

INTRODUCTION

The Phoenix Active Management Area (AMA) was created by the groundwater Management Act of 1980 (Arizona Revised Statutes, section 45-501) through 45-537). The AMA is a large area in central and southern Arizona, covering approximately 1,100 square miles. It is the largest and most populous urban area in Arizona and is centrally located. Diverse urbanization extends several miles east and west of Phoenix and includes the cities of Tempe, Scottsdale, Mesa and Gilbert, as well as several other communities. The AMA is divided into five sub-basins: West Salt River, East Salt River, Fountain Hills, Lake Pleasant, and Carefree. The AMA is managed as a single unit, and the AMA is divided into five sub-basins. The AMA is managed as a single unit, and the AMA is divided into five sub-basins. The AMA is managed as a single unit, and the AMA is divided into five sub-basins.

INTRODUCTION

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The climate throughout the Phoenix AMA is arid. Long-term temperature and precipitation averages are generally uniform due to the low relief and other homogenizing factors which influence the area. The variations that exist are due largely to differences in elevation, with the highest temperatures generally between 100° and 110° west longitude and the lowest temperatures generally between 110° and 120° west longitude. The annual precipitation is generally between 7 to 8 inches AMA-wide. Major climatic seasons are usually of short duration and are widely scattered, with the winter season generally occurring between December and February, and the summer season generally occurring between June and August. The winter season is generally characterized by cooler temperatures and more widespread than summer precipitation. Precipitation is usually between 35° and 40° (Salters and Hill, 1924, p. 376). The temperature is usually between 35° and 40° (Salters and Hill, 1924, p. 376).

The West and East Salt River sub-basins include 3,177 square miles and are largely broad alluvial plains drained by the Salt and Salt Rivers. The sub-basins on the south by the Salt, Santa Catalina, and Santa Catalina and the Buckeye Hills; on the west by the White Tank Mountains, and on the north by the Hermitic, Micken, and the Phoenix Mountains, Pinal, and the Union Hills. The primary source of groundwater in the West and East Salt River valley sub-basins is the valley-fill deposits. The thickness of the unit ranges from 0 feet near the periphery of the sub-basins to more than 1,100 feet in the area east of Chandler and east of the Salt River. Groundwater is usually unconfined, but semi-confined conditions exist locally where there is an increase of fine-grained materials. Present conditions of the West and East Salt River valley sub-basins are generally characterized by water and wells with anomalously high water levels, particularly in the East Salt River Valley sub-basin.

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The Fountain Hills sub-basin includes 377 square miles and is an alluvial plain. It includes the lower reach of the Verde River to its confluence with the Salt River. The Fountain Hills sub-basin is generally characterized by water levels that have risen significantly since 1976. The Fountain Hills sub-basin is generally characterized by water levels that have risen significantly since 1976. The Fountain Hills sub-basin is generally characterized by water levels that have risen significantly since 1976.

The Carefree sub-basin includes 153 square miles. In the northern portion of the Phoenix AMA, the Carefree sub-basin is generally characterized by water levels that have risen significantly since 1976. The Carefree sub-basin is generally characterized by water levels that have risen significantly since 1976. The Carefree sub-basin is generally characterized by water levels that have risen significantly since 1976.

The Lake Pleasant sub-basin covers 246 square miles and includes a short reach of the Agua Fria River. The Lake Pleasant sub-basin is generally characterized by water levels that have risen significantly since 1976. The Lake Pleasant sub-basin is generally characterized by water levels that have risen significantly since 1976. The Lake Pleasant sub-basin is generally characterized by water levels that have risen significantly since 1976.

Withdrawal of approximately 0.009 acre-foot of water from the Phoenix AMA between about 1900 and 1982 (see map of sheet 2) is illustrated in operating conditions of the water-bearing unit. The overdrafts are reflected by water levels that have fallen per acre-foot (see map of sheet 2). The overdrafts are reflected by water levels that have fallen per acre-foot (see map of sheet 2). The overdrafts are reflected by water levels that have fallen per acre-foot (see map of sheet 2).

