabilitation of the existing project was initiated in FY78 and completed in FY79. The plan of rehabilitation included action to correct the seepage and internal erosion that has occurred during each subsequent filling of the reservoir. A cutoff wall was constructed but did not alleviate the seepage problem, thus requiring limited flood control use of the project. The seepage and internal erosion create a high vulnerability for dam failure.

Mill Creek/Bennington Lake offers visitors three day-use/picnic areas and one boat launch ramp. Visitation to Mill Creek/Bennington Lake for the FY was 360,046.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance continued, which included regulation of water control structures and care of recreation areas.

- Progressed draft Federal Emergency Management Agency (FEMA) levee certification report to 75 percent complete.
- Progressed office building replacement contract to 75 percent complete.
- Installed four new piezometers with instrumentation to substantially complete dam safety improvements.
- To facilitate the Mill Creek biological opinion (BiOp) study, designed and constructed four prototype weirs and progressed the diversion works fish ladder design to 60% complete.

The FY costs were $4,339,631. (See Table 30-A, Cost and Financial Statement.)

Dam Safety Action Classification (DSAC). Upon completion of the Mill Creek Storage Dam Issue Evaluation Study (IES) in August 2011, the DSAC rating for the Mill Creek Storage Dam was upgraded to DSAC III "High Priority" (Conditionally Unsafe) from a DSAC II "Urgent" (Unsafe or Potentially Unsafe). The IES focused on the storage dam only and did not address the impacts of the diversion dam structure. The diversion dam remains classified as a DSAC II, and an IES is planned with the date to be determined. When the diversion dam IES is conducted, Mill Creek will be analyzed as a system.

DSAC Operations during FY: The following activities were accomplished during FY12:

- Located, analyzed, and uploaded data to support the Risk Management Center's future Potential Failure Mode Analysis.

The FY12 construction costs were $224,063. (See Table 30-A, Cost and Financial Statement.) Total project costs are $1,893,878.

7. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Functional regulation of non-Corps projects is accomplished as authorized under Section 7, Flood Control Act of 1944. Flood control operations for the following Bureau of Reclamation projects are in accordance with formal agreements: Jackson Lake; Palisades, Ririe, and Little Wood Dams; Boise River Reservoirs (which includes Arrowrock and Anderson Ranch Dams); and the Malheur River Reservoirs. Flood control regulation for Brownlee Reservoir is accomplished under provisions in the Federal Power Commission license issued to Idaho Power Company.

The FY costs associated with flood control operation of non-Corps and Corps-owned projects were $370,588.

8. TRIBAL PARTNERSHIP PROGRAM

Location. Studies conducted under the Tribal Partnership Program pertain to sites primarily on tribal lands within the District boundaries across southeastern Washington, northeastern Oregon, most of Idaho, and portions of Wyoming.

Existing project. Section 203 of the WRDA 2000, Tribal Partnership Program, provides the Corps an opportunity to conduct studies and determine the feasibility of carrying out water resource-related projects in cooperation with and for the substantial benefit of Indian tribes. Studies under this program may address: flood damage reduction; environmental restoration and protection; cultural resources preservation; and other appropriate water resources projects that address economic, environmental, and cultural resources needs.

Local cooperation. The Shoshone Bannock Tribes (Fort Hall) requested assistance from the Corps.

Operations during FY. The District completed fiscal closeout of study after late FY11 submission of 905(b) report for Fort Hall Bottoms reach of the Snake River watershed in southeastern Idaho. The FY construction costs were $1,739. Total costs through September 30, 2012, were $121,426. (See Table 30-A, Cost and Financial Statement.)

9. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, PL 858, 80th Congress, as amended: The FY costs were $10,278 for Section 205 coordination.

Emergency flood control activities – repair, flood fighting, and rescue work (PL 99, 84th Congress, and antecedent legislation): There were no Federal costs this FY.

Emergency bank protection (Section 14, Flood Control Act of 1946, PL 526, 70th Congress): The FY costs were $15,176 for one project and coordination account: Twin Bridges, $11,736; and coordination account, $3,440.

Snagging and clearing of navigable streams and tributaries in interest of flood control (Section 208, Flood Control Act of 1954, PL 780, 83rd Congress): There were no Federal costs this FY.

Multiple-Purpose Projects, Including Power

10. COLUMBIA RIVER FISH MITIGATION PROGRAM (WALLA WALLA PROJECTS), OR, WA, AND ID

Location. This project is located at Ice Harbor Lock and Dam (Ice Harbor), Lower Monumental Lock and Dam (Lower Monumental), Little Goose Lock and Dam (Little Goose), and Lower Granite Lock and Dam (Lower Granite) on the lower Snake River in the state of Washington, and McNary Lock and Dam (McNary) on the Columbia River in the states of Oregon and Washington. (See Table 30-B, Authorizing Legislation.)

Existing project. The eight Corps hydroelectric projects on the Columbia and lower Snake Rivers have been identified as a major contributing factor in causing mortality to downstream migrating juvenile salmon and steelhead. Without adequate bypass facilities to guide these juvenile fish away from the power turbines at the dams, mortalities incurred through project passage severely impact the commercial, recreational, and Tribal fisheries. The Corps has recognized the need to reduce juvenile fish mortality and has undertaken bypass measures that include mechanized fish bypass systems with barge and truck transportation. Spill, as an additional bypass route over the spillways, has been used to divert fish from entering turbine units, but it is a significant adverse economic factor due to lost power revenues. Congress passed, and the President signed, the FY89 Energy and Water Development Appropriation Act (PL 100-371), which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River fish mitigation projects. Completion of bypass and transportation facilities will significantly increase the survival of migrating downstream juvenile fish. A mitigation study to determine the overall scope of the fish mitigation facilities for these Columbia and lower Snake River dams was added to the President's FY91 budget.

The plan of improvement includes the following structures: (1) Ice Harbor: screens, new gantry crane, collection bypass facility, intake gate raise, spillway deflectors, surface bypass, and fish ladder temperature control; (2) Lower Monumental: hold/load and collection bypass facility, screens, passive integrated transponder tag (PIT-Tag) facility, barge load facility modifications, barges, gate raise modifications, gantry crane, fish ladder temperature control, outfall relocation, and surface bypass; (3) Little Goose: screens, gantry crane modification, collection bypass facility, outfall pipe, fish ladder temperature control, fallout fences, gate raise, deck screen modifications, PIT-Tag facility, and surface bypass; (4) Lower Granite: juvenile fish facility, gantry crane, gate raise, outfall pipe, fish barges, screens, additional moorage facility, fish slot closures, juvenile fish facility and modifications, barge exit modifications, deck screen modifications, fish ladder temperature control, surface bypass, PIT-Tag facility, spillway PIT-Tag detection system, and fallout fences; and (5) McNary: gantry crane and modifications, screens, hold/load facility, gate raise modifications, maintenance facility, fish ladder exits, adult/juvenile collection channel stoplogs, juvenile fish facility, outfall relocation, surface bypass, and gantry crane modifications.

In response to the 1995 Endangered Species Act (ESA), Section 7, Consultation BiOp, issued by the National Marine Fisheries Service (NMFS), the District conducted a feasibility study (Lower Snake River Juvenile Salmon Migration Feasibility Study) to evaluate salmon migration problems on the lower Snake River. The objective of the study was to improve salmon migration conditions through the four Corps-operated dams and reservoirs on the lower Snake River. The study focused on how these dams could be changed to improve survival and recovery prospects for Snake River salmon stocks under the ESA. More recently, the 2008 NMFS BiOp for the Federal Columbia River Power System (FCRPS), the 2008 Columbia River Fish Accords, the 2009 Adaptive Management Implementation Plan, and the 2010 NMFS Supplemental FCRPS BiOp address additional mitigation measures required at these projects. Using an adaptive management policy as additional biological data is collected, the configuration changes identified within these studies, opinions, and agreements continue to be implemented.

As of spring 2009, permanent or interim surface bypass technology was installed at all of the District's Snake River dams and at McNary. These structures are focused on improving juvenile fish surface passage for endangered and threatened salmon migrating past all Corps hydroelectric projects. These structures were deployed using an aggressive, nontraditional approach to development that involved fast-track design, construction, testing, and evaluation. Based on post-construction biological evaluations conducted to date, these structures have proven to be successful in reducing passage delay and increasing dam passage survival.

The fully funded Federal project cost is estimated at $955,000,000 for District projects.

Local cooperation. None required.

