

# ESP UPDATE



Spring 2010 Edition



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*The Emergency Storage Project is 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 Emergency Storage Project is part of the San Diego County Water Authority's Capital Improvement Program to enhance and increase the operational flexibility of its water delivery system.*

*This newsletter is one way the San Diego County Water Authority is keeping communities like yours informed about the project's progress.*

*For more information, please call toll free*

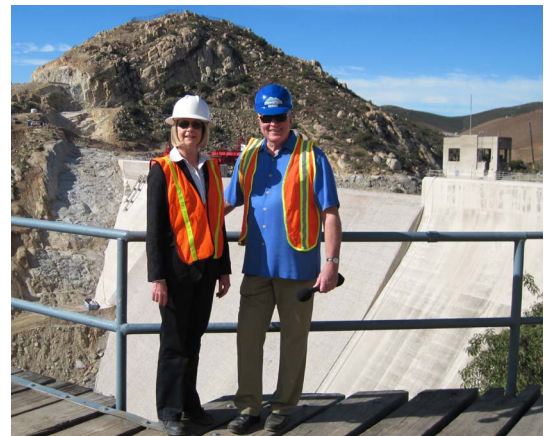
**(877) 426-2010**

*or visit our website at*

**[cip-esp.sdcwa.org](http://cip-esp.sdcwa.org)**

## San Vicente Dam Raise Featured on Public Television

Educating Californians about our complex water supply system is an important job, and public television personality Huell Howser is tackling that assignment. For the past three years, Howser has travelled all over the state exploring the many aspects of water for his popular series, "California's Water." Earlier this year, Howser and his production crew visited the San Vicente Dam Raise project to learn how the expanded San Vicente Reservoir will help ensure water reliability for our region. The dam raise project is featured in a new episode of "California's Water" about our region's strategies for diversifying water sources. The episode is expected to air this spring on San Diego's public television station, KPBS. If you miss it, try to catch a rerun! 💧



*Huell Howser and Maureen Stapleton, the Water Authority's general manager, at San Vicente Dam.*

## Working Through the Dam Before Building Up

There are many pieces to the San Vicente Dam Raise puzzle. Two vital pieces of this massive project came together this spring: a 200-ton steel enclosure on the water side of the existing dam and a tunnel through the dam. These interrelated tasks were fitted into place by specialized crews.



*Hydraulic jacks at the top of the dam held the cofferdam in place during installation.*

The Water Authority contractor must construct a new low-level outlet pipe through the dam that will be used for reservoir draw-down in the event of a dam safety emergency. Crews used a road header, a drilling machine with a rotating head, to tunnel through 100 feet of concrete at the base of the dam. The road header drilled through an average of 4 to 7 feet of concrete a day to create a 13-foot-diameter tunnel for the new pipeline. The Department of Water Resources, Division of Safety of Dams approved and monitored this work.

Before the tunneling work began and to keep water from entering this new tunnel, workers installed a large steel enclosure, or cofferdam, on the water side of the dam.

*See DAM on page 2*



San Diego County  
Water Authority

Capital Improvement  
Program



*Professional divers worked as deep as 80 feet under water to secure the cofferdam to San Vicente Dam.*

The cofferdam was constructed of 14 semicircular sections, each measuring 8 feet tall and 32 feet wide. Two floating barges, together the size of a baseball diamond, transported the giant cofferdam sections across the reservoir to the dam and served as a staging area for assembly. Computer-controlled hydraulic jacks installed on top of the dam hoisted cofferdam sections from the barge, assembling one section below the other. Workers then bolted the sections together.

Since more than half of the 210-ton cofferdam had to be installed below the current water level, the construction team included professional divers. Working under water, divers bolted the cofferdam to San Vicente Dam and injected grout to make the joints water-tight. Inspectors regularly monitored the installation to ensure the state Division of Safety of Dams requirements were met.

Once the cofferdam was in place and the tunnel open, crews began installing pipe for the new low-level water outlet. The pipe installation brings crews one step closer to finishing the preparatory work for the dam raise. All these tasks are expected to be complete by the end of this summer. With these pieces of the puzzle in place, the finished masterpiece of the San Vicente Dam Raise will start taking shape soon. 💧

## Coming Soon: Major Construction for San Vicente Dam Raise

Although the San Vicente Dam Raise project has been under way for nearly a year, the dam hasn't actually gotten any higher – yet! Last month, Shimmick Construction Company Inc./Obayashi Corporation Joint Venture was hired to do the work that actually adds 117 feet to the height of the dam.

