Appendix 17. Location, physical characteristics, borehole-geophysical logs and interpreted structures for well Top 1.

Top 1 is located on Coppermine Road in Topsfield, Massachusetts and was drilled in 2002 for yard maintenance at a private residence. The well depth is 366 meters and yields 0.5 gallons per minute. The property sits at the edge of a 15 meter promontory overlooking a golf course. The well ID is top1.080907 and it has an elevation of 31 meters above sea level. The well was logged from August 9 through August 14, 2007.

The site is at the top of a small hill composed of glacial till that is 19 meters thick. The material is a nonsorted, unstratified till with a matrix of sand, some clay, silt and boulders. The well is cased into the bedrock 23 meters below the ground surface. The bedrock is a medium to fine-grained light pink granodiorite. The well is located in the Bloody Bluff Fault zone that forms the boundary between the Nashoba and Avalon terranes.

A total of 348 fractures were measured. Of the total number of fractures 9 were subhorizontal, unloading joints, 136 were tectonic joints and 203 were FPF. The water level in the well was 23.5 meters below the ground surface. A pumping test was not performed because the depth of the water table was too deep for the pumping apparatus. Heat pulse flow meter testing was performed under ambient conditions only.

Appendix 17, continued. Midpoint depth, strike and dip of features identified in optical televiewer log, fracture type and heat pulse flowmeter data from Top 1 (azimuth and dip reported using right hand rule convention; t = tectonic fractures, s = sheeting joints, p = foliation parallel fractures). No heat pulse flow meter data was collected under pumping conditions. Water table too deep for pumping apparatus.

Site ID:	top1.080907				
Location:	Coppermine Road Topsfield, MA				
Elevation (m)	31				
Reported Yield (gpm)	0.5				
Rock Type:	Granite				
Depth to water:	77.2	ft	23.53	m080907	
Depth of casing:	76	ft	23.16	m	
Depth of well:	1200	ft	365.76	m	
Land surface to MP:	-0.2	ft	-0.06	m	

Fractures						Ambient			Pump at 0.25 gpm		
number	depth (m)	depth (ft)	Azimuth	Dip	Type	Flow (y/n)	gpm	notes	Flow (y/n)	gpm	notes
1	25.2	82.8	315	84	t	n	0		NOT AVAILABLE		
2	25.9	85.0	219	78	t	n	0				
3	26.8	87.8	236	81	t	n	0				
4	26.8	87.9	226	83	t	n	0				
5	27.3	89.4	179	62	t	n	0				
6	27.5	90.1	30	75	t	n	0				
7	27.6	90.5	17	72	t	n	0				
8	28.3	92.9	343	73	t	n	0				
9	28.5	93.5	206	81	t	n	0				
10	29.1	95.4	205	79	t	n	0				
11	29.1	95.6	10	70	t	n	0				
12	29.4	96.4	215	37	t	n	0				
13	29.4	96.6	205	78	t	n	0				
14	29.8	97.6	130	41	t	n	0				
15	30.1	98.8	202	50	t	n	0				
16	30.2	99.3	198	70	t	n	0				
17	30.3	99.5	309	82	t	n	0				
18	30.4	99.8	303	79	t	n	0				
19	30.7	100.6	341	58	t	n	0				
20	30.7	100.8	270	0	s	n	0				
21	30.9	101.3	221	84	t	n	0				
22	31.5	103.2	196	79	t	n	0				
23	31.5	103.3	316	81	t	n	0				
24	31.7	103.9	195	77	t	n	0				
25	31.8	104.5	194	79	t	n	0				
26	32.4	106.3	186	81	t	n	0				
27	32.5	106.5	194	84	t	n	0				
28	32.7	107.5	197	87	t	n	0				
29	33.2	109.1	188	85	t	n	0				
30	34.1	111.9	199	79	t	n	0				
31	34.1	111.9	334	71	t	n	0				
32	34.5	113.3	334	77	t	n	0				
33	35.7	117.3	270	0	s	n	0				
34	36.3	119.1	229	80	t	n	0				
35	36.5	119.9	231	77	t	n	0				
36	37.1	121.7	240	43	t	n	0				
37	37.8	124.1	247	78	t	n	0				
38	39.0	127.8	343	74	t	n	0				
39	39.3	128.9	355	77	t	n	0				
40	39.6	130.0	336	66	t	n	0				
41	40.1	131.4	206	46	t	n	0				
42	40.3	132.3	236	30	t	n	0				
43	40.6	133.2	236	50	t	n	0				
44	40.7	133.5	214	82	t	n	0				
45	40.9	134.3	240	65	t	n	0				
46	41.0	134.4	292	83	t	n	0				
47	41.7	137.0	228	50	t	n	0				
48	41.8	137.2	207	81	t	n	0				
49	42.2	138.4	219	25	s	n	0				
50	42.7	140.1	210	76	t	n	0				

Appendix 17, continued. Midpoint depth, strike and dip of features identified in optical televiewer log, fracture type and heat pulse flowmeter data from Top 1 (azimuth and dip reported using right hand rule convention; t = tectonic fractures, s = sheeting joints, p = foliation parallel fractures). No heat pulse flow meter data was collected under pumping conditions. Water table too deep for pumping apparatus.

