

## 5. 観測井戸掘削

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**WELL DRILLING GEOLOGICAL LOG DATA for Site No-1**

Well No.	RVS BH No-1	Drilling Diameter	254 mm	Static Water Level	47.35 m	
Location	Abaya North, Walayta	Casing Diameter	156 mm	Water Struck at	66.00 m	
Easting	383508	Drilling Depth	150.00 m	Drilling method	DTH	
Northing	734719	Well Depth	150.00 m			
Altitude	1688 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0	<b>Top soil</b> crumbling clay - silt	Yellowish beige	9.5		Surface casing 12" to 4m Cement ground to 6m	0
5	<b>Pumice tuff</b> weathered sample: silt - clay size contain some fragments of grey welded tuff, max 1.5cm	Beige	5			5
10			3.2			10
15	<b>Pumice</b> fresh - slightly weathered 17 - 18m :fine (silty) beige 19 - 20m: fine (silty) beige	Grey -beige	2.2			15
20	Sample: mostly fragements of pumice max 2cm		1.6		Gravel filled up to 23m	20
25			1.2			25
30	<b>Tuff</b> 31 - 34m: fine (silt -clay) pale yellowish white	Grey - beige white	6.4			30
35	36 - 37m: sample coase sand size, volcanic, feldsper, obsidian grains		3.2			35
40			4			40
45	<b>Sand</b> Sample: silt - fine sand very uniform, well sorted grains: pumice and acidic volcanic	Greysh brown	8.1			45
50	<b>Welded tuff</b>		14		Static water level ▽	50

データ 5.1 井戸掘削総合柱状図 サイト No-1 (1/3)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-1**

Well No.	RVS BH No-1	Drilling Diameter	254 mm	Static Water Level	47.35 m	
Location	Abaya North, Walayta	Casing Diameter	156 mm	Water Struck at	66.00 m	
Easting	383508	Drilling Depth	150.00 m	Drilling method	DTH	
Northing	734719	Well Depth	150.00 m			
Altitude	1688 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50	slightly weathered sample: coarse sand - gravel size	Greenish grey	37			50
55			11			55
60			10			60
65					water struck at 66m	65
70	<b>Sand with gravel</b> Coarse sand with gravel matrix: yellowish tuff of fine sand up to 70 m	Yellowish grey	4			70
75	Dark grey gravel and sand: dark grey hard pumice pumice with little pore gravel : angular - subangular	Dark grey	5			75
80			3			80
85	<b>Gravel with sand</b> gravel : max 2cm, dark grey pumice contain little fine		4			85
90			5			90
94	<b>Welded tuff</b> sample: coarse sand - gravel max 3cm, contain little fine	Grey	13			90
95	some fragments yellowish in color contain small amount of crystals ( to 10%)	ome greenist	14			95
100	contain no obsidean, some orange tuff fragments		15	Scr	Screen top at 96m	100

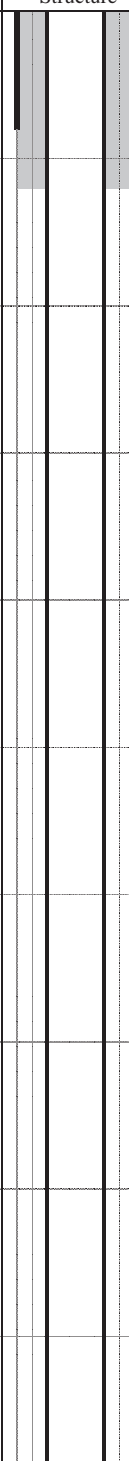
データ 5.1 井戸掘削総合柱状図 サイト No-1 (2/3)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-1**

Well No.	RVS BH No-1	Drilling Diameter	254 mm	Static Water Level	47.35 m	
Location	Abaya North, Walayta	Casing Diameter	156 mm	Water Struck at	66.00 m	
Easting	383508	Drilling Depth	150.00 m	Drilling method	DTH	
Northing	734719	Well Depth	150.00 m			
Altitude	1688 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
100						100
105			17			105
110			17			110
115			18	Scr		115
120			14			120
125			18		warm water struck	125
130	<b>Rhyolite (breccia)</b> sample: coarse sand - gravel with 1 little fine	Pale orange - Purple grey	20		screen botom at 126m	130
135	Fragments of crystalline acidic volcanic color dark reddish purple the rock contains 50% feldspar with minor mafic mineral (mica, amphibole)		60			135
140	max 5 cm fragments		70			140
145			51			145
150			80			150
150			91		End of drilling at 150m	150

データ 5.1 井戸掘削総合柱状図 サイト No-1 (3/3)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-2**

