



Pumping Plants\_

# Pumping Life into Southern California.



Gene Pumping Plant

It's easy to forget what a formidable task it was to bring water from more than 200 miles across the deserts of Southern California in the 1930s during the Great Depression and the advent of a world war. Against all odds, a group of visionary engineers at a fledgling water agency made this happen by using designs that would stand the test of time. Almost 100 years later, the Colorado River Aqueduct continues to be the heart of Southern California, pumping life into the vibrant region we know today.

The key to the aqueduct's success lies in its ingenious and simple design that uses gravity to move water downhill and across the desert to maximize efficiency and minimize the need for costly pumping. At the heart of this effort are five pumping plants situated at strategic mountain-hugging locations that allow the aqueduct system to overcome even the most challenging terrain. Each of the pumping plants contain nine large pumps that work together to move water. When operating at capacity, eight of the nine facility pumps are online with one held in reserve.

## 01 Whitsett Intake

This pumping plant is the CRA's starting point. Named after Metropolitan's first board chairman, W.P. Whitsett, it is located two miles upriver of Parker Dam. Each of the nine pumps at this facility are rated at a remarkable 9,000 horsepower and can each lift about 250 cubic feet of water per second – that's enough power to fill an Olympic-size pool in under six minutes. The pumps draw water from Lake Havasu along the Colorado River into the plant by impellers located about 37 feet below the surface of the water. The pumps lift the water 291 feet from the lake into aqueduct tunnels which then fill the Gene Wash reservoir.

## 02 Gene

Gene Pumping Plant takes water from Gene Wash reservoir and pumps it 303 feet higher into Copper Basin. The plant is adjacent to Gene Camp, Metropolitan's desert base operations center and field headquarters, with offices, maintenance facilities, a kitchen, employee housing and lodging for guests. Folklore says that Gene was a friendly prospector in the 1850s hoping to make his fortune in California as a miner. Lonely in the remote area, he saved money for a mail-order bride. The new Mrs. Gene offered laundry service and shared tea and talk while her customers waited, and the area soon became known as Gene Camp. Some say there was a sign outside their cabin that read, "Gene's Wash."

### About Metropolitan

The Metropolitan Water District of Southern California is a state-established cooperative of 26 member agencies – cities and public water agencies – that serve 19 million people in six counties. Metropolitan imports water from the Colorado River and Northern California to supplement local supplies and helps its members develop increased water conservation, recycling, storage and other resource management programs.

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## 03 Iron Mountain

Iron Mountain Pumping Plant is located about 70 miles west from Copper Basin. Water flows by gravity to the plant, which lifts water from an elevation of 903 feet to 1,047 feet. The plant was built because the nearby Granite Mountains were too difficult to tunnel through and a small lift was needed to keep the aqueduct water flowing across the desert. It has the shortest lift at 144 feet and its nine pumps are 4,300 horsepower each. Because there was no natural storage reservoir available, a 108-acre-foot regulating reservoir was built. Ironically, there seems to be no rhyme or reason to some of the names of the pumping plants – there is no iron at Iron Mountain.



Iron Mountain



Eagle Mountain

## 04 Eagle Mountain

Eagle Mountain Pumping Plant is the fourth pumping plant on the CRA system, with the second highest lift at 438 feet. It is located about 110 miles west of Whitsett/Intake and lifts water from an elevation of 966 to 1,404 feet. The plant features a 118-acre-foot capacity-regulating reservoir. Eagle Mountain and the Julian Hinds Pumping Plant have the highest rated motors at 12,500 horsepower each. A little bit of local history includes the use of the area around Eagle Mountain for an open mining operation by Kaiser Iron Ore Company, which was once the nation's fourth largest open mining operation.

## 05 Julian Hinds

From Eagle Mountain Pumping Plant, water flows 16 miles to the Hinds Pumping Plant, named after Metropolitan's second general manager and chief engineer, Julian Hinds. This plant has the highest lift in the CRA system, taking water from 1,366 to 1,807 feet elevation. It has nine pumps capable of pumping 1 billion gallons per day. Once the water leaves Hinds, it flows west by gravity to the terminal point of the CRA system at Lake Mathews in Riverside County. There is no more above ground aqueduct system downstream from Hinds. The water remains underground for the next 100 miles until it reaches Lake Mathews. Hinds is the only pumping plant without a regulating reservoir because the ground was too porous. The plant pumps water directly from the aqueduct.

Trivia you might  
not know about  
**The Colorado River  
Aqueduct.**

Most of the parts on the pumps are original even after almost 100 years of continuous use.

Teachers were hired to help during the CRA's construction. Schools were constructed at Parker Dam, Iron Mountain and other locations.

It takes water about 72 hours to make the 242-mile journey along the Colorado River Aqueduct. This means the water is flowing at approximately  $242 \text{ miles} / 72 \text{ hours} = 3.4 \text{ miles per hour}$ .