Ground-Water Resources of PREBLE COUNTY

by

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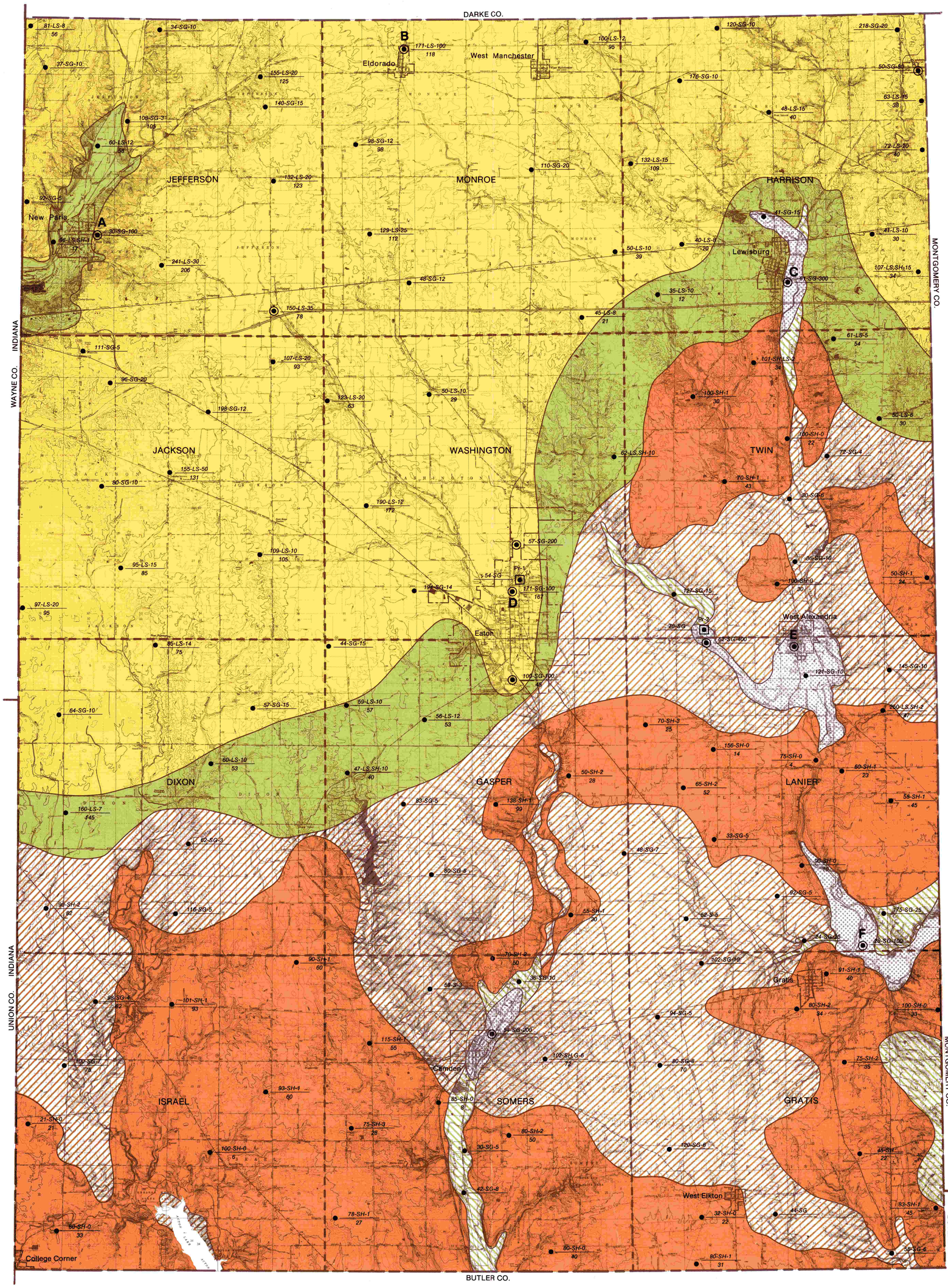

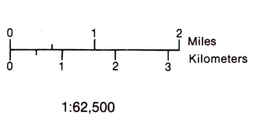

Well Yields

AREAS IN WHICH YIELDS OF 100 TO 500 GALLONS PER MINUTE MAY BE DEVELOPED.

