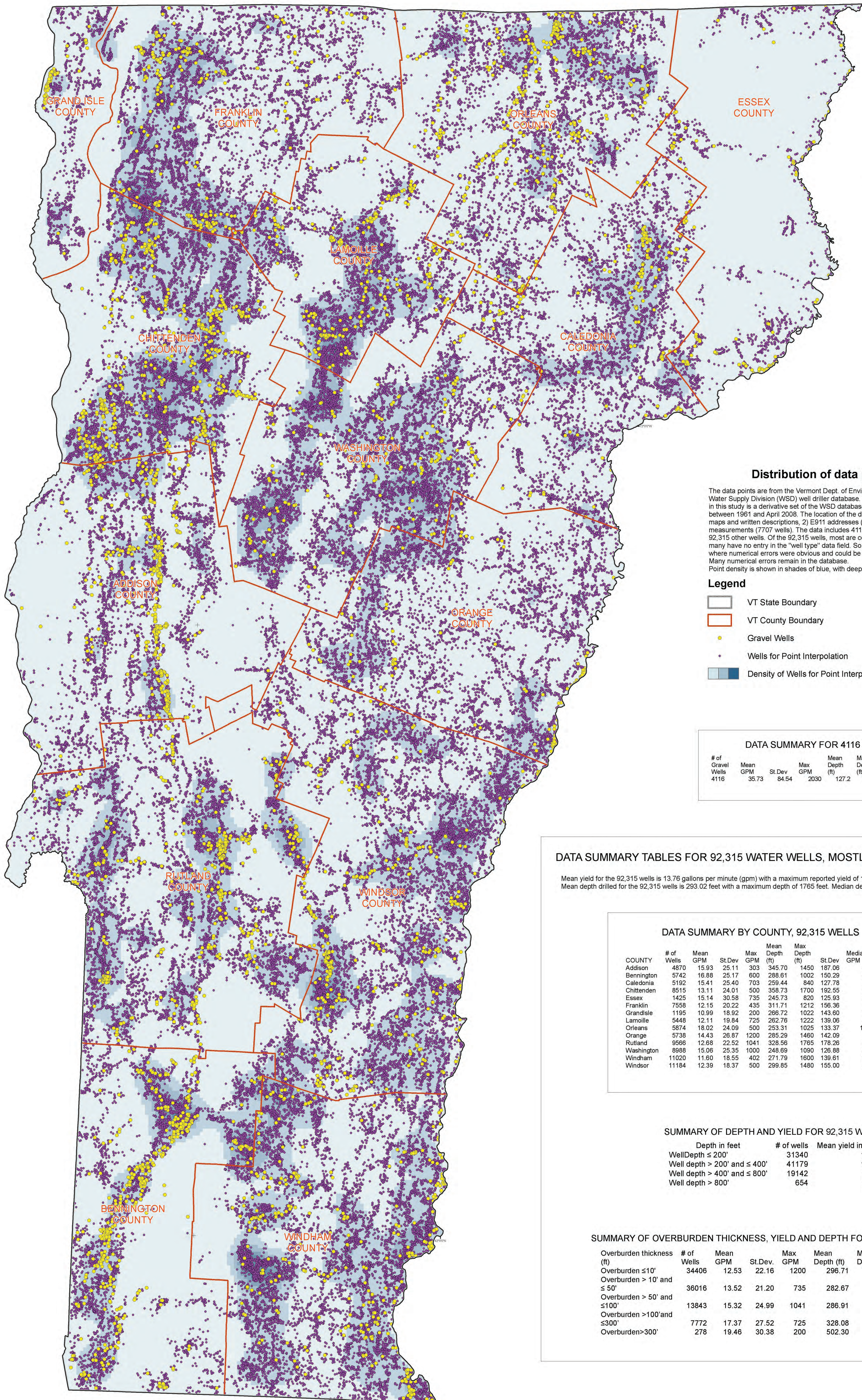


Gale, M., Knox, R., Springston, G., and Becker L., 2009,
Statewide Analyses of Bedrock Water Well Data: Vermont
Geological Survey Open-File Report VG09-9, 7 plates.

Published by:
VT Geological Survey, L. Becker, State Geologist
VT Dept. of Environmental Conservation
Vermont Agency of Natural Resources
103 South Main ST., Logue Cottage
Waterbury, VT 05671-2420
<http://www.anr.state.vt.us/dec/geo.vgs.htm>

PRELIMINARY MAP



Distribution of data points, Vermont

The data points are from the Vermont Dept. of Environmental Conservation Water Supply Division (WSD) well driller database. The well data used in this study is a derivative set of the WSD database and includes wells completed between 1961 and April 2008. The location of the data points is from 1) well driller maps and written descriptions, 2) E911 addresses (3100 wells), and 3) GPS measurements (7707 wells). The data includes 4116 wells identified as "gravel" wells and 92,315 other wells. Of the 92,315 wells, most are completed in bedrock, although many have no entry in the "well type" data field. Some corrections were made to the database where numerical errors were obvious and could be reconciled with a driller report. Many numerical errors remain in the database. Point density is shown in shades of blue, with deeper shades reflecting higher point density.

- Legend**
- VT State Boundary
 - VT County Boundary
 - Gravel Wells
 - Wells for Point Interpolation
 - Density of Wells for Point Interpolation

DATA SUMMARY FOR 4116 GRAVEL WELLS

# of Gravel Wells	Mean GPM	St.Dev	Max GPM	Mean Depth (ft)	Max Depth (ft)	St.Dev	Median GPM	Median Depth (ft)
4116	35.73	84.54	2030	127.2	87.78	810	20	104

DATA SUMMARY TABLES FOR 92,315 WATER WELLS, MOSTLY BEDROCK WELLS

Mean yield for the 92,315 wells is 13.76 gallons per minute (gpm) with a maximum reported yield of 1200 gpm. Median yield is 6 gpm. Mean depth drilled for the 92,315 wells is 293.02 feet with a maximum depth of 1765 feet. Median depth is 260 feet.

DATA SUMMARY BY COUNTY, 92,315 WELLS

COUNTY	# of Wells	Mean GPM	St.Dev	Max GPM	Mean Depth (ft)	Max Depth (ft)	St.Dev	Median GPM	Median Depth (ft)
Addison	4870	15.93	25.11	303	345.70	1450	187.06	6	301
Bennington	5742	16.88	25.17	600	288.61	1002	150.29	6	260
Caledonia	5192	15.41	25.40	703	259.44	840	127.78	7	235
Chittenden	8515	13.11	24.01	500	358.73	1700	192.55	5	321
Essex	1425	15.14	30.58	735	245.73	820	125.93	6	220
Franklin	7558	12.15	20.22	435	311.71	1212	156.36	5	300
Grand Isle	1195	10.99	18.92	200	266.72	1022	143.60	5	242
Lamoille	5448	12.11	19.84	725	262.76	1222	139.06	6	224
Orleans	5874	18.02	24.09	500	253.31	1025	133.37	10	225
Orange	5738	14.43	26.87	1200	285.29	1460	142.09	7	250
Rutland	9568	12.68	22.52	1041	328.56	1765	178.26	6	285
Washington	8968	15.06	25.35	1000	248.69	1090	126.88	8	220
Windham	11020	11.60	18.55	402	271.79	1600	139.61	5	250
Windsor	11184	12.39	18.37	500	299.85	1480	155.00	6	271

SUMMARY OF DEPTH AND YIELD FOR 92,315 WELLS

Depth in feet	# of wells	Mean yield in gpm
Well Depth ≤ 200'	31340	18.43
Well depth > 200' and ≤ 400'	41179	13.15
Well depth > 400' and ≤ 800'	19142	7.64
Well depth > 800'	654	6.90

