

TOWN OF BOW, NEW HAMPSHIRE
DRINKING WATER PROTECTION COMMITTEE

Brown Hill Road Area Water Quality Study

June 2016

TABLES

- 1-1 Table of Tasks and Schedule of Work
- 2-1 Laboratory Analytical Parameters
- 3-1 Summary of Survey Results and Key Analytical Parameters
- 3-2 Statistical Summaries of Key Observations
- 3-3 Other Common Well Water Quality Parameters in Bow

TABLE 2-1
ANALYTICAL PARAMETERS
Laboratory Tests

Aluminum	Lithium
Ammonium	Magnesium
Antimony	Manganese
Arsenic	Molybdenum
Barium	Nickel
Beryllium	Nitrate as Nitrogen
Bromide	Nitrite as Nitrogen
Cadmium	Potassium
Calcium	Selenium
Chloride	Silver
Chromium	Sodium
Cobalt	Sulfate
Copper	Thallium
Fluoride	Uranium
Hardness	Vanadium
Iron	Zinc
Lead	

Field Tests

pH
Specific Conductance
Temperature

TABLE 3-1 Brown Hill Area Water Quality - Homeowner Surveys and Select Analytes

Historical Chloride Results mg/L	Specific Conductance uS/cm	Chloride mg/L	pH s.u.	Sodium mg/L	Salty Taste	Corrosion	Water Treat-ment	Treatment Chemical	Acid Neutralizer	Bromide mg/L	Nitrate- Nitrogen mg/L	Hardness mg/L	Arsenic ug/L	Uranium ug/L	Age Well (Year)	Depth to Rock ft	Casing in Rock ft	Total Length of Casing ft	Depth of Well ft
	276	56	6.14	25	No	No	Neutralizer	2	Yes	ND	3.84	58	4.1	5	1978				
	256	24	6.65	45	No	No	Neutralizer	2		ND	13.09	24	2.6	5.1	1979				175
	279.8	58	5.9	13	No	No	None	None	No	ND	0.41	84	2.2	5.8	1996	61	27	89	300
	360	72	6.35	16	No	No	None	None	No	ND	1.11	110	1.6	2.8	1996	73	16	89	500
	355	81	6.75	22	No	No	None	None		ND	1.6	96	2.3	7.6	1986	42	21	63	220
	575	150	6.36	54	No	No	None	None	No	ND	0.12	120	ND	3.7					
	547	120	6.9	41	No	No	None	None		ND	4.74	150	7.3	2.9					
	83.5	12	5.58	8.6	No	No	None	None	No	ND	0.68	14	ND	2.3					
	512	100	7.03	19	No	No	None	None		ND	0.29	180	11	3.7	1984				
	578	150	5.1	90	No	No	None	None	No	ND	4.29	46	1	17	1979	5	15	20	175
20(05/1990)	380	78	6.7	15	No	No	None	None		ND	0.97	130	64	31	1989	15	165	180	400
	226.8	65	5.76	42	No	No	None	None	No	ND	0.22	19	ND	1.9	1985	35	8	43	232
	348.8	76	5.57	32	No	No	None	None	No	ND	2.9	65	4.2	5.5	1970				240
	230.8	16	7.26	7.2	No	No	None	None		ND	ND	87	8.1	3.6	1998			100	205
	367	64	6.65	18	No	No	None	None		ND	ND	120	18	7.9	1998	20	37	57	265
	177.3	65	7.21	7.4	No	No	None	None		ND	0.02	67	39	20					
	300	44	6.65	15	No	No	None	None		ND	0.02	100	2.3	3.3	1999			50	175
	422	23	7.22	19	No	No	None	None		ND	1.29	150	20	5.1	1998	18	32	50	505