Permeable sand and gravel deposits adjacent to portions of Twin and Seven-mile creeks constitute the best ground-water areas in Preble County. Yields of several hundred gallons per minute may be available. Extensive test drilling may be required to locate coarser materials.

AREAS IN WHICH YIELDS OF AS MUCH AS 100 GALLONS PER MINUTE MAY BE DEVELOPED.

Water-bearing sands and gravels, interbedded with clay and fine sand, are underlain by limestone. The glacial deposits range from 20 to more than 200 feet thick. If adequate supplies are not available in sands and gravels, wells may be developed in the limestone bedrock.

AREAS IN WHICH YIELDS OF FROM 5 TO 25 GALLONS PER MINUTE MAY BE DEVELOPED.

Ground water is obtained from sand and gravel deposits of limited extent and thickness interbedded with clay. Thicker sand and gravel zones may yield up to 25 gallons per minute. Wells drilled into the underlying bedrock generally yield less than three gallons per minute.

Glacial drift covers basal Niagaran limestones. Yields of as much as 20 gallons per minute may be available from either the drift or limestone. Drilling deeper than about 70 feet into the rock is not advisable due to the presence of non-water-bearing limey shales beneath the limestone aquifer.

AREAS IN WHICH YIELDS OF FROM 3 TO 10 GALLONS PER MINUTE MAY BE DEVELOPED.

Thick deposits of clay with thin lenses of sand and gravel may yield as much as 10 gallons per minute to screened wells. Depths to bedrock generally range from 70 to 150 feet. Wells not encountering sand and gravel produce less than three gallons per minute from the underlying limey shale.

AREAS IN WHICH YIELDS OF LESS THAN 3 GALLONS PER MINUTE MAY BE DEVELOPED.

Poor source of ground water. Bedrock consists of interbedded plastic shales and thin limestone layers. If water is present in the rock, it usually occurs in the upper few feet where the strata have been somewhat weathered and broken. Overlying glacial cover is generally less than 60 feet thick and consists largely of clay. Occasional lenses of sand and gravel will supply small yields. Wells seldom produce more than three gallons per minute. Many are inadequate.

Well Site Symbols

Depth (ft.) - Water-bearing Formation - Yield (gpm)

290-SG-10
224

Depth to Bedrock (ft.)

S - Sand
G - Gravel
SH - Shale
LS - Limestone
SG - Sand & Gravel

- ● Well Site
- ○ Municipal-Industrial Well
- △ Test Well*
- □ Observation Well**
- A Chemical Analyses

Chemical Analysis Table

Well Site	A	B	C	D	E	F
Depth of well (feet)	30	171	61	171	132	28
Aquifer	sand/ gravel	Lime-stone	sand/ gravel	sand/ gravel	sand/ gravel	sand/ gravel
pH	—	7.6	7.6	7.7	7.8	7.8
Total Hardness ($CaCO_3$)	—	—	352	384	266	206
Nitrate (N)	0.05	0.00	0.26	0.20	0.0	9.4
Sulfate (SO_4)	39.0	26.0	68.0	61.0	0.0	4.4
Flouride (F)	0.64	1.24	0.45	1.06	1.25	0.16
Iron (Fe)	0.40	1.98	0.03	1.00	1.30	—
Manganese (Mn)	0.09	0.04	0.03	0.0	0.07	—

Chemical constituents as milligrams per liter (mg/l).

Remarks

* Test well sites indicate the location of a test well that was part of a regional ground water study. Detailed lithologic logs, water quality analysis and pumping test information for these wells may be available from ODNR-Division of Water.

** Observation well sites indicate the location of wells used to collect ground-water level information. These wells are part of the State observation well network. Hydrographs of the water levels recorded in these and other State observation wells can be obtained through ODNR-Division of Water.

Note

The ground-water characteristics of Preble County have been mapped regionally, based upon interpretations of more than 4,000 water well records and the area's geology and hydrology. Well sites mapped were selected as typical for the areas shown. Information regarding specific sites may be obtained from the Division of Water.

ODNR OHIO DEPARTMENT OF NATURAL RESOURCES

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Naturally OHIO the heart of it all

Cartography: David S. Orr

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