Well No.	RVS BH No-2	Drilling Diameter	254 mm	Static Water Level	92.20 m	
Location	Meki, East Shoa	Casing Diameter	156 mm	Water Struck at	101.00 m	
Easting	486367	Drilling Depth	172.00 m	Drilling method	DTH, Mud rotary	
Northing	907630	Well Depth	147.00 m			
Altitude	1694					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0						0
2	<b>Top soil</b> top soil, silty clay	Yellowish Brown	2.3		surface casing 12" up to 4m  cement grout up to 6m	
5	<b>Weathered tuff</b> contain max 1.5cm pumice fragments	Yellowish				
10	<b>Pumice tuff</b> highly weathered pumice with tuff	Yellowish	6.2		at 9.2m, 3 m collapse	10
15	Fresh tuff with pumice	grey	6.6			15
20	<b>Pumice</b> with little sand sample all pumice fragments, pale grey max 3cm	Greyish white				
25	some fragments slightly weathered		4.6			25
30	samples all contain gravel size fragments, uniform looking		1.6			30
35	pumice have fine elongated micropores contain small Qz, felds in 1% ratio		4			35
40			3.1			40
45			1.6			45
46			1.5			46
50	<b>Sand with pumice</b> pumice with sand samole gravel size 40% coarse sand with gravel	Yellowish grey	3.5			50

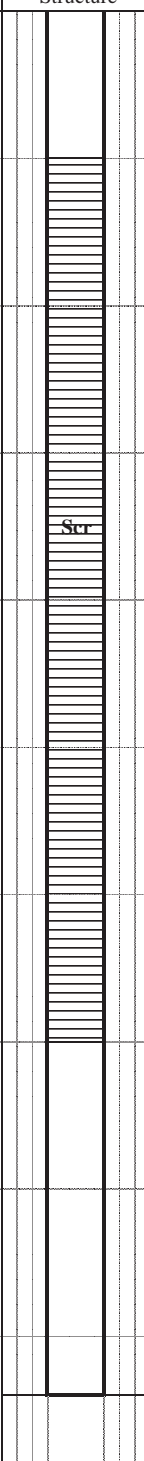
データ 5.1 井戸掘削総合柱状図 サイト No-2 (1/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-2**

Well No.	RVS BH No-2	Drilling Diameter	254 mm	Static Water Level	92.20 m	
Location	Meki, East Shoa	Casing Diameter	156 mm	Water Struck at	101.00 m	
Easting	486367	Drilling Depth	172.00 m	Drilling method	DTH, Mud rotary	
Northing	907630	Well Depth	147.00 m			
Altitude	1694					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50	no rounded gravel, max 1cm		3.1			50
55			4.2		at 59m, bit stuck	55
60						60
61						61
65	<b>Gravel with sand</b> gravel with coarse sand with little fine subrounded gravel of volcanic rocks 40% rounded gravel max 2cm	Grey	4.1			65
70	<b>Pumice with gravel</b> pumice max 2cm, gravel max 8mm of reddish & greenish volcanic (5%)	Grey	5.2			70
71	<b>Welded tuff</b> welded tuff and volcanic fragments fragments max 1cm	Pale green	13			71
74						74
75		Pale green				75
80	highly welded tuff fragments samples in well sorted angular frag. some are greyish micro pores develop, few crystals seen		14			80
85			16		Top of gravel at 80m	85
90			18			90
94			3			94
95	<b>Welded tuff</b> sample: sand size gravel of volcanic max 1.5cm, angular subangular welded tuff and dark purple volcanic	Greenish	11		at 92m, 8m collapse Static water level ▽	95
100	gravel with sand gravel of welded tuff and associated rock of max 1.5cm, angular contains more greenish fragments towards the bottom. contain tiny pieces of obsidian		12			100

データ 5.1 井戸掘削総合柱状図 サイト No-2 (2/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-2**

Well No.	RVS BH No-2	Drilling Diameter	254 mm	Static Water Level	92.20 m		
Location	Meki, East Shoa	Casing Diameter	156 mm	Water Struck at	101.00 m		
Easting	486367	Drilling Depth	172.00 m	Drilling method	DTH, Mud rotary		
Northing	907630	Well Depth	147.00 m				
Altitude	1694						
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth	
100	<b>Gravel with sand</b> subangular - subround gravel of greenish, white, dark grey volcanics	Greenish grey	2.4		Water struck at 101m at 101m, 4m collapse	100	
105						105	
108	gravel max 2cm, angular in sand basaltic and redish volcanics		2.4				108
110	<b>Pumice</b> 110-111m pumice with gravel	Grey					110
115	pumice fragments max 4cm with little fine greenish white pumice		2.3				115
120	116-117m with volcanic fragments max 5mm		1.1				120
125			1.5				125
127	<b>Pumice with gravel</b>		1.3				127
130	<b>Sand with pumice fragments</b> pumice max 4cm, atio 30% sand : greenish grey, moderately sorted	greenish grey				at 128m, 13m collapse	130
133			4.5				133
135	<b>Sand with pumice</b> pumice max 10mm	Grey					135
140	Coarse to medium sand		4.4				140
145			4.5				145
150	<b>Sand</b> Coarse sand	Greenish grey	5.2			at 147m, 2m collapse End of casing at 147m	150
			7.5				

