

SOUTHERN NEVADA WATER AUTHORITY  
**LOW LAKE LEVEL  
PUMPING STATION**

Las Vegas, Nevada



PREPARING FOR  
**DROUGHT**



Responding to ongoing drought and climate change conditions, the Southern Nevada Water Authority (SNWA) invested \$650 million USD to build a new Low Lake Level Pumping Station, known as L3PS, in Lake Mead to protect access to the region's primary water supply. The project broke ground in mid-2015 and is scheduled for completion in 2020.

CLIMATE CHANGE  
**CHALLENGES**



Lake Mead water levels continue to decline during the worst drought in recorded history in the Colorado River Basin. Further, climate change projections for the Colorado River Basin indicate that the future of the Colorado River will be hotter and drier, increasing the risk of existing facilities being inadequate to deliver water long-term.

Water levels at Lake Mead have dropped approximately 130 feet since the drought began in 2000. If lake levels fall below elevation 895 feet (a decline of an additional 180 feet), Hoover Dam can no longer release water downstream to California, Arizona and Mexico.

CLIMATE-READY  
**DESIGN**



To reduce risk and avoid the catastrophic water supply issues, L3PS was designed to pump from depths as low as elevation 900 feet.

The L3PS design includes a 26-foot-diameter access shaft that descends more than 500 feet to a 12,500-square-foot underground cavern. This cavern, known as a forebay, connects with 34 vertical shafts—each 500 feet deep and 6 feet in diameter—to accommodate the station's submersible pumping units. When finished, the pumping station will have the capacity to deliver up to 900 million gallons of water per day to SNWA's treatment facilities.



# LOW LAKE LEVEL PUMPING STATION



## SPOTLIGHT ON THE SCIENCE

Climate change information was used in the L3PS project to help determine the probable range of future lake elevation changes and the likelihood of Lake Mead water levels dropping below existing pumping capabilities. To identify the lake levels considered for the pump station's future operational range, SNWA relied upon modeling efforts by the U.S. Bureau of Reclamation. The Bureau of Reclamation utilized an open source hydrologic model called the Variable Infiltration Capacity (VIC) Macroscale Hydrologic Model using bias-corrected, spatially downscaled monthly data for the Colorado River Basin. The model was run for low, moderate and high emissions scenarios from the Intergovernmental Panel on Climate Change Special Report on Emission Scenarios and resulted in 112 different hydrologic traces. These traces were used in the Bureau of Reclamation's long-term planning model to project the likelihood of Lake Mead reservoir levels declining below 1,000 feet. These data informed SNWA's decision to design the L3PS to accommodate future lake levels as low as 900 feet.

## THE ROLE OF STAKEHOLDERS

The L3PS design and decision-making process included engagement with internal SNWA water managers, engineers, and leadership, as well as a citizen's advisory committee. The citizen's advisory committee, convened by SNWA, included representation from residents, businesses, and environmental and financial sectors. The committee helped inform SNWA's future water resource planning efforts by evaluating SNWA's infrastructure needs and funding. The SNWA developed plans and adaptive management strategies with inclusive engagement from diverse stakeholders—building not only a community plan, but also support for plan implementation.



## KEY TAKE-AWAYS

SNWA used climate change information to identify and develop design criteria for the L3PS project to ensure continued access to its primary water supply in Lake Mead. Use of climate change information was supported by a range of stakeholders, including SNWA's Board of Directors, water managers and engineers, as well as federal partners and a citizen's advisory committee. Through the L3PS investment, SNWA is protecting the region's main water supply in the face of continued drought and climate change—a priority for the agency and the broader community it serves.

## LEARN MORE

For more information about SNWA's efforts with the L3PS and other climate change work contact:



[www.snwa.com](http://www.snwa.com)

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