One of the contractor's first activities is to set up rock-crushing equipment and a concrete mixing plant where the former boat marina was located. This will enable the contractor to manufacture concrete needed for the dam raise right on the work site.

To get to and from the concrete mixing plant, the contractor will build a new marina access road. The existing marina access road is too steep and narrow for construction trucks to navigate safely. The new road will have longer curves and a more gradual rise. Once the project is complete and the reservoir reopens, boaters will use this improved road to reach the new marina.

Another task is constructing an additional tunnel under the dam for the new water outlet pipelines that will control daily flows from

the reservoir. Workers will also inject grout into the foundation of the existing dam to prevent seepage. All this work will be monitored by the state Division of Safety of Dams to ensure the safety and integrity of the dam.

The Water Authority anticipates the contractor will begin placing roller-compacted concrete to raise the dam next year. This process is expected to take about six months. When concrete work is complete in early 2013, the major construction on the dam will be done.

Three smaller phases of work will follow the dam raise: building a new marina, relocating a pipeline above the new high water level, and restoring construction areas. Originally, this work was going to be done at the same time as the major dam raise construction. However, the Water Authority has modified this schedule, so the smaller projects will begin after the dam raise is done. All construction activities are expected to be complete by mid-2014.



*Roller-compacted concrete will be placed in layers using rollers, similar to those used for building roads.*

The Water Authority divided the massive dam project into these separate construction phases to provide more contracting opportunities for smaller firms, which often increases competition and reduces construction costs.

*See CONSTRUCTION on page 4*

### **San Vicente Dam Raise Schedule**

<i>Foundation Excavation</i>	<i>Complete summer 2010</i>
<i>Dam Raise</i>	<i>Spring 2010 – Early 2013</i>
<i>Replacement Pipeline</i>	<i>Summer 2012 – Summer 2013</i>
<i>New Marina</i>	<i>Summer 2013 – Summer 2014</i>
<i>Site Restoration</i>	<i>Summer 2013 – Summer 2014</i>
<i>Reservoir Reopens</i>	<i>Between late 2014 and late 2017</i>

## Making the Connection: 11 Miles of Pipe Installed

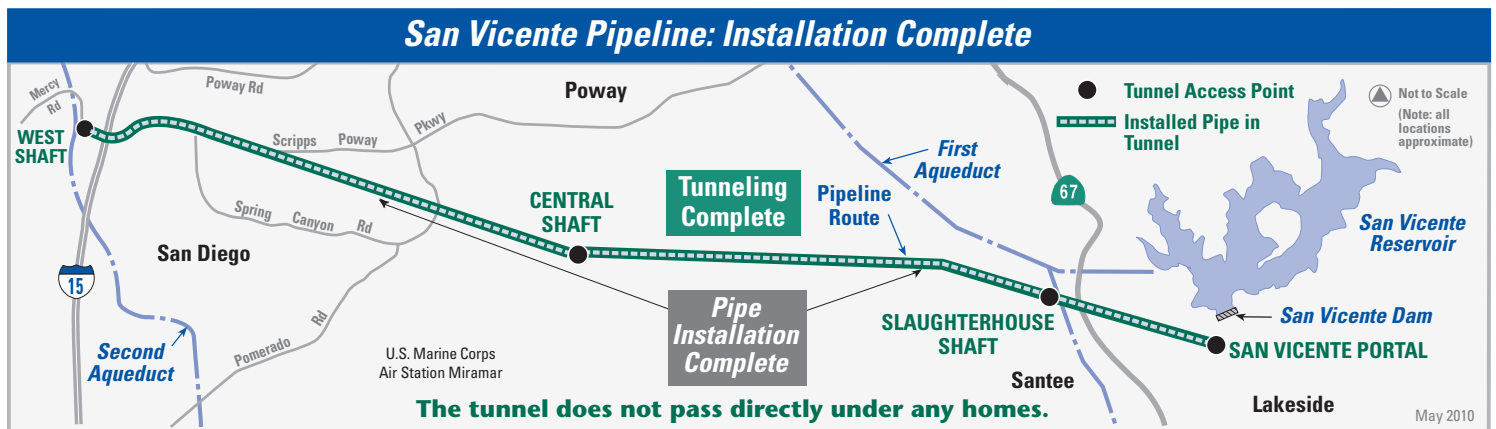
Five years in the making, eleven miles of tunneled steel pipe for the San Vicente Pipeline are now installed and welded together. The Water Authority's contractor is currently completing the final job inside the pipeline: applying a cement mortar lining to the pipe interior to prevent corrosion.