51	43.1	141.3	208	82	t	n	0	
52	43.2	141.8	217	75	t	n	0	
53	43.6	142.9	221	70	t	n	0	
54	44.1	144.8	282	82	t	n	0	
55	45.4	148.8	183	86	t	n	0	
56	45.4	149.0	195	85	t	n	0	
57	45.8	150.4	254	39	t	n	0	
58	46.0	150.8	257	39	t	n	0	
59	46.6	153.0	229	61	t	n	0	
60	47.2	154.9	239	64	t	n	0	
61	47.3	155.2	343	77	t	n	0	
62	47.8	156.7	5	80	t	n	0	
63	47.9	157.0	287	77	t	n	0	
64	48.0	157.6	235	61	t	n	0	
65	48.2	158.1	227	48	t	n	0	
66	48.5	159.1	197	87	t	n	0	
67	48.9	160.4	174	28	t	n	0	
68	48.9	160.4	351	63	t	n	0	
69	49.5	162.5	299	83	t	n	0	
70	49.7	163.0	165	77	t	n	0	
71	50.2	164.7	174	76	t	n	0	
72	51.1	167.8	235	44	t	n	0	
73	52.1	170.9	346	59	t	n	0	
74	52.1	171.0	191	79	t	n	0	
75	52.7	172.8	18	71	t	n	0	
76	53.0	174.0	286	69	t	n	0	
77	53.2	174.6	271	64	t	n	0	
78	53.6	175.8	283	69	t	n	0	
79	54.0	177.3	246	47	t	n	0	
80	54.6	179.1	201	86	t	n	0	
81	54.6	179.1	188	81	t	n	0	
82	54.9	180.1	244	62	t	n	0	
83	55.4	181.9	180	66	t	n	0	
84	55.7	182.8	225	61	t	n	0	
85	55.9	183.3	187	33	t	n	0	
86	56.1	184.1	225	49	t	n	0	
87	56.3	184.6	44	75	t	n	0	
88	56.5	185.3	68	14	s	n	0	
89	57.4	188.4	198	30	t	n	0	
90	57.6	188.9	165	16	s	n	0	
91	57.9	189.9	312	81	t	n	0	
92	58.4	191.7	3	63	t	n	0	
93	58.9	193.3	312	81	t	n	0	
94	59.0	193.4	339	67	t	n	0	
95	59.2	194.1	346	69	t	n	0	
96	59.3	194.7	347	71	t	n	0	
97	59.7	196.0	208	69	t	n	0	
98	59.9	196.7	303	78	t	n	0	
99	60.2	197.7	355	75	t	n	0	
100	60.4	198.1	180	79	t	n	0	
101	60.5	198.6	201	78	t	n	0	
102	60.7	199.0	313	77	t	n	0	
103	60.8	199.5	201	73	t	n	0	
104	61.2	200.9	192	77	t	n	0	
105	61.3	201.2	6	79	t	n	0	
106	61.3	201.3	196	82	t	n	0	
107	61.7	202.3	211	83	t	n	0	
108	62.0	203.4	187	76	t	n	0	
109	62.6	205.4	172	73	t	n	0	
110	63.3	207.6	57	54	t	n	0	
111	63.3	207.6	243	78	t	n	0	
112	63.6	208.7	230	75	t	n	0	
113	64.0	210.0	213	82	t	n	0	
114	64.3	211.0	221	77	t	n	0	

Appendix 17, continued. Midpoint depth, strike and dip of features identified in optical televiewer log, fracture type and heat pulse flowmeter data from Top 1 (azimuth and dip reported using right hand rule convention; t = tectonic fractures, s = sheeting joints, p = foliation parallel fractures). No heat pulse flow meter data was collected under pumping conditions. Water table too deep for pumping apparatus.

115	64.4	211.5	169	67	t	n	0	
116	64.5	211.8	189	32	t	n	0	
117	65.9	216.2	253	69	t	n	0	
118	66.4	217.7	178	66	t	n	0	
119	66.7	219.0	210	79	t	n	0	
120	67.0	219.9	229	24	s	n	0	
121	67.2	220.5	189	36	t	n	0	
122	69.4	227.8	217	59	t	n	0	
123	69.4	227.8	325	64	t	n	0	
124	71.1	233.4	202	63	t	n	0	
125	71.3	233.9	230	68	t	n	0	
126	71.7	235.3	227	64	t	n	0	
127	72.1	236.7	246	61	t	n	0	
128	72.2	236.9	150	80	t	n	0	
129	72.3	237.2	207	78	t	y	-0.01	flow in
130	73.2	240.2	297	70	t	n	-0.01	
131	73.3	240.6	264	82	t	n	-0.01	
132	73.5	241.1	29	68	t	n	-0.01	
133	73.6	241.5	352	70	t	n	-0.01	
134	74.0	242.7	209	69	t	n	-0.01	
135	74.1	243.2	217	73	t	n	-0.01	
136	74.2	243.6	214	74	t	n	-0.01	
137	74.9	245.8	239	62	t	n	-0.01	
138	76.1	249.8	195	69	t	n	-0.01	
139	76.3	250.5	49	71	t	n	-0.01	
140	77.6	254.6	186	62	t	n	-0.01	
141	77.7	254.8	163	82	t	n	-0.01	
142	78.4	257.2	210	78	t	n	-0.01	
143	78.9	259.0	328	73	t	n	-0.01	
144	79.1	259.5	324	70	t	n	-0.01	
145	79.8	261.9	329	73	t	n	-0.01	
146	80.9	265.5	307	78	t	n	-0.01	
147	81.2	266.4	356	77	t	n	-0.01	
148	81.3	266.7	311	83	t	n	-0.01	
149	81.7	268.0	312	75	t	n	-0.01	
150	82.2	269.8	348	62	t	n	-0.01	
151	82.6	270.9	318	64	t	n	-0.01	
152	83.0	272.4	301	65	t	n	-0.01	
153	84.2	276.3	312	78	t	n	-0.01	
154	85.2	279.6	211	78	t	n	-0.01	
155	85.2	279.7	339	77	t	n	-0.01	
156	85.8	281.4	333	77	t	n	-0.01	
157	85.9	281.9	208	74	t	n	-0.01	
158	86.8	284.8	2	65	t	n	-0.01	
159	87.3	286.5	176	84	t	n	-0.01	
160	87.7	287.9	208	60	t	n	-0.01	
161	88.3	289.7	257	71	t	n	-0.01	
162	88.6	290.6	18	79	t	n	-0.01	
163	89.0	292.0	267	65	t	n	-0.01	
164	89.5	293.8	234	49	t	n	-0.01	
165	89.6	293.8	288	74	t	n	-0.01	
166	89.9	295.0	275	74	t	n	-0.01	
167	89.9	295.1	230	68	t	n	-0.01	
168	91.2	299.2	267	56	t	n	-0.01	
169	91.4	299.8	216	61	t	n	-0.01	
170	92.0	301.8	267	75	t	n	-0.01	
171	93.1	305.4	32	69	t	n	-0.01	
172	93.4	306.5	99	57	t	n	-0.01	
173	93.7	307.3	218	51	t	n	-0.01	
174	93.8	307.6	198	70	t	n	-0.01	
175	94.1	308.9	230	43	t	n	-0.01	
176	94.5	309.9	288	71	t	n	-0.01	
177	94.7	310.8	287	56	t	n	-0.01	
178	94.9	311.5	269	58	t	n	-0.01	

Appendix 17, continued. Midpoint depth, strike and dip of features identified in optical televiewer log, fracture type and heat pulse flowmeter data from Top 1 (azimuth and dip reported using right hand rule convention; t = tectonic fractures, s = sheeting joints, p = foliation parallel fractures). No heat pulse flow meter data was collected under pumping conditions. Water table too deep for pumping apparatus.

