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Geologic Framework of Aquifer Units and Ground-Water Flowpaths, Verde River Headwaters, North-Central Arizona

Open-File Report 2004-1411

U.S. Department of the Interior
U.S. Geological Survey

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Edited by Laurie Wirt, Ed DeWitt, and V.E. Langenheim

Prepared in cooperation with the Arizona Water Protection Fund Commission

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U.S. Department of the Interior
Gale A. Norton, Secretary

U.S. Geological Survey
P. Patrick Leahy, Acting Director

U.S. Geological Survey, Reston, Virginia: 2005

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Abbreviated Water-Quality Units

mg/L, milligrams per liter
µg/L, micrograms per liter
µS/cm, microsiements per centimeter at 25 degrees Celsius
% meq/l, percent milliequivalents per liter
$\delta^{18}O$, delta notation, for the ratio of oxygen-18/oxygen-16, expressed in per mil or parts per thousand
δD, delta notation for the ratio of hydrogen-2/hydrogen-1, expressed in per mil or parts per thousand
‰, notation for per mil, or parts per thousand
TU, tritium units
pCi/L, picocuries per liter
pmc, percent modern carbon

Conversion Factors

Inch/Pound to International Scientific Units (SI)

Multiply	By	To obtain
	Length	
inch (in.)	2.54	centimeter (cm)
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square foot (ft^2)	0.09290	square meter (m^2)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
gallon (gal)	3.785	liter (L)
gallon (gal)	0.003785	cubic meter (m^3)
acre-foot (acre-ft)	1,233	cubic meter (m^3)
	Flow rate	
gallon per minute (gal/min)	0.06309	liter per second (L/s)
acre-foot per day (acre-ft/d)	0.01427	cubic meter per second (m^3/s)
acre-foot per year (acre-ft/yr)	1,233	cubic meter per year (m^3/yr)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
	Hydraulic conductivity	
foot per day (ft/d)	0.3048	meter per day (m/d)
	Hydraulic gradient	
foot per mile (ft/mi)	0.1894	meter per kilometer (m/km)
	Transmissivity*	
foot squared per day (ft^2/d)	0.09290	meter squared per day (m^2/d)

*Transmissivity: The standard unit for transmissivity is cubic foot per day per square foot times foot of aquifer thickness [(ft^3/d)/ft^2]ft. In this report, the mathematically reduced form, foot squared per day (ft^2/d), converted to gallons per day per foot (gpd/ft), is used for convenience.

Multiply	By	To obtain
	Area	
acre	4,047	square meter (m^2)
acre	0.004047	square kilometer (km^2)
	Volume	
million gallons (Mgal)	3,785	cubic meter (m^3)
cubic foot (ft^3)	0.02832	cubic meter (m^3)
acre-foot (acre-ft)	1,233	cubic meter (m^3)
	Mass	
ounce, avoirdupois (oz)	28.35	gram (g)
pound, avoirdupois (lb)	0.4536	kilogram (kg)
	Activities	
tritium unit	3.2	picocuries

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F=(1.8×°C)+32$$

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

$$°C=(°F-32)/1.8$$

Cover Photograph

The photograph on the cover of this report overlooks Stillman Lake facing east toward the Verde River/Granite Creek confluence, north-central Arizona. The rocks are Devonian Martin Formation capped with Tertiary basalt. In the confluence area, ground water discharges along three distint flowpaths to Stillman Lake, lower Granite Creek, and upper Verde River springs. This photograph is also figure 15A of this report.

Author's Note

The Arizona Water Protection Fund Commission has provided a portion of funding for this report through grant #99-078WPF. The views or findings represented in this deliverable are the Grantee's and do not necessarily represent those of the Commission nor the Arizona Department of Water Resources.