TAP WATER TREATMENT AND TESTING

By: Matt Oswalt

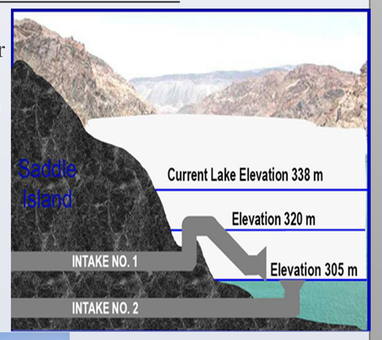
Introduction

My research is focused on how the water we drink is cleaned and filtered and whether or not it is safe to drink the water from the tap.

Treatment Process

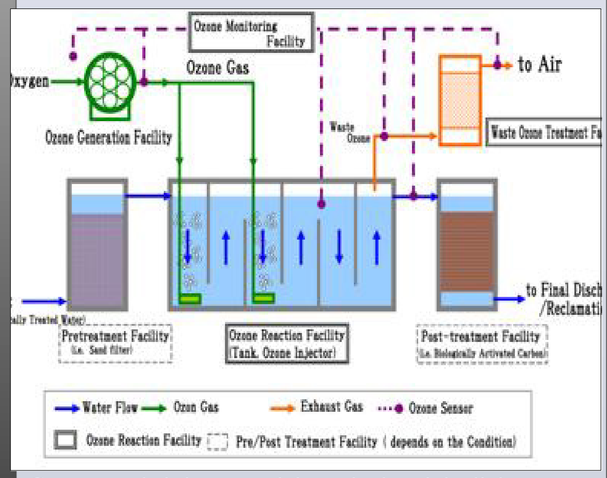
Over 90% of the water used in Las Vegas comes from the intake at Lake Mead.

The other 10% comes from groundwater beneath Las Vegas Valley and is used primarily in the summer months.

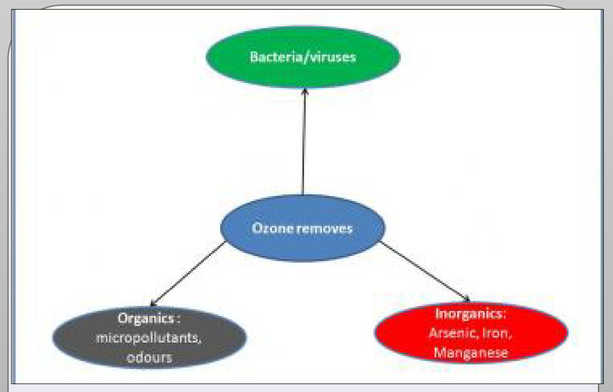


The water is then sent to the Alfred Merritt Smith and River Mountains water treatment facilities

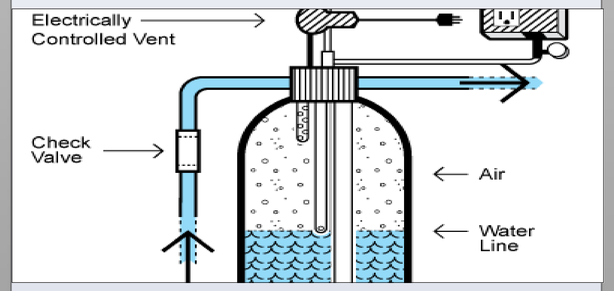
Step 1: Ozonation



Compressed air is pumped through ultraviolet light changing it into Ozone which is then mixed with the water helping to disinfect it.

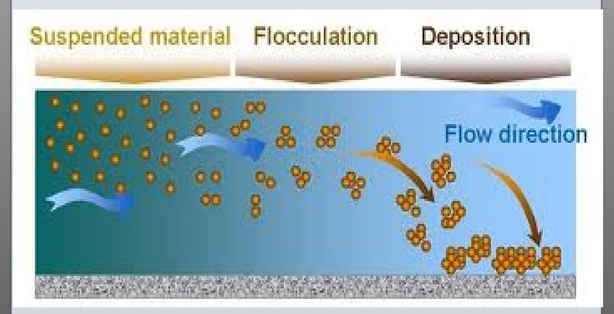


Step 2: Aeration

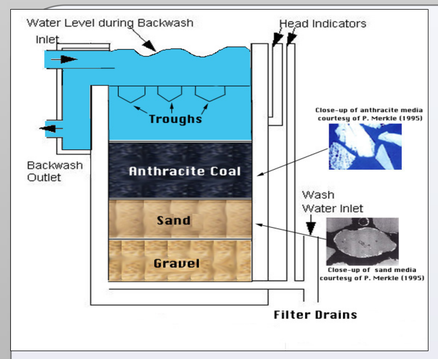


The water then passes through compressed air, and when the correct ratio of water and air are mixed together the unwanted gases- mainly hydrogen sulfide- are separated and removed from the water.

Step 3: Coagulation and Flocculation



Negative electrical charges on the surface of the water cause small suspended particles to repel each other. During coagulation positively charged are mixed with the water, allowing the suspended particles to become attracted to each other. Then, during the process of flocculation polymers help bind the particles into clumps which eventually settle to the bottom.

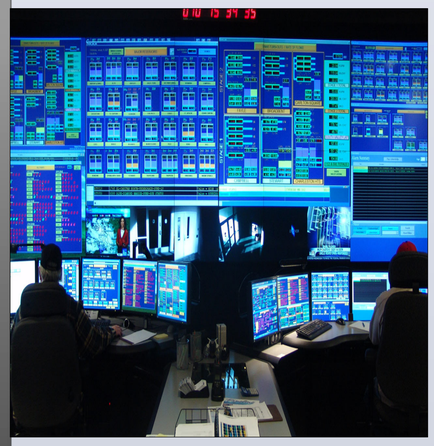


These larger, combined particles are removed through the use of a multi-layered filter composed of anthracite coal, silica sand and garnet sand.

As the water leaves the water treatment facilities, small amounts of chlorine is added to protect it on the way to customers' taps and also to minimize corrosion in the pipes.

Water Testing

In 2011, the Water District collected **37,000** water samples and conducted over **370,000** analyses of the samples to ensure water quality.



More than 100 water sampling stations have been installed above ground, below ground and even in customers meter boxes.

Water quality is monitored in real time 24 hours per day, 365 days per year.

Conclusion

The Environmental Protection Agency (EPA) requires each water agency in the country to monitor for 90 different contaminants.

The city of Las Vegas goes above and beyond this standard and tests for and additional 30 unregulated contaminants.

Every year, Las Vegas has met and/or surpassed all state and federal Safe Drinking Water Act standards making the tap water safe to drink.

Despite meeting these standards, in 2009 a nonprofit environmental organization— Environmental Working Group— rated Las Vegas 98th out of 100 cities that they studied and Reno came in just ahead of Las Vegas at 96th.

Home Treatment Ideas

Many people complain about the of their tap water so here's a few suggestions:

1. Put a pitcher of water into the refrigerator— this allows the chlorine to dissipate and will improve the taste.
2. Add a lemon or fruit slice

There are also hundreds of home filtration systems that are available on the market today.

They further remove hardness, chlorine and the bad taste of the water.

Acknowledgements

A special thanks to J.C. Davis and the Southern Nevada Water Authority.

For more information regarding water quality, testing or treatment visit http://www.snwa.com/ or call (702)-258-7258

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