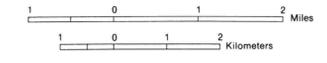


# Ground Water Resources of CARROLL COUNTY

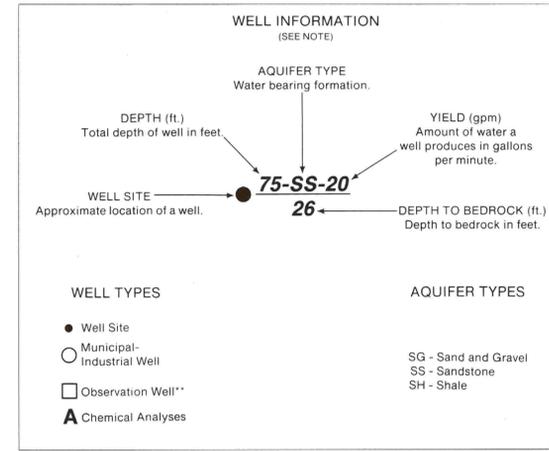
by  
Alfred C. Walker



CONTOUR INTERVAL 20 FEET

--- County Line  
- - - Township Line  
- - - - - Incorporated City Limit

### Well Site Symbols



### Well Yields

- AREAS IN WHICH YIELDS OF MORE THAN 100 GALLONS PER MINUTE MAY BE DEVELOPED**  
 Permeable sand and gravel deposits may supply sustained yields of several hundred gallons per minute, which would be suitable for industrial and municipal well field development. These valley fill deposits may be more than 180 feet in thickness.
- AREAS IN WHICH YIELDS OF 25 TO 100 GALLONS PER MINUTE MAY BE DEVELOPED**  
 Interbedded and intertensing deposits of sand, gravel, silt and clay may yield small industrial supplies of ground water. The thickness of these valley fill deposits ranges from 35 feet to 180 feet. Yields from the underlying bedrock are described below.
- AREAS IN WHICH YIELDS OF 10 TO 25 GALLONS PER MINUTE MAY BE DEVELOPED**  
 Ground water is obtained from sandstones and sandy shales. Although larger yields have been reported, the maximum reliable supply seldom exceeds 25 gallons per minute. Wells range from 50 to more than 500 feet in depth. The average well depth is around 135 feet.  
 Valley fill containing sand and gravel deposits of limited thickness and extent may supply yields of as much as 25 gallons per minute. These unconsolidated deposits generally range from 40 to 150 feet in thickness. Wells not encountering significant sand and gravel deposits are drilled into the underlying bedrock.
- AREAS IN WHICH YIELDS OF 3 TO 10 GALLONS PER MINUTE MAY BE DEVELOPED**  
 Wells are developed in sandstones and sandy shales of the Pennsylvanian System. Wells range from 70 feet to 275 feet in depth and are generally adequate for domestic supplies.  
 Fill along the stream valleys consists largely of clay with occasional thin lenses of sand and gravel which may yield domestic water supplies. Otherwise, wells must be drilled into the underlying bedrock.
- AREAS IN WHICH YIELDS SELDOM EXCEED 3 GALLONS PER MINUTE**  
 Very limited supplies are available from wells drilled into alternating layers of shale and thin sandstones. Although wells vary from 50 feet to as much as 400 feet deep, the average depth is less than 200 feet.  
 Well supplies are meager whether they are developed in the shallow fill of stream valleys or in the underlying sandstone and shale bedrock.

### Chemical Analysis Table

Well Site	A	B	C
AQUIFER	SG	SS	SS
Calcium (Ca)	69	36	60
Chloride (Cl)	33	<10	27
Fluoride (F)	0.06	0.36	0.22
Iron (Fe)	.240	.280	.760
Magnesium (Mg)	13.2	13.1	14.7
Manganese (Mn)	.015	.052	.019
Sulfate (SO <sub>4</sub> )	62	34	35
Total Dissolved Solids	318	284	272

Chemical constituents as milligrams per liter (mg/l)

### Note

The ground-water characteristics of Carroll County have been mapped regionally based upon interpretations of more than 7,000 water well records and the area's geology and hydrology. Well sites were selected as typical for the areas shown. Information regarding specific sites may be obtained from the 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.

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