179	95.8	314.3	292	47	t	n	-0.01	
180	95.8	314.4	281	63	t	n	-0.01	
181	96.3	315.9	291	65	t	n	-0.01	
182	96.3	316.1	310	71	t	n	-0.01	
183	96.8	317.7	257	48	t	n	-0.01	
184	97.3	319.3	300	67	t	n	-0.01	
185	98.0	321.6	250	54	t	n	-0.01	
186	99.5	326.4	287	62	t	n	-0.01	
187	99.8	327.6	288	75	t	n	-0.01	
188	100.8	330.7	285	43	t	n	-0.01	
189	101.4	332.6	215	73	t	n	-0.01	
190	101.4	332.7	188	68	t	n	-0.01	
191	101.6	333.4	207	54	t	n	-0.01	
192	102.1	334.9	317	59	t	n	-0.01	
193	102.6	336.6	244	78	t	n	-0.01	
194	102.9	337.6	286	34	t	n	-0.01	
195	105.1	344.8	331	69	t	n	-0.01	
196	106.3	348.9	235	45	t	n	-0.01	
197	106.5	349.3	261	56	t	n	-0.01	
198	106.7	350.2	259	75	t	n	-0.01	
199	107.6	353.0	259	64	t	n	-0.01	
200	107.8	353.6	244	65	t	n	-0.01	
201	107.8	353.9	247	64	t	n	-0.01	
202	108.4	355.6	234	63	t	n	-0.01	
203	109.2	358.2	254	69	t	n	-0.01	
204	110.8	363.6	169	60	t	n	-0.01	
205	113.4	372.0	311	56	t	n	-0.01	
206	114.2	374.8	244	61	t	n	-0.01	
207	114.3	375.0	37	63	t	n	-0.01	
208	115.5	378.9	268	41	t	n	-0.01	
209	116.2	381.1	22	71	t	n	-0.01	
210	116.5	382.4	262	37	t	n	-0.01	
211	117.2	384.5	77	74	t	n	-0.01	
212	117.6	385.9	255	57	t	n	-0.01	
213	117.7	386.2	254	57	t	n	-0.01	
214	117.9	386.8	239	55	t	n	-0.01	
215	118.1	387.4	204	42	t	n	-0.01	
216	118.2	387.8	255	41	t	n	-0.01	
217	118.2	388.0	353	72	t	n	-0.01	
218	118.5	388.7	316	67	t	n	-0.01	
219	118.5	388.7	229	39	t	n	-0.01	
220	118.8	389.8	232	59	t	n	-0.01	
221	119.1	390.8	139	86	t	n	-0.01	
222	119.1	390.9	205	74	t	n	-0.01	
223	119.6	392.5	220	69	t	n	-0.01	
224	119.8	393.1	283	62	t	n	-0.01	
225	120.9	396.6	13	60	t	n	-0.01	
226	121.2	397.6	266	32	t	n	-0.01	
227	121.6	398.8	150	74	t	n	-0.01	
228	122.2	400.8	34	69	t	n	-0.01	
229	122.2	401.1	258	76	t	n	-0.01	
230	122.8	402.8	166	71	t	n	-0.01	
231	123.2	404.3	198	78	t	n	-0.01	
232	123.5	405.2	209	67	t	n	-0.01	
233	123.8	406.2	22	67	t	n	-0.01	
234	124.1	407.2	280	66	t	n	-0.01	
235	124.4	408.1	269	62	t	n	-0.01	
236	124.6	408.9	209	77	t	n	-0.01	
237	125.2	410.9	193	65	t	n	-0.01	
238	125.5	411.6	225	33	t	n	-0.01	
239	126.3	414.3	52	58	t	n	-0.01	
240	126.4	414.8	190	71	t	n	-0.01	
241	127.4	417.8	190	65	t	n	-0.01	
242	127.5	418.4	258	61	t	n	-0.01	