Operations during FY. The following studies and improvements were accomplished during FY12:

- Completed construction of juvenile bypass outfall relocations at both McNary and Lower Monumental. Relocated outfalls are expected to increase juvenile dam survival by improving egress and reducing fish predation by piscivorous birds and fish at the outfall sites.

- Improved conditions for adult lamprey passage by modifying adult fish ladders across five dams: completed construction of modifications at Ice Harbor and Lower Monumental; completed design and awarded construction contracts at Little Goose and Lower Granite; and, initiated design of an improved entrance at McNary south shore that will provide easier entrance conditions for lamprey, without impacting adult salmon.

- Initiated work on the final design documents for improvements to the Lower Granite juvenile bypass/holding and loading facilities. The existing facilities were the first to be constructed on the Snake River and have many features that currently do not meet criteria for juvenile salmon passage. Design efforts focused on the development and award of a prototype collection channel overflow weir system to replace existing orifices. This improvement has the potential to reduce stress and injury to juvenile fish passing through the bypass system. Progress was also made on the final design of improvements between the gate wells and the separator. These improvements are anticipated to reduce stress, delay, and injury to migrating juveniles, as well as reduce stress and injury to downstream migrating steelhead kelts.

- Initiated design of a prototype spillway PIT-Tag monitoring system for Lower Granite Dam in response to a Reasonable and Prudent Alternative specified in the 2008 FCRPS BiOp. This system will be the first of its kind installed in a spillway environment and has the potential to provide additional data on tagged fish that previously would not have been detected. If effective, the data will improve the precision of juvenile fish survival estimates that regional fish managers rely on to make system operation and configuration decisions.

- Completed design and awarded a construction contract for the expansion of the Lower Granite barge mooring facility. The expansion will allow mooring of the juvenile transportation system barge fleet in a safe configuration and will facilitate access so that maintenance activities can be performed in a safe and efficient manner. The juvenile fish transportation program remains a key strategy in increasing adult returns, and this project ensures the reliability of the transportation barge fleet.

- Completed design and awarded a contract for the construction of stoplogs for the Little Goose spillway weir. The stoplogs are required to support the spillway weir frame and crest. Construction of these stoplogs will return full functionality to the Little Goose project to react to spillway and spillway gate emergencies.

- Completed the design and awarded a contract to install permanent reinforced concrete bulkheads to replace three unsafe hydraulic steel regulating weirs at the station service bay at McNary. The permanent bulkheads will allow inspection and maintenance of the juvenile collection channel to ensure safe juvenile fish passage conditions.

- Continued evaluations and provided feedback on contractor-submitted Ice Harbor turbine runner models for the Unit 2 replacement design process. Completed evaluations of the second design iterations for both the fixed and adjustable blade runners. Also evaluated alternative active tagging methods for potential use in biological performance evaluation testing. The collaborative design process is expected to result in a more fish-friendly turbine in terms of juvenile fish survival, without sacrificing power efficiency.

- Completed the system-wide spillway evaluation study to determine impacts of increased spill frequency and duration on

Columbia and lower Snake River dams. These impacts are a result of voluntary spill operations that aid juvenile fish passage. The study focused on the reliability and risk of failure of spillway appurtenances due to increased spill operations.

- Continued studies evaluating impacts of avian predation on salmon smolt from the Columbia and Snake Rivers. This included monitoring the Caspian tern colony on Crescent Island; determining stock-specific predation rates on juvenile salmonids; surveying and monitoring for new or existing tern and cormorant colonies in the mid-Columbia River; recovering PIT-Tags from avian islands. Research provided an estimate of relative magnitude of impacts among multiple avian predators in the mid-Columbia River and will be used to prepare an analysis of alternative management actions.

- Initiated work on an Inland Avian Predation Management Plan (IAPMP). The IAPMP is being prepared to develop a program with the greatest potential to reduce avian predation-related loss of juvenile salmonids in the Columbia River Basin. The need for action has been driven by recognition that avian predators are one of the recovery-limiting factors for ESA-listed salmonids in the Columbia River Basin.

- Continued a study to estimate the survival of fall Chinook salmon in the Columbia and Snake River system. 2012 is the last year in which out-migrating juveniles will be tagged. Future efforts will focus on collecting data from returning tagged adults. This research will assist in developing system-wide operations that will maximize survival of fall Chinook salmon throughout the fish passage season.

- Initiated a study to evaluate the passage success and survival of out-migrating steelhead kelt through the Snake and Columbia River projects. Data from this study will be used to develop alternatives for improved in-river survival of kelt to meet BiOp requirements with respect to productivity of interior basin B-run steelhead.

- Awarded a design-build contract for the installation of an adult trap at Ice Harbor. The trap will be used to capture and mark adults for studies to determine if recent configuration and operation changes are negatively impacting adult migration.

- Conducted biological testing to evaluate performance against the juvenile survival standards at McNary, Lower Monumental, and Little Goose. The FCRPS BiOp requires two successful evaluations validating that the juvenile dam survival spring and summer migrant goals of 96 and 93 percent, respectively, are being met. If met, additional configuration actions at these projects may not be necessary.

The FY construction costs were $50,653,965. Total project costs though September 30, 2012, were $750,960,171. (See Table 30-A, Cost and Financial Statement.)

11. DWORSHAK DAM AND RESERVOIR, ID

Location. This dam is on the North Fork of the Clearwater River, 1.9 miles above its junction with the Clearwater River, about 5 miles west of Orofino, ID, and 35 miles east of Lewiston, ID. (See Table 30-B, Authorizing Legislation.)

Existing project. The project includes a dam, powerplant, public parks, and appurtenant facilities. The project provides for flood control, navigation, hydroelectric power generation, recreation, and area redevelopment. The 53.6-mile-long reservoir has a normal operating range between the elevations of 1,600 and 1,445 mean sea level (msl). The reservoir has a gross storage capacity of 3,468,000 acre-feet (2 million acre-feet are effective for both local and regional flood control and for at-site and downstream power generation). The project's 30,935 acres of land and 17,090 acres of water provide habitat for elk, deer, and other wildlife. The dam structure is about 3,287 feet long and 717 feet above the streambed. Fish passage is not feasible due to the height of the dam. A hatchery has been built below the dam to assure continuance of anadromous fish runs. The powerhouse has two 90,000-kilowatt (kW) and one 220,000-kW generating units in operation, for a capacity of 400,000 kW.

Provisions were made for three additional 220,000-kW generating units, for an ultimate installed capacity of 1,060,000 kW. A reconnaissance report justifying the feasibility and cost/benefits for the addition of a fourth 200,000-kW

generating unit was completed in FY78. However, environmental and economic studies on additional generating units were curtailed due to public opposition. Unit 4 is undeveloped. Units 5 and 6 were de-authorized in FY90, and Unit 4 was de-authorized in FY95. Principal project data are set forth in table 30-C.

Construction of the project began in July 1966. It was placed in operation in 1972 and completed in 1986. Since the project became operational in June 1972, it has prevented about $2,836,000 (cumulative nominal $) in local potential flood damages. During FY12, regulation at Dworshak Dam prevented $56,235,000 in potential flood damages on the Columbia River. Power generation through September 2012 was 69.97 billion kW hours.

At Dworshak Reservoir, recreation facilities consist of 12 day-use/picnic areas, 6 camp areas, 6 boat launches, and 2 swimming areas. The Dworshak Information Center provides a regional overview of Corps efforts in the Clearwater River Basin. Total visitation to Dworshak Reservoir for the FY was 113,670.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Management of wildlife habitat continued on project lands to provide winter browse for elk and deer. During the FY, 1.98 billion kW hours of electrical power were generated by the three generating units.

- Progressed the Dworshak Fish Hatchery Rehabilitation Plan by completion of the following: development of initial array of alternatives and evaluation criteria; analysis of existing effluent system design in preparation for tank configuration revision; cost estimation; and stakeholder outreach.

The FY costs were $11,168,695. (See Table 30-A, Cost and Financial Statement.)

DSAC. In October 2008, Dworshak Dam was classified as a DSAC II "Urgent" (Unsafe or Potentially Unsafe) because of concerns with internal, external, and structural stability; spillway structural capacity; and foundation seepage and piping. Reevaluation in 2012 by the USACE Headquarters Senior Oversight Group upgraded the rating to DSAC III "High Priority" (Conditionally Unsafe) based on the IES and corrective actions taken.

DSAC Operations during FY. The following activities were accomplished during FY12:

- Completed final IES Phase I.
- Initiated IES Phase II.