Since the work inside the tunnel and pipeline is almost complete, the contractor's efforts are shifting to the work above ground at the pipeline access points. At the entrance to the San Vicente Portal, the contractor has installed a large, Y-shaped pipe to connect the pipeline with the nearby pump station (see photo at right).

All work for the San Vicente Pipeline project is expected to be complete late this summer. In times of future water supply emergencies, the Water Authority will activate the San Vicente Pipeline, along with other facilities, to move water from San Vicente Reservoir to the countywide water distribution system. 💧



The front of the Y-shaped pipe emerging from the San Vicente Portal.



The San Vicente Pipeline is an 11-mile tunnel and a large-diameter pipeline that will connect San Vicente Reservoir in Lakeside to the Water Authority's Second Aqueduct. The pipeline will function with other Water Authority facilities to provide water to the region in an emergency.

## Rainy Winter Doesn't Solve Water Supply Issues

During San Diego's rainy season, everyone pays attention to how much it rains locally. Residents and businesses want ample rainfall to keep vegetation thriving into the dry season, and water utilities want to fill the local reservoirs.

However, only about 15 percent of our water comes from local supplies, and less than half of that is from local rainfall. Snowpack in the mountains of Northern California and the Colorado River Basin counts much more in our overall water supplies.

The large reservoirs in California's State Water Project store snowmelt and rainfall from the Sierra Nevada Mountains. This winter's snowpack measured slightly above normal, but it doesn't translate into sufficient water supplies for Southern California.

Here's why. Water has to traverse through the Sacramento-San Joaquin Bay-Delta before being pumped to our region. Environmental concerns about endangered and protected fish species have prompted regulatory restrictions on water pumping from the Delta.

Since February, the water allocation from the State Water Project

increased from 5 to 30 percent of requested water deliveries. This increase is an improvement, but not a permanent fix for our water supply challenges. Even with an improved snowpack in Northern California, reservoirs remain low and regulatory cutbacks will continue to restrict water supplies to Southern California. The bottom line: water conservation is still a necessary way of life for San Diego County. 💧

## 2010 Water Bond

The 2010 Delta Package and Water Bond will be on the November ballot and, if approved, will provide funding for projects to improve water supply and water quality in San Diego County and throughout the state. The Water Authority Board of Directors has adopted a position of support for the bond package.

Additional information is available at [www.mwdh2o.com](http://www.mwdh2o.com); click on "Sacramento-San Joaquin Delta – Resolving a Crisis."



## Landscaping Will Restore Lake Hodges Project Site

The Water Authority has selected Native Landscape, Inc., a landscape contractor from the neighboring Del Dios community, to install native



plants and vegetation and restore the areas disturbed during construction for the Lake Hodges Projects. The contractor will use a landscape plan that incorporated more than 30 recommendations from the Lake Hodges Community Landscape Committee. In this

photo, construction inspectors review plans for the slopes above the project site. Native vegetation will be planted there and in other areas at the site. The contractor will monitor and maintain the landscaped areas through early 2014 to help the new vegetation take root. 💧

## Construction *continued from page 2*

Completing the dam foundation as a separate phase also minimizes potentially costly surprises for the subsequent dam raise construction. In addition, the new, extended schedule reduces the safety risks and site congestion challenges that could arise with up to three contractors working in the same area at the same time.

The change in the project schedule does not delay the opening of the reservoir to recreation. The city of San Diego and the Water Authority still anticipate reopening the reservoir to recreation between late 2014 and late 2017, depending on rainfall and water supply and demand at that time. 💧

### **For More Information**

about the San Diego County Water Authority's  
Emergency Storage Project,  
please call toll free **(877) 426-2010**,  
email **ESPinfo@sdcwa.org**,  
or visit our website at **cip-esp.sdcwa.org**.

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