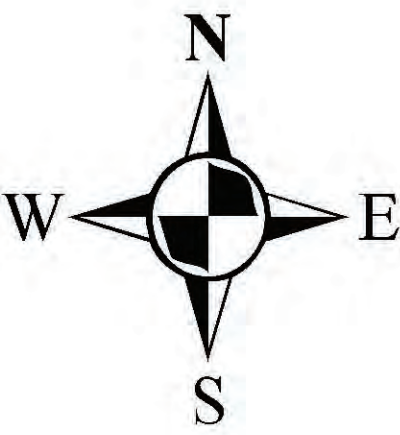
SUMMARY OF OVERBURDEN THICKNESS, YIELD AND DEPTH FOR 92,315 WELLS

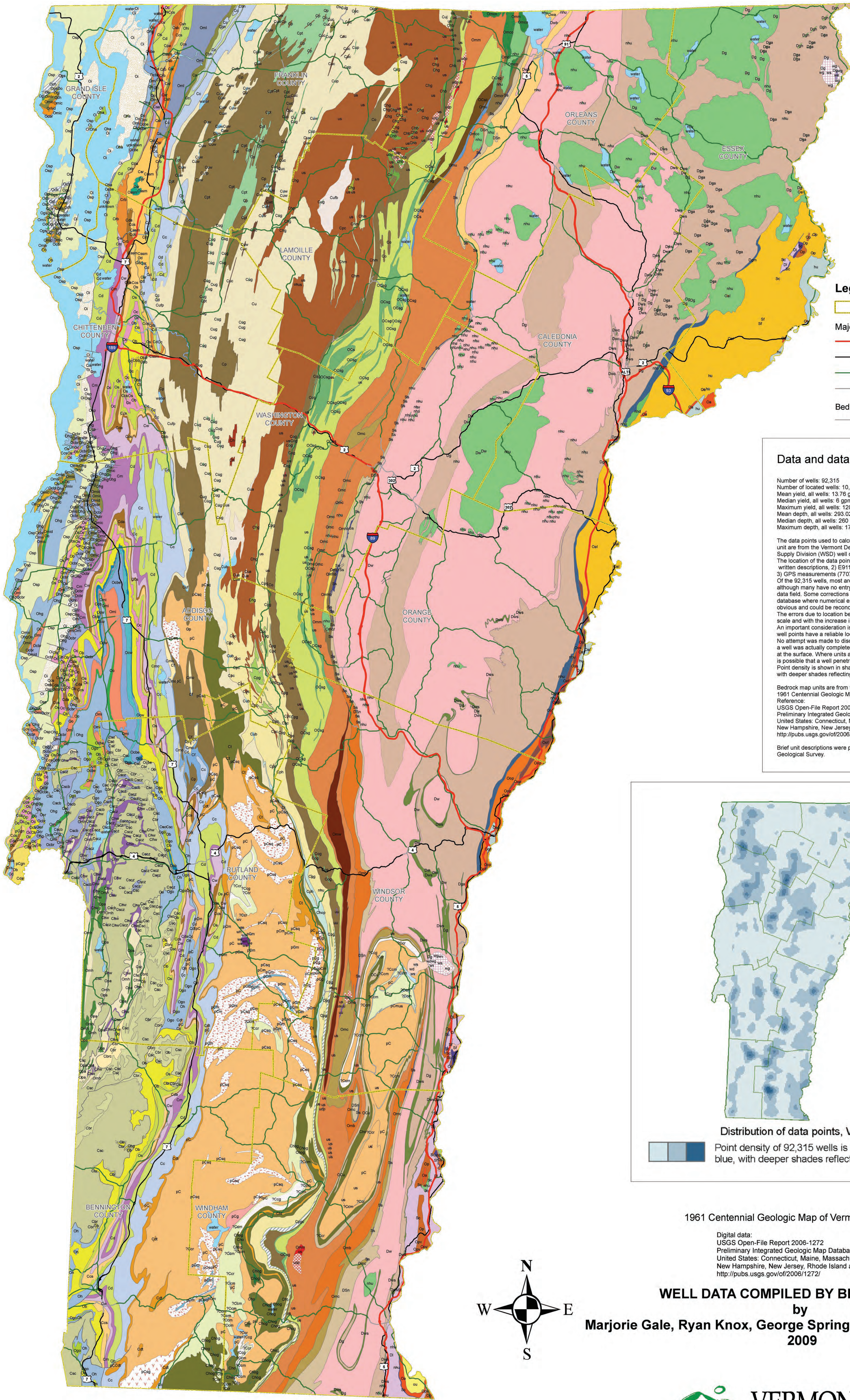
Overburden thickness (ft)	# of Wells	Mean GPM	St.Dev.	Max GPM	Mean Depth (ft)	Max Depth (ft)	St.Dev.
Overburden ≤ 10'	34406	12.53	22.16	1200	296.71	1765	165.03
Overburden > 10' and ≤ 50'	36016	13.52	21.20	735	282.67	1485	154.37
Overburden > 50' and ≤ 100'	13843	15.32	24.99	1041	286.91	1465	148.86
Overburden > 100' and ≤ 300'	7772	17.37	27.52	725	328.08	1205	147.96
Overburden > 300'	278	19.46	30.38	200	502.30	1000	139.66

SCALE 1:250,000

DATA SUMMARY, VERMONT WATER WELLS

by
Marjorie Gale, Ryan Knox, George Springston, and Laurence Becker
2009





THIS MAPS AND THE DATA PRESENTED ON PLATE 2 ARE A SUMMARY OF WATER WELL DATA COMPILED BY VARIOUS GEOLOGIC FEATURES. THE MAP IS NOT PROBABALISTIC.

Legend

- VT County Boundary
- Major Roads
 - Interstate Highway
 - US Highway
 - Vermont State Highway
 - Class 1 Town Highway
- Bedrock Map Unit - refer to Plate 2
- Fault - normal, reverse or thrust

