



## WATER RESOURCES RESEARCH GRANT PROPOSAL

**Project ID:** 2002NV6B

**Title:** A Long-Term Comparative Study of Golf Courses Irrigated with Reuse vs. Municipal Water

**Project Type:** Research

**Focus Categories:** Water Quality, Irrigation

**Keywords:** Sewage effluent, Salinity, Turf grass, woody ornamentals, irrigation management

**Start Date:** 03/01/2002

**End Date:** 02/28/2003

**Federal Funds:** \$15,000

**Non-Federal Matching Funds:** \$145,824

**Congressional District:** Nevada 01

**Principal Investigator:**

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**Abstract**

As the population in southern Nevada grows, greater demands are being placed on the available water resources. Addressing this water supply-demand dilemma requires water managers to look at all possible water sources, even waters of lower quality. Utilization of treated sewage effluent (known as reuse water) for landscape irrigation purposes is an environmentally acceptable alternative to discharging to the Las Vegas Wash. However, utilization of reuse water in the Las Vegas Valley is not being driven by environmental concerns but rather by simple economics. Reuse is occurring in expanding growth areas in the north and southwest parts of the valley because it reduces the need to expand both the water delivery and sewage discharge systems. However, utilizing poorer quality waters for irrigation purposes requires state of the art, science-based management practices. Fortunately for the urban sector, no form of irrigated agriculture consistently meets these requirements better than golf courses.

To evaluate the impact transitioning to reuse water will have on golf courses, we have selected nine courses for monitoring. Three courses are long time users of reuse water, three courses will not transition to reuse water during the next five years and three courses will transition to reuse water during 2002. One fairway, green and mixed landscape area on each course has been selected for intense monitoring. All sites are equipped with water meters, TDR sensors, salinity sensors, tensiometers and solution extraction cups. On a monthly basis each site is monitored for salinity, nitrates, water content and plant physiological status (temperature, leaf water potential, tissue moisture content, color/cover and a visual index rating). A water balance is closed on each site to estimate ET and leaching fractions. The long-term goals of the project are to determine if significant change in the soil-plant-water status of golf courses occurs after transition to reuse water. We want to determine if critical threshold values exist for various soil - plant - water parameters.