The FY12 construction costs were $345,777. (See Table 30-A, Cost and Financial Statement.) Total project costs are $2,653,819.

American Recovery and Investment Act (ARRA) for DSAC: The following improvements were accomplished in FY12:

- Completed ARRA-funded project.

The ARRA FY12 construction costs were $77,608. Total ARRA costs were $3,573,181. (See Table 30-A, Cost and Financial Statement.)

12. ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA

Location. This dam is located on the Snake River, 9.7 miles above the river mouth at the head of Lake Wallula (McNary Reservoir) and 12 miles east of Pasco, WA. (See Table 30-B, Authorizing Legislation.)

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, recreation areas, and appurtenant facilities. The project provides navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 440 and 437 msl. Lake Sacajawea extends upstream about 31.9 miles and provides slack water to Lower Monumental. The dam structure is approximately 2,822 feet long and approximately 130 feet above the streambed. The fish passage facilities include two fish ladders. The powerhouse has three 90,000-kW and three 111,000-kW generating units in operation, for a capacity of 603,000 kW.

The spillway dam is 590 feet long, and the overflow crest at elevation 391 msl is surmounted by 10 tainter gates, 50 feet wide and 52.9 feet high, that provide the capacity to pass a design flood of 850,000 cubic feet per second (cfs). The deck is at elevation 453 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 675 feet and a 16-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 41.6 miles long) is provided from the mouth of

the Snake River to the dam, and from the dam to Lower Monumental. Principal project data are set forth in table 30-C.

Construction of the original project began in December 1955. It was placed in operation in 1961 and completed in 1971. Construction of the additional generating units was started in 1971 and completed in 1981. Power generation through September 2012 was 103.68 billion kW hours.

Recreation areas on Lake Sacajawea include 11 day-use/picnic areas, 4 camping areas, 7 boat launch areas, and 4 swimming areas. The project includes 32 miles of the Northwest Discovery Water Trail. The Ice Harbor Information Center provides a regional overview of Corps efforts in the Snake River Basin. Total visitation to Lake Sacajawea for the FY was 346,197.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.83 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to 3,178,100 tons during calendar year 2012.

- Completed replacement of downstream gate cable hoist system.

- Completed emergency repairs of coffer cell #4, reducing likelihood of failure.

The FY costs were $9,151,446. (See Table 30-A, Cost and Financial Statement.)

13. LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA

Location. The dam is 70.3 miles above the mouth of the Snake River and at the head of Lake Herbert G. West (Lower Monumental Reservoir), about 40 miles northeast of Walla Walla, WA, and 50 miles northwest of Lewiston, ID. (See Table 30 B, Authorizing Legislation.)

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, and appurtenant facilities. The project provides navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 638 and 633 msl. Lake Bryan extends upstream about 37.2 miles and provides slack water to Lower Granite. The dam structure is 2,655 feet long and approximately 165 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores and a fish channel through the spillway, which connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation, for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 581 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 668 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 37.2 miles long) is provided from the dam to Lower Granite. Relocations along the lake included 32 miles of Camas Prairie Railroad, 6.8 miles of county roads, 2.2 miles of state highways, and the Central Ferry Bridge. Principal project data are set forth in table 30-C.

Construction of the original project began in 1963. The project was placed in operation in 1970 and completed in 1976. Construction of additional generating units began in 1974 and was completed in 1984. Power generation through September 2012 was 102.25 billion kW hours.

Lake Bryan provides seven day-use/picnic areas, five campgrounds, five boat launch areas, and two swimming areas. The project includes 39 miles of the Northwest Discovery Water Trail. Total FY visitation to Lake Bryan was 168,900.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.32 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to 2,298,300 tons during calendar year 2012.

- Awarded supply task order and received parts for inhouse repair of Fill Valve #4.

The FY costs were $6,403,051. (See Table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY12.

- Completed heating, ventilation, and cooling (HVAC) replacement.

The ARRA FY12 costs were $9,059. Total ARRA costs were $822,034. (See Table 30-A, Cost and Financial Statement.)

14. LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA

Location. This dam is at river mile 107.5 on the Snake River at the head of Lake Bryan (Little Goose Reservoir) and about 33 miles downstream from Lewiston, ID. (See Table 30-B, Authorizing Legislation.)

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, appurtenant facilities, and approximately 8 miles of slack water levees along the Snake and Clearwater Rivers at Lewiston, ID. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 738 and 733 msl in Lewiston, ID, and Clarkston, WA. Lower Granite Lake extends upstream approximately 38 miles and provides slack water to the confluence of the Snake and Clearwater Rivers. The dam structure is approximately 3,200 feet long and approximately 146 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores with a fish channel through the spillway that connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000-kW generating units in operation, for a capacity of 810,000 kW.

The spillway dam is 512 feet long, and the overflow crest at elevation 681 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 674 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 39.3 miles long) is provided from the dam to the confluence of the Snake and Clearwater Rivers. Principal project data are set forth in table 30-C.

Construction of the original project started in July 1965. It was placed in operation in 1975 and completed in 1984. Construction of additional generating units was started in 1974 and completed in 1979. Power generation through September 2012 was 93.64 billion kW hours. Approximately $38,385,000 (cumulative nominal $) in potential flood damages have been prevented since the levees became functional.

Lower Granite Lake offers visitors 16 day-use/picnic areas, 6 sites with camping, 12 boat launch ramps, and 4 swimming areas. The project includes 45 miles of the Northwest Discovery Water Trail. Total recreation visitation to Lower Granite Lake for the FY was 1,915,804.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.43 billion kW hours of electrical power was generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to 1,494,000 tons during calendar year 2012.

- Completed rehabilitation of the hydromet system.
- Completed drafts of the Lower Granite Programmatic Sediment Management Plan and the accompanying Environmental Impact Statement.

The FY costs were $13,177,384. (See Table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY12:

- Completed fiscal closeout for Visitor Center HVAC replacement project.

The ARRA FY12 costs were $10,189. Total ARRA costs were $313,806. (See Table 30-A, Cost and Financial Statement.)

Juvenile Fish Transportation Program. As the first collector dam on the Snake River, Lower Granite is a primary component of the Juvenile Fish Transportation Program. Transport began in the late 1960s as a research program on how to bypass juvenile salmon and steelhead around dams and reservoirs of the Corps' Columbia and Snake River dams. Transport became an operational program in 1981 with collection and transport from Lower Granite, Little Goose, and McNary. Transport was expanded in 1993 to include Lower Monumental. Development and improvement of collection and bypass systems continued, with a new collection system completed at McNary in 1994; a new bypass system completed at Ice Harbor in 1996; and extended-length submersible bar screens installed at Lower Granite, Little Goose, and McNary in 1996 and 1997.

In 2003, a new removable spillway weir (RSW) was tested at Lower Granite. A second RSW was

tested at Ice Harbor in 2005 (fish are not collected here for transport), and a third RSW was tested at Lower Monumental during the 2008 fish passage season. During the 2007 season, two temporary spillway weirs (TSW) were tested in Spillbays 20 and 22 at McNary. Testing continued at McNary during the 2008 season after the TSW in Spillbay 22 was moved to Spillbay 19. Further tests followed in 2009 with TSWs placed in Spillbays 4 and 20 early in the season and Spillbays 19 and 20 late in the season. TSWs continued to operate in Spillbays 19 and 20 during the 2010, 2011, and 2012 seasons. In 2009, TSW operations started in Spillbay 1 at Little Goose. A low crest TSW is utilized early in the season, and a high crest TSW is utilized later in the season. In 2012, the Little Goose TSW was operated from April 3 through August 6, initially in the low crest configuration, with a switch to high crest configuration on May 31.

The 2012 juvenile fish transport season was marked by near normal river flows in the Snake River and higher than normal flows in the Columbia River. The three Snake River transport projects operated under regionally coordinated, court-approved plans. Operations included daily spill from April 3 through August 31 and transportation of collected juvenile fish. Spill at McNary took place from April 10 through August 31. During the court-ordered spill period, emphasis was placed on a mix of fish transportation and in-river migration.