データ 5.1 井戸掘削総合柱状図 サイト No-2 (3/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-2**

Well No.	RVS BH No-2	Drilling Diameter	254 mm	Static Water Level	92.20 m	
Location	Meki, East Shoa	Casing Diameter	156 mm	Water Struck at	101.00 m	
Easting	486367	Drilling Depth	172.00 m	Drilling method	DTH, Mud rotary	
Northing	907630	Well Depth	147.00 m			
Altitude	1694					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150						150
	<b>Sand</b> medium - fine, moderately sorted very loose sand grain: subangular, subrounded	greenish grey	8.2			
155						155
	rounded grain up to 30%  158-161m contain some pumice frag. max 1.5cm, 30%		16		at 156m, 20m collapse drill bit stuck	
160						160
			21			
165						165
			7.3			
170						170
					End of drilling	
175						175
180						180
185						185
190						190
195						195
200						200

データ 5.1 井戸掘削総合柱状図 サイト No-2 (4/4)



**WELL DRILLING GEOLOGICAL LOG DATA for Site No-3**

Well No.	RVS BH No-3	Drilling Diameter	254 mm	Static Water Level	171.00 m	
Location	Sheshemene, West Arsi	Casing Diameter	156 mm	Water Struck at	203.00 m	
Easting	447623	Drilling Depth	250.00 m	Drilling method	Rotary, DTH	
Northing	795610	Well Depth	247.00 m			
Altitude	1801 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0	<b>Top soil</b> weathered pumice, clay - silt with some pumice fragments and some gravel	Dark brown	9		Drill by air up to 97m	0
5	<b>Tuff with pumice</b> pumice fragment 10% slightly weathered sample: fine - medium sand size pumice : fresh, grey	Yellowish greenish grey	3.8		up to 41m drilled with wing bit by rotary cement grout up to 6m at 9.6m, 3m collapse	5
10			5			10
15			3		at 23.4m, 19m collapse	15
20	<b>Pumice with tuff</b> Pumice : fresh, grey, max 4cm, 50%		3			20
25			3			25
30	<b>Tuff with pumice</b> sample : fine - coarse sand size		2.8			30
35			3.2			35
40			3.6		36 to 41 m cemented	40
45	contain some gravel of grey welded tuff around 40m Fresh around the bottom	Yellowish White	8			45
46	<b>Acidic tuff</b> slightly welded clistaline feldsper, quartz grains 30%	Grey Pale grey	21		at 47m, 19m collapse	46
50						50

データ 5.1 井戸掘削総合柱状図 サイト No-3 (1/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-3**

Well No.	RVS BH No-3	Drilling Diameter	254 mm	Static Water Level	171.00 m	
Location	Sheshemene, West Arsi	Casing Diameter	156 mm	Water Struck at	203.00 m	
Easting	447623	Drilling Depth	250.00 m	Drilling method	Rotary, DTH	
Northing	795610	Well Depth	247.00 m			
Altitude	1801 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50						50
	sample medium - coarse sand size bad sorted, max size 0.3cm of Qz and hard vol rock fragments of white and reddish grey a few pumice		24			
55			19			55
60			15			60
61						
65		Yellowish				65
	67-68m contains yellowish welded tuff sample: fine gravel size with little sand fragments (max 1cm), 30%	grey	11			
70	<b>Peleo soil</b> fine sand with yellowish welded	brown				70
71	tuff fragments		5			
75	<b>Tuff + sand with gravel</b> sample: silt - medium sand size	Yellowish white				75
80	with fragments of pumice and volcanic rocks of max 4 mm volcanic frag. (reddish, greysh acidic) Some quartz and pumice subrounded fragment ratio : 5 - 30 %		3			80
85	very uniform look samples sample: coarse sand size from 75m down made of rounded grains of acidic volcanic rock (grey - white). well sorted sample		2			85
90			3			90
94						
95			4			95
	96-98m contains larger fragments of acidic volcanic rock (max 3cm) reddish, grey, greenish					
100	<b>Welded tuff</b>	Greenish	30		at 99m, bit stuck	100

データ 5.1 井戸掘削総合柱状図 サイト No-3 (2/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-3**

Well No.	RVS BH No-3	Drilling Diameter	254 mm	Static Water Level	171.00 m	
Location	Sheshemene, West Arsi	Casing Diameter	156 mm	Water Struck at	203.00 m	
Easting	447623	Drilling Depth	250.00 m	Drilling method	Rotary, DTH	
Northing	795610	Well Depth	247.00 m			
Altitude	1801 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
100	pale greenish, slightly weathered sample contain fines, monomictic sample : fine gravel size	grey				100
105	<b>Acidic tuff - breccia</b> slightly weathered sample coarse sand - fine gravel size bad sorted with some fine	Greenish grey	33			105
110			31			110
115			35			115
120			27			120
125			23		at 124m, 24 m collapse occurred from upper section	125
127			26			127
130	<b>Welded tuff - Ryiolite</b> abandant yellowish Qz-Flds crystals abandent obsidean fragments	greyish white	21			130
133	133m slightly weathreed and fine	Yellowish				133
135	<b>Weathered tuff</b> silt size (soil)	Dark orange				135
140	136m contains greenish welded tuff uniform looking samples	brown	11			140
145	<b>Tuff breccia</b> sample gravel and sand size gravel of acidic volcanic (grey, redish) max 1cm sample contain little fines	Yellowish grey	6			145
150			11			150