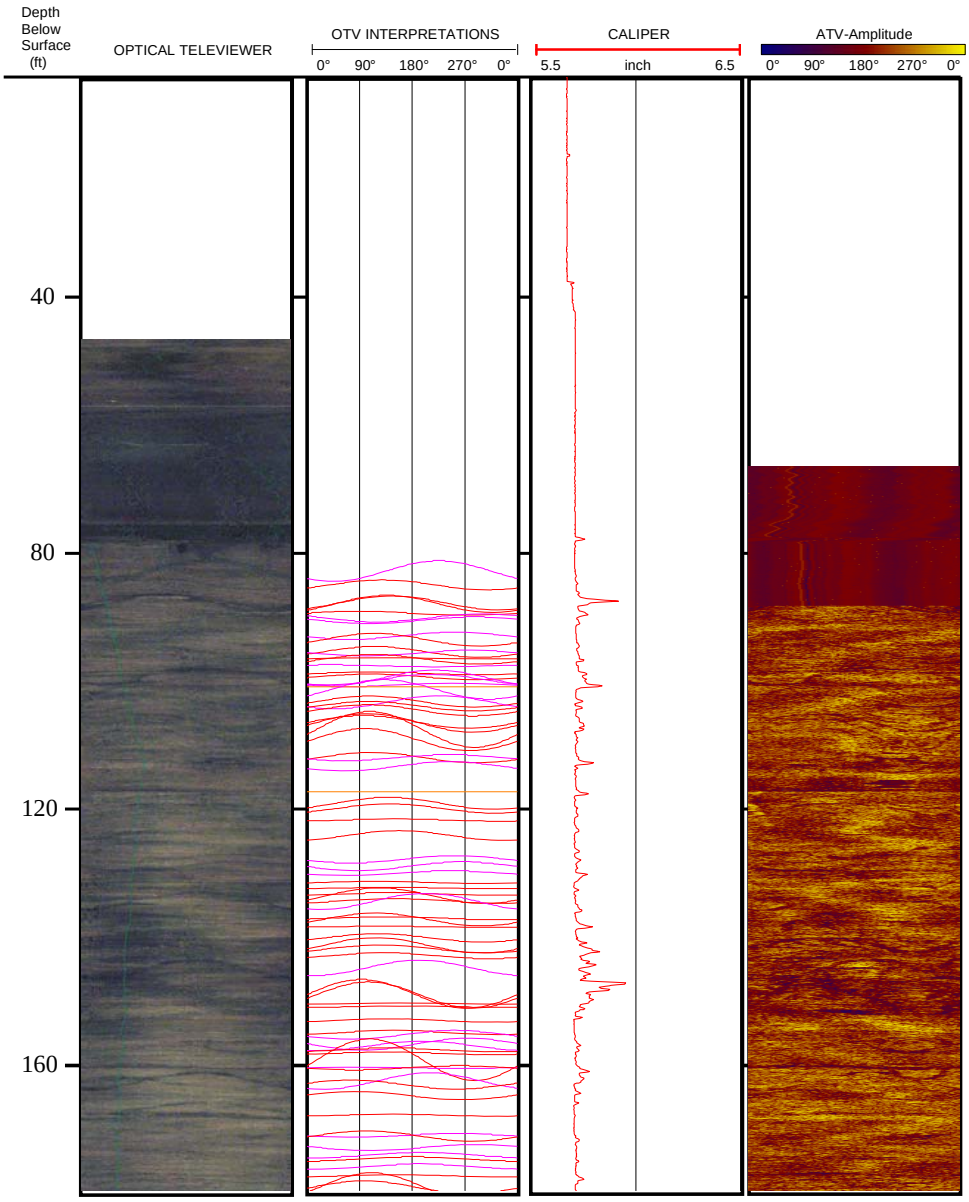
Appendix 17, continued. Midpoint depth, strike and dip of features identified in optical televiewer log, fracture type and heat pulse flowmeter data from Top 1 (azimuth and dip reported using right hand rule convention; t = tectonic fractures, s = sheeting joints, p = foliation parallel fractures). No heat pulse flow meter data was collected under pumping conditions. Water table too deep for pumping apparatus.

243	127.8	419.2	209	62	t	n	-0.01	
244	128.3	420.9	228	53	t	n	-0.01	
245	128.7	422.2	251	81	t	n	-0.01	
246	129.1	423.5	234	53	t	n	-0.01	
247	129.4	424.5	226	59	t	n	-0.01	
248	129.8	426.0	209	70	t	n	-0.01	
249	130.7	428.8	71	46	t	n	-0.01	
250	133.8	439.2	165	81	t	n	-0.01	
251	134.2	440.3	188	70	t	n	-0.01	
252	134.7	442.1	207	51	t	n	-0.01	
253	134.9	442.6	208	72	t	n	-0.01	
254	135.0	442.8	211	70	t	n	-0.01	
255	135.2	443.7	205	65	t	n	-0.01	
256	135.4	444.3	262	71	t	n	-0.01	
257	135.7	445.3	239	60	t	n	-0.01	
258	135.8	445.7	2	39	t	n	-0.01	
259	136.0	446.3	293	43	t	n	-0.01	
260	136.4	447.4	55	45	t	n	-0.01	
261	136.6	448.1	250	43	t	n	-0.01	
262	136.7	448.5	256	56	t	n	-0.01	
263	137.4	450.9	191	80	t	n	-0.01	
264	137.6	451.4	239	49	t	n	-0.01	
265	137.8	452.1	249	41	t	n	-0.01	
266	138.1	453.2	204	73	t	n	-0.01	
267	138.3	453.7	232	58	t	n	-0.01	
268	138.4	454.1	225	71	t	n	-0.01	
269	138.7	455.2	250	42	t	n	-0.01	
270	139.0	456.1	174	74	t	n	-0.01	
271	139.3	457.1	75	48	t	n	-0.01	
272	140.0	459.5	210	63	t	n	-0.01	
273	140.3	460.2	214	57	t	n	-0.01	
274	140.5	460.9	179	84	t	n	-0.01	
275	141.3	463.7	194	74	t	y	0	flow out
276	142.7	468.3	197	75	t	n	0	
277	143.1	469.5	191	32	t	n	0	
278	143.3	470.2	177	33	t	n	0	
279	145.4	477.1	174	74	t	n	0	
280	146.2	479.7	84	70	t	n	0	
281	146.4	480.5	89	72	t	n	0	
282	146.7	481.2	100	67	t	n	0	
283	146.8	481.5	103	71	t	n	0	
284	146.9	482.1	102	71	t	n	0	
285	147.2	482.8	84	66	t	n	0	
286	148.5	487.3	334	37	t	n	0	
287	151.4	496.8	41	9	s	n	0	
288	152.4	500.0	174	72	t	n	0	
289	152.5	500.3	174	72	t	n	0	
290	152.7	500.9	35	50	t	n	0	
291	152.9	501.5	148	27	t	n	0	
292	154.8	508.0	274	71	t	n	0	
293	155.1	508.8	87	72	t	n	0	
294	155.6	510.4	174	74	t	n	0	
295	156.4	513.1	357	75	t	n	0	
296	156.5	513.5	340	81	t	n	0	
297	157.4	516.4	180	72	t	n	0	
298	157.5	516.8	38	49	t	n	0	
299	158.2	519.0	359	73	t	n	0	
300	158.6	520.2	344	75	t	n	0	
301	158.8	521.1	178	72	t	n	0	
302	159.3	522.8	341	79	t	n	0	
303	159.6	523.5	342	82	t	n	0	
304	161.1	528.6	231	47	t	n	0	
305	161.2	528.9	184	77	t	n	0	
306	162.1	532.0	307	25	s	n	0	