In 2012, the start of juvenile fish transport operations by barge was staggered, commencing on May 2 at Lower Granite, May 4 at Little Goose, and May 6 at Lower Monumental. This practice allows early season fish to migrate in-river. Truck operations began August 18 and continued until October 1 at Lower Monumental and October 31 at Little Goose and Lower Granite. Juvenile fish collection at Lower Granite in 2012 was 5,812,430, as compared with 6,310,606 in 2011 and 3,645,277 in 2010. A total of 3,133,040 fish were bypassed back to the river in 2012, and 2,674,880 were transported. At Little Goose, a total of 3,216,226 juvenile salmon and steelhead were collected in 2012, as compared with 3,384,386 collected in 2011 and 2,870,791 in 2010. A total of 678,174 fish were bypassed back to the river in 2012, and 2,536,134 fish were transported. At Lower Monumental, 1,251,388 juvenile salmon and steelhead were collected in 2012, as compared with 1,582,909 in 2011 and 1,065,007 in 2010. A total of 24,271 fish were bypassed from Lower Monumental in 2012, and 1,225,364 were transported.

Under normal operations at McNary, fish are bypassed in the spring until early to mid-July when collection and every-other-day transport of summer migrants by barge begin. No fish transport by barge occurred at this location as regional fish agencies and the Corps reached a consensus to transport only by truck for 2012. In 2012, collection for transport operations at McNary began on August 17, compared to July 21 in 2011. Because of high river water temperatures and the increased potential for fish stress, fish were trucked daily from August 18 through August 30. Due to a power outage, no truck left the facility on August 24. The first every-other-day truck was to depart the facility on September 1, but biologists opted to truck on September 2 to reduce the amount of debris entering the trucks. September 3-6, fish were bypassed to the tailrace as large amounts of forebay debris entering the facility made transport unfeasible. Routine every-other-day truck departures began September 7, concluding for the season on October 1. A total of 3,307,731 juvenile salmon and steelhead were collected in 2012, as compared with 3,944,343 in 2011 and 4,331,732 in 2010. Approximately 3,090,970 of the fish collected were bypassed back to the river to meet fishery agency requirements. A total of 214,454 juvenile fish were transported from McNary in 2012, as compared with 1,473,211 transported in 2011 and 447,252 transported in 2010.

A grand total of 13,587,775 juvenile salmon and steelhead were collected at all projects in 2012, as compared with 15,222,244 in 2011 and 11,912,807 in 2010. A total of 6,650,832 fish were transported in 2012, which was 49 percent of those collected, compared with 64 percent in 2011. Of the fish transported, 6,412,865 were transported by barge (96.4 percent), and 237,967 were trucked (3.6 percent).

15. LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA

Location. This dam is on the Snake River at the head of Lake Sacajawea (Ice Harbor Reservoir), about 45 miles northeast of Pasco, WA, and 41.6 miles above the river mouth. (See Table 30-B, Authorizing Legislation.)

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, and appurtenant facilities. The project provides navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 540 and 537 msl. Lake Herbert G. West (Lake West) extends upstream approximately 28.7 miles and provides slack water to Little Goose. The dam structure is approximately 3,791 feet long and approximately 135 feet above the streambed. The

fish passage facilities include two fish ladders, one at each end of the dam. The powerhouse has six 135,000-kW generating units in operation, for a capacity of 810,000 kW. The spillway dam is 572 feet long, and the overflow crest at elevation 483 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide capacity to pass a design flood of 850,000 cfs. The deck is at elevation 553 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 666 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 28.1 miles long) is provided from the dam to Little Goose. Relocations along the lake included railroads and highways. Principal project data are set forth in table 30-C.

Construction of the original project started in June 1961. It was placed in operation in 1969 and completed in 1976. Construction of the additional generating units began in 1975 and was completed in 1981. Power generation through September 2012 was 115.61 billion kW hours.

Lake West offers seven day-use/picnic areas, five areas offering camping, five boat launch areas, and one designated swimming beach. The project includes 28 miles of the Northwest Discovery Trail. Total visitation to Lake West for the FY was 115,869.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 2.53 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to 2,774,300 tons during calendar year 2012.

- Completed Phase 3 concrete repairs to navigation lock Monolith 15.
- Substantially completed downstream gate hoist upgrade plans and specifications.

The FY costs were $8,813,527. (See Table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplished during FY12:

- Completed closeout of navigation lock gate replacement contract.

The ARRA FY12 costs were $5,008. Total ARRA costs were $15,410,447. (See Table 30-A, Cost and Financial Statement.)

16. LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID

Location. This project is at various locations within the Columbia and Snake River drainages in the states of Idaho, Oregon, and Washington. (See Table 30-B, Authorizing Legislation.)

Existing project. The project consists of a series of fish hatcheries; wildlife development areas; and purchased off-site project lands for fishing, hunting access, and further habitat development. The project will compensate for loss of wildlife habitat and anadromous and resident fisheries due to impacts from the construction of four multipurpose dams and reservoirs on the lower Snake River (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite).

The real estate design memorandum and feature design memorandums have been approved to include hatcheries, satellites, off-project wildlife lands, and site selection. A final Environmental Impact Statement was filed with the Council on Environmental Quality on November 2, 1977. The Dworshak National Fish Hatchery Expansion and the Irrigon, Hagerman, Lyons Ferry, Lookingglass, McCall, Sawtooth, Magic Valley, and Clearwater hatcheries (including their respective satellite facilities) are all in operation. Transfer actions were completed in FY04 for Big Canyon and Pittsburg Landing. Captain John Rapids was transferred in FY10. Fencing is complete at all wildlife development areas. Off-project land acquisition is 100 percent complete. Habitat development continues at many of these sites. The WRDA 2007 amended the plan for woody riparian habitat to include aquatic restoration. Development has been initiated to compensate for habitat losses resulting from the inundation of habitat. This will result in creation of new riparian and aquatic habitat areas. The compensation project is currently scheduled for completion in FY18 at an estimated Federal cost of $261,000,000.

Local Cooperation. None required.

Operations during FY. Native shrub and tree planting contracts were awarded for Asotin Slough Habitat Management Unit (HMU) and Hells Gate HMU. Bathymetric surveys were completed at four HMU locations for shallow water habitat analyses.

The FY construction costs were $1,890,096. Total project costs through September 30, 2012, were $242,737,879. (See Table 30-A, Cost and Financial Statement.)

17. McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA

Location. This dam is on the Columbia River, 292 miles above the mouth, near Umatilla, OR, and 3 miles above the mouth of the Umatilla River. (See Table 30-B, Authorizing Legislation.)

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, appurtenant facilities, and a system of levees and pumping plants. The project provides slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 340 and 335 msl. Lake Wallula extends upstream approximately 64 miles and provides slack water to Ice Harbor. The dam structure is 7,365 feet long and approximately 183 feet above the streambed. Fish passage facilities include two fish ladders. The powerhouse has fourteen 70,000-kW generating units in operation, for a capacity of 980,000 kW. The spillway dam is 1,310 feet long, and the overflow crest is at elevation 291 msl and is surmounted by 22 vertical lift gates, 50 feet wide and 51 feet high, that provide the capacity to pass a design flood of 2.2 million cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 683 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 32 miles long) is provided from the dam to the mouth of the Snake River. To eliminate hazards to navigation, relocation of structures such as railroad bridges over the Columbia and Snake Rivers was required. Principal project data are set forth in table 30-C.

Construction began in May 1947. The project was placed in operation in 1953 and completed in 1982. Power generation through September 2012 was 360.44 billion kW hours.

Recreation areas on Lake Wallula include 19 day-use/picnic areas, 4 campgrounds, 14 boat launch ramps, and 9 swimming areas. The project includes 45 miles of the Northwest Discovery Water Trail. The Pacific Salmon Visitor Information Center at McNary, which is staffed by park rangers, provides a regional overview of Corps efforts in support of salmon recovery. Total visitation to Lake Wallula for the FY was 4,034,062.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 5.62 billion kW hours of electrical power were generated by the 14 generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo that amounted to 6,697,100 tons during calendar year 2012.

- Completed design of stoplog repairs and awarded construction contract.

The FY costs were $15,158,373. (See Table 30-A, Cost and Financial Statement.)

18. SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID

Location. This project is on the Snake River, downstream from Johnson Bar Landing, at river mile 230. The Snake River, which is the largest tributary of the Columbia River, rises in Yellowstone National Park in western Wyoming, flows generally in a westerly direction for approximately 1,000 miles, and empties into the Columbia River, near Pasco, WA, 324 miles from the Pacific Ocean. (See Table 30-B, Authorizing Legislation.)

Existing project. The River and Harbor Act of 1945 authorized construction of dams, as necessary, for power, incidental irrigation, and open channel improvements for purposes of providing slack water navigation and irrigation between the mouth of the Snake River and Lewiston, ID. That authorization modified previous authorizations only for the portion of improvement below Lewiston, ID. Acts of June 13, 1902, and August 30, 1935, as they pertain to open river improvement from Lewiston, ID, to Johnson Bar Landing, remain part of the existing project.