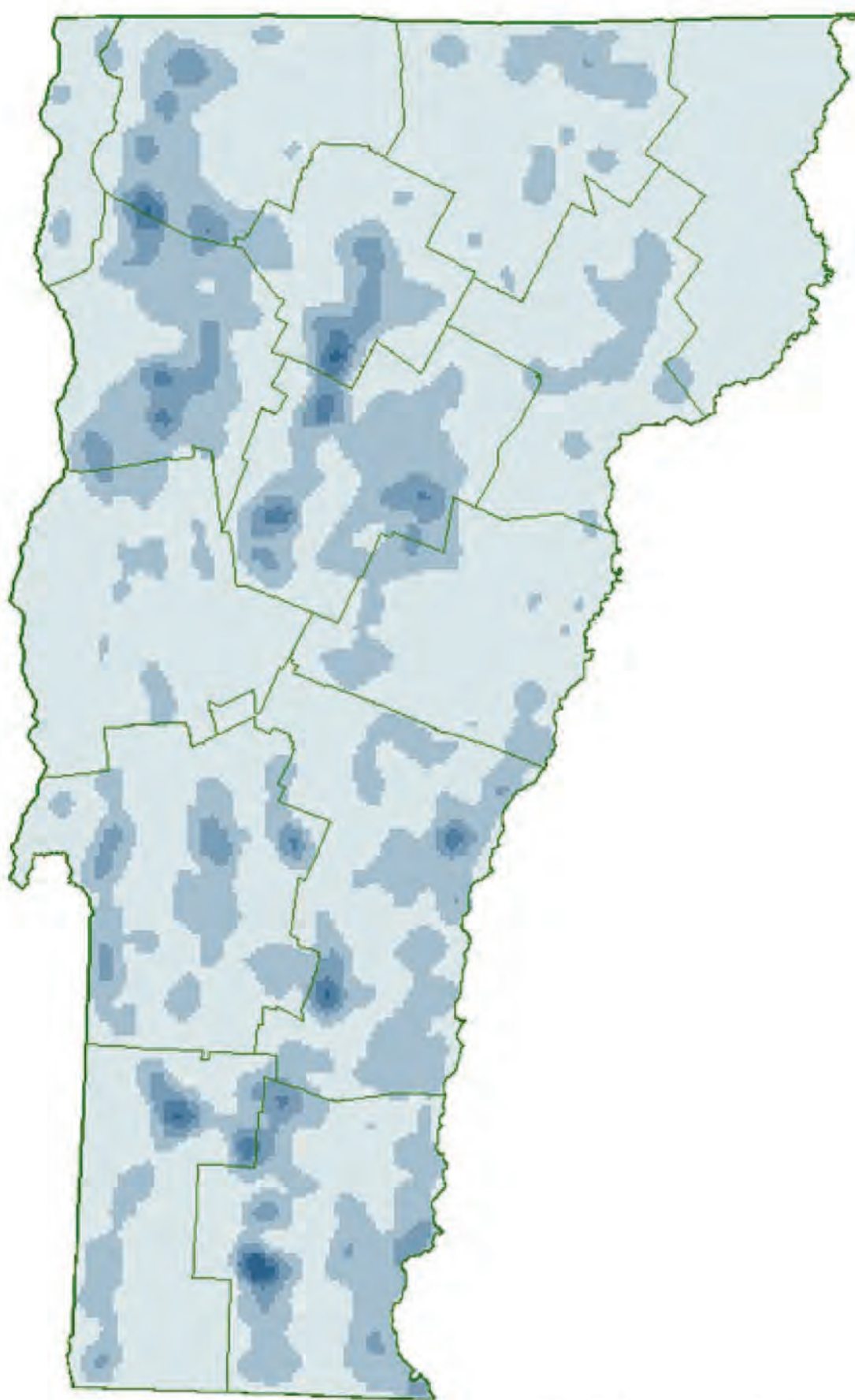
Data and data sources

Number of wells: 92,315
Number of located wells: 10,807
Mean yield, all wells: 13.76 gpm
Median yield, all wells: 6 gpm
Maximum yield, all wells: 1200 gpm
Mean depth, all wells: 293.02 ft
Median depth, all wells: 260 ft
Maximum depth, all wells: 1765 ft

The data points used to calculate values for each bedrock unit are from the Vermont Dept. of Environmental Conservation Water Supply Division (WSD) well driller database. The location of the data points is from 1) well driller maps and written descriptions, 2) ES11 addresses (3100 wells), and 3) GPS measurements (7707 wells). Of the 92,315 wells, most are completed in bedrock, although many have no entry in the 'well type' data field. Some corrections were made to the database where numerical errors were obvious and could be reconciled with a driller report. The errors due to location become less significant at a smaller scale and with the increase in area of a given formation. An important consideration is that only 12% of the well points have a reliable location. No attempt was made to discern the rock type in which a well was actually completed as compared to the rock type at the surface. Where units are thin and shallow dipping, it is possible that a well penetrates one or more formations. Point density is shown in shades of blue, with deeper shades reflecting higher point density.

Bedrock map units are from the USGS digital data of the 1961 Centennial Geologic Map of Vermont, scale 1:250,000. Reference: USGS Open-File Report 2006-1272 Preliminary Integrated Geologic Map Databases for the United States: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island and Vermont <http://pubs.usgs.gov/of/2006/1272/>

Brief unit descriptions were provided by the Vermont Geological Survey.



Distribution of data points, Vermont

Point density of 92,315 wells is shown in shades of blue, with deeper shades reflecting higher point density.

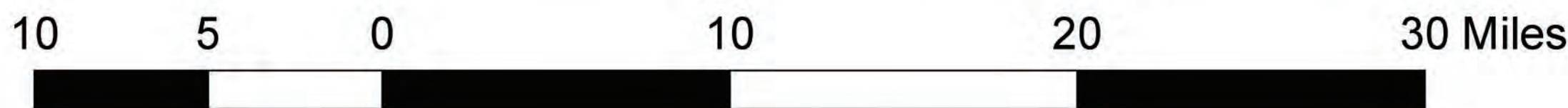
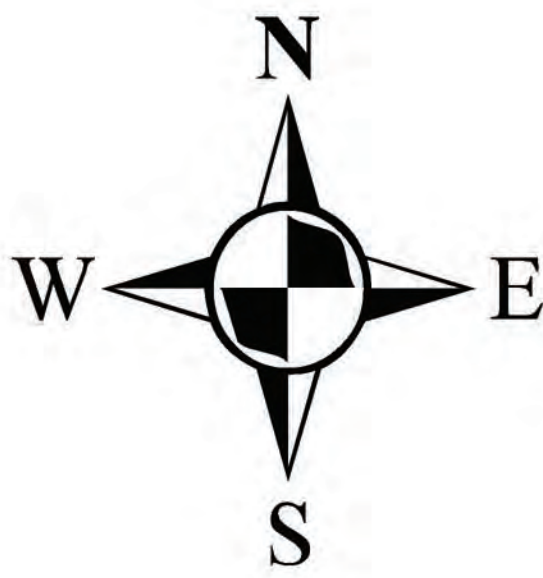
1961 Centennial Geologic Map of Vermont, C. Doll, ed.

Digital data:
USGS Open-File Report 2006-1272
Preliminary Integrated Geologic Map Databases for the United States: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island and Vermont <http://pubs.usgs.gov/of/2006/1272/>

WELL DATA COMPILED BY BEDROCK UNIT

by

Marjorie Gale, Ryan Knox, George Springston and Laurence Becker
2009



SCALE 1:250,000



Published by:
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WELL DATA COMPILED BY BEDROCK UNIT, PLATE 3 of 7
by
Marjorie Gale, Ryan Knox, George Springston and Laurence Becker, 2009