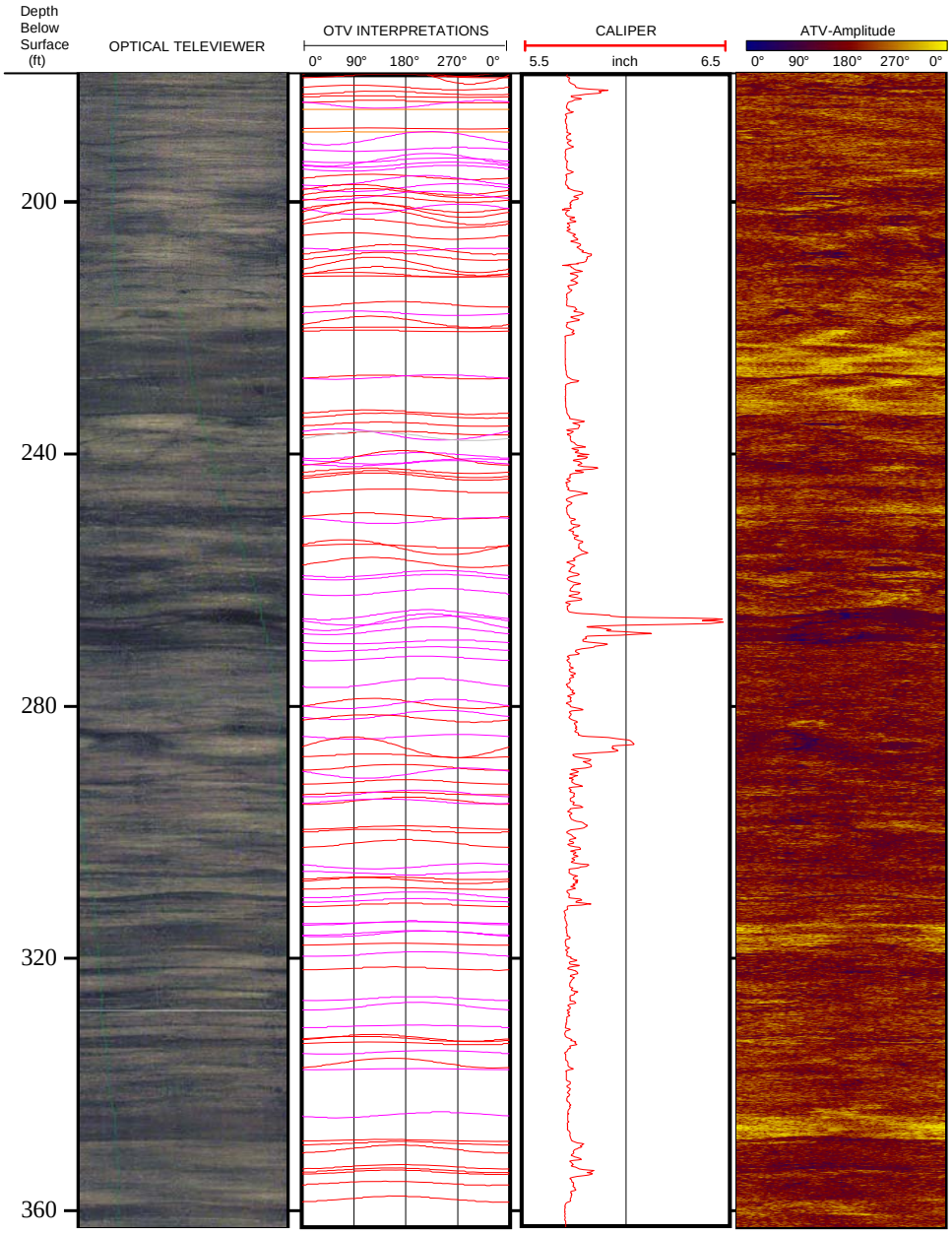
Appendix 17, continued. Midpoint depth, strike and dip of features identified in optical televiewer log, fracture type and heat pulse flowmeter data from Top 1 (azimuth and dip reported using right hand rule convention; t = tectonic fractures, s = sheeting joints, p = foliation parallel fractures). No heat pulse flow meter data was collected under pumping conditions. Water table too deep for pumping apparatus.

307	162.7	533.8	94	74	t	n	0	
308	162.7	533.9	77	69	t	n	0	
309	163.2	535.4	341	81	t	n	0	
310	163.4	536.0	339	82	t	n	0	
311	164.0	538.2	338	84	t	n	0	
312	166.3	545.6	189	74	t	n	0	
313	166.6	546.6	191	69	t	n	0	
314	169.5	556.1	195	39	t	n	0	
315	172.6	566.3	128	82	t	n	0	
316	174.7	573.2	56	82	t	n	0	
317	175.4	575.4	53	77	t	n	0	
318	176.1	577.7	58	77	t	n	0	
319	176.7	579.6	58	75	t	n	0	
320	180.0	590.5	61	78	t	n	0	
321	183.5	602.2	125	36	t	n	0	
322	184.0	603.8	100	70	t	n	0	
323	184.8	606.2	231	65	t	n	0	
324	185.4	608.5	172	54	t	n	0	
325	196.9	646.1	277	40	t	n	0	
326	201.4	660.7	233	82	t	n	0	
327	210.1	689.3	254	27	t	n	0	
328	213.1	699.3	162	74	t	n	0	
329	215.5	707.1	182	78	t	n	0	
330	220.0	722.0	234	51	t	n	0	
331	227.3	745.9	113	56	t	n	0	
332	230.6	756.5	280	73	t	n	0	
333	235.8	773.5	20	48	t	n	0	
334	236.2	775.0	360	88	t	n	0	
335	238.7	783.2	187	10	s	n	0	
336	240.9	790.4	261	69	t	n	0	
337	243.0	797.1	21	87	t	n	0	
338	249.1	817.3	167	81	t	n	0	
339	250.6	822.1	204	38	t	n	0	
340	253.7	832.3	220	81	t	n	0	
341	254.7	835.7	12	62	t	n	0	
342	260.0	853.0	262	66	t	n	0	
343	262.1	860.1	272	66	t	n	0	
344	266.1	872.9	346	68	t	n	0	
345	269.5	884.3	335	59	t	n	0	
346	270.1	886.4	264	66	t	n	0	
347	270.6	887.7	247	77	t	n	0	
348	271.2	889.9	237	87	t	n	0	

