



Figure 3. Orleans County Bedrock Wells with E911 or GPS Location

TABLE 1

	State of Vermont	Orleans County
# of wells	92315	5874
# of located wells	15389	749
Mean yield, GPM	13.76	18
Median yield	6	10
Maximum reported yield	1200	500
Standard Deviation	22.82	24
Mean depth, FT	293.02	253
Median depth, FT	260	225
Maximum reported depth	1765	1025
Standard deviation	157.99	133
% wells with yield ≤ mean	70%	4001/5874 or 68%
% wells with yield > mean	30%	1873/5874 or 32%
% wells with depth ≤ mean	56%	3518/5874 or 60%
% wells with depth > mean	44%	2356/5874 or 40%

**GROUNDWATER RESOURCES BY COUNTY**

This county map is part of a map series used to evaluate Vermont's groundwater resources using existing data. The Orleans County maps show yield (gallons per minute) data for bedrock wells as reported in the VT DEC Water Supply Division database. A total of 92,315 wells in the State of Vermont were analyzed in the accompanying statewide study. Data were divided into counties for presentation (Figs. 1, 2). Well locations in the database are from well driller descriptions and sketches. Some wells have been located by GPS or by correlating a well log to an E911 address. In Orleans County, 749 out of 5,874 wells or 13% have an E911 or GPS address (Figure 3). The majority of wells, as shown on Figure 1, have suspect locations although errors due to incorrect well locations are less significant at a scale of 1:250,000.

Well yield (gpm) is generally estimated in the field with a bucket and timer. The time period is usually short and measurements are not meant to be precise. Comparisons of the mean and median values for all wells and the mean and median values for wells in Orleans County are shown in Table 1.

Wells are grouped into yield categories on the map presented here. Depth and yield vary due to many factors, including non-geologic factors. For example, a homeowner may drill until the desired yield is obtained. The factors are not indicative of capacity. Moore et al., 2002\*, published "Factors Related to Well Yield in the Fractured-Bedrock Aquifer of the New Hampshire" in which they discussed a number of factors correlated positively or negatively to well yield. Among these factors are year drilled, median household income, drilling method, up gradient drainage area, thickness of overburden, depth drilled, proximity to streams/water bodies, type of bedrock, steepness of slope, elevation, fractures, and geologic structures.

The map presented is designed to be used in conjunction with other data and analyses. Groundwater flow in the crystalline bedrock of Vermont is mainly along planar features such as fractures, cleavage, faults, and bedding. These planar features may be interconnected and groundwater flow within this system is complex.

Area - specific groundwater studies are available on the VGS web site: <http://www.anr.state.vt.us/dec/geo/gmdwaterinrx.htm>. As of 12/30/2010, one study is in progress in the town of Craftsbury.

## Reported Well Yields in Bedrock Wells, Orleans County, Vermont

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\*1. Moore, R.B., Schwarz, G.E., Clark, S.F., Jr., Walsh, G.J., and Degnan, J. R., 2002, Factors related to well yield in the fractured-bedrock aquifer of New Hampshire: USGS Professional Paper 1660.