	640	160	6.54	82	No	No	None	None		ND	2.71	97	14	8	1977				300
115(7/1992), 680(6/1996)	537	130	5.66	70	No	No	None	None	No	ND	2.26	76	10	13					210
5(5/1990)	328.2	23	7.16	14	No	No	None	None		ND	1.26	130	8.2	56	1988	4	21		500
	248	7.4	7.26	14	No	No	None	None		ND	ND	87	29	16	1986	34	10	44	625
	232.9	33	7.26	10	No	No	None	None		ND	0.01	73	5.5	5.4	2012				600
	230.9	9.5	7.37	12	No	No	None	None		ND	0.02	82	27	73	1987	61	8	69	430
	184	3.8	7.2	10	No	No	None	None		ND	ND	66	36	8.7	1987	75	10	85	300
	221.7	8	7.27	10	No	No	None	None		ND	0.01	81	29	63	1986	72	15	87	300
	149	1.3	7.1	11	No	No	None	None		ND	0.02	47	28	13	1986	135	8	143	320
	167.2	5.2	7.25	11	No	No	None	None		ND	0.18	50	140	25	1986	129	8	137	600
2(03/1995)	116.7	7.3	6.66	7.6	No	No	None	None		ND	0.29	32	51	5.4	1987	120	10	130	300
	427.4	95	6.15	51	No	No	None	None	No	ND	1.72	65	ND	ND	1976				420
18(7/1991)	234.2	50	5.98	33	No	No	None	None	No	ND	2.93	21	15	46	1991	4	16	20	420
	193.6	13	6.72	11	No	No	None	None		ND	0.29	67	41	68	1995	3	72	75	445
	206.9	16	6.49	14	No	No	None	None	No	ND	0.54	64	30	160	1991				#DIV/0!
	168.2	16	6.27	11	No	No	None	None	No	ND	0.54	48	4.5	25	1994	20	30	50	200
	762	150	7	66	No	No	Softener	Salt		ND	0.03	190	ND	53	1974				280
	661	160	7	130	Yes	No	Softener	Salt		ND	0.63	NC	ND	3.5	2010				1320
3(03/1989)	319	56	7.6	65	No	No	Softener	Salt	Yes	ND	0.03	3	13	5.8	1987	75	16	91	301
	559	140	6.4	110	No	No	Softener	Salt	No	ND	0.81	NC	ND	ND	2004	45	10	55	218
	1145	320	6.6	230	No	No	Softener	Salt		0.24	0.21	NC	11	4.9	1976				
	601	120	6.75	39	No	No	Softener	Salt		ND	0.43	180	62	55	1970				
	179	34	5.7	35	No	No	Softener	Salt	No	ND	0.08	NC	ND	ND	1999				600
	432	99	5.88	55	No	No	Softener	Salt	No	ND	1.92	64	1.8	2.7	1998				
86(10/1993)	585	130	6.48	120	No	No	Softener	Salt	No	ND	0.41	NC	5.8	18	1970				209
<2.0(4/1994)	452	57	6.77	21	No	No	Softener	Salt		ND	0.08	173	17	170	1987	8	12	20	560
	225	20	6.79	10	No	No				ND	0.07	81	ND	ND	1998				
	100	5.2	6.35	4.6	No	No			No	ND	ND	34	7.6	2.3	1998	21	37	58	305
	539	120	6	64	No	No			No	ND	0.16	100	ND	ND					
	155.7	6	7.02	7.9	No	No				ND	0.05	58	12	35	1989	65	10	75	500
	126	0.85	6.74	13	No	No				ND	ND	30	8.2	4.9	1986	140	5	145	320
	1098	330	5.16	146	No	yes	Neutralizer	2	Yes	0.23	0.34	140	3	13	1977			60	600
	984	280	6	120	No	Yes	None	None	No	ND	2.21	140	1.4	4.3	1968				140
213(9/91), 281(10/1995), 250(6/1996)	473	120	6	57	No	Yes	None	None	No	ND	0.13	63	1.5	3.2	1991	20	20	40	95