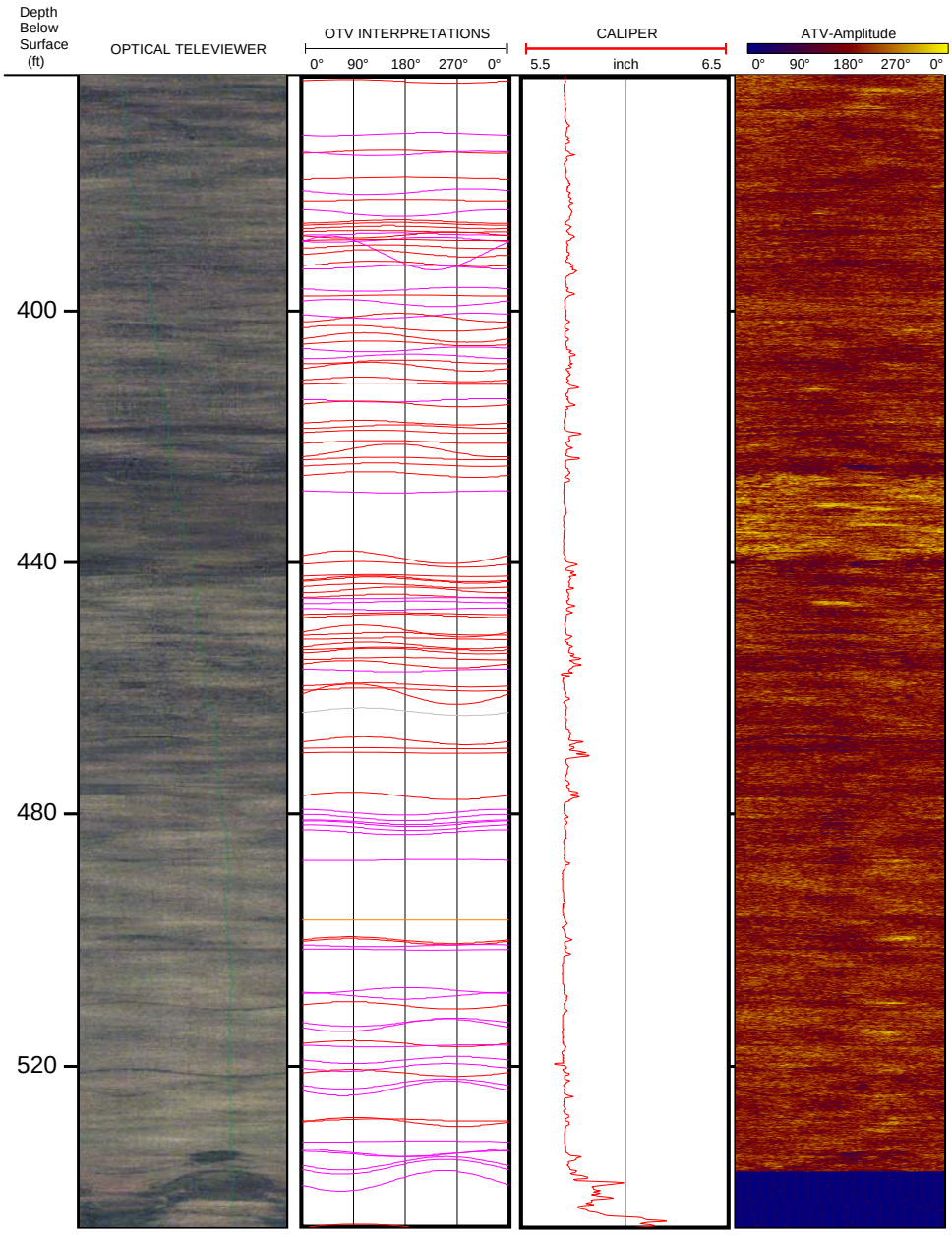
Appendix 17, continued. Interpreted features for Top 1. Optical televiewer interpretations indicated by color: orange – subhorizontal sheeting joint; magenta – tectonic joint; red – foliation parallel fracture (FPF); cyan – transmissive subhorizontal sheeting joint; green – transmissive tectonic joint; grey – transmissive foliation parallel fracture (FPF). OTV – optical televiewer; ATV – acoustic televiewer.