Sub-basin	Depth to Water	Change in Water Level	
		1976 to 1983	1976 to 1983
West Salt River Valley	4	-34	+45
Fountain Hills	12	-59	+3
Lake Pleasant	10	+2	+3
Carefree	9	-23	+24

For readers who prefer to use metric units rather than inch-pound units, the conversion factors for the terms used in this report are listed below:

Metric Unit	To Obtain Metric Unit
1 inch	25.4 millimeter
1 foot	0.305 meter
1 mile	1.609 kilometer
1 square mile	2.590 square kilometer
1 acre-foot	0.00123 hectare-meter
1 gallon per minute	0.06309 liters per second

CONTOUR INTERVAL, 200 FEET
WITH 500-FOOT DEPTH INTERVALS
SCALE 1:125,000

CONTOUR INTERVAL, 200 FEET
WITH 500-FOOT DEPTH INTERVALS
SCALE 1:125,000

EXPLANATION

METRIC CHECKED IN 1982—First number, 68, is depth to water in feet below land surface. Second number, 1022, is the altitude of the water level in feet above mean sea level.

IMPERIAL CHECKED IN 1982—First number, 1022, is the altitude of the water level in feet above mean sea level. Second number, 68, is the depth to water in feet below land surface.

SPRING FIELD CHECKED IN 1982—Number, 3550, is altitude of the land surface in feet above mean sea level.

VALLEY-FILL DEPOSITS—Main water-bearing unit consisting of silt, sand, clay, and gravel.

BEDROCK (VOLCANIC, GRANITIC, METAMORPHIC, OR SEDIMENTARY ROCK)—Water-bearing unit in fractured or bedrock cracks, joint systems, or thin lenses of alluvial or fluvial sediment overlying water level contour—Shows altitude of the water level. Contour interval 50 feet. Datum is mean sea level.

ARBITRARY BOUNDARY OF PHOENIX ACTIVE MANAGEMENT AREA (EXCLUDING MASSAWHAMA AND RINDOWN VALLEY SUB-BASINS)

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ARBITRARY BOUNDARY OF PHOENIX ACTIVE MANAGEMENT AREA (EXCLUDING MASSAWHAMA AND RINDOWN VALLEY SUB-BASINS)

MAP SHOWING GROUNDWATER CONDITIONS IN THE WEST SALT RIVER, EAST SALT RIVER, LAKE PLEASANT, CAREFREE AND FOUNTAIN HILLS SUB-BASINS OF THE PHOENIX ACTIVE MANAGEMENT AREA, MARICOPA, PINAL AND YAVAPAI COUNTIES, ARIZONA--1983

