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## **Research and Development the Shallow Aquifer in the Southeastern Las Vegas Valley, Nevada**

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Within the Basin and Range Physiographic Province, Las Vegas lies within a alluvial-filled valley surrounded by fault-block mountains through which Las Vegas Wash serves as the principal drainage to Lake Mead. Unraveling the patterns of sediment deposition by the Las Vegas Wash may be the key to identifying sites along the drainage that will yield large volumes of non-potable groundwater to wells with minimal impact to flows in the wash itself.

Currently, there are indications that up to 4,500 acre-feet of saline groundwater could be developed annually from one site within the shallow aquifer along a particular reach of the Las Vegas Wash drainage system between Desert Inn Road and Sahara Avenue. Completed to evaluate the requirements for a construction dewatering system for a pipeline, five aquifer tests were completed along this alignment during 1996. These data were combined with water level and pumpage data collected the pipeline installation and incorporated into a single groundwater model for this particular length of the wash. Several pumping scenarios were modeled to find the optimal production rate that could be sustained.

Following decades of irrigation in excess of consumptive use, the shallow aquifer in the Las Vegas Valley has grown from a non-potable nuisance into such a resource the Southern Nevada Water Authority (SNWA) now considers it part of its long term planning. SNWA is now banking that it can develop 20,000 acre-feet of this water annually to supplement its other supplies. With this goal in mind, SNWA has authorized research on the shallow aquifer in the southeastern part of the Las Vegas Valley to confirm that such quantities can be developed and safely treated to potable standards.

Future research on the shallow aquifer is likely to focus on more transmissive areas farther to the south of the current site that will likely yield more water for less capital cost.

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