	Symbol	Formation	Description	# of Wells	Mean GPM	St. Dev. GPM	Max GPM	Mean Depth	St. Dev. Depth	Max Depth	GPM/FT
	7Ccg	Bull Hill Gneiss	gneiss	310	11	19	200	289	140	855	0.040
	7Ccm	Cavendish Fm.	buff dolomite	65	14	28	200	291	159	805	0.048
	7Ccr	Readsboro member	quartz-muscovite schist	491	14	24	250	305	147	1200	0.047
	Cbh	Bridgman Hill Fm.	dolomite, slate and conglomerate	133	13	20	150	291	153	627	0.046
	Cbr	Brezee Fm.	black phyllite with limestone and dolomite	495	12	15	100	344	176	900	0.036
	Cbrc	Brezee Fm.	quartzose green phyllite	50	11	11	50	371	183	805	0.030
	Cc	Cheshire	vitreous quartzite and phyllitic quartzite	1951	17	28	600	257	127	1007	0.065
	Ccs	Clarendon Springs, Ticonderoga, and Rock River	gray dolomite with knots of white quartz	951	17	26	500	304	167	999	0.056
	Cd	Dunham dolomite	buff-weathered siliceous dolomite	1041	18	33	1041	291	157	1275	0.063
	Cda	Potsdam & Danby Fm.	interbedded quartzite and dolomite	436	17	27	200	320	165	960	0.055
	Cdt	Dalton Fm.	schistose quartzite	212	14	19	150	270	122	865	0.054
	Cf	Forestdale marble	marble	77	16	18	100	273	146	805	0.059
	Ch	Hazens Notch Fm.	schist and gneiss	1	14			180			0.078
	Chb, Chg	Belvidere Mtn. member	amphibolite and greenstone	34	16	21	100	230	119	600	0.069
	Chm	Hazens Notch Fm.	magnetite schist member	135	13	17	100	235	122	765	0.053
	Cho	Hoosac Fm.	albite porphyroblast schist	1826	13	22	300	300	148	1600	0.043
	Chog	Hoosac Fm.	greenstone	63	11	15	100	301	171	940	0.037
	Chop	Plymouth member	quartzite, dolomitic quartzite, & phyllite	221	15	21	200	284	133	822	0.052
	Cht	Turkey Mtn. member	amphibolite and greenstone	66	10	18	100	312	135	620	0.031
	Chw	Hatch Hill & W. Castleton Fm.	calcareous quartzite & slate	293	12	17	100	351	192	900	0.034
	Cm	Monkton quartzite	interlayered red and buff quartzites with dolomite	1257	17	28	400	317	171	1205	0.055
	Cmo	Moosalamoo phyllite	black phyllite	17	29			215			0.134
	Co	Ottawaquechee Fm.	black carbonaceous schist and phyllite with quartzite	1962	12	16	150	257	136	950	0.047
	Cog	Ottawaquechee Fm.	greenstone and amphibolite	19	4	4	15	356	199	1000	0.011
	Cp	Pinnacle Fm.	schistose greywacke, schist, & conglomerate	3826	11	21	600	351	174	1475	0.030
	Cpa	Parker slate	micaceous shale & slate	173	19	24	150	267	155	840	0.071
	Cpc, Ch	Pinney Hollow & Hazens Notch	carbonaceous phyllite & schist	3287	12	24	725	285	141	1222	0.042
	Cpg	Pinney Hollow	greenstone	78	14	18	100	275	142	765	0.050
	Cpgc	Chester amphibolite	amphibolite & hornblende schist	215	10	12	100	275	135	705	0.035
	Cph	Pinney Hollow	pale green phyllite with magnetite	1565	11	15	150	297	152	1480	0.037
	Cpt	Tibbit Hill volcanic member	greenstone	471	17	26	200	278	140	801	0.061
	CrB	Rugg Brook Fm.	gray dolomite & conglomerate	221	12	18	200	284	129	720	0.042
	Cs	Sweetsburg Fm.	black carbonaceous slate	118	12	17	100	247	150	660	0.049
	Csa	St Albans slate member	black or tan micaceous slate	108	13	20	150	322	155	708	0.041
	Csb	Saxe Brook dolomite	dolomite and dolomitic sandstone	43	15	15	60	247	108	506	0.059
	Csc	St. Catherine Fm.	variegated slate & phyllite with quartzite beds	2382	9	14	200	366	187	1765	0.026
	Cscb	Bomoseen graywacke member	green arkose & graywacke	142	11	17	100	374	185	850	0.029
	Cscz	Zion Hill quartzite member	vitreous quartzite & graywacke	19	10	11	40	328	207	800	0.030
	Csh	Hungerford slate member	black slate	166	16	21	100	304	179	771	0.053
	Csr	Rockledge conglomerate member	limestone conglomerate	68	16	26	150	318	140	720	0.050
	Cssm	Skeels Corner slate & Mill River conglomerate	black slate, dolomitic sandstone & conglomerate	996	17	25	200	304	153	1150	0.057
	Ct	Tyson Fm.	schist, boulder conglomerate and dolomite	174	17	20	150	293	179	1100	0.057
	Cu	Underhill Fm.	gray-green schist	3437	13	27	1000	325	162	1222	0.040
	Cua	Mt Abraham member	silvery schist	16	10	9	30	471	171	700	0.022
	Cub	Battelle member	carbonaceous schist	7	13	12	30	291	73	423	0.045
	Cuc	Carbonaceous schist member	carbonaceous schist	73	9	10	45	276	136	725	0.032
	Cuf	Forestdale member	sandy dolomite	13	8	6	20	369	162	675	0.021
	Cufb	Foot Brook member	sericite schist	44	9	11	60	267	119	524	0.033
	Cufp	Fairfield Pond member	quartzitic schist and phyllite	1966	7	16	200	429	208	1700	0.017
	Cug	greenstone member	greenstone	70	13	16	75	334	205	1125	0.039
	Cuj	Jay Peak member	silver green schist	19	18	17	60	249	115	554	0.072
	Cup	Peaked Mtn. member	greenstone	5	7	7	20	334	133	585	0.020
	Cuw	White Brook member	sandy dolomite	16	23	30	100	332	158	720	0.070
	Cw	Winooski dolomite	dolomite	1150	18	29	339	308	157	1050	0.060
	Dg	Gile Mtn. Fm.	gray phyllite, schist, quartzite and micaceous limestone	7294	12	19	500	291	139	1202	0.040
	Dga	Amphibolite member	amphibolite	11	12	10	30	215	129	505	0.055
	Dgh	Hall Stream member	feldspathic grit & amphibolite	5	23	20	60	206	44	280	0.112
	Dgm	Meetinghouse slate member	gray slate or phyllite	314	7	12	112	337	153	860	0.021
	DI	Littleton Fm.	gray slate and phyllites	992	5	11	150	331	159	1545	0.016
	Dsn	Northfield Fm.	gray slate or phyllite, some limestone beds	746	15	35	703	234	115	704	0.063
	Dw	Waits River Fm.	quartzose, micaceous limestone & quartz-muscovite schist	15338	17	25	1200	258	137	1460	0.064
	Dwa	Ayers Cliff limestone member	siliceous crystalline limestone	398	17	26	300	302	145	875	0.057
	Dwb	Barton River member	interbedded limestone & phyllite	107	14	20	100	310	118	655	0.046
	Dwc	Crow Hill member	quartzite	39	20	25	100	239	146	600	0.082
	Dws	Standing Pond volcanic member	amphibolite & garnet schist	806	13	19	200	275	148	860	0.046
	hu	Highlandcroft plutonic series	undifferentiated granitic rocks	97	15	23	100	283	140	645	0.052
	nhb	Bethlehem gneiss	two mica granodiorite gneiss	2	8	7	15	370	130	500	0.022
	nhd	NH series plutonics	metadiorite dikes & sills	10	3			450			0.007
	nhu	NH series plutonics	undifferentiated granitic rocks	1858	19	29	735	265	144	1025	0.072
	Oa	Ammonoosuc volcanics	biotite gneiss, greenstone, and amphibolite	84	10	13	70	272	98	505	0.035
	Oal	Albee Fm.	quartzite, feldspathic quartzite, gray slates and phyllites	1293	11	16	150	256	131	1020	0.042
	Ob	Bascom Fm.	interbedded limestone, dolomite, and marble	1282	20	28	303	317	169	1100	0.063
	Obb	Brownell Mtn. phyllite member	calcareous phyllite	23	35	32	100	349	135	620	0.099
	Oc	Cutting Fm.	massive gray dolomite with dolomitic sandstone	358	19	26	165	343	165	1001	0.054
	Ocb	Burchards member	gray limestone	63	15	23	150	367	200	1100	0.040
	Ocbe	Beldens member	interbedded dolomite, marble and limestone	387	15	23	150	377	205	1200	0.039
	Ocbr	Bridport dolomite member	dolomite	203	18	25	150	340	178	850	0.054
	Och	Cumberland Head Fm.	black, calcareous shale	80	13	18	100	264	125	622	0.050
	OCs	Stowe Fm.	quartz-sericite-chlorite phyllite and schist	2136	16	24	320	242	122	1102	0.064
	OCcb	Stowe Fm.	carbonaceous schist and phyllite	11	11	13	45	244	121	454	0.046
	OCscg	Stowe Fm.	greenstone and amphibolite	1217	16	20	300	216	108	799	0.073
	OCu	Pinney Hollow, Ottawaquechee & Stowe Fm.	schist, carbonaceous schist, amphibolite & quartzite	161	11	14	100	256	123	697	0.041
	Ocw	Weybridge member	gray limestone	111	10	15	100	409	183	1025	0.025
	Ogl	Larrabee member	shaly limestone	71	11	14	65	240	141	735	0.047
	Ogo	Orwell, Isle LaMotte, & Lowville limestones	thinly and thickly bedded limestones	91	13	16	65	332	179	925	0.039
	Ogs	Shoreham member	interbedded limestone & shale	50	8	10	48	245	139	705	0.032
	Oh	Hortonville Fm.	black carbonaceous pyritic slate & phyllite	747	10	19	300	384	198	945	0.025
	Oha	Hathaway Fm.	black argillite & chert	4	2			417			0.005
	Ohg	Hortonville, Cumberland Head & Glens Falls Fm.	slate, phyllite and limestone	785	12	24	300	401	238	1525	0.031
	Ohi	Highgate Fm.	blue limestone and slate	61	16	22	150	305	151	802	0.051
	Oi	Iberville Fm.	interbedded non-calcareous & calcareous shale	916	9	15	150	306	176	1048	0.030
	Omb	Barnard volcanic member	biotite gneiss, hornblende gneiss, & amphibolite	982	13	16	200	232	125	835	0.057
	Omco	phyllite member	carbonaceous phyllite & slate	446	13	15	100	225	121	800	0.056
	Omco	Coburn Hill volcanic member	greenstone & amphibolite	93	17	24	100	288	147	825	0.057
	Omcrr	Cram Hill member	phyllite & slate with volcanics	69	16	18	100	257	141	750	0.061
	Omht	Mt. Hamilton Fm.	black, gray, green, purple, and red slates	329	11	14	100	342	167	900	0.032
	Omhb	Harlow Bridge quartzite member	buff to green quartzite & phyllite	50	14	22	100	242	111	549	0.059
	Omi	Middlebury & Chazy limestones	blue gray limestone & dolomite	268	15	28	200	418	215	1200	0.037
	Omic	Crown Point member	limestone	184	17	28	150	320	173	800	0.053
	Omid	Day Point member	calcareous sandstone & dolomitic siltstone	45	17	25	150	253	151	798	0.069
	Omiv	Valcour member	dark gray calcarenite & limestone	72	16	23	100	224	117	520	0.072
	Oml	Morse's Line Fm.	calcareous and non-calcareous slate	496	15	29	435	293	166	921	0.052
	Omm	Moretown member	"pinstriped" quartzite, quartz-plagioclase granulite, & phyllite	3464	12	17	402	238	117	1090	0.050
	Omu	Umbrella Hill member	quartz and slate pebble phyllitic conglomerate	7	10	16	45	367	158	549	0.028
	Omww	Whetstone Hill member	carbonaceous gray phyllite & schist	212	13	15	100	261	124	905	0.051
	Oo	Orwell limestone	ashen gray limestone	181	9	14	75	358	228	1200	0.026
	Oof	Orfordville Fm.	carbonaceous phyllite & quartzite	173	8	15	150	375	169	1005	0.021
	Oop	Post Pond volcanics	greenstone & schist	406	12	22	300	329	167	997	0.036
	Oor	Root Pond quartzite	massive quartz sandstone	0							
	Oos	Sunday Mtn. volcanics	greenstone and schist	30	4	7	30	456	150	1005	0.008
	Op	Partridge Fm.	gray carbonaceous slate & phyllite	247	6	10					