DEPTH TO WATER AND ALTITUDE OF THE WATER LEVEL, 1983

D. M. R. HYDROLOGIC MAP SERIES REPORT NO. 12

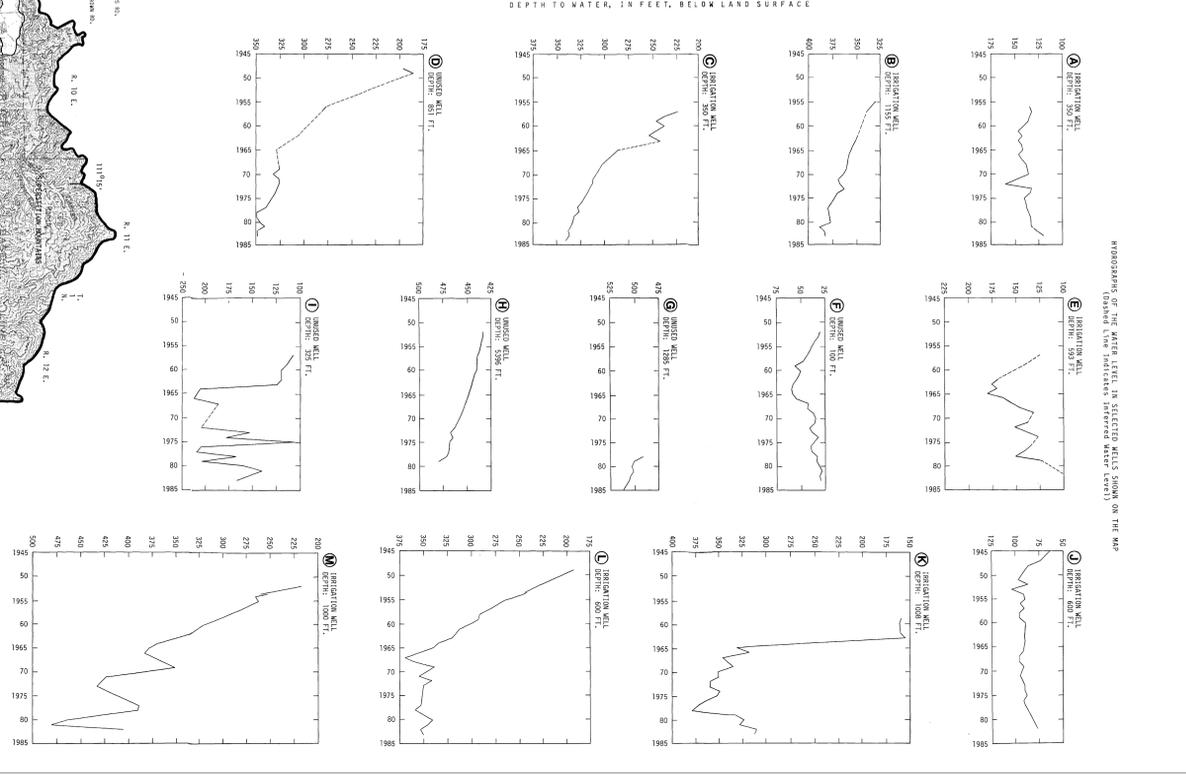
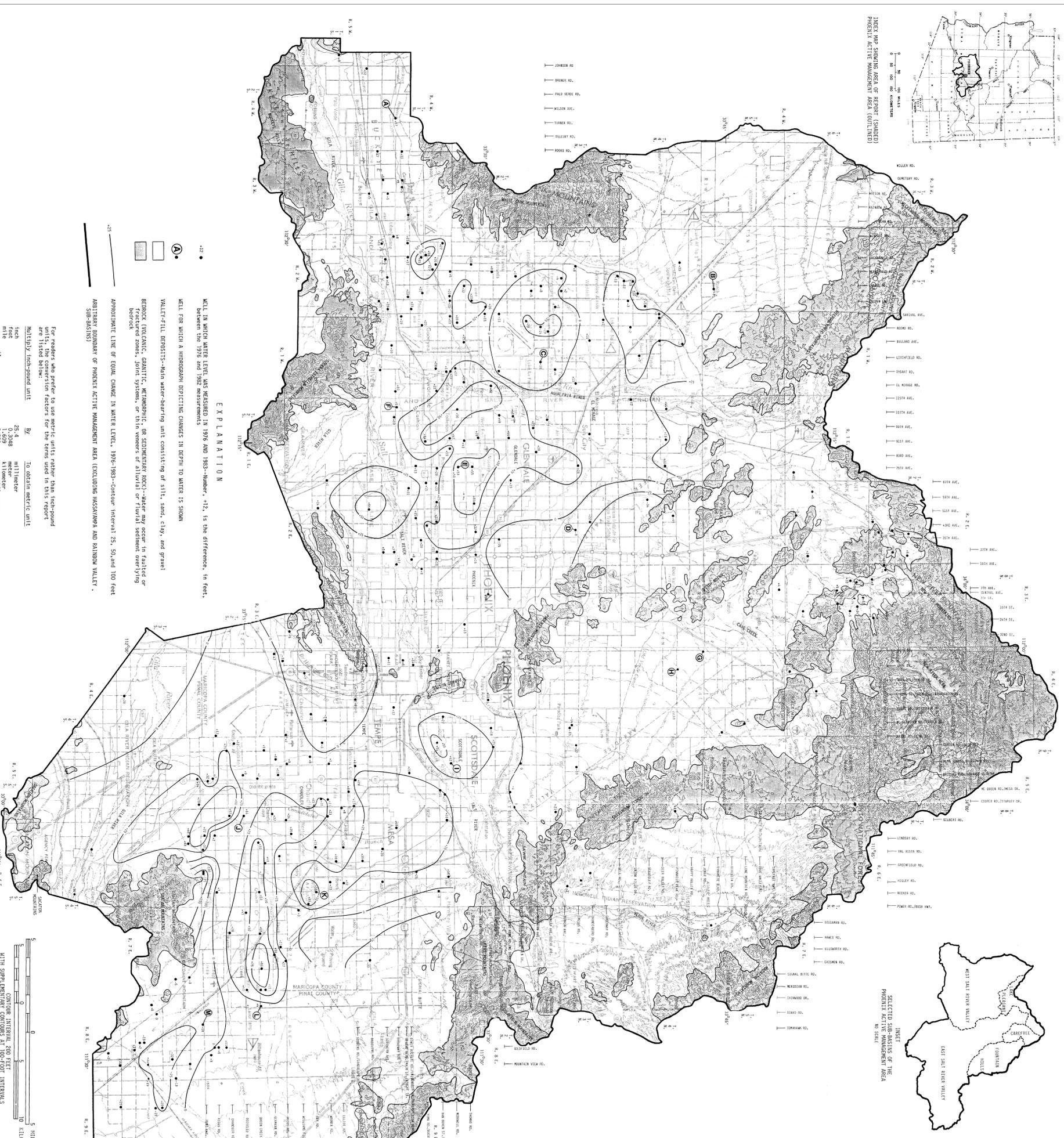
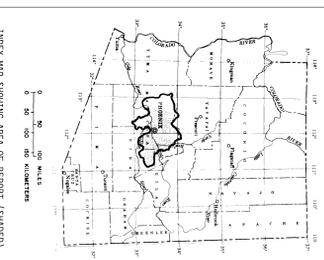
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DEPTH TO WATER AND ALTITUDE OF THE WATER LEVEL, 1983

