



Modernizing Idaho's Water Infrastructure

An Ongoing Story Series on Idaho Water Resource Board Regional Water Sustainability Projects **ISSUE No. 4**

American Falls Dam Spillway Rehabilitation Project

Background: American Falls Dam, a 94-foot-high composite concrete and earth gravity-type dam on the Snake River near the town of American Falls, is undergoing a multi-year spillway rehabilitation project. It includes spillway repair, replacement of trunnion pins required for spillway gate operations, guard gate repairs and dam intake over the next nine years.

American Falls Dam and Reservoir are considered the “workhorse” of the Upper Snake reservoir system, providing 1,672,590 acre-feet of water storage at full pool, according to Bureau of Reclamation officials. It's the largest reservoir on the Snake River and in the state of Idaho. Owned and operated by the Bureau of Reclamation, the dam was built initially in 1925-1927, and expanded and reconstructed in 1976-1978.

Idaho Power Co. acquired a power plant at American Falls in 1917, before the dam was built. The initial power plant dates to 1902. In 1976, Idaho Power built the dam's current power plant, which consists of three generators with a capacity to produce 92,340 kilowatts of hydroelectricity.

American Falls Dam Reservoir and Dam are primarily used for irrigation and secondarily for power production, recharge, recreation (including fishing, boating, wildlife, picnicking, etc.) and incidental flood control.

Project sponsors: American Falls Reservoir District #2 (AFRD2) and



Close up view of a radial spillway gate on American Falls Dam shows the location of the Trunnion pin and bushing assembly at the pivot point of the gate. The old pins seized up over time, requiring replacement. (photo by Steve Stuebner/IWRB)

- **Type of project:** Spillway rehabilitation.
- **Location:** American Falls, Idaho
- **Total project cost:** \$24 million
- **IWRB funding:** \$12.5 million (All ARPA funds)
- **Start date:** January 2015
- **End date:** Fall 2032

Idaho Power approached the Idaho Water Resource Board (IWRB) about providing financial assistance for the \$24M spillway repair project. The IWRB agreed to fund \$12.5 million for the project with federal American Rescue Plan Act (ARPA) funds. The project is considered a high priority, being on the IWRB's Regional Water Sustainability Project list.

AFRD2 receives 100 percent of its storage water from American Falls Reservoir. The District serves 62,361 acres of irrigated farmland. AFRD2 is a major contributor to the IWRB's managed recharge program. In 2022-



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American Falls Dam Spillway Rehabilitation Project (cont.)

2023, AFRD2 recharged more than 90,000-acre feet of water into the Eastern Snake Plain Aquifer.

American Falls Dam is one of 17 hydroelectric projects owned and operated by Idaho Power on the Snake River and its tributaries. Hydropower generates the majority of the electricity produced by Idaho Power in its energy mix.

Details on the repairs: The trunnion pins and bushings (two per gate) on the five radial gates at American Falls Dam were supposed to be self-lubricating, but over time, the pins became stuck in place and needed to be replaced, according to the Bureau of Reclamation. The pins, bushings, and thrust washers (10 total) will be removed and replaced on each of the five radial gates. Beginning in 2023, one gate will be completed each year between August and December. The construction work is being completed by Tennessee Valley Authority.

Guard Gate Inspection and Repair: The low-level Guard and Service Gates are leaking water in the closed position and need maintenance. These gates are about 45 years old and this is the first major maintenance that has been done. There are nine guard gates to repair all told, one per year, over nine years, beginning in 2023.

Dam Intakes Replacement The powerplant intake gates are original to the construction of the dam and operated with hydraulic cylinders. The current gates have issues drifting closed and have developed some oil leaks, officials said. Design work for these improvements will be completed by 2028. Construction



Overhead view of American Falls Dam, spillway and powerhouse. (Courtesy Idaho Power Co.)



Above left, new trunnion pin ready for installation. Right, workers install a pin and bushing assembly on a spillway gate. (photos courtesy Bureau of Reclamation)

will occur from 2030-2032, replacing one intake gate operator and guides per year in the non-irrigation season, finishing in 2033.

For more information, contact Ryan Bliss, Bureau of Reclamation, rbliss@usbr.gov