

EXPLANATION

710(1962) 1.7
473(1960) 0.6

IRRIGATED AREA AS OF 1978—Modified from the Arizona Crop and Livestock Reporting Service (1974). Land under cultivation or that prepared for cultivation was considered cultivated.

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

Milliequivalents per liter
Cations: Sodium, Calcium, Magnesium
Anions: Chloride, Bicarbonate, Sulfate

DS-207 DISSOLVED SOLIDS—Number, 207, is dissolved-solids concentrations in milligrams per liter.

APPROXIMATE BOUNDARY OF THE MAIN WATER-BEARING UNITS—The main water-bearing units are flood-plain alluvium and valley-fill deposits. The flood-plain alluvium consists of gravel, sand, and silt. The upper part of the valley-fill deposits consists of clayey and silty gravel beds near the mountains and silt and sandy silt in the central part of the area. The lower part of the valley-fill deposits consists of gravel, sandstone, and siltstone beds. Granitic and consolidated sedimentary rocks that make up the mountains may yield a few gallons per minute where fractured and saturated.

PERENNIAL REACH OF THE SAN PEDRO RIVER

ARBITRARY BOUNDARY OF GROUND-WATER AREA

SPECIFIC CONDUCTANCE, IN MICROMHMS PER CENTIMETER AT 25°C

DISSOLVED SOLIDS, IN MILLIGRAMS PER LITER

5000
4000
3000
2000
1000
500

3000
2500
2000
1500
1000
500

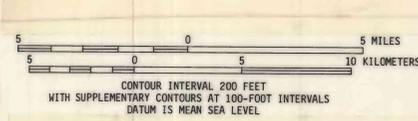
APPROXIMATE RELATION OF SPECIFIC CONDUCTANCE TO DISSOLVED SOLIDS

In the upper San Pedro basin area ground water generally is of good chemical quality with respect to dissolved solids. The specific-conductance values shown on the map indicate that the dissolved-solids concentrations generally range from 200 to 2,500 mg/L (milligrams per liter); the dissolved-solids values may be estimated by multiplying the specific conductance by 0.6. Most of the water contains less than 500 mg/L dissolved solids. 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). 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 850
Water that can have detrimental effects on sensitive crops....	500-1,000	850-1,670
Water that can have adverse effects on many crops; requires careful management practices.....	1,000-2,000	1,670-3,350
Water that can be used for tolerant plants on permeable soils with careful management practices.....	2,000-5,000	3,350-8,350

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, 1976, p. 6). The amount of water consumed by humans, and therefore the amount of fluoride ingested, depends partly on air temperature. In the upper San Pedro 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. The fluoride concentration exceeded 1.6 mg/L in only a few water samples.



BASE FROM U.S. GEOLOGICAL SURVEY
DOUGLAS 1:250,000, 1959,
NOGALES 1:250,000, 1956, AND
TUCSON 1:250,000, 1956

SPECIFIC CONDUCTANCE, FLUORIDE CONCENTRATION, AND IRRIGATED AREA