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DEPTH TO WATER AND ALTITUDE OF THE WATER LEVEL



EXPLANATION

● WELL IN WHICH WATER LEVEL WAS MEASURED IN 1976 AND 1983--number, +12, is the difference, in feet, between the 1976 and 1982 measurements

○ WELL FOR WHICH A HYDROGRAPH DEPICTING CHANGES IN DEPTH TO WATER IS SHOWN

VALETT-FILL DEPOSITS--Main water-bearing unit consisting of silt, sand, clay, and gravel

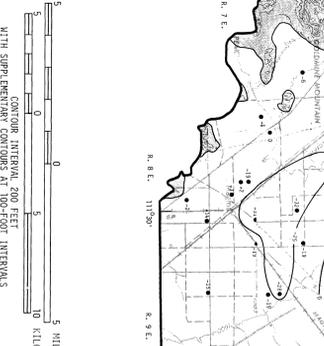
BEDROCK (VOLCANIC, GRANITIC, METAMORPHIC, OR SEDIMENTARY ROCK)--Water may occur in faulted or fractured zones, joint systems, or thin veneers of alluvium or fluvial sediment overlying bedrock

— APPROXIMATE LINE OF EQUAL CHANGE IN WATER LEVEL, 1976-1983--contour interval 25, 50, and 100 feet

--- ARBITRARY BOUNDARY OF PHOENIX ACTIVE MANAGEMENT AREA (EXCLUDING MARICOPA AND RAINBOW VALLEY SUB-BASINS)

For reader who prefer to use metric units rather than traditional units, the conversion factors for the units used in this report are listed below:

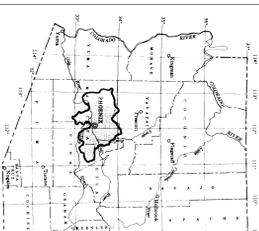
MULTIPLY traditional unit	By	To obtain metric unit
inch	25.4	millimeter
foot	0.3048	meter
mile	1.60934	kilometer
acre	0.4047	hectare
square foot	0.092903	square meter
gallon per minute	15.8483	liters per second