データ 5.1 井戸掘削総合柱状図 サイト No-3 (3/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-3**

Well No.	RVS BH No-3	Drilling Diameter	254 mm	Static Water Level	171.00 m	
Location	Sheshemene, West Arsi	Casing Diameter	156 mm	Water Struck at	203.00 m	
Easting	447623	Drilling Depth	250.00 m	Drilling method	Rotary, DTH	
Northing	795610	Well Depth	247.00 m			
Altitude	1801 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150		greysh				150
155			16			155
160		Yellowish orange vari-color	12			160
165	<b>Tuff breccia</b> sample coarse sand with some gravel	Orange grey	11			165
170			6			170
175	<b>Tuff breccia</b> sample gravel with sand contains more yellowish - orange colored gravel of subangular	Orange	9		Static water level ▽	175
180			5			180
185	80-84m sample: sand size		8			185
190	<b>Tuff breccia</b> sample sand with gravel contain crumbling crust of tuff (40%), max 1.5cm fine silt - med sand size gravel of volcanic max 5mm	Yellowish orange	6			190
195	(reddish volcanic fragments) 5 - 40%		5			195
195	96m below: more volcanic fragments "(40%)		6			195
200	<b>Tuff breccia</b> sample gravel with little sand		8			200

データ 5.1 井戸掘削総合柱状図 サイト No-3 (4/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-3**

Well No.	RVS BH No-3	Drilling Diameter	254 mm	Static Water Level	171.00 m	
Location	Sheshemene, West Arsi	Casing Diameter	156 mm	Water Struck at	203.00 m	
Easting	447623	Drilling Depth	250.00 m	Drilling method	Rotary, DTH	
Northing	795610	Well Depth	247.00 m			
Altitude	1801 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
200						200
	203m contain crystalline volcanic of dark purple, sample in block max 5cm		9		Water struck at 203m	
205	<b>Tuff breccia</b> sample gravel with sand gravel of reddish volcanic max 2cm slightly weathered/alterned	Yellowish	8			205
210	contain typically orange colored weathered pumice fragments (30%)		5			210
215						215
220	216-221m contain grains and gravel all covered with orange - dark brown fines sample: sand size	Dark brown	4			220
225	<b>Tuff breccia (crystalline sand with gravel)</b> sample coarse sand with some gravel gravel subangular-angular sand contains many crystals (50-80%) with little fine gravel reddish volcanic & obsidian	grey	4			225
230	<b>Tuff breccia</b> sample: coarse sand with gravel slightly weathered	Yellowish orange	6			230
235	contain yellow fragments of weathered pumice up to 237 strong yellow in color after that paler		5			235
240	sample relatively uniform looking throughout this section	pale yellow	7			240
245			7			245
250			6			250

データ 5.1 井戸掘削総合柱状図 サイト No-3 (5/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-4**

Well No.	RVS BH-4	Drilling Diameter	254 mm	Static Water Level	7.80 m	
Location	Yirga Alem	Casing Diameter	156 mm	Water Struck at	42 and 96 m	
Easting	424918	Drilling Depth	247.00 m	Drilling method	DTH and Mud Rotary	
Northing	745467	Well Depth	244.00 m			
Altitude	1643 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0						0
1	<b>Top soil</b> , black cotton soil	Black	20		Surface casing up to 45 m	0
2	<b>Acidic tuff</b> very fine	Greenish grey				
5	<b>Black clay</b> Uniform clay	Black				
5	no crystals, rock fragments contained wet sample		4		Static water level $\nabla$ 7.8m	5
10						10
11	<b>Clay and silt</b> contain small crystals of Pl and >>Qz	Brown	3			11
15			5.3			15
20			10		Small amount of water struck	20
25			27.5			25
30			6			30
33	<b>Weathered basalt</b> highly weatehred porous basalt bloc crumbling, max 7cm block came out Pl crystals weathered to yellowish	Yellowish grey	4			33
35	<b>Silt and clay</b> contain tiny grains of Qz and obsidia max 1mm more clay than 11-30m section	Yellowish brown	4			35
40			31			40
44			67		Large amount of water struck at 42m	44
45	<b>Welded tuff</b> slightly weathered, partly highly we fine grained, contain fresh elongated Pl, Qz	Greenish grey	82			45
50						50