Improvements included in existing projects are Ice Harbor, Lake Sacajawea; Little Goose, Lake Bryan; Lower Granite, Lower Granite Lake; Lower Monumental, Lake West; and open river improvement, Lewiston to Johnson Bar Landing. Each of the four locks and dams is described in an individual section, and cost and financial data for the entire project are shown on tables 30-A and 30-D.

Ice Harbor, Little Goose, Lower Granite, and Lower Monumental are in full operation.

Local cooperation. None required.

Terminal facilities. On the Snake River, from the mouth to Johnson Bar Landing, there are

18 privately-owned barge terminals in use for shipping grain, petroleum products, fertilizers, wood products, cement, and other general cargo. There are also 5 marinas and 28 small boat launch ramps, all open to the public. The facilities serve slack water navigation to river mile 140, the site of Lewiston, ID. That slack water has reached the Lewiston, ID, and Clarkston, WA, area since the lake behind Lower Granite was filled in February 1975.

Operations during FY. See individual sections for Ice Harbor, Little Goose, Lower Granite, and Lower Monumental. On the Snake River, from Lewiston, ID, to Johnson Bar Landing, reconnaissance and condition surveys were conducted, and survey markers were maintained. (Also see Table 30-D, Snake River Downstream from Johnson Bar Landing, OR, WA, and ID.)

19. RURAL IDAHO, ID, ENVIRONMENTAL INFRASTRUCTURE AND RESOURCE PROTECTION AND DEVELOPMENT PROGRAM

Location. Projects are at various locations within the state of Idaho.

Existing project. The primary objective of this program is to provide design and construction assistance to non-Federal interests for carrying out water-related environmental infrastructure and resource protection and development projects. Projects may include wastewater treatment and related facilities, water supply and related facilities, environmental restoration, and surface water resource protection and development. Projects are authorized under Section 595 of the WRDA 1999, PL 106-53, as amended.

Local cooperation. Local sponsors are responsible for 25 percent of costs associated with the projects.

Operations during FY. The following improvements were accomplished in FY12:

- Completed design of Eastern Interceptor Project with the City of Ammon, ID. This project is tied to Eastern Idaho Regional Wastewater Authority Oxbow Wastewater Treatment Plant which is also complete.

- Completed design of Soda Springs, ID, wastewater treatment facility.

- Completed fiscal closeout of Newdale, ID, drinking water system project.

- Continued design of City of Filer, ID, wastewater collection and treatment facility.

- Executed partnering agreement and began design of drinking water facility for the City of Arco, ID.

- Executed partnering agreement and began design of Phase II wastewater facility upgrades for the City of Grangeville, ID.

The FY12 construction costs were $826,321. (See Table 30-A, Cost and Financial Statement.)

ARRA: The following improvements were accomplishments during FY12:

- Completed construction of wastewater treatment facility for City of Greenleaf, ID.

- Completed construction of wastewater collection improvements for City of Buhl, ID.

- Commenced design of wind turbine at the wastewater treatment facility Phase I site for City of Lava Hot Springs, ID.

The ARRA FY12 costs were $1,116,746. Total ARRA costs were $7,965,407. (See Table 30-A, Cost and Financial Statement.)

20. ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Project modification for the improvement of the environment (Section 1135(b), PL 99-662, as amended): The FY costs were $525,221 for four environmental restoration projects and coordination account, which included: (1) Bennington Lake Diversion Dam, WA ($81,137) (applies to the Mill Creek Diversion Dam); (2) Boise River at Eagle Island, ID ($170,163); (3) Two Rivers, WA ($185,684); (4) Walla Walla River, WA ($82,169); and coordination account ($6,069).

Project modification for Aquatic Ecosystem Restoration (Section 206, PL 104-303, as amended): The FY costs were $58,632 for continuation of one aquatic ecosystem restoration project and coordination account, which included: (1) Twin Falls, ID ($51,492); and coordination account ($7,140).

Project modification for regional sediment management (Section 204, PL 102-560, as amended): The FY costs were $708 for one sediment management project: (1) Snake River, ID ($708).

Investigations

21. COLLECTION AND STUDY OF BASIC DATA

During the FY, flood hazard data for a number of locations in the District were collected and analyzed. Flood information was provided to several Federal agencies; the states of Idaho, Oregon, and Washington; various cities and counties in those states; and some private organizations.

Total cost of collection and study of basic data during the FY was $225,103, which included: Flood Plain Management Services ($16,233); Technical Services ($30,438); Quick Responses ($5,032); and Special Studies ($173,400).

22. PRECONSTRUCTION, ENGINEERING, AND DESIGN

None.

23. SURVEYS

The total FY12 costs for surveys were $450,316, including special studies (Boise River [$500]; Walla Walla River Watershed [$50,944]); miscellaneous activities (special investigations, FERC licensing activities, North American Waterfowl Management Plan, and Interagency Water Resource Development [$127,006]); coordination with other Federal agencies ($6,856); Section 203, Tribal Partnerships studies ($36,293); and Planning Assistance to States ($228,717).

Tribal Partnership Program: A new reconnaissance study of the environmental restoration and cultural opportunities in the Lapwai Creek watershed was initiated in partnership with the Nez Perce Tribe. This work progressed to 75% complete.

Other Activities

24. SHORELINE PROTECTION

Beach Erosion Control project activities pursuant to Section 103, PL 874, 87th Congress, as amended (preauthorization): The FY costs were $12,936 for Section 103 coordination.

25. CATASTROPHIC DISASTER PREPAREDNESS

This program is authorized under PL 93-228. Costs are shown below.

Continuity of Operations (510)	$0
National Preparedness Planning (520)	0
Emergency Operations Center Support (530)	0
Catastrophic Disaster Training and Exercise (560)	0
Total Catastrophic Disaster Preparedness Program	$0

26. FLOOD CONTROL AND COASTAL EMERGENCIES (FCCE)

Costs for flood control work under authorized emergency flood control activities, flood fighting, PL 84-99, are shown below.

Disaster Preparedness (100)	$452,977
Emergency Operations (200)	10,374
Rehabilitation and Inspection Program (300)	509,901
Drought Assistance (400)	0
Advance Measures (500)	0
Hazard Mitigation (600)	60,338
Total FCCE	$1,033,590

27. GENERAL REGULATORY

General Regulatory costs are shown below.

Permit Evaluation (100)	$1,606,758
Enforcement (200)	57,469
Studies (300)	0
Environmental Impact Statement (500)	3,526
Administrative Appeals (600)	0
Compliance – Authorized Activities (800)	25,106
Total Regulatory	$1,692,859

Operations during FY. ARRA (Permit): There were no costs in FY12. Permit work was completed in FY10.

ARRA (Studies): The District has completed new work on the cumulative impact study (CIS) for impacts from activities authorized by Regional General Permit 27 on Lake Pend Oreille, ID. The CIS focuses on the impacts of near shore structures (e.g., piers, docks, and pilings) on bull trout, Kokanee, and other fish species. The following improvements were accomplished during FY12:

- Completed data entry, analysis, and summary; completed draft report in March 2012; reviewed and addressed comments.

- Completed final report in May 2012, titled *Evaluation of Fish Assemblages and Piscivore Diets in Developed and Undeveloped Littoral Areas of Lake Pend Oreille.*

The ARRA FY12 costs were $144,810, which included: (1) Permits ($0) and (2) Studies ($144,810). Total ARRA costs were $620,150.

28. SURVEILLANCE OF NORTHERN BOUNDARY WATERS

Authorized by Boundary Waters Treaty, 1909; and Columbia River Treaty, 1961, and Exchange of Notes between the United States and Canada, 1964. The project provides for the Corps' participation as a member of the U.S. Entity, along with Bonneville Power Administration (BPA), for implementation of the 1964 Columbia River Treaty (CRT) with Canada. Implementation includes participation in a joint operating committee with BPA and British Columbia Hydro and Power Authority (BC Hydro). The committee is charged with annual development of plans for operation of reservoir storage in three Canadian projects to meet flood control and power objectives of the treaty and to fulfill other mutually beneficial purposes. The CRT provides 8.45 million acre-feet of primary flood control storage. Operations are estimated to have prevented over $6.5 billion in property damage to date and reduced the risk to 850,000 citizens. While the Treaty has no end date, either nation can elect to terminate many of the provisions of the Treaty as early as 2024, with a 10-year advance notice. In addition, regardless of whether the Treaty continues or is terminated, there will be a major change in flood control operations beginning in 2024; the current system in which Canadian reservoirs provide a guaranteed 8.95 million acre-feet of primary flood storage space will be replaced by a system in which the United States can call upon Canada to provide storage to manage floods that cannot be adequately controlled by U.S. facilities.

