



EXPLANATION

1150 •
 1.2
 340

WELL FROM WHICH A WATER SAMPLE WAS COLLECTED IN 1977-78—Number, 2, indicates number of wells at this location. First number, 1150, is specific conductance in micromhos per centimeter at 25°C (M, sample collected before 1977). Second number, 1.2, is fluoride concentration in milligrams per liter (M, sample collected before 1977). Third number, 340, is depth of well in feet.

DS=192(M)

DISSOLVED SOLIDS—Number, 192(M), is dissolved solids in milligrams per liter (M, sample collected before 1977).

CHEMICAL-QUALITY DIAGRAM—Shows major constituents in milliequivalents per liter. The diagrams are in a variety of shapes and sizes, which provides a means of comparing, correlating, and characterizing similar or dissimilar types of water.

Milliequivalents per liter			
Cations		Anions	
Sodium	15	0	15
Calcium	10	5	10
Magnesium	5	5	5
		Chloride	
		Bicarbonate	
		Sulfate	

APPROXIMATE BOUNDARY OF THE MAIN WATER-BEARING UNIT—The main water-bearing unit is principally alluvium, which consists of permeable lenses of gravel and sand interbedded with silt and clay. The igneous, metamorphic, and sedimentary rocks, which make up the surrounding mountains, yield less than 50 gallons per minute where fractured. Queried where uncertain.

ARBITRARY BOUNDARY OF GROUND-WATER AREA

In most of the Douglas basin area the water is of suitable to marginal chemical quality for human consumption. In seven water samples collected in 1977-78, the dissolved-solids concentrations ranged from 229 to 680 mg/L (milligrams per liter) and averaged about 390 mg/L. The specific-conductance values shown on the map, however, indicate that the dissolved-solids concentration in water from some wells was more than 800 mg/L. Specific conductance varies with the concentration of ions in solution; an estimate of the dissolved-solids concentration may be obtained by multiplying the specific conductance by 0.6. Specific conductance of ground water also may differ with the depth to which a well penetrates an aquifer. Near Douglas, water from two wells that are less than 100 ft deep had specific conductances ranging from 1,090 to 7,130 micromhos per centimeter at 25°C; the water from several wells that are 250 to 500 ft deep had specific conductances ranging from 380 to 700 micromhos. The specific conductance of the water from a 340-foot-deep well was 1,150 micromhos, but the specific conductance of the water from a 337-foot-deep well only a few hundred feet away was 550 micromhos. The maximum contaminant level for dissolved solids in public water supplies is 500 mg/L, as proposed in the secondary drinking-water regulations of the U.S. Environmental Protection Agency (1977b, p. 17146) in accordance with provisions of the Safe Drinking Water Act (Public Law 93-523). The U.S. Environmental Protection Agency (1977a, b) has established national regulations and guidelines for the quality of water provided by public water systems. The regulations are either primary or secondary. Primary drinking-water regulations govern contaminants in drinking water that have been shown to affect human health. Secondary drinking-water regulations apply to contaminants that affect esthetic quality. The primary regulations are enforceable either by the Environmental Protection Agency or by the States; in contrast, the secondary regulations are not federally enforceable. The secondary regulations are intended as guidelines for the States. The regulations express limits as "maximum contaminant levels," where contaminant means any physical, chemical, biological, or radiological substance or matter in water.

The following guidelines for dissolved-solids and specific-conductance values for irrigation water are modified from the National Academy of Sciences and National Academy of Engineering (1973, p. 335).

Classification	Dissolved solids (milligrams per liter)	Specific conductance (micromhos)
Water for which no detrimental effects are usually noticed	Less than 500	Less than 830
Water that can have detrimental effects on sensitive crops	500-1,000	830-1,670
Water that can have adverse effects on many crops; requires careful management practices	1,000-2,000	1,670-3,330
Water that can be used for tolerant plants on permeable soils with careful management practices	2,000-5,000	3,330-8,330

The maximum contaminant level for fluoride in public water supplies differs according to the annual average maximum daily air temperature (Bureau of Water Quality Control, 1978, p. 6). The amount of water consumed by humans, and therefore the amount of fluoride ingested, depends partly on air temperature. In the Douglas basin area the annual average maximum daily air temperature is about 79°F, and the maximum contaminant level for fluoride is 1.6 mg/L. In 37 water samples fluoride concentrations ranged from 0.3 to 8.5 mg/L and averaged about 1.1 mg/L. Concentrations of more than 1.6 mg/L were present in only six of the samples.

