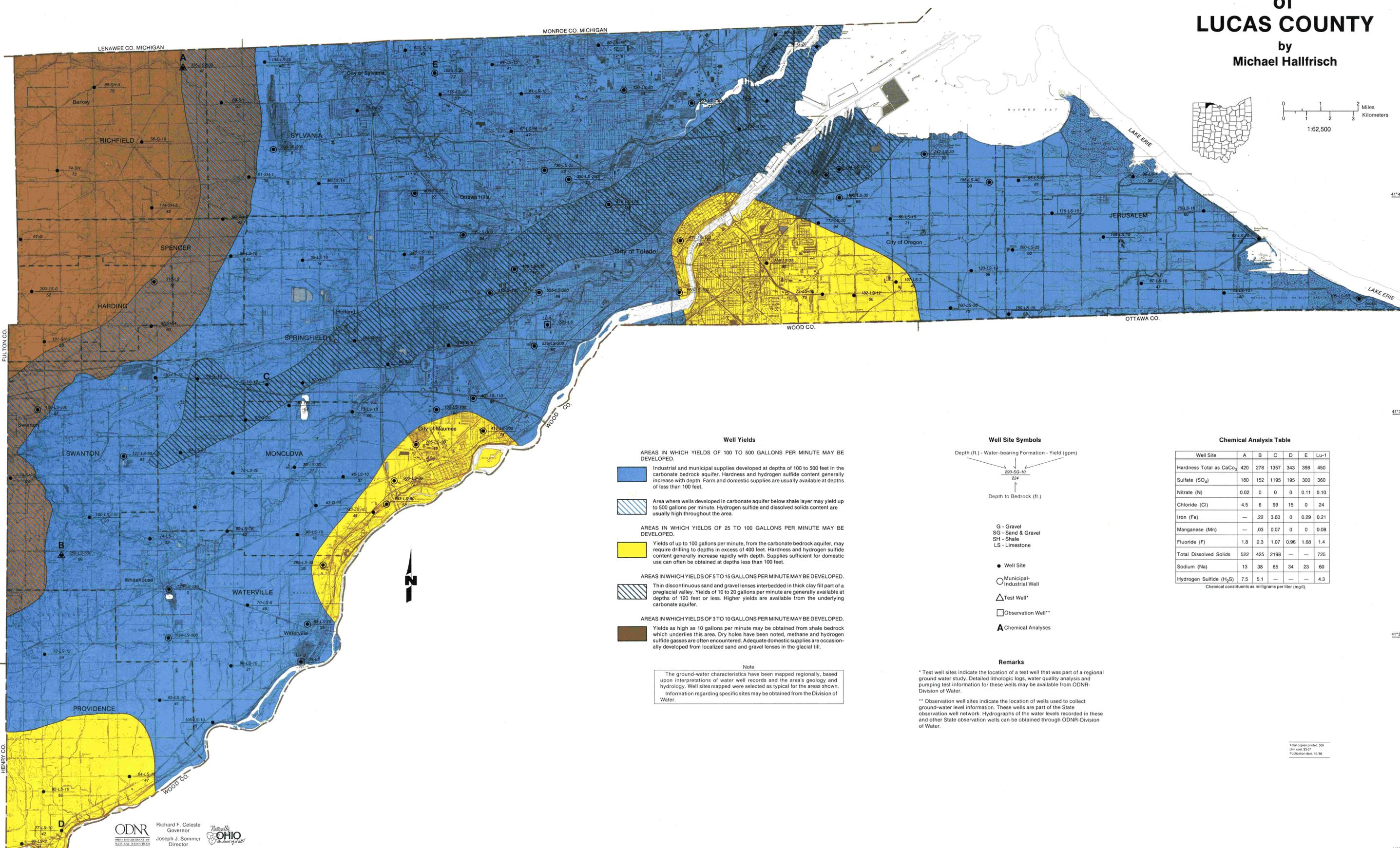
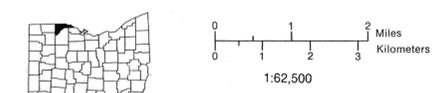


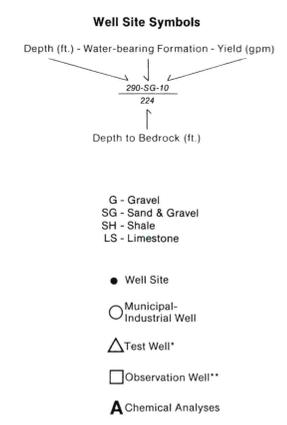
Ground-Water Resources of LUCAS COUNTY

by Michael Hallfrisch



- ### Well Yields
- AREAS IN WHICH YIELDS OF 100 TO 500 GALLONS PER MINUTE MAY BE DEVELOPED.
- Industrial and municipal supplies developed at depths of 100 to 500 feet in the carbonate bedrock aquifer. Hardness and hydrogen sulfide content generally increase with depth. Farm and domestic supplies are usually available at depths of less than 100 feet.
 - Area where wells developed in carbonate aquifer below shale layer may yield up to 500 gallons per minute. Hydrogen sulfide and dissolved solids content are usually high throughout the area.
- AREAS IN WHICH YIELDS OF 25 TO 100 GALLONS PER MINUTE MAY BE DEVELOPED.
- Yields of up to 100 gallons per minute, from the carbonate bedrock aquifer, may require drilling to depths in excess of 400 feet. Hardness and hydrogen sulfide content generally increase rapidly with depth. Supplies sufficient for domestic use can often be obtained at depths less than 100 feet.
- AREAS IN WHICH YIELDS OF 5 TO 15 GALLONS PER MINUTE MAY BE DEVELOPED.
- Thin discontinuous sand and gravel lenses interbedded in thick clay fill part of a preglacial valley. Yields of 10 to 20 gallons per minute are generally available at depths of 120 feet or less. Higher yields are available from the underlying carbonate aquifer.
- AREAS IN WHICH YIELDS OF 3 TO 10 GALLONS PER MINUTE MAY BE DEVELOPED.
- Yields as high as 10 gallons per minute may be obtained from shale bedrock which underlies this area. Dry holes have been noted, methane and hydrogen sulfide gasses are often encountered. Adequate domestic supplies are occasionally developed from localized sand and gravel lenses in the glacial till.

Note
The ground-water characteristics have been mapped regionally, based upon interpretations of 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.



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.

Chemical Analysis Table

Well Site	A	B	C	D	E	Lu-1
Hardness Total as CaCO ₃	420	278	1357	343	398	450
Sulfate (SO ₄)	180	152	1195	195	300	360
Nitrate (N)	0.02	0	0	0	0.11	0.10
Chloride (Cl)	4.5	6	99	15	0	24
Iron (Fe)	—	.22	3.60	0	0.29	0.21
Manganese (Mn)	—	.03	0.07	0	0	0.08
Fluoride (F)	1.8	2.3	1.07	0.96	1.68	1.4
Total Dissolved Solids	522	425	2198	—	—	725
Sodium (Na)	13	38	85	34	23	60
Hydrogen Sulfide (H ₂ S)	7.5	5.1	—	—	—	4.3

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

ODNR
OHIO DEPARTMENT OF NATURE RESOURCES

Richard F. Celeste
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