In FY 09, the Corps and BPA initiated the CRT 2014/2024 Review, a series of comprehensive studies to collect critical information to support decisions regarding the future of the CRT. The goal of this multi-year study is to address technical, political, legal, environmental, and societal issues, as well as trade-off analyses. As an element of the review, the Corps, Northwestern Division, is conducting a comprehensive flood risk management study of the Columbia River Basin. Results of the review will be used to form a recommendation by the U.S. Entity to the Department of State before 2014 as to whether the CRT should be continued, modified, or terminated after September 2024.

Local cooperation. The U.S. Entity has convened the Sovereign Review Team (SRT) with representation from 4 states (OR, WA, ID, and MT), 15 federally recognized tribes, and 11 Federal agencies. The purpose of the SRT is to assist the U.S. Entity in developing a regionally supported recommendation regarding the future of the Treaty.

Operations during FY. Numerous activities were completed in FY12 in support of the CRT Review program. The District took the lead in working with National Oceanic Atmospheric Administration to complete the Comprehensive Passage (COMPASS) model for the upper Columbia River. This model allows anadromous fish survival studies to be completed on critical sections of the Columbia River.

The flood risk analysis team established and documented the datasets and model specifications that will be used for the comprehensive flood risk analysis of Treaty alternatives. An analysis tool incorporating the determined risk and hydrological uncertainty modeling for the CRT watershed was completed and tested. The flood risk analysis team then completed iteration 1 modeling and technical analysis, as well as formulation of iteration 2 alternatives.

The FY costs were $3,013,764.

TABLE 30-A **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 09 ($)	FY 10 ($)	FY 11 ($)	FY 12($)	Total Cost 30-Sep-12 ($)	
3	Jackson Hole, WY	New Work						
		Approp.	-	-	(112,439)	-	3,603,631	
		Cost	24,945	-	7,659	23,716	3,361,950	
		Maint.						
		Approp.	1,046,940	824,670	1,212,979	1,289,060	18,747,809	1/
		Cost	617,102	1,243,029	1,336,911	1,169,920	18,244,819	2/
	(Contributed funds)	Maint.						
		Contrib.	-	-	-	-	378,798	
		Cost	-	-	-	-	378,798	
4	Little Wood, ID	New Work						
		Approp.		100,000	49,896	-	149,896	
		Cost		9,765	64,850	57,427	132,042	
5	Lucky Peak Lake, ID	New Work						
		Approp.	-	-	-	-	19,652,081	
		Cost	-	-	-	-	19,652,081	
		Maint.						
		Approp.	1,638,560	2,455,110	2,647,908	2,622,139	48,002,917	
		Cost	1,663,087	1,990,005	2,638,470	2,739,101	47,491,293	
		Maint. ARRA						
		Approp.	169,000	(10,551)	-	-	158,449	
		Cost	67,813	90,636	-	-	158,449	
	(Contributed funds)	Maint.						
		Contrib.		30,000	-	-	30,000	
		Cost		30,000	-	-	30,000	
6	Mill Creek, WA	New Work						
		Approp.	1,280,000	1,000,000	(382,968)	(68,622)	4,186,905	
		Cost	589,677	680,112	354,280	224,063	4,152,373	
		Maint.						
		Approp.	2,716,760	3,503,488	3,969,965	2,848,666	41,102,689	3/
		Cost	1,432,852	2,709,921	3,497,424	4,339,631	39,856,662	4/
		Maint. ARRA						
		Approp.	90,000	71,441	(653)	-	160,788	
		Cost	2,541	157,472	776	-	160,788	
		Rehab						
		Approp.	-	-	-	-	17,714,102	
		Cost	-	-	-	-	17,714,102	
8	Tribal Partnership	New Work						
	Program	Approp.	-	-	(11,561)	(13)	121,426	
		Cost	2,346	2,335	15,344	1,739	121,426	
10	Columbia River Fish	New Work						
	Mitigation Program,	Approp.	27,436,000	15,900,000	45,645,186	39,605,713	776,887,764	
	OR, WA, and ID	Cost	33,986,278	17,184,695	15,725,716	50,653,965	750,960,171	

TABLE 30-A Continued **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 09 ($)	FY 10 ($)	FY 11 ($)	FY 12($)	Total Cost 30-Sep-12 ($)	
11	Dworshak Dam and	New Work						
	Reservoir, ID	Approp.	640,000	1,000,000	501,000	332,000	330,155,196	
		Cost	504,555	732,138	930,658	345,777	330,136,015	
		New Work ARRA						
		Approp.	2,000,000	1,548,708	24,473	-	3,573,181	
		Cost	13,640	1,301,715	2,180,218	77,608	3,573,181	
		Maint.						
		Approp.	10,272,950	10,318,041	10,898,737	11,716,749	286,479,448	5/
		Cost	11,405,241	12,223,260	11,241,216	11,168,695	284,783,291	6/
		Maint. ARRA						
		Approp.	2,375,000	204,951	20,226	-	2,600,177	
		Cost	146,036	1,580,607	873,533	-	2,600,177	
	(Contributed funds)	Maint.						
		Contrib.		9,798	-	-	9,798	
		Cost		-	9,798	-	9,798	
12	Ice Harbor Lock and	New Work						
	Dam, WA	Approp.	-	-	-	-	210,249,757	
		Cost	-	-	-	-	210,249,757	
		Maint.						
		Approp.	9,989,820	10,467,210	10,136,087	9,157,642	277,611,316	7/
		Cost	9,449,744	9,771,619	11,274,746	9,151,446	276,380,361	8/
		Maint. ARRA						
		Approp.	3,734,000	14,500	(16,409)	-	3,732,091	
		Cost	217,909	3,490,583	23,598	-	3,732,091	
13	Little Goose Lock	New Work						
	and Dam, WA	Approp.	-	-	-	-	262,632,022	
		Cost	-	-	-	-	262,632,022	
		Maint.						
		Approp.	7,762,180	6,480,924	7,265,406	6,541,392	195,976,057	
		Cost	7,376,034	6,071,825	7,808,481	6,403,051	194,816,673	
		Maint. ARRA						
		Approp.	1,507,000	(684,500)	(434)	(32)	822,034	
		Cost	109,356	690,782	12,837	9,059	822,034	
14	Lower Granite Lock	New Work						
	and Dam, WA	Approp.	-	-	-	-	400,080,315	
		Cost	-	-	-	-	400,080,315	
		Maint.						
		Approp.	13,718,640	15,856,119	14,976,171	12,418,795	304,173,382	
		Cost	12,639,863	12,826,227	17,491,442	13,177,384	300,280,077	
		Maint. ARRA						
		Approp.	3,336,000	(390,441)	(40,348)	(986)	2,904,225	
		Cost	261,275	2,590,419	42,342	10,189	2,904,225	

TABLE 30-A Continued **COST AND FINANCIAL STATEMENT**

See Section In Text	Project	Funding	FY 09 ($)	FY 10 ($)	FY 11 ($)	FY 12($)	Total Cost 30-Sep-12 ($)	
15	Lower Monumental Lock and Dam, WA	New Work Approp.	-	-	-	-	238,612,732	
		Cost	-	-	-	-	238,612,732	
		Maint. Approp.	9,589,170	7,504,066	9,697,921	8,457,073	224,074,439	9/
		Cost	7,848,856	9,206,795	9,541,649	8,813,527	223,098,217	10/
		Maint. ARRA Approp.	14,138,125	974,600	295,283	2,438	15,410,447	
		Cost	66,396	7,902,262	7,436,781	5,008	15,410,447	
16	Lower Snake River Fish and Wildlife Compensation Plan WA, OR, and ID	New Work Approp.	1,435,000	1,417,000	1,496,891	1,564,300	244,164,191	
		Cost	359,501	1,516,701	1,079,053	1,890,096	242,737,879	
	(Contributed funds)	New Work Contrib.	-	-	-	-	223,965	
		Cost	-	-	-	-	223,965	
17	McNary Lock and Dam, Lake Wallula, OR and WA	New Work Approp.	-	-	-	-	375,214,469	
		Cost	-	-	-	-	375,214,469	
		Maint. Approp.	14,793,392	17,502,145	17,777,335	15,642,296	484,428,938	
		Cost	14,597,071	15,943,609	17,908,149	15,158,373	480,758,746	
		Maint. ARRA Approp.	2,300,000	195,000	27,085	(1,426)	2,520,660	
		Cost	119,748	1,495,895	905,016	-	2,520,660	
	(Contributed funds)	Maint. Contrib.	-	-	-	-	43,707	
		Cost	-	-	-	-	43,707	
19	Rural Idaho, ID, Environmental Infrastructure and Resource Protection and Development Program	New Work Approp.	4,350,000	3,288,000	69,855	2,000,000	23,253,755	
		Cost	4,530,962	2,430,864	2,958,436	826,321	21,181,366	
		New Work ARRA Approp.	8,447,500	292,500	(42,498)	(266,020)	8,431,482	
		Cost	-	5,060,251	1,788,410	1,116,746	7,965,407	

End Notes:

1/ Includes $750,000 under Category-Class-Subclass code 70C, Continuing Resolution Authority (CRA) Supplemental funds; and $295,000 under Category-Class-Subclass code 220, PL 112-77, Disaster Relief Appropriations Act (DRAA) funds.