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84(5/31/95), 92(06/1995), 120 (5/1996)	490.6	107	6.21	47	No	Yes	None	None		ND	2.48	104	13	12	1995	30	216	246	600
	1722	520	6.05	120	No	Yes	None	None	No	0.35	1.99	480	ND	ND					720
	1390	430	5.77	160	No	Yes	None	None	No	0.27	0.84	280	ND	4.6	1995	6	14	20	405
41(08/1993)	378.5	37	8.09	26	No	Yes	None	None		0.32	7	120	2.1	25	1986				400
	508	130	5.75	53	No	Yes	None	Salt	No	ND	1.78	88	8.4	24	1975				400
	490	100	5.92	58	No	Yes	None	None	No	ND	2.14	84	9.2	48	1987	4	14	18	420
					No	Yes	Softener	Salt											
	1352	360	6.7	130	Yes	Yes	Softener	Salt		0.26	0.06	300	7.5	2.5	1957	8	2	10	800
1014(4/1992), 338(8/1992), 310(10/1992), 387(11/1992), 1014(5/1992), 761(1/1993), 300(5/1996)	690	190	5.5	130	No	Yes	Softener	Salt	No	ND	2.1	NC	ND	ND	1974				180
368(02/1995), 380(7/1996)	1076	310	5.39	170	No	Yes	Softener	Salt	No	ND	1.92	74	2.1	6.4					
93.6(3/1989), 198(04/1996)	354.6	83	6.06	66	Yes	Yes	Softener	Salt	No	ND	0.09	NC	1.3	ND	1964				170
	175	30	5.4	22	No	Yes	Neutralizer	2	Yes??	ND	4.97	20	1.9	2.4	1969				
	400.5	73	6.59	81	Yes	Yes	Softener	Salt		ND	0.59	3	ND	ND	1979				450
	306.2	65	5.38	31	No	Yes	Softener	Salt	No	ND	3.61	55	8.2	8.4	1968				
	1211	380	5.17	210	No	Yes	Softener	Salt	No	ND	0.34	59	ND	1.3	1970				
400(7/1995)	1277	410	4.63	240	No	Yes	Softener	Salt	No	ND	1.08	36	ND	2					
	561	150	5.5	96	Yes	Yes	Softener	None	No	ND	2.17	29	8	10	1986				690
	1358	400	5.26	220	Yes	Yes	Softener + Neutraliz	3	Yes	0.26	0.97	89	1.6	10	1978				245
	1159	320	5.64	190	No	Yes			No	ND	1.26	74	ND	ND					400
	1473	420	5.8	200	Yes	Yes			No	ND	1.24	180	5.8	14					
377(7/1994)	687	190	5.12	120	No	Yes			No	ND	3.84	29	ND	1.2	1976	17.5			100
	1039	310	5.23	170	Yes	Yes	Neutralizer	2	Yes	ND	3.16	68	1.1	1.8	1965				335
	284	43	6.49	14			None		No	ND	0.43	91	12	21					
	712	180	6.27	76			Softener	Salt	No	ND	4.29	140	2.5	19	2000	28	13	41	220
	511	110	7.11	38						ND	1.87	140	ND	ND	1995	37	13	50	680
	760	160	7.08	61						ND	0.08	210	31	22					
	335	32	7.18	76						ND	0.02	NC	6.5	70					
54(7/1991)	478.3	69	6.97	29				None		ND	4.74	160	17	260	1986	20	31	51	693

Table 3-2
Statistical Summaries of Select Parameters

Specific Conductance (uS/cm)	Chloride mg/L	pH (s.u.)	Sodium mg/L	Hardness mg/L	Hardness in Wells w/softeners mg/L
79	79	79	79	71	12
521	121	6.36	63	97	116
422	78	6.48	41	81	82
84-1722	<1-520	4.63-8.09	4.6-240	3-480	29-300

N=Number of Samples
 Mean=the average of the samples
 Median=the middle number of ranked samples
 Range=the lowest to highest result

Age of Wells vs. Chloride and pH

Chloride in Pre-1985 Wells, mg/L	pH in Pre-1985 wells	Chloride in Post-1985 Wells, mg/L	pH in Post-1985 wells
24	24	41	41
175	5.97	63	6.66
140	6.03	44	6.72
24-400	5.12-7.03	0.85-430	5.5-8.09
7 of 24 wells		1 of 41 wells	
29%		2%	

N=Number of Samples
 Mean=the average of the samples
 Median=the middle number of ranked samples
 Range=the lowest to highest result
 Number of Wells >250 mg/L Chloride

Pre-1985 Wells => Higher Chloride, Lower pH.

Table 3-3
Private Well Water Quality Town of Bow
 State of NH Lab results for Calendar Year 2015

	Arsenic (ug/L)	Uranium (ug/L)	Radon (pci/L)	Total Coliform	E. coli Present	MTBE (ug/L)	Sodium (mg/L)	Chloride (mg/L)	Manganese (mg/L)	Iron (mg/L)
Maximum Contaminant Level or Advisory Level	10	30	2000	Present	13	250	250	0.05	0.3	
Number of samples	61	47	35	68	68	2	46	54	48	47
Detections	52	32	34	19	0	0	46	45	28	18
Samples above standard	29	4	26	19	0	0	0	0	18	5
High	136	55	85,310				90	230	1.86	6.15
Average	22.6	11	16,876				23	45	0.24	0.66
% Above Standard	48%	9%	74%	28%	0%	0%	0%	0%	38%	11%