データ 5.1 井戸掘削総合柱状図 サイト No-4 (1/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-4**

Well No.	RVS BH-4	Drilling Diameter	254 mm	Static Water Level	7.80 m	
Location	Yirga Alem	Casing Diameter	156 mm	Water Struck at	42 and 96 m	
Easting	424918	Drilling Depth	247.00 m	Drilling method	DTH and Mud Rotary	
Northing	745467	Well Depth	244.00 m			
Altitude	1643 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50			86			50
55			90			55
56	<b>Welded tuff</b> sample in sand size, max 2cm more crystalline than above section contain greenish, grey rock fragments	Pale green	30			60
60						
65			33			65
70			45			70
75	<b>Welded tuff</b> sample coarse sand size up to 83m smaller grain size after 83m crushed angular pieces of dark grey to greenish volcanic rocks with small crystals badly sorted, max size 3cm	Bluish grey	31			75
80						
85			41			85
90			36			90
95			16			95
96			21			96
97			22		Large amount of water struck at 96 m	97
100	<b>Slightly weathered welded tuff</b> more cristaline, brownish alteration Coarse grain size sample	Grey				100

データ 5.1 井戸掘削総合柱状図 サイト No-4 (2/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-4**

Well No.	RVS BH-4	Drilling Diameter	254 mm	Static Water Level	7.80 m	
Location	Yirga Alem	Casing Diameter	156 mm	Water Struck at	42 and 96 m	
Easting	424918	Drilling Depth	247.00 m	Drilling method	DTH and Mud Rotary	
Northing	745467	Well Depth	244.00 m			
Altitude	1643 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
100						100
102	Inclusions of weathered pumice and vol rock		19			
105	<b>Volcanic Sand</b> Poorly sorted Coarse to med grain with no fine					
106	Contain pebble size angular to subangular greenish or redish volcanic fragments altered Pl crystal contained		23			
110	<b>Basaltic Breccia</b>	Reddish grey				
115	Congregaed with no fine as matrix Black angular basalt and redish basaltic rock of max 4cm chunk 112- 113m sample sand size 114-115m contain small amount of greenish rounded welded tuff grain sample gravel size		18			
120			13			
125	120 - 127 m contains weathered yellowish tuff (crumbling) pieces		20			
129			55			
130	<b>Crystalline basalt lava</b>	Dark grey	160			
135	Sample , gravel with coarse sand size Angular crystalline basalt frag. 70% max 2cm Reddish welded tuff with glass piece and some crystals, 30%		108			
140			165			
145			85			
150	After 150 m, basalt frag 90%		144			

データ 5.1 井戸掘削総合柱状図 サイト No-4 (3/5)



**WELL DRILLING GEOLOGICAL LOG DATA for Site No-4**

Well No.	RVS BH-4	Drilling Diameter	254 mm	Static Water Level	7.80 m	
Location	Yirga Alem	Casing Diameter	156 mm	Water Struck at	42 and 96 m	
Easting	424918	Drilling Depth	247.00 m	Drilling method	DTH and Mud Rotary	
Northing	745467	Well Depth	244.00 m			
Altitude	1643 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150	Sample uniform and well sorted fragments		98			150
155	<b>Sand and Gravel</b> 70 % sand 30 % Gravel Gravel angular to sub-rounded in shape Sand is fine grained	Brownish				155
160	<b>Sand</b> Fine grained Well sorted	Brownish	320			160
165			418			165
170			124			170
175	<b>Sand</b> Medium to Coarse grained probably tuff origin	Light Grey	123			175
180			192			180
185			139			185
190			74			190
195	<b>Sand</b> Fine grained Some volcanic materials like quartz, feldspar and glassy materials probably rhyolitic origin	Light grey	133			195
200			115			200

データ 5.1 井戸掘削総合柱状図 サイト No-4 (4/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-4**

Well No.	RVS BH-4	Drilling Diameter	254 mm	Static Water Level	7.80 m	
Location	Yirga Alem	Casing Diameter	156 mm	Water Struck at	42 and 96 m	
Easting	424918	Drilling Depth	247.00 m	Drilling method	DTH and Mud Rotary	
Northing	745467	Well Depth	244.00 m			
Altitude	1643 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
200						200
205			90			205
210			97			210
215			44			215
220			132			220
225			189			225
230			139			230
235			137			235
240			267			240
244					End of the casing	244
245			144			245
247			128			247

データ 5.1 井戸掘削総合柱状図 サイト No-4 (5/5)