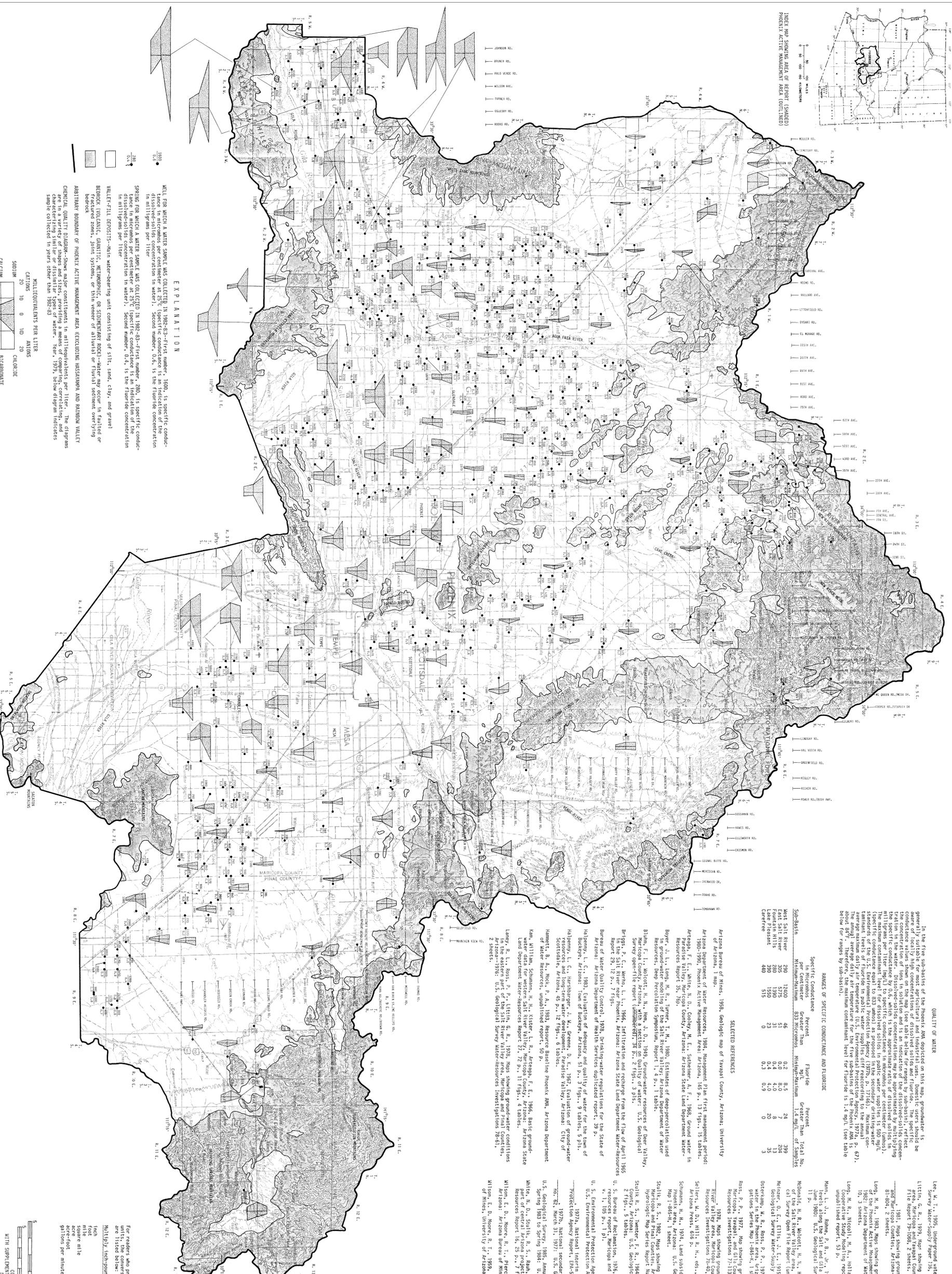
ESTIMATED QUANTITIES SHOWN IN THE SALT RIVER VALLEY SUB-BASIN

YEAR	AREA IN THOUSANDS OF ACRES		POPULATION IN THOUSANDS		WATER DEMAND IN MILLION GALLONS PER DAY	
	1976	1983	1976	1983	1976	1983
1976	10,310	10,310	620	620	1,450	1,450
1977	10,310	10,310	620	620	1,450	1,450
1978	10,310	10,310	620	620	1,450	1,450
1979	10,310	10,310	620	620	1,450	1,450
1980	10,310	10,310	620	620	1,450	1,450
1981	10,310	10,310	620	620	1,450	1,450
1982	10,310	10,310	620	620	1,450	1,450
1983	10,310	10,310	620	620	1,450	1,450
TOTAL	10,310	10,310	620	620	1,450	1,450

DATE: 1983
 PREPARED BY: D. M. R. HYDROLOGIC MAP SERIES REPORT NO. 12
 ARIZONA DEPARTMENT OF WATER RESOURCES
 PHOENIX, ARIZONA
 MAP'S SHOWING GROUNDWATER CONDITIONS IN THE WEST SALT RIVER, EAST SALT RIVER, LAKE PLEASANT, CAREFREE AND FOUNTAIN HILLS SUB-BASINS OF THE PHOENIX ACTIVE MANAGEMENT AREA, MARICOPA, PINAL AND YAVAPAI COUNTIES, ARIZONA--1983
 BY: R. W. REETTER AND W. H. REMICK



INDEX MAP SHOWING AREA OF REPORT (SHADDED)
PHOENIX ACTIVE MANAGEMENT AREA (OUTLINED)



EXPLANATION

WELL FOR WHICH A WATER SAMPLE WAS COLLECTED IN 1982-83: First number, 1500, is specific conductance in micromhos per centimeter at 25°C. Second number, 0.5, is the fluoride concentration in milligrams per liter.

SPRING FOR WHICH A WATER SAMPLE WAS COLLECTED IN 1982-83: First number, 200, is specific conductance in micromhos per centimeter at 25°C. Second number, 0.5, is the fluoride concentration in milligrams per liter.