2/ Includes $749,790 under Category-Class-Subclass code 70C, CRA Supplemental funds; and $294,999 under Category-Class-Subclass code 220, PL 112-77, DRAA funds.

3/ Includes $375,276 under Category-Class-Subclass code 70C, CRA Supplemental funds.

4/ Includes $375,276 under Category-Class-Subclass code 70C, CRA Supplemental funds.

5/ Includes $2,100,000 under Category-Class-Subclass code 70B, War Supplemental funds.

6/ Includes $2,100,000 under Category-Class-Subclass code 70B, War Supplemental funds.

7/ Includes $170,000 under Category-Class-Subclass code 70E, CRA Supplemental funds.

8/ Includes $128,820 under Category-Class-Subclass code 70E, CRA Supplemental funds.

9/ Includes $200,000 under Category-Class-Subclass code 70E, CRA Supplemental funds.

10/ Includes $199,996 under Category-Class-Subclass code 70E, CRA Supplemental funds.

TABLE 30-B	AUTHORIZING LEGISLATION		
See Section In Text	**Date Authorizing Act**	**Project and Work Authorized**	**Documents**
4		**LITTLE WOOD RIVER, ID**	
	Nov 8, 2007	Rehabilitate the Gooding Channel project for flood control and ecosystem restoration.	Sec. 3057, PL 110-114
5		**LUCKY PEAK LAKE, ID**	
	Jul 24, 1946	Dam for flood control, irrigation, and recreation.	PL 79-526, Chief of Engineers Report, dated May 13, 1946.
	Oct 22, 1976	Second outlet for stream flow maintenance. De-authorized in 1990.	PL 94-587
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
6		**MILL CREEK, WALLA WALLA, WA**	
	Jul 28, 1938 as amended	Off-stream storage project upstream from Walla Walla.	H. Doc. 578, 75th Cong., 3rd Session
	Aug 18, 1941	Channel improvement through Walla Walla; concrete-lined channel.	H. Doc. 719, 76th Cong. Sec. 377, PL 77-228, Cong. 3rd Session
	Oct 31, 1992	Redesignation of reservoir to the Virgil B. Bennington Lake.	Sec. 118 PL 102-580 102nd Cong.
10		**COLUMBIA RIVER FISH MITIGATION PROGRAM**	
	Jul 19, 1988	Design, test, and construct fish bypass facilities at Lower Monumental, Ice Harbor, Little Goose, Lower Granite, and McNary Locks and Dams.	PL 100-371
11		**DWORSHAK DAM AND RESERVOIR, ID**	
	Jul 3, 1958	Preparation of detailed plans.	S. Doc. 51, 84th Cong., 1st Session
	Aug 15, 1963	Redesignation of project as Dworshak Dam and Reservoir.	PL 88-96
	Oct 23, 1962	Dworshak Dam added Units 4, 5, and 6, Idaho. Units 5 and 6 were de-authorized in FY90. Unit 4 was de-authorized in FY95.	PL 87-874
12		**ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA**	
	Mar 2, 1945	Unit 1 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
13		**LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA**	
	Mar 2, 1945	Unit 3 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 31, 1970	Designation of reservoir as Lake Bryan.	PL 91-638
14		**LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA**	
	Mar 2, 1945	Unit 4 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session

TABLE 30-B (Continued)		AUTHORIZING LEGISLATION	
See Section In Text	**Date Authorizing Act**	**Project and Work Authorized**	**Documents**
15		**LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA**	
	Mar 2, 1945	Unit 2 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	May 25, 1978	Designation of reservoir as Lake Herbert G. West.	PL 95-285
16		**LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID**	
	Oct 22, 1976 as amended	Fish hatcheries and replacement of wildlife habitat.	PL 94-587
	Nov 17, 1986	Changes to land acquisition authority.	H.R. 6 PL 99-662
17		**McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA**	
	Mar 2, 1945	Lock and dam for navigation, power, recreation, and irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
	Nov 17, 1986	Construction, operation, and maintenance of a second powerhouse.	H.R. 6, PL 99-662
		McNary Lock and Dam Second Powerhouse automatically de-authorized on Nov 16, 1991.	Sec. 1001, PL 99-362
18		**SNAKE RIVER TO JOHNSON BAR, OR, WA, AND ID**	
	Jun 13, 1902	Open-river navigation Riparian to Pittsburg Landing.	H. Doc. 127, 56th Cong, 2nd Session
	Jun 25, 1910	Mouth to Riparian.	H. Doc. 411, 55th Cong, 2nd Session
	Aug 30, 1935	Pittsburg Landing to Johnson Bar.	Rivers and Harbors Committee, Doc. 25, 72nd Cong, 1st Session
	Mar 2, 1945	Supersedes previous legislation, mouth to Lewiston, ID, only. See Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams.	H. Doc. 704, 75th Cong., 2nd Session

TABLE 30-C **PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project		
Dworshak Dam and Reservoir, ID (see Section 11 of text)	**SPILLWAY DAM**	
	Type of Construction	Concrete Gravity
	Completed	September 1974
	Maximum Capacity	150,500 cfs[1/]
	Crest Elevation	1,545 ft[2/]
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 56.4 ft
	Number	2
	POWERPLANT	
	Length	428 ft
	Generating Units:	
	Number Installed	3
	Rating, Each	2 @ 90,000 kW[3/] 1 @ 220,000 kW
	Total Capacity Installed	400,000 kW
	Space for Additional	3
	Rating, Each	3 @ 220,000 kW
	Total Potential Capacity	1,060,000 kW
	Maximum Structural Height	717 ft
	First Power-On-Line	March 1973
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	1,600 to 1,445 ft
	Maximum	1,605 ft
	Flood Control Storage	2,000,000 ac-ft[4/]
	Lake Length	53.6 mi[5/]
	Lake Water Surface Area at Elevation 1,600	17,090 ac[6/]
	Length of Shoreline	175 mi
Ice Harbor Lock and Dam, WA (see Section 12 of Text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	675 ft
	Lift:	
	Minimum	97 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	16 ft
	Open to Navigation	May 1962
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1962
	Maximum Capacity	850,000 cfs
	Crest Elevation	391 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 52.9 ft
	Number	10

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
Ice Harbor Lock and Dam, WA Continued	**POWERPLANT**	
	Length	671 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	3 @ 90,000 kW 3 @ 111,000 kW
	Total Capacity Installed	603,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	December 1961
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	440 to 437 ft
	Maximum	446 ft
	Lake Length	31.9 mi
	Lake Water Surface Area at Elevation 440	8,375 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	80 mi
Little Goose Lock and Dam, WA (see Section 13 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	668 ft
	Lift:	
	Minimum	93 ft
	Average	98 ft
	Maximum	101 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1970
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1970
	Maximum Capacity	850,000 cfs
	Crest Elevation	581 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	226 ft
	First Power-On-Line	March 1970

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
Little Goose Lock and Dam, WA Continued	**IMPOUNDMENT**	
	Elevations:	
	Normal Operating Range	638 to 633 ft
	Maximum	646.5 ft
	Lake Length	37.2 mi
	Lake Water Surface Area at Elevation 738	10,025 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	92 mi
Lower Granite Lock and Dam, WA (see Section 14 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	674 ft
	Lift:	
	Minimum	95 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	May 1975
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	February 1975
	Maximum Capacity	850,000 cfs
	Crest Elevation	681 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	228 ft
	First Power-On-Line	April 1975
	IMPOUNDMENT	
	Elevations:	
	Normal Operation Range	738 to 733 ft
	Maximum	746.5 ft
	Lake Length	39.3 mi
	Lake Water Surface Area at Elevation 738	8,900 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	91 mi

