

OLIVENHAIN DAM AND RESERVOIR

When construction was completed in 2003, the Olivenhain Dam and Reservoir were the San Diego region's first major new dam and reservoir in 50 years. Today, they are a cornerstone of the San Diego County Water Authority's Emergency and Carryover Storage Project, helping to protect the region from severe water supply shortages by storing 24,000 acre-feet of water.

More than 80 percent of the water used by San Diego County residents and businesses is imported from hundreds of miles away. A prolonged drought or earthquake damage could prevent imported water deliveries, threatening the region's 3.3 million residents and \$245 billion economy.

Olivenhain Dam is an impressive engineering accomplishment. It was the first roller-compacted concrete dam built in California. The dam was designed to remain fully functional during a magnitude 7.25 earthquake and keep water flowing to the region.

Olivenhain Dam, constructed using roller-compacted concrete, is as strong as a conventional concrete dam but less expensive because it was built in about half the time required for a traditional dam.



Olivenhain Reservoir, foreground, sits in the coastal foothills between Escondido and Encinitas, just north of Lake Hodges. A pipeline between the reservoirs makes water from Lake Hodges available to the region.

24,000
acre-feet of water can be stored
in Olivenhain Reservoir

7.25
earthquake magnitude that Olivenhain Dam was
designed to withstand and remain operational

\$198 MILLION
total cost of project

700,000
cubic yards of materials blasted and excavated to form the dam's foundation



Heavy machinery placed 13,000 cubic yards of roller-compacted concrete hourly during construction.

MARCH 2021

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Roller-compacted concrete is mixed with less water than traditional concrete. Having the consistency of wet gravel, it was transported by dump trucks and then placed in layers one foot thick. The layers were compacted with vibratory rollers similar to those used in road building. Crews worked 24 hours a day, six days a week to ensure the layers of concrete bonded.

The granite used for the concrete was quarried and processed into rocks and sand at the construction site. Eliminating the need to haul gravel to the site saved money and significantly reduced the amount of traffic through the nearby rural community.

Starting in fall 2000, the contractor blasted and excavated approximately 700,000 cubic yards of material to form the foundation of the dam. Dam construction began in late 2001. More than 13,000 cubic yards of roller-compacted concrete were placed every 24 hours. After just one year, 1.4 million cubic yards of roller compacted concrete was placed and the dam was topped off at its finished height of 318 feet.

The stair-stepped downstream face (dry side) of the dam was stained to blend with the natural surroundings of the area. Standing taller than the dam, the inlet-outlet tower controls water flowing into and out of the reservoir.

Water first poured into Olivenhain Reservoir in 2003. The dam and reservoir now help protect the San Diego region from a water supply emergency.

EMERGENCY & CARRYOVER STORAGE PROJECT

The \$1.5 billion Emergency & Carryover Storage Project created new emergency water storage at the Olivenhain, San Vicente, and Hodges reservoirs. Pipelines connect these reservoirs to the Water Authority's regional distribution system, so water can continue to flow throughout the region, even if imported water supplies are disrupted. Olivenhain Reservoir and its connecting pipelines were the first Emergency & Carryover Storage Project components to be completed.



MORE INFO

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