**WELL DRILLING GEOLOGICAL LOG DATA at Site No-5**

Well No.	RVS BH-5	Drilling Diameter	254 mm	Static Water Level	54.80 m	
Location	Dimitu	Casing Diameter	NA mm	Water Struck at	64.00 m	
Easting	424611	Drilling Depth	83.00 m	Drilling method	DTH	
Northing	763729	Well Depth	NA m			
Altitude	1482 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0						0
3	<b>Top soil</b> Pale brown, clay - silt	Yellowish Pale brown	14.3		Surface casing 10" to 71m	
5	<b>Weathered pumice</b> Pumice frag. Max 2cm	Pale brown grey				
9	<b>Fresh pumice</b> Pumice frag. Max 5cm Tuff : 20 - 30% volume	greyish white	2.4			
11	<b>Wethered tuff</b>	Pale orange				10
11	Silt - clay, 10-11m include some pumice		5.4			
15	<b>Slightly weathered pumice and tuff</b> Pumice frag. Ave. 5mm, max 1cm 14-15m: ave. 1cm, max 4cm	Brawnish grey				
18	<b>Pumice (weathered tuff)</b> Pumice is fresh (greyish white), max 2cm Matrix is brown tuff	Pale brown	4.5			
20	<b>Ditto</b> Pumice frag. Laeger : max 4cm	Paler	3.2			20
22	Weathered tuff with pumice with small pumice frag. (10%)	Pale brown				
24	<b>Ditto</b> Pumice 60-80%, max 1.5cm	Pale brown				
25	<b>Slightly weathered pumice sand</b>	Pale brown	3.4			25
30	Sand to pebble size pumice frag. moderately sorted some pumice fragments subrounded 28 - 29m: small amount of obsedian	- pale grey	4.2			30
35			2.5			35
40	37 - 51m : this section is specially well sorted, coarse sand size		4.5			40
45			3.3			45
50			2.1			50

データ 5.1 井戸掘削総合柱状図 サイト No-5 (1/2)

**WELL DRILLING GEOLOGICAL LOG DATA at Site No-5**

Well No.	RVS BH-5	Drilling Diameter	254 mm	Static Water Level	54.80 m	
Location	Dimitu	Casing Diameter	NA mm	Water Struck at	64.00 m	
Easting	424611	Drilling Depth	83.00 m	Drilling method	DTH	
Northing	763729	Well Depth	NA m			
Altitude	1482 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50						50
52	52 m small black basalt frag. Contained		1.3			
55	<b>Pumice with rock fragments</b> Slightly weathered pumice with volcanic rock fragments (rhyolite, obsidian)	Varicolor			Static water level ▽	55
56	Pumice frag.: Max 3cm, 20%		1.3		54.8m	
	<b>Ditto</b> This section contain more fine, clayey smaller pumice frag. Max 2cm					
60			2.5			60
63						
65	<b>Ditto</b> more volcanic frag. (50%), max 3cm				water struck at 64m	65
69	<b>Basalt (blocky)</b> blocky, perforated, slightly weathered yellowish alteration mineral in pores frag. Max 3cm, no fine	Grey-black	4.3			
70	<b>Fresh basalt (blocky)</b> porous max frag. 3cm, yellowish alteration in pores	Grey-black	500			70
73	<b>Fresh basalt lave (massive)</b> Fresh basalt fragments of coarse sand size: ave. 1-3mm, max 1cm uniform and no fines	Grey-black	61			75
80			79			80
82						
83	<b>Volcanic sand</b> Coarse sand size with little fine	Varicolor			End of borehole 31 Jan. 2011	
85	45% fresh basalt fragment (angular)					85
	50% pale orange acidic tuff/rhyolite fragments (angular)					
	5% yellowish white pumice fragments sub-rounded, small amount feld cry. max size 7mm					
90						90
95						95
100						100

データ 5.1 井戸掘削総合柱状図 サイト No-5 (2/2)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-5N**

Well No.	RVS BH-5N	Drilling Diameter	254 mm	Static Water Level	NA m	
Location	Dimtu	Casing Diameter	NA mm	Water Struck at	NA m	
Easting	404286	Drilling Depth	42.00 m	Drilling method	Mud rotary	
Northing	7656582	Well Depth	NA m			
Altitude	1483 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0	<b>Top soil</b> Pumiceous clay - silt	Yellowish white	15			0
4						
5	<b>Weatherd basalt</b> Slightly weathered black basalt cutting fragments max 5mm	black	20			5
10						10
13						
15	<b>Coarse sand</b> subangular basalt and feldsper grains of max 3mm	Grey	35			15
18						
20	<b>Coarse sand</b> increased ratio of basalt grains	Dark grey	35			20
24						
25	<b>Slightly weathered basalt</b> black basalt cutting fragments max 5mm	Black	60			25
27						
30	<b>Weathered basalt</b> black basalt frag, and crumbling veige color frag. Ratio (50 : 50)	Dark grey	420			30
35	<b>Weathered basalt</b> same as above 95% basalt fragment	Dark grey varicolor	20			35
40	<b>Fresh massive basalt</b> slightly flattened black basalt frag. max 1cm	Black				40
45						45
50						50

データ 5.1 井戸掘削総合柱状図 サイト No-5N (1/1)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-5N (Complete)**