Vermont Geological Survey Open File Report VG09-8, Plate 3 of 7

THIS MAP AND DATA ARE A SUMMARY OF
WATER WELL DATA COMPILED BY VARIOUS
GEOLOGIC FEATURES.
THE MAP IS NOT PROBABALISTIC AND
SHOULD NOT BE USED TO PREDICT
YIELD OR DEPTH VALUES IN SPECIFIC LOCATIONS.

Data and data sources

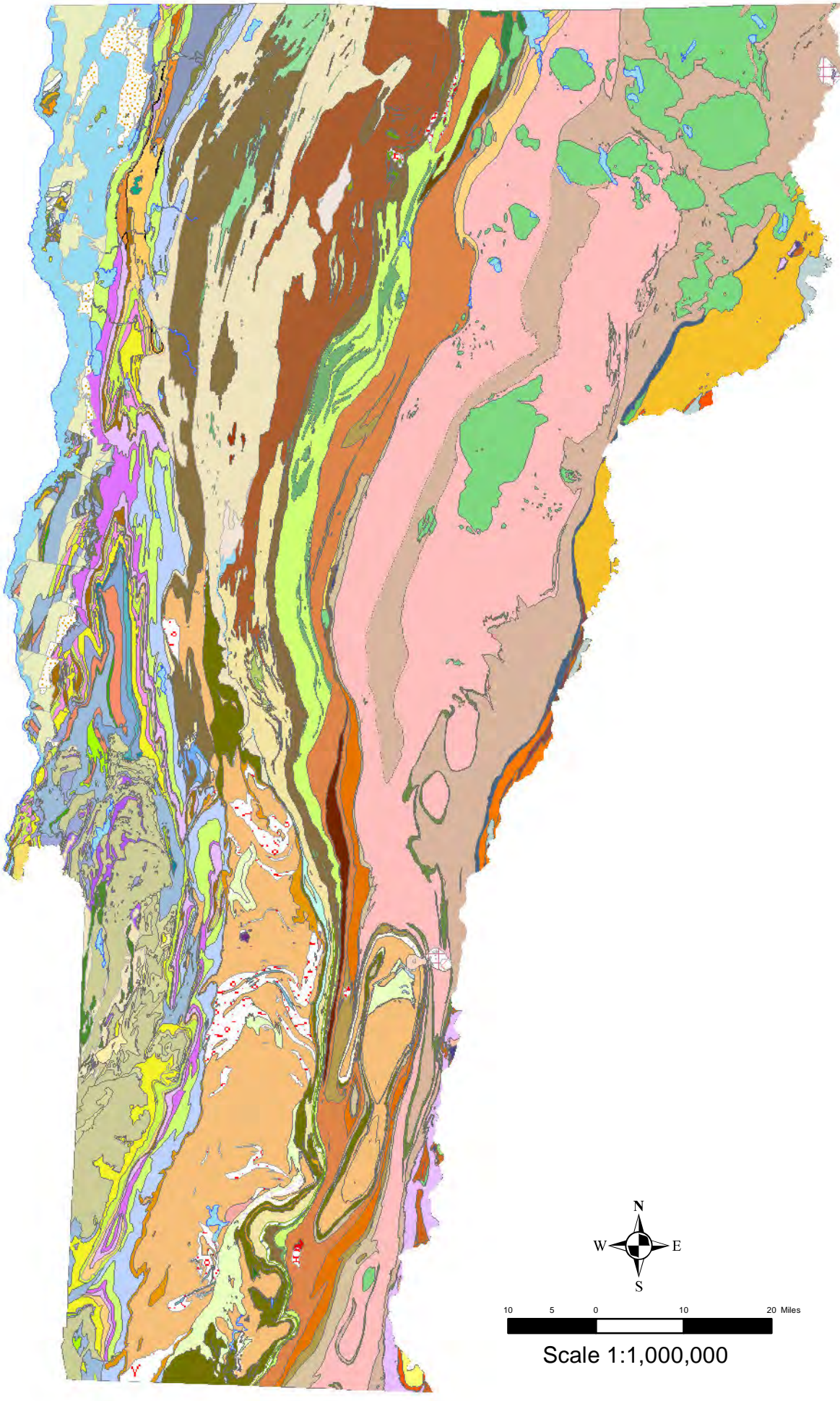
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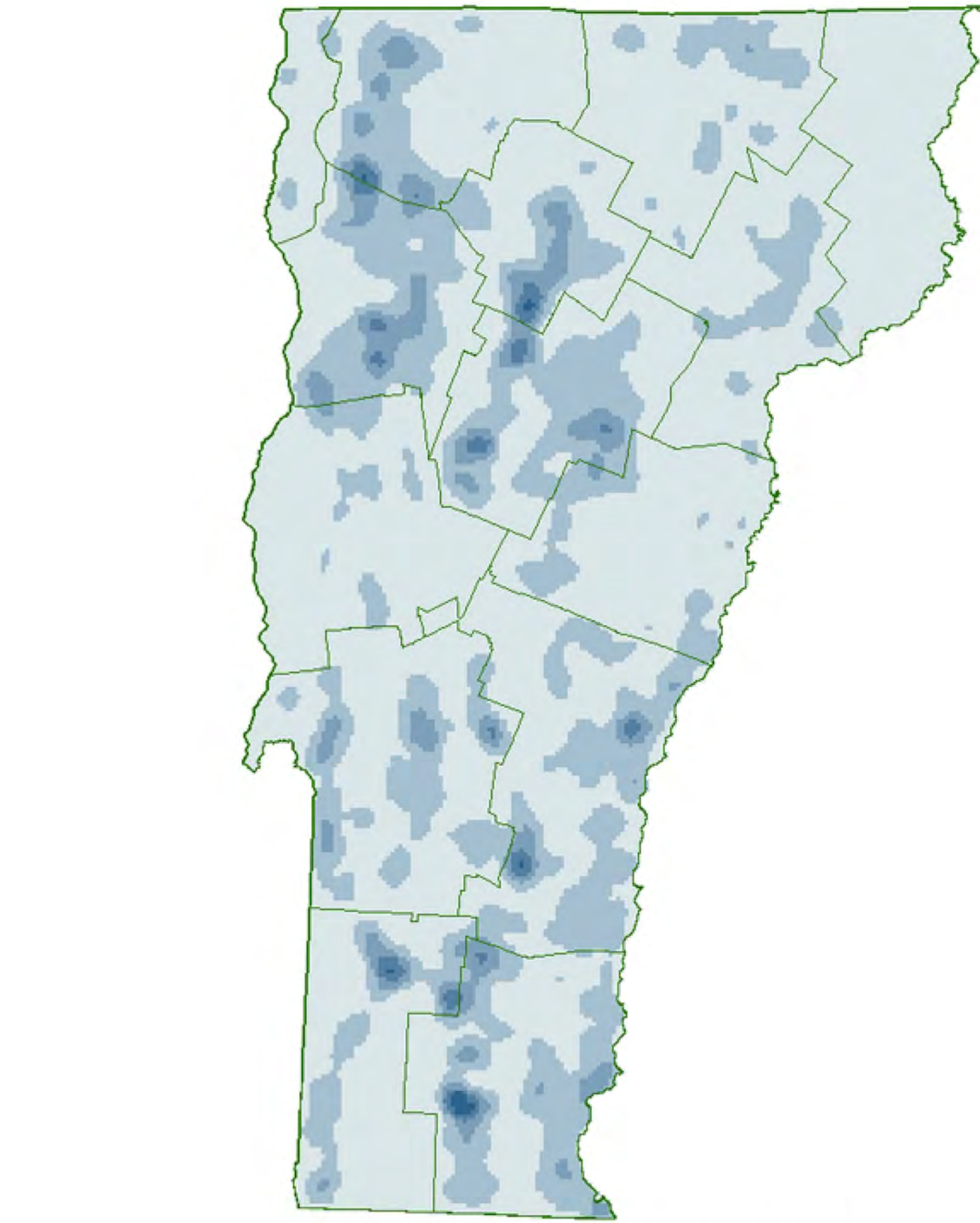
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Centennial Geologic Map of Vermont, C. Doll, 1961