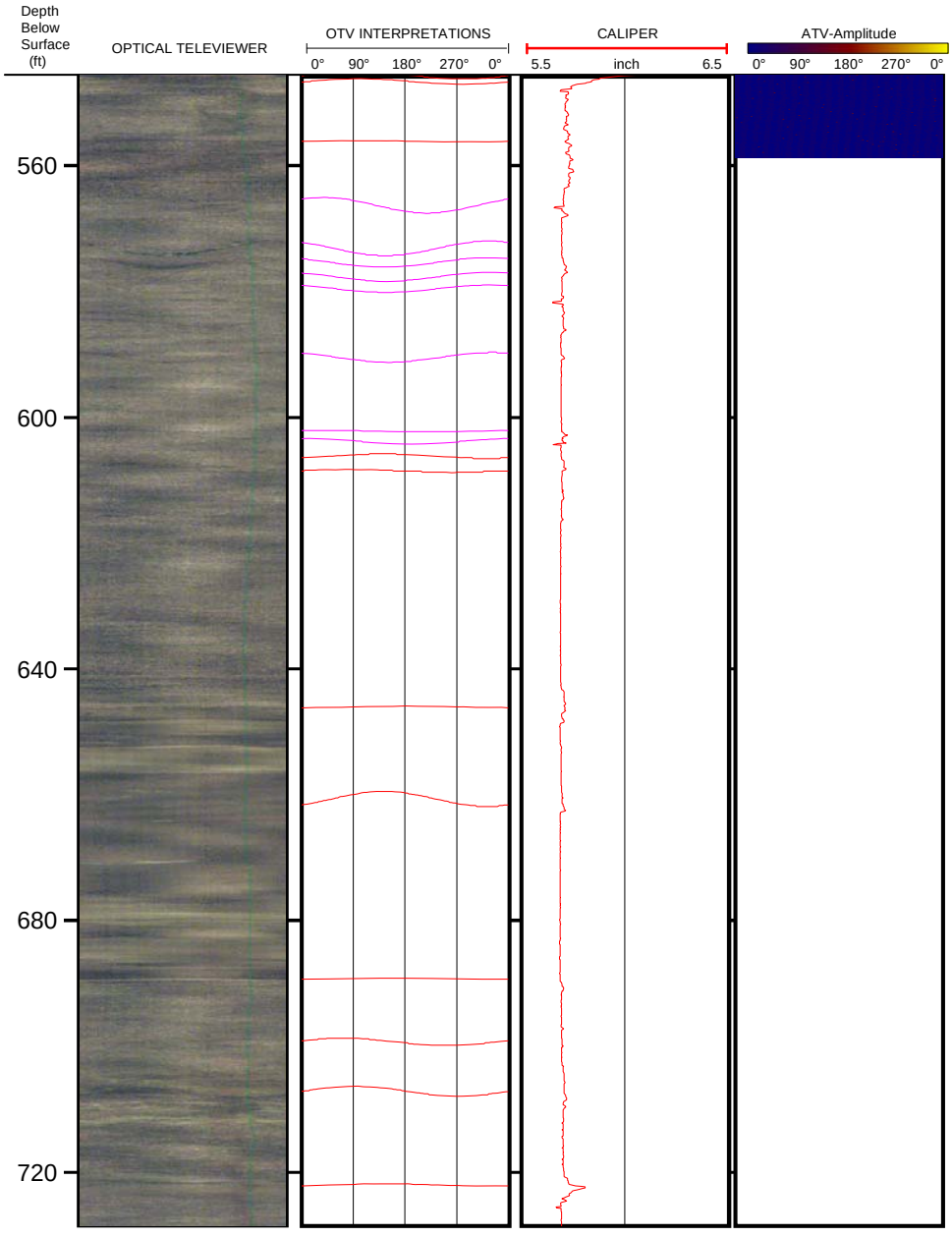
Appendix 17, continued. Interpreted features for Top 1. Optical televiewer interpretations indicated by color: orange – subhorizontal sheeting joint; magenta – tectonic joint; red – foliation parallel fracture (FPF); cyan – transmissive subhorizontal sheeting joint; green – transmissive tectonic joint; grey – transmissive foliation parallel fracture (FPF). OTV – optical televiewer; ATV – acoustic televiewer.



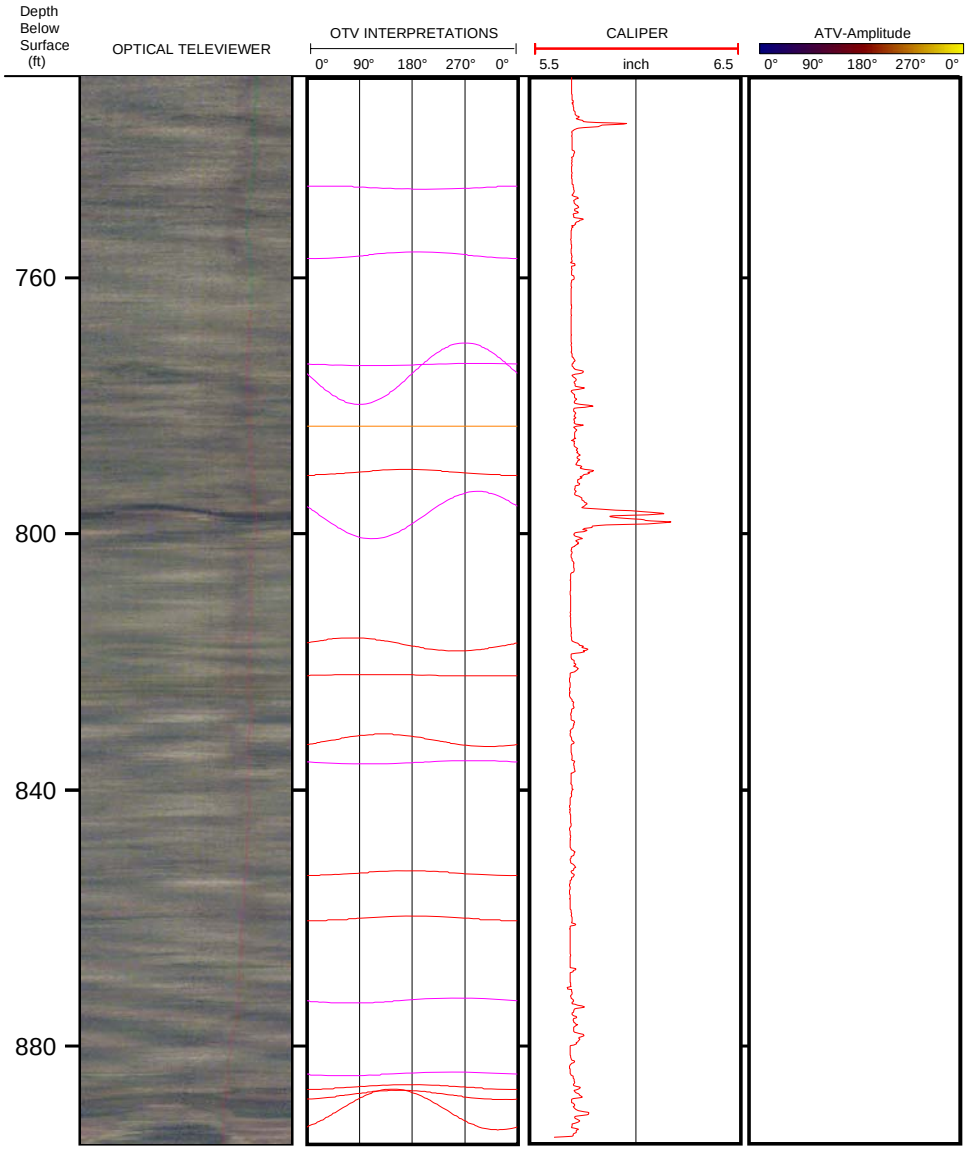
Appendix 17, continued. Interpreted features for Top 1. Optical televiewer interpretations indicated by color: orange – subhorizontal sheeting joint; magenta – tectonic joint; red – foliation parallel fracture (FPF); cyan – transmissive subhorizontal sheeting joint; green – transmissive tectonic joint; grey – transmissive foliation parallel fracture (FPF). OTV – optical televiewer; ATV – acoustic televiewer. ATV malfunction after 530 feet.



