What is a desert?

If you live in Las Vegas, Nev., then you live in the Mojave Desert.

Some people think of a desert as an arid place, which means dry or lacking in water with nothing living, but this is not the whole story. A desert is a place where the weather is sometimes very, very hot and sometimes very cold; in a desert the rate of precipitation (meaning rain and snow) is less than that of evaporation (which is what happens when water dries and disappears). In the Las Vegas Valley, precipitation in the form of rain and snow is less than five inches per year; evaporation, however, is eighty seven inches per year. A lot more water disappears than falls from the sky! So, the Las Vegas area is definitely a desert.

Got water?

When you look around the Las Vegas Valley there are signs of water everywhere; there are green lawns, bushes and trees, and when you turn on a tap, you get water.

If you go to the grocery store, you can see shelves filled with hundreds of plastic bottles of water.

At school there are drinking fountains, bathrooms, and sinks that all use water. The school custodian washes the floors with water.

If we live in a desert, how come it seems like there is so much water all around us?

The No. 1 reason we see so much water in Las Vegas is because of people. Many people want to live in the desert because the weather is nice much of the time. If you want to live in the desert, though, you need to have a source of good, clean water. But in the desert, having lots of clean water can be difficult. To make Las Vegas a good place to live, the people here had to find a good source of water. Not too far away is the Colorado River. It has good water, but to get to that water meant building the Hoover Dam and creating Lake Mead. This was a big job, and it was only part of the work.

To get the water necessary to make life in the desert livable, people had to plan and build infrastructure (meaning, the technology, or buildings, or pipelines, the Hoover Dam, the laws and rules, and more).
This made it easier for large amounts of water to be brought into the Las Vegas Valley.

More than ninety percent of the water we have in the Las Vegas Valley comes out of Lake Mead; which is behind the Hoover Dam. The rest comes from wells that draw water from aquifers (water that is underground) beneath the Las Vegas Valley floor. Some comes from two rivers north and east of Las Vegas: the Virgin River (1.45 percent), and the Muddy River (0.05 percent).

**What is a water system?**

Our water system has two kinds of pipes: freshwater pipes and wastewater pipes. Water that comes out of your tap is called freshwater because it is clean and safe to drink. Freshwater goes into your sinks, your toilets, bathtubs and showers, washing machines, and dishwashers. It is also used to water your lawn and garden, and people use it to wash cars too.

Water that goes down the drain from sinks, toilets, washing machines, and dishwashers is called wastewater. Wastewater is not safe to drink. It contains a mixture of human wastes, food waste, germs (bacteria), soaps, and other chemical products like household cleansers. We call this mixture effluent, or wastewater.

Wastewater travels through the system to a wastewater treatment plant. At the treatment plant some of the waste is removed from the wastewater, but not all of it. This partly cleaned water is called grey water; it goes into the Las Vegas Wash, which empties into Lake Mead. In Lake Mead, the grey water is mixed in with all the freshwater. When you mix grey water and freshwater, you are diluting the grey water. When you dilute grey water in freshwater, you are spreading the waste into a much larger amount of water. This is like when you mix orange juice and water. The more water you put in the juice, the less you can taste the juice. By mixing grey water with freshwater, the proportion of waste to water gets smaller and smaller.

**Clean again!**

When water is once again taken out of Lake Mead, it is made even cleaner by going through another water-treatment plant. In the water-treatment plant, Lake Mead water is filtered through sand and other filter materials; chemicals like chlorine, hydrogen peroxide, alum, and fluoride are added to kill germs (both in the water, and on your teeth) and to make the water clear, clean, and fresh again. Then the water is pumped back into our water system. This is what we call **water recycling**.

Water recycling is very important to the Las Vegas Valley. Even though there appears to be a lot of water in the Las Vegas Valley, our supply is not endless. By recycling water we are able to make our supply go farther. If we use water more than one time, then we have more water for everyone to use.

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**References**

Las Vegas Valley Water District


Evan Fulton, Ph.D., fultone@unce.unr.edu
702-948-5907

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