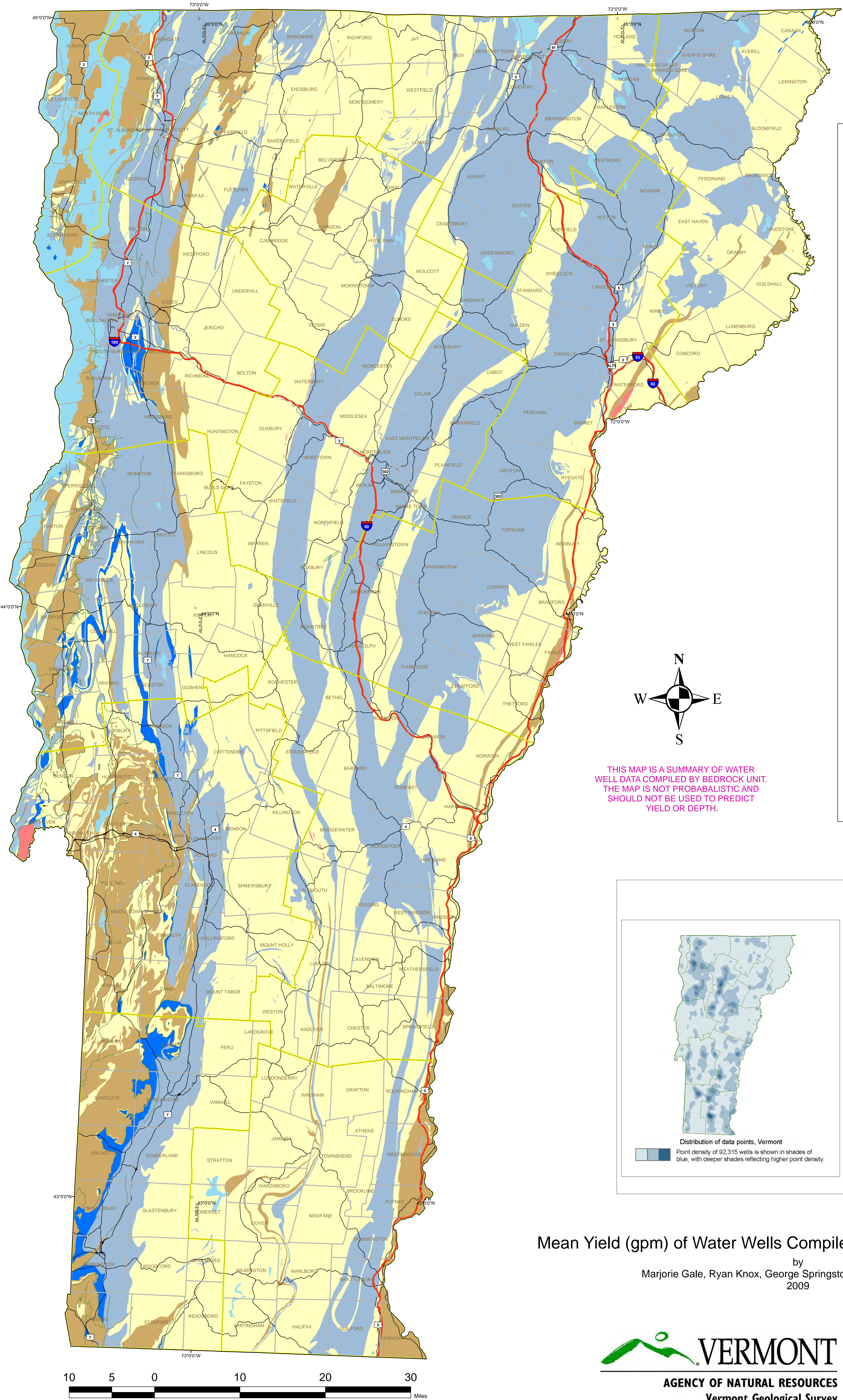
Distribution of data points, Vermont

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AGENCY OF NATURAL RESOURCES
Vermont Geological Survey

Published by:
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LEGEND
Mean yield (gpm) by rock unit (symbology from 1961 Centennial Geologic Map of Vermont).

2 - 4.99 gpm	Cog Oha Oos nhd pCgn
5 - 9.99 gpm	Cht Dgm Oof Cpgc Dl Op Csc nhb Opa Cscz Oa Opv Cuc ou Osp Cuf Ogs pCg Cufb Oh pCsg Cupf Oj Sc Cup Oo
10 - 14.99 gpm	?Ccg Crb hu Omu ?Ccm Cs Oal Omw ?Ccr Co Oc Oop Cbh Cp Ocb pC Cbrc Csa Ocbe pCsq Cbr Csb Ocbr Sf Cdt Cscb Och Ss Ch Cu Ocu udp Chm Cua Ocw us Cho Cub Ogl uu Chog Cug Ohg wd Chop Dg Omb wg Chw Dga Omc wle Cpc DSn Omh wn Cpg Dws Omhb ws Cph Dwb Omm vv
15 - 19.99 gpm	Cc Csr OCsg Ccs Csm Ohl Cd Ct Omco Cda Cuj Omcr Cf Ow Omj Chb Dwa Omic Chg Dwc Omid Cm Dw Omiv Cpt nhu Oml Cpa OCs Os Csh OCsc pCm
20 - 34.57 gpm	Cmo Dgh Ob Obb Cuw
Oor - no data	
Fault - Thrust, normal or reverse	
Water body	
County Boundary	
Town Boundary	
Interstate Highway	
US Highway, VT State Highway or Class 1 Town Highway	

THIS MAP IS A SUMMARY OF WATER WELL DATA COMPILED BY BEDROCK UNIT. THE MAP IS NOT PROBABALISTIC AND SHOULD NOT BE USED TO PREDICT YIELD OR DEPTH.

