

Lake Durango Water Company

Analysis of Actual Water Use and Factors of Safety for the Water Supply System

August 25, 2006

2005 Water delivered = 64,181,000 gallons total

Delivered to 1,155 houses = 55,568 gal/yr/house = 152 gal/d/house = 0.17 acre-ft/yr/house

Safe Yield for Supply requires 350 gal/d/house or 0.39 acre-ft/yr/house

Actual Use = 0.17 acre-ft/yr/house → 2.30 Factor of Safety or 230% Factor of Safety

Take another approach, the Safe Yield is described as 559.9 acre-ft/yr for 0.39 acre-ft/yr demand

Actual use 2005 = 64,181,000 gallons = 197 acre-ft/yr

Safety Factor for Actual Use Compared to Safe Yield = 2.84 or 284%

Considerations:

Safe Yield calculated by Division of Water Resources of 559.9 acre-ft/yr includes Pine Ridge Ditch seepage loss of 12%, yet the seepage is actually 5 or 7 percent. Even using Southwest Hydro-Logic suggestion of 10% seepage loss, safe yield is 572 acre-ft/yr. Safety Factor is 2.90 or 290%.

Recommended Safety Factor for Water Supplies is 20%.