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
Lower Monumental Lock and Dam, WA (see Section 15 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	666 ft
	Lift:	
	Minimum	97 ft
	Average	98 ft
	Maximum	103 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	April 1969
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	March 1969
	Maximum Capacity	850,000 cfs
	Crest Elevation	483 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	242 ft
	First Power-On-Line	May 1969
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	540 to 537 ft
	Maximum	548 ft
	Lake Length	28.7 mi
	Lake Water Surface Area at Elevation 540	6,590 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	78 mi
McNary Lock and Dam, OR and WA (see Section 17 of text)	**NAVIGATION LOCK**	
	Clear Width	86 ft
	Clear Length	683 ft
	Lift:	
	Minimum	67 ft
	Average	75 ft
	Maximum	83 ft
	Minimum Water Depth Over Sills	15 ft
	Open to Navigation	November 1953

TABLE 30-C (Continued) PRINCIPAL DATA CONCERNING NAVIGATION LOCK, SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project		
McNary Lock and Dam, OR Continued	**SPILLWAY DAM**	
	Type of Construction	Concrete Gravity
	Completed	October 1953
	Maximum Capacity	2,200,000 cfs
	Crest Elevation	291 ft
	Control Gates:	
	Type	Vertical Lift
	Size, Width by Height	50 by 51 ft
	Number	22
	POWERPLANT	
	Length	1,348 ft
	Generating Units:	
	Number Installed	14
	Rating, Each	70,000 kW
	Total Capacity Installed	980,000 kW
	Maximum Structural Height	220 ft
	First Power-On-Line	November 1953
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	340 to 335 ft
	Maximum	356.5 ft
	Lake Length	64 mi
	Lake Water Surface Area at Elevation 340	38,800 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	242 mi

[1/] cubic feet per second
[2/] feet
[3/] kilowatt
[4/] acre-feet
[5/] miles
[6/] acres

TABLE 30-D

SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID (SEE SECTION 18 OF TEXT)

Project	Estimated Cost (Corps of Engineers Funds Only)	New Work to September 30, 2012 Approp.	New Work to September 30, 2012 Cost	Maintenance to September 30, 2012 Approp.	Maintenance to September 30, 2012 Cost	Percent Compl.	Constr. Started
Ice Harbor Lock and Dam							
Initial Project	$374,617,095	$172,587,480	$172,587,480	$281,343,406	$280,112,451	121	FY 56
Code 710 Rec Facilities	914,256	914,256	914,256	0	0	100	FY 57
Power Units 4-6	36,748,021	36,748,021	36,748,021	0	0	100	FY 71
Fish Bypass Program	88,085,000	90,865,445	90,865,445	0	0	103	FY 91
Totals	500,364,372	301,115,202	301,115,202	281,343,406	280,112,451	116	
Little Goose Lock and Dam							
Initial Project	342,480,476	201,690,215	201,690,215	196,798,091	195,638,707	116	FY 63
Power Units 4-6	60,941,807	60,941,807	60,941,807	0	0	100	FY 74
Fish Bypass Program	85,508,000	76,333,739	76,333,739	0	0	89	FY 89
Totals	488,930,283	338,965,761	338,965,761	196,798,091	195,638,707	109	
Lower Granite Lock and Dam							
Initial Project	555,186,593	353,803,981	353,803,981	307,077,607	303,184,302	118	FY 65
Code 710 Rec Facilities	63,800	63,800	63,800	0	0	100	FY 84
Power Units 4-6	46,212,534	46,212,534	46,212,534	0	0	100	FY 74
Fish Bypass Program	58,620,000	42,297,596	42,297,596	0	0	72	FY 88
Totals	660,082,927	442,377,911	442,377,911	307,077,607	303,184,302	113	
Lower Monumental Lock and Dam							
Initial Project	339,994,773	186,951,361	186,951,361	239,484,885	238,508,664	125	FY 61
Power Units 4-6	51,661,371	51,661,371	51,661,371	0	0	100	FY 75
Fish Bypass Program	90,134,000	92,184,482	92,184,482	0	0	102	FY 90
Totals	481,790,144	330,797,214	330,797,214	239,484,885	238,508,664	118	
Open River Lewiston To Johnson Bar Landing	34,613	34,613	34,613	401,583	401,583		
Open River Pasco to Lewiston	0	0	0	4,350	4,350		
Totals Existing Project	2,131,202,339	1,413,290,701	1,413,290,701	1,025,109,921	1,017,850,057	114	
Previous Projects Pasco to Lewiston	400,150	400,150	400,150	186,570	186,570		
Totals Authorized Project	$2,131,602,489	$1,413,690,851	$1,413,690,851	$1,025,296,491	$1,018,036,627		

TABLE 30-E **INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS (SEE SECTION 2 OF TEXT)**

Location	Project Name	Appropriation	Date Inspected
IDAHO			
Blackfoot River	Blackfoot #1 System P	ICW ID	Aug-30
	Blackfoot #1 System Q	ICW ID	Aug-30
Clearwater River	Cottonwood Church	ICW ID	Aug-13
	Culdesac	ICW ID	Aug-13
	Kooskia MF	ICW ID	Aug-13
	Kooskia SF	ICW ID	Aug-13
	Nez Perce	ICW ID	Aug-13
	Orofino	ICW ID	Aug-13
	Peck #1	ICW ID	Aug-13
	Slickpoo (St. Joseph)	ICW ID	Aug-13
Little Wood River	Gooding Diversion	ICW ID	Sep-27
Payette River	Emmett Sewage Lagoon	ICW ID	Sep-17
Potlatch River	Bear Creek	ICW ID	Aug-3
	Kendrick	ICW ID	Aug-3
Portneuf River	Pocatello 1	ICW ID	Aug-6
	Pocatello 2	ICW ID	Aug-6
	Pocatello 3	ICW ID	Aug-6
	Pocatello 4	ICW ID	Aug-6
	Pocatello 5	ICW ID	Aug-6
Salmon River	Tomanovich (City Segment)	ICW ID	Sep-27
	Tomanovich (County Segment)	ICW ID	Sep-27
Snake River	Heise Bridge	ICW ID	Aug-27
	Heise-Roberts - P	ICW ID	Sep-13
	Heise-Roberts - Q	ICW ID	Sep-13
	Heise-Roberts - R	ICW ID	Sep-13
	Lyman Creek - P	ICW ID	Aug-28
	Lyman Creek - Q	ICW ID	Aug-28
OREGON			
Burnt River	Huntington	ICW OR	Sep-17

INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
TABLE 30-E (Continued) (SEE SECTION 2 OF TEXT)

Location	Project Name	Appropriation	Date Inspected
OREGON (Continued)			
Malheur River	Vale Sewage Lagoon	ICW OR	Sep-13
	Vale Unit - P	ICW OR	Sep-13
	Vale Unit - Q	ICW OR	Sep-13
	Vale Unit - R	ICW OR	Sep-13
Snake River	Annex	ICW OR	Sep-17
Walla Walla River	Milton Freewater - P	ICW OR	Jan-10
	Milton Freewater - Q	ICW OR	Jan-10
	Milton Freewater - R	ICW OR	Jan-10
	Milton Freewater - S	ICW OR	Jan-10
Wallowa River	Weaver Bridge	ICW OR	Sep-27
WASHINGTON			
Columbia River	Ezquatzel Coulee	ICW WA	Sep-27
	Ezquatzel Coulee Side Drainage	ICW WA	Sep-27
	Zintel Canyon	ICW WA	Sep-19
Palouse River	Colfax #1	ICW WA	Aug-17
	Colfax #2	ICW WA	Aug-17
Touchet River	Dayton - P	ICW WA	Aug-17
	Dayton - Q	ICW WA	Aug-17
	Waitsburg	ICW WA	Aug-22
Tucannon River	Camp Wooten	ICW WA	Sep-17
	Pomeroy #1	ICW WA	Oct-16
	Pomeroy #2	ICW WA	Oct-16
Walla Walla River	Mill Creek - P	ICW WA	Oct-11
	Mill Creek - Q	ICW WA	Oct-11
	Mill Creek Levee Extension	ICW WA	Oct-15
Yakima River	West Richland	ICW WA	Oct-4