DATA AND DATA SOURCES:
Number of wells: 92,315
Number of located wells: 10,807
Mean yield, all wells: 13.76 gpm
Median yield, all wells: 6 gpm
Mean depth, all wells: 293.02 ft.
Median depth, all wells: 260 ft.

The well data used in this study is a derivative set of the Vermont Dept. of Environmental Conservation Water Supply Division (WSD) well driller database. The location of the data points is from 1) well driller maps and written descriptions, 2) E911 addresses (3100 wells), and 3) GPS measurements (7707 wells). Only 12% of the wells have a reliable location.

Of the 92,315 wells, most are completed in bedrock, although many have no entry in the "well type" data field. Some corrections were made to the database where numerical errors were obvious and could be reconciled with a driller report. Some well yield values may be inflated due to difficulty in accurately measuring high yields. No attempt was made to discern the rock type in which a well was actually completed as compared to the rock type at the surface. Where units are thin and shallow dipping, it is possible that a well penetrates one or more formations. Point density is shown in shades of blue, with deeper shades reflecting higher point density.

Bedrock map units from the USGS digital data from the 1961 Centennial Geologic Map of Vermont, scale 1:250,000. Reference: USGS Open-File Report 2006-1272 Preliminary Integrated Geologic Map Databases for the United States: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island and Vermont <http://pubs.usgs.gov/of/2006/1272/>

Distribution of data points, Vermont
Point density of 92,315 wells is shown in shades of blue, with deeper shades reflecting higher point density.

Mean Yield (gpm) of Water Wells Compiled by Bedrock Unit, Vermont.

by
Marjorie Gale, Ryan Knox, George Springston, and Laurence Becker
2009

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PRELIMINARY MAP

Legend

Mean depth drilled (feet) by rock unit (symbology from 1961 Centennial Geologic Map of Vermont).

200 - 299'
SHALLOWER

300-399'
MODERATE

400-499'
DEEPER

Oor - no data

?Ccg Cph OCs Omw
?Ccm Cpt OCsc nhu
Cbh Crb OCsg ou
Cc Cs OCu pC
Cd Csb Oa pCm
Cdt Ct Oal Ss
Cf Cub Och udp
Ch Cuc Ogl us
Chb Cufb Ogs uu
Chg Cuj Omb wd
Chm DSn Omc we
Chop Dg Omco wg
Cmo Dga Omcr wle
Co Dgh Omhb wn
Cpa Dw Omid ws
Cpc Dwc Omiv ww
Cpg Dws Oml
Cpgc hu Omim

Cbr Cscb Dwb Omu
CbrC Cscz nhb Oo
?Ccr Csh Ob Oof
Ccs Csr Obb Oop
Cda Csm Oc Op
Cho Cu Ocb Opa
Chog Cuf Ocbe Opv
Cht Cug Ocbr Os
Chw Cup Ogo Osp
Cm Cuw Oh pCg
Cog Cw Ohl pCsg
Cp Dgm Oi pCsq
Csa DI Omh Sc
Csc Dwa Omic

Cua Ohg
Cufp Omi
nhd Oos
Ocw pCgn
Oha Sf

Fault - normal, reverse or thrust

Water body

County Boundary

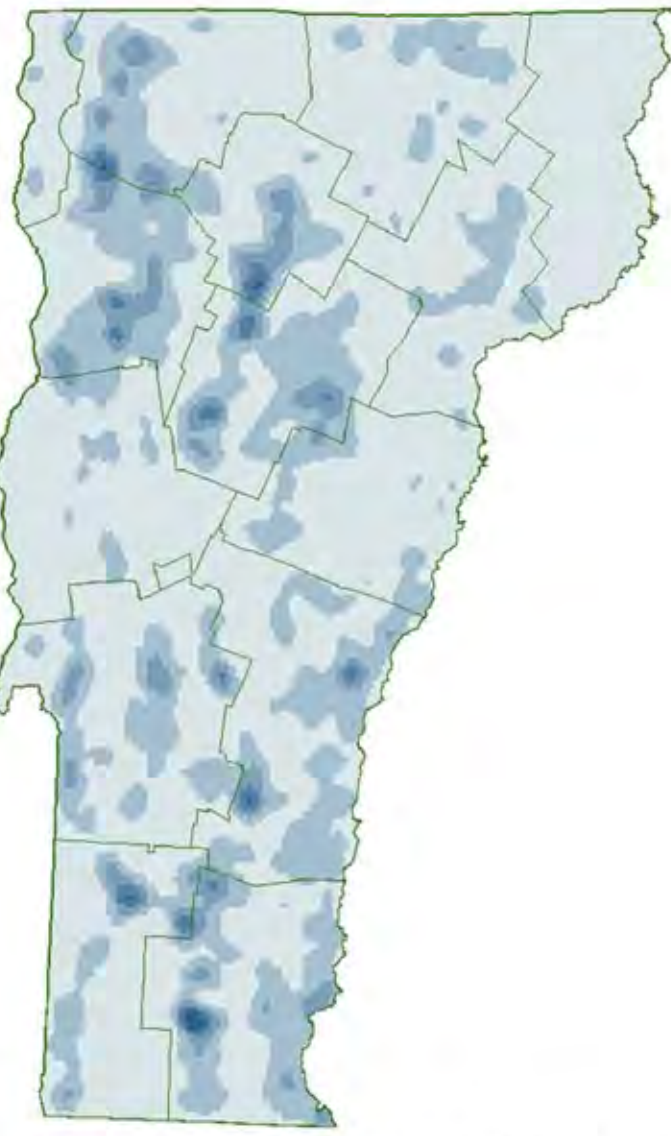
Town Boundary

Interstate Highway

US Highway, VT State Highway or Class 1 Town Highway



PRELIMINARY MAP
THIS MAP IS A SUMMARY OF WATER
WELL DEPTH DATA AND BEDROCK UNITS.
THE MAP IS NOT PROBABALISTIC AND
SHOULD NOT BE USED TO PREDICT
YIELD OR DEPTH.



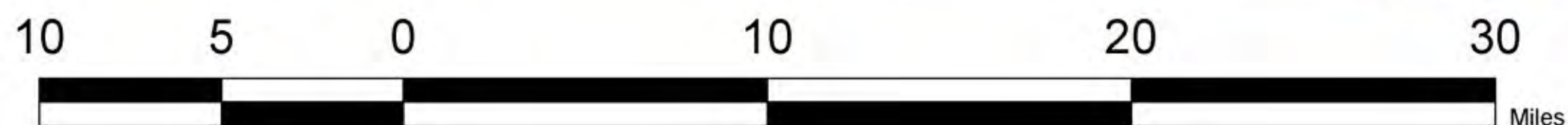
Distribution of data points, Vermont
Point density of 92,315 wells is shown in shades of blue, with deeper shades reflecting higher point density.

DATA AND DATA SOURCES:
Number of wells: 92,315
Number of located wells: 10,807
Mean yield, all wells: 13.75 gpm
Median yield, all wells: 6 gpm
Mean depth, all wells: 293.02 ft.
Median depth, all wells: 280 ft.

The well data used in this study is a derivative set of the Vermont Dept. of Environmental Conservation Water Supply Division (WSD) well driller database. The location of the data points is from 1) well driller maps and written descriptions, 2) E911 addresses (3100 wells), and 3) GPS measurements (7707 wells). Only 12% of wells have a reliable location.