Well No.	RVS BH 5N	Drilling Diameter	256 mm	Static Water Level	Artesian	
Location	Dimitu	Casing Diameter	156 mm	Water Struck at	5,35 & 90 m	
Easting	404289	Drilling Depth	250.00 m	Drilling method	Mud rotary & DTH	
Northing	7656582	Well Depth	250.00 m			
Altitude	1485 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0	<b>Soil</b>	yellowish			11" in diameter 19 meters length surface	0
3						
5	<b>Tuff</b> Slightly welded	yellowish				5
	Some quartz ( 5 %) Highly weathered		2			
10						10
			6			
15						15
17						
	<b>Vesicular Basalt</b> massive	Greyish	5			
20	fine grained Quartz viens					20
			7			
25						25
	<b>Vesicular Basalt</b> coarse grained moderately weathred and fractured Max. grain size 2 cm	Dark grey				
30			13			30
	<b>Vesicular Basalt</b> fine grained massive	Dark Grey				
35						35
	<b>Vesicular Basalt</b> coarse grained moderately fractured Max. grain size 2-3 cm	Grayish	5			
40						40
			14			
45						45
			36			
50						50

データ 5.1 井戸掘削総合柱状図 サイト No-5N complete (1/5)

Depth		Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50						50
53			54			
55	<b>Vesicular Basalt</b> Medium to coarse grained	Reddish				55
57	Moderately weathered Slightly fractured					
60	<b>Vesicular Basalt</b> Medium to coarse grained Moderately weathered Slightly fractured	Greyish	93			60
65						65
70			134			70
75						75
78			74			
80	<b>Vesicular Basalt</b> medium to fine grained Slightly fractured and weathered	Greyish reddish	90			80
82						
85	<b>Basalt (bolder like)</b> volcanic materials (quartz and glassy materials) fine grained highly weathered	Greyish	20			85
88	<b>Vesicular Basalt</b> coarse grained, large gravel of basalt moderately fractured	Greyish				
90			17			90
95	<b>Tuff</b> moderately welded 80% whitish 20% yellowish	whitish reddish				95
100	<b>Tuff</b> moderately welded 80 % yellowish in color 20 % whitish in color with some volcanic materials		20			100

データ 5.1 井戸掘削総合柱状図 サイト No-5N complete (2/5)

Depth 100	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth 100
	quartz ,feldspar ,glassy materials		17			
105			10			
110			9			
114	<b>Rhyolitic tuff</b>	Whitish				
115	with some volcanic materials medium to fine grained slightly fractured moderately weathered containing altered pumice frag		16			
120			7			
125			22			
130	<b>Ignimbrite</b>	Greenish				
135	highly weathered moderately fractured almost changed to clay containing fragments of obsidian tuff, pumice and Qz crystals		9			
140			10			
145	<b>Tuff</b>	Light grey				
150	moderately welded highly weathered rounded sand sized grains Max. grain size 2 cm		96			

データ 5.1 井戸掘削総合柱状図 サイト No-5N complete (3/5)



Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150						150
155	<b>Weathered tuff</b> Qz rich tuff frag of coarse sand siz	Yellowish white	136			155
160			9			160
164						164
165	<b>welded tuff</b>	Dark green				165
165	Highly weathered decomposed to clay sticky Frag : obsideian, tuff , pumice max 1cm		50			165
170						170
175			45			175
180			20			180
185			6			185
190			18			190
195						195
196						196
196	<b>Tuff</b> slightly welded highly weathered altered to clay	Dark green	7			196
200						200

データ 5.1 井戸掘削総合柱状図 サイト No-5N complete (4/5)

Depth 200	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth 200
	sticky (wet)					
205	<b>Tuff</b> weathered tuff more basic looking of samples more volcanic clay produced	Greenish grey	38			205
210			37			210
215			77			215
220			18			220
225			17			225
230			18			230
235			62			235
240			58			240
245						245
246	<b>Ignimbrite</b> moderately weathered slightly fractured coarse to medium grain	Dark grey				246
250			70			250

データ 5.1 井戸掘削総合柱状図 サイト No-5N complete (5/5)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-6**

Well No.	RVS BH 6	Drilling Diameter	256 mm	Static Water Level	247 m	
Location	Kenche	Casing Diameter	156 mm	Water Struck at	274 & 310 m	
Easting	0420139	Drilling Depth	400.00 m	Drilling method	DTH	
Northing	0807171	Well Depth	356.00 m			
Altitude	1868 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0	<b>Top Soil</b> Clayey in color	Dark Brown			11" in diameter 6 m length surface casing	0
5	<b>Volcanic ash (tuff)</b> highly weathered very fine grained	Yellowish	15			5
10			4			10
14						14
15	<b>Pumice tuff</b> fragmented, highly weathered Max. grain size 3-4 cm sub rounded in shape, crumbling	Greyish yellowish	3			15
20						20
25	<b>Pumice</b> Highly weathered with some volcanic materials like quartz, rhyolite	Yellowish	10			25
27	<b>Welded Tuff</b> highly weathered and fractured Max. grain size 2-3 cm	Yellowish				27
30	<b>Rhyolite</b> Highly crystalline (feldspar) moderately fractured Max. grain size 2 cm	Dark Grey reddish	24			30
35			43			35
38						38
40	<b>Tuff Breccia</b> Max grain size 4 cm In composition pumice, Ignimbrite and volcanic sand	Greyish	14			40
42						42
44	<b>Rhyolite</b> moderately weathered and fracture Max frag. size 2 cm, contain flaky glass	Dark grey				44
45	<b>Volcanic Sand</b> poorly sorted 60 % rounded, 40 % angular	light Greyish	9			45
50	<b>Tuff Breccia</b> Reddish 50% & light grey 50 % color					50