VALLEY-FILL DEPOSITS—main water-bearing unit consisting of silt, sand, clay, and gravel.

BEFORE (VOLCANIC, METAMORPHIC, OR SEDIMENTARY ROCK)—Water may occur in faulted or fractured zones, joint systems, or thin veneers of alluvial or fluvial sediment overlying bedrock.

ARBITRARY BOUNDARY OF PHOENIX ACTIVE MANAGEMENT AREA (EXCLUDING HASAVAMPWA AND RAINBOW VALLEY).

CHEMICAL QUALITY DIAGRAM—Shows major constituents in milliequivalents per liter. The diagrams are in a variety of shapes and sizes, providing a means of comparing, correlating, and characterizing samples of different waters. Year, 1979, below diagram indicates sample collection year. See figure 1 for details.

MILLIEQUIVALENTS PER LITER

CATIONS 10 0 10 20 CHLORIDE

SODIUM 20 0 20 CALCIUM

MAGNESIUM 1979 SULFATE

RANGES OF SPECIFIC CONDUCTANCE AND FLUORIDE

Sub-Basin	Specific Conductance per Centimeter Greater Than	Fluoride (mg/L)	Percent Greater Than	Total No. of Samples
West Salt River	290	46	8.5	24
East Salt River	305	51	0.0	7
Lower Pleasant	390	0.4	4.0	20
Cavefree	440	0.3	0.9	0
	515			

1. The first subbasins of the Phoenix A.M.A. depicted on this map, groundwater is generally of low mineral content. The maximum specific conductance of the water is about 300 micromhos per centimeter at 25°C. The specific conductance values shown on the map (see table below) are for sub-basins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

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