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## Mid-Pacific Region, Trinity Division

Headwaters of the Trinity River originate deep within the remote and rugged Trinity Alps. The Trinity Alps watershed generates an average annual water runoff of about 1,250,000 acre-feet into Lewiston Reservoir.



Trinity Dam and Reservoir

### Trinity Dam and Reservoir

Trinity Dam regulates flows on the Trinity River and stores water for irrigation within Trinity Reservoir. Completed in 1962, it is an earth fill structure, 538 feet high, with a crest length of 2,450 feet. Trinity Reservoir has a storage capacity of 2,448,000 acre-feet. The lake offers recreation facilities for camping, boating, water skiing, swimming, fishing, and hunting and is primarily fed from snowmelt.

### Trinity Powerplant

Trinity Powerplant is a peaking plant that generates power dedicated to meeting the needs of the project facilities. Any remaining energy is then marketed to various preference customers in northern

California through the Western Area Power Administration (WAPA), with Trinity County having first preference. Trinity Dam's hydroelectric powerplant began operation in 1964 with a capacity of 100,000 kilowatt (kW) for its two generators. In the



Trinity Powerplant

mid-1980's Reclamation uprated both generators by 20,000 kW by using advancements in high voltage technology bringing the current total capacity to 140,000 kW.

### Lewiston Dam and Lake

Lewiston Dam, about seven miles downstream from Trinity Dam, creates an afterbay to Trinity Powerplant. It regulates flows to the Trinity River and diverts water by means of Clear Creek Tunnel to Whiskeytown Lake. Lewiston Dam is an earthfill structure, 91 feet high and 754 feet long, forming a reservoir with a capacity of 14,660 acre-feet. Releases from Lewiston Dam are also used to provide sufficient

flows for the Lewiston Hatchery intake and water for the hatchery infrastructure.

### **Trinity River Fish Hatchery**

The Trinity River Fish Hatchery, operated by the California Department of Fish and Game, has a capacity of about 15 million eggs. It is immediately downstream from Lewiston Dam and compensates for the upstream spawning area that has been rendered inaccessible and unusable by the dams.

### **Clear Creek Tunnel**

Clear Creek Tunnel, 17.5 feet (5.33 m) in diameter and 10.7 miles (17.22 km) long, conveys water from Lewiston Lake to Judge Francis Carr Powerhouse into Whiskeytown Lake. A bypass is provided through Crystal Creek.

### **Judge Francis Carr Powerhouse**

The Judge Francis Carr Powerhouse (formerly Clear Creek Powerplant) is on Clear Creek at the outlet of the Clear Creek Tunnel on the northwestern extremity of Whiskeytown Lake. It is at the downstream end of the Clear Creek Tunnel, which transports water from Lewiston Reservoir to Whiskeytown Reservoir.

The power facilities consist of an intake structure located in Lewiston Reservoir, a 10.7 mile (17.38 km) long, 17.5 feet (5.34 m) diameter tunnel, a powerplant bypass to Clear Creek, a surge tank and basin, two penstocks and valve structure house, and two 13.8 kV generators each rated at 80,000 kVA, 0.965 power factor, with Francis turbines.

The Judge Francis Carr Powerhouse began operation in 1963. Its generators' capacity

was 143,680 kW. The units were uprated in 1984 to their current capacity of 154,400 kW. It is a peaking plant whose power is first dedicated to meeting the energy requirements of the project facilities. The remaining energy is marketed to various preference customers in northern California through WAPA.



Graphic of the Shasta /Trinity Division

### **Whiskeytown Dam and Lake**

Located on Clear Creek, Whiskeytown Dam provides regulation for Trinity River flows discharged from Judge Francis Carr Powerhouse and regulates the runoff from the Clear Creek drainage area, as well as releasing water into Clear Creek to maintain and enhance the fishery resource. The dam is an earth fill structure 282 feet high with a crest length of 4,000 feet.

The reservoir, Whiskeytown Lake, has a capacity of 241,100 acre-feet and provides recreation facilities for picnicking, camping, swimming, boating, water skiing, fishing, and hunting. Recreation is managed by the National Park Service, as the lake and surrounding area is part of the Whiskeytown National Recreation Area.

## **Spring Creek Debris Dam and Reservoir**

Spring Creek Debris Dam, located on Spring Creek above the Spring Creek Powerplant tailrace, is an earth fill structure, 196 feet high, with a crest length of 1,110 feet. Spring Creek Reservoir, with a capacity of 5,870 acre-feet, controls debris which would otherwise enter the powerplant tailrace and provides important fishery benefits by controlling contaminated runoff resulting from old mine tailings on Spring Creek.

## **Spring Creek Tunnel**

The Spring Creek Tunnel diverts water from Whiskeytown Lake on Clear Creek, a tributary of the Sacramento River, to the Spring Creek Powerplant. The tunnel is 18.5 feet (5.64 m) in diameter and about 2.4 miles (3.86 km) long, including the 0.6-mile (.96 km) long, 17-foot (5.18 m) diameter Rock Creek Siphon.

## **Spring Creek Powerplant**

Spring Creek Powerplant is near Redding, California, at the Spring Creek arm of Keswick Reservoir, about one mile (1.6 km) northwest of Keswick Dam. It is near the base of the Spring Creek Debris Dam, and water for power is received through the Spring Creek Tunnel which diverts the water from Whiskeytown Lake. Water from the plant is discharged to Keswick Reservoir.

The powerplant houses two 13.8kV generators each rated at 100,000 kVA, 90 power factor, along with Francis turbines. The Spring Creek power conduit varies in diameter between 5.64 meters (18.5 feet) and 5.18 meters (17 feet) and is about 4.8 km (3 miles) in length. The power conduit consists of Tunnels No. 1 and No. 2, and Rock Creek Siphon. Twin penstocks take off

from Tunnel No. 2 leading to the powerplant.

The Spring Creek Powerplant has operated since 1964. The initial capacity was 150,000 kW; the current capacity is 180,000 kW. Spring Creek Powerplant operations are tied to flow regimes aimed at minimizing the building of metal concentrations in the Spring Creek arm of the Keswick Reservoir. The Spring Creek Powerplant is a peaking plant whose power is dedicated first to meeting the requirements of the project facilities. Excess power is marketed to various preference customers in northern California through WAPA.