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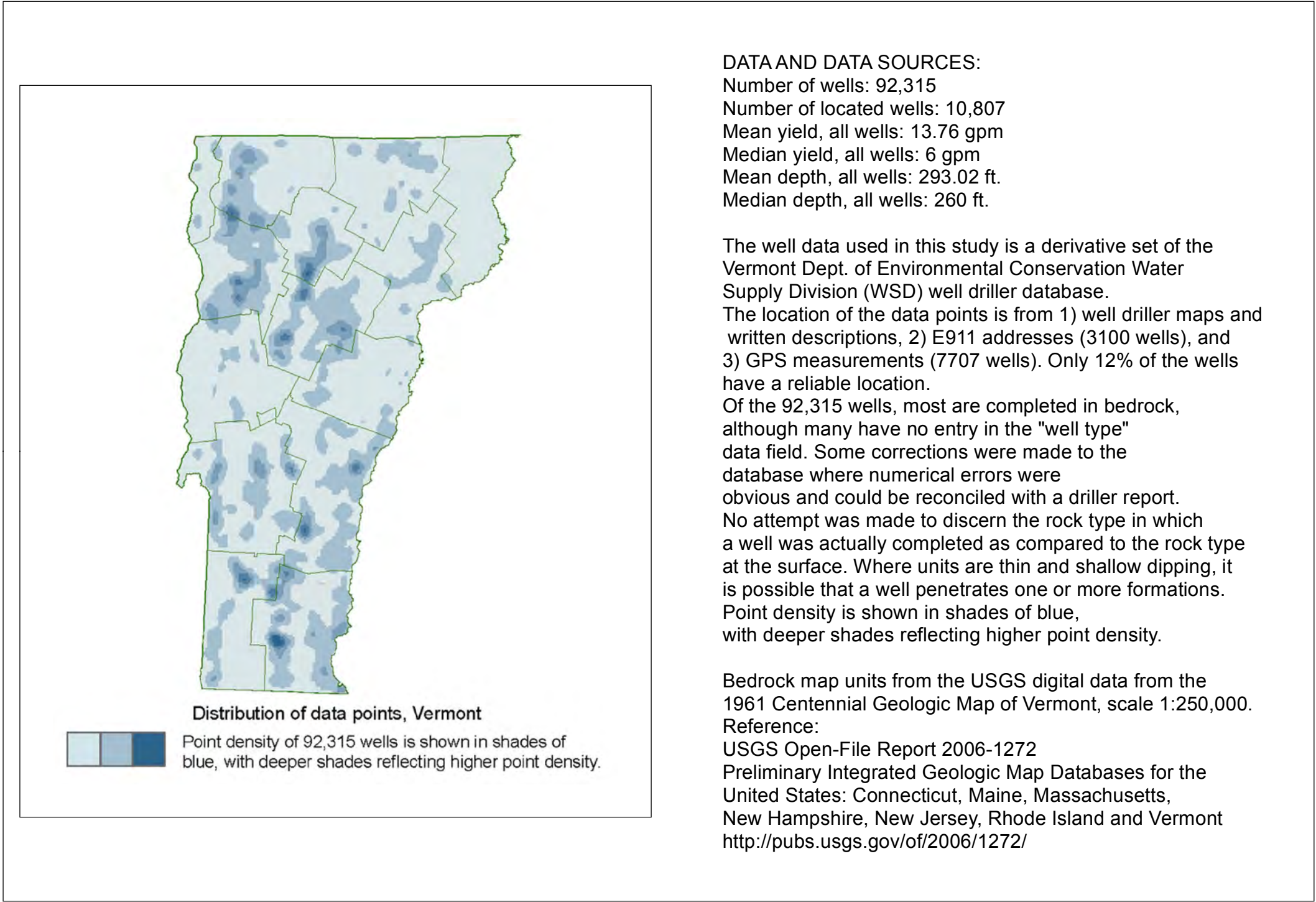
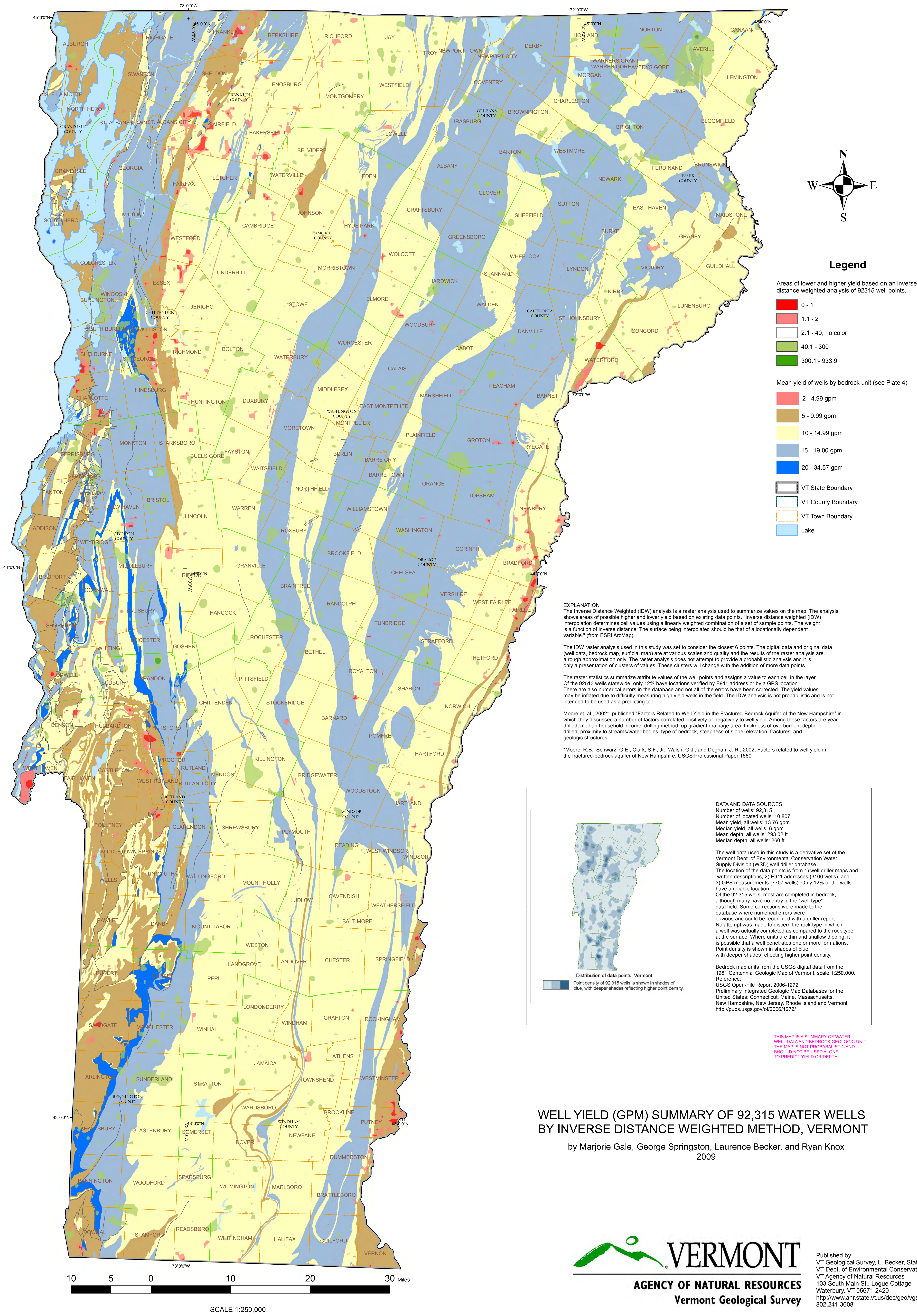
Bedrock map units from the USGS digital data from the 1961 Centennial Geologic Map of Vermont, scale 1:250,000. Reference: USGS Open-File Report 2006-1272 Preliminary Integrated Geologic Map Databases for the United States; Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island and Vermont <http://pubs.usgs.gov/ofr/2006/1272/>



Scale 1:250,000

Mean Depth (FT) of Water Wells Compiled by Bedrock Unit, Vermont
by
Marjorie Gale, Ryan Knox, George Springston and Laurence Becker
2009

PRELIMINARY MAP



THIS MAP IS A SUMMARY OF WATER WELL DATA AND BEDROCK GEOLOGIC UNIT. THE MAP IS NOT PROBABILISTIC AND SHOULD NOT BE USED ALONE TO PREDICT YIELD OR DEPTH.

WELL YIELD (GPM) SUMMARY OF 92,315 WATER WELLS BY INVERSE DISTANCE WEIGHTED METHOD, VERMONT
by Marjorie Gale, George Springston, Laurence Becker, and Ryan Knox
2009