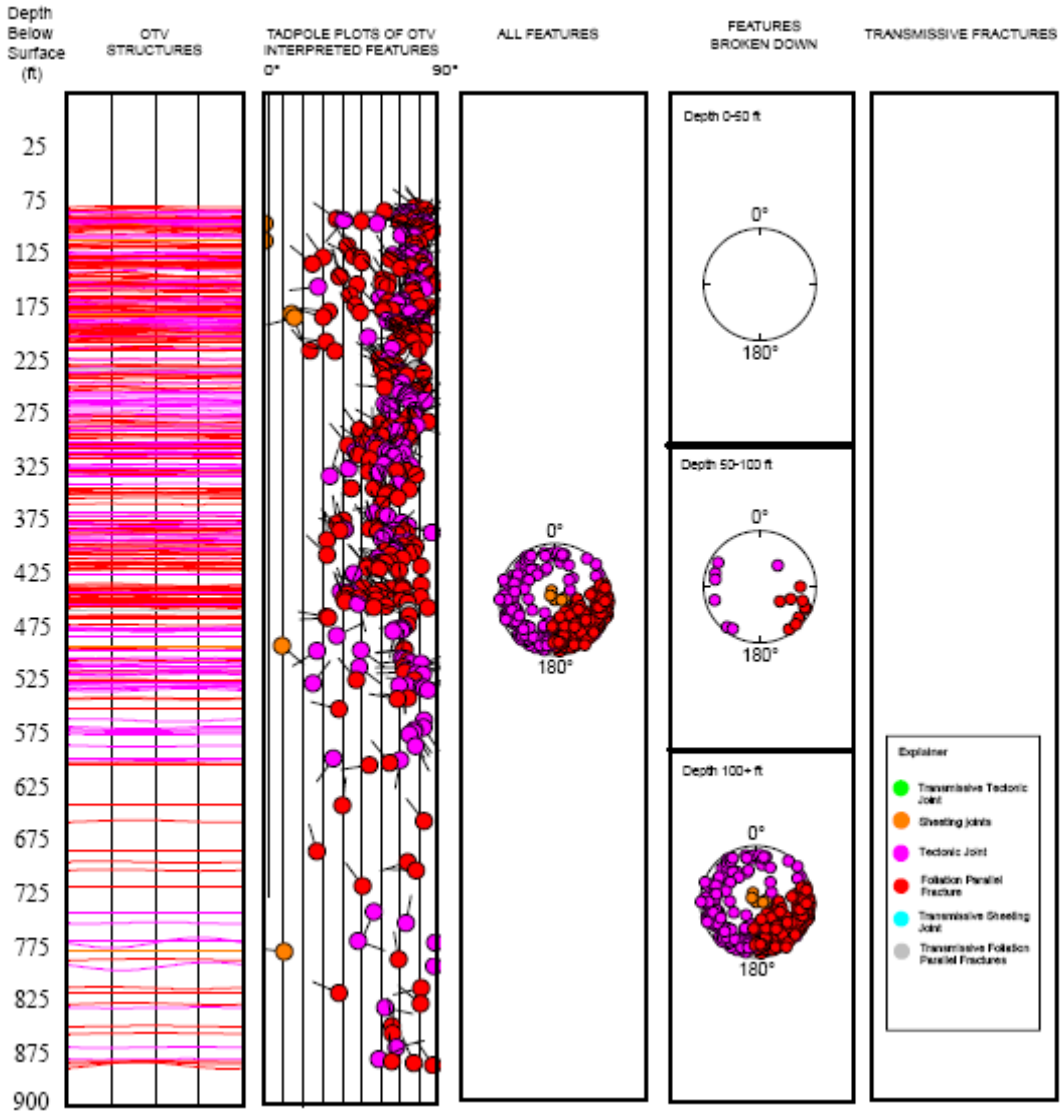
Appendix 17, continued. Interpreted features for Top 1. Optical televiewer interpretations indicated by color: orange – subhorizontal sheeting joint; magenta – tectonic joint; red – foliation parallel fracture (FPF); cyan – transmissive subhorizontal sheeting joint; green – transmissive tectonic joint; grey – transmissive foliation parallel fracture (FPF). OTV – optical televiewer; ATV – acoustic televiewer. ATV no functioning.



Appendix 17, continued. Interpreted features for Top 1. Optical televiewer interpretations indicated by color: orange – subhorizontal sheeting joint; magenta – tectonic joint; red – foliation parallel fracture (FPF); cyan – transmissive subhorizontal sheeting joint; green – transmissive tectonic joint; grey – transmissive foliation parallel fracture (FPF). OTV – optical televiewer; ATV – acoustic televiewer. ATV not functioning.



Appendix 17, continued. Tadpole plots and stereoplots of interpreted optical televiewer (OTV) structures for Top 1. In the tadpole plot depth is plotted along the y-axis and magnitude of the dip plotted on the x-axis. The tail of the tadpole points in the direction of the dip, relative to true north, which is toward the top of the page. The stereonets represent poles to planar features plotted on a lower-hemisphere equal-area stereonet. Stereonets use right hand rule convention. Colors on the OTV structures plot correspond to those in the tadpole explanation.



Appendix 17, continued. Composite log for Top 1 of natural gamma, fluid resistivity, fluid temperature and heat pulse flowmeter data under ambient conditions. Heat pulse flowmeter data collected under stressed (pumping) conditions could not be collected. Water table was too deep for pumping apparatus.