



# Olivenhain Dam and Reservoir

*Building Water Reliability Through the Emergency Storage Project*

San Diego  
County  
Water  
Authority



*The Olivenhain Dam and Reservoir are part of the Emergency Storage Project, a system of reservoirs, interconnected pipelines, and pumping stations designed to make water available to the San Diego region in the event of an interruption in imported water deliveries.*

*The Water Authority is a public agency serving the San Diego region as a wholesale supplier of water. The Water Authority works through its 24 member agencies to provide a safe, reliable water supply to support the region's \$171 billion economy and the quality of life of 3 million residents.*

## Investing In Water Reliability

The Olivenhain Dam and Reservoir is the San Diego region's first major new dam and reservoir in 50 years. It is the cornerstone of the San Diego County Water Authority's Emergency Storage Project, helping to protect the region from severe water supply shortages.



*The Olivenhain Reservoir can store 24,000 acre-feet of water – enough water for 50,000 families for a year.*

Up to 90 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 from reaching us, threatening our lifestyles and businesses.

The Emergency Storage Project creates new emergency water storage at the Olivenhain, San Vicente, and Hodges reservoirs. New pipelines will connect these reservoirs to the Water Authority's pipeline distribution system, so water can continue to flow throughout the region even if the imported water supply is

disrupted. Construction of the Olivenhain Reservoir and its connecting pipelines are now complete and are the first Emergency Storage Project components to be operational.

## An Engineering Marvel

The Olivenhain Dam is an impressive engineering accomplishment. It was the first roller-compacted concrete dam built in California. At 318 feet high, the Olivenhain Dam stands taller than any other roller-compacted concrete dam in North America.

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The Olivenhain Dam was designed to both withstand and remain fully functional during and after an earthquake, to keep water flowing to the region.



*A new connection between Olivenhain and Hodges reservoirs will make 20,000 acre-feet of Hodges water available to the region when needed.*



San Diego County  
Water Authority  
Capital Improvement  
Program

## Dam Facts

- Weighs 3 million tons
- Stands 318 feet tall and 2,552 feet long
- Covers 200-acre surface area
- Holds 24,000 acre-feet of water



Granite was quarried on the site.



The inlet-outlet tower stands taller the dam.



The dam has a stair-stepped appearance.



Dam construction looked like street paving.

## Roller-Compacted Concrete Saved Time and Money

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

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 one-foot layers. The layers were compacted with vibratory rollers similar to those used in road building. Olivenhain Dam crews worked 24 hours a day, six days a week to facilitate bonding of the layers.

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

## From Breaking Ground to Topping Off

Starting in fall 2000, the contractor blasted and excavated approximately 700,000 cubic yards of material to form the foundation of the dam. In late 2001, dam construction began. More than 13,000 cubic yards of roller-compacted concrete was placed every 24 hours. After just one year, the dam was topped off at its complete 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 the water flowing in and out of the reservoir.

Water first poured into the Olivenhain Reservoir in 2003. The dam and reservoir now stand ready to help ensure our region is protected from a water emergency. A small portion of water in Olivenhain Reservoir is dedicated to Olivenhain Municipal Water District's operational use.

**A photographic online tour of the dam's construction is available at the following web address: [www.sdcwa.org/infra/esp-olivenhainphototour.phtml](http://www.sdcwa.org/infra/esp-olivenhainphototour.phtml)**

## Preserving Our Resources

The new reservoir is nestled within the Elfin Forest Recreational Reserve, a spectacular 750-acre open space park and recreational area. The reserve is owned by the Water Authority and operated and managed by the Olivenhain Municipal Water District. The wildlife and natural resources on this reserve are all closely monitored and will be preserved for generations to come.



Most construction activity took place on the floor of the future reservoir. Working within this small space preserved the surrounding natural resources.



**For more information about the San Diego County Water Authority's Emergency Storage Project or the Olivenhain Dam and Reservoir, please call toll free (877) 426-2010, email [ESPinfo@sdcwa.org](mailto:ESPinfo@sdcwa.org), or visit our website at [cip-esp.sdcwa.org](http://cip-esp.sdcwa.org).**