データ 5.1 井戸掘削総合柱状図 サイト No-6 (1/8)

Well No.	RVS BH 6	Drilling Diameter	256 mm	Static Water Level	247 m	
Location	Kenche	Casing Diameter	156 mm	Water Struck at	274 & 310 m	
Easting	0420139	Drilling Depth	400.00 m	Drilling method	DTH	
Northing	0807171	Well Depth	356.00 m			
Altitude	1868 m					
Depth		Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50						50
	<b>Welded Tuff</b> Weathered moderately fractured Max. frag size 3 cm Flattened fragments	Yellowish slightly green	12			
55						55
	Moderately to weakly welded including small rock fragments and some obsidian (flattened)					
60			12			60
	<b>Acidic tuff</b> angular in shape highly fractured volcanic material Rhyolite tuff and pumice	light grey Pale pink				
65			12			65
	other volcanic materials Slightly yellowish matrix with crystal and rock fragments max frag. Size 4cm, angular					
70						70
			10			
72						
	<b>Lapili tuff</b> moderately sorted sand 80 %	Yellowish				
75						75
	gravel 20 % in composition Altered medium grain tuff with angular dark grey volcanic fragments		14			
79						
80	<b>Altered acidic tuff</b>	Yellowish				80
	small gravel size Medium grain altered tuff, yellowish flattened fragments contain some crystals		19			
85						85
87						
	<b>Tuff breccia</b> Max. grain size 2-3 cm	Light Grey				
90			13			90
91						
	<b>Sand with gravel</b> moderately sorted sub rounded grains fine to medium sand 90 %	Light Grey yellowish				
95			15			95
	gravel 10 %, crystal grains 30% Volcanic fragments of yellowish, reddish green, reddish, yellowish large tuff frag					
100						100

データ 5.1 井戸掘削総合柱状図 サイト No-6 (2/8)

Well No.	RVS BH 6	Drilling Diameter	256 mm	Static Water Level	247 m	
Location	Kenche	Casing Diameter	156 mm	Water Struck at	274 & 310 m	
Easting	0420139	Drilling Depth	400.00 m	Drilling method	DTH	
Northing	0807171	Well Depth	356.00 m			
Altitude	1868 m					
Depth 100	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth 100
			11			
105	<b>Volcanic Sand</b> poorly sorted Max. grain size 0.5 cm volcanic materials crystal less than 5%	Dark Grey to Black	7			105
110	Fine to medium sand 20 % grains sub-angular - sub-rounded uniform looking sample		11			110
115						115
120			12			120
125						125
130	<b>Volcanic Sand and Gravel</b> Sand 70 % Gravel 30 % Max. grain size 1 cm compositionally quartz ,pumice and rhyolite(dark grey to purple) Flattened fragments 10% sub-rounded sand grain	Dark grey	14			130
135			7			135
140			11			140
145			10			145
150			13			150

データ 5.1 井戸掘削総合柱状図 サイト No-6 (3/8)

Well No.	RVS BH 6	Drilling Diameter	256 mm	Static Water Level	247 m	
Location	Kenche	Casing Diameter	156 mm	Water Struck at	274 & 310 m	
Easting	0420139	Drilling Depth	400.00 m	Drilling method	DTH	
Northing	0807171	Well Depth	356.00 m			
Altitude	1868 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150						150
153						
155	<b>Gravel</b> Max. grain size 1cm	Grey				155
156	tuff and Rhyolitic in origin		10			
160	<b>Sand and gravel</b> fine in grain size, max 1cm moderately sorted some volcanic materials like quartz,tuff and rhyolite	Light Grey				160
165	at 156m many pumice fragments		14			165
168						
170	<b>Crystalline Sand and gravel</b> coarse in grain size	Greyish	15			170
175	sub-angular moderately sorted some altered volcanic materials		6			175
180	volcanic rock fragments Dark grey acidic rock, Yellowish welded tuff Mostly angular sand grains		16			180
185						
190			30			190
195			12			195
200	<b>Sand with gravel</b> grain Qz, felds cystatals Yellowish grey acidic vol rock max 1cm		12			200

データ 5.1 井戸掘削総合柱状図 サイト No-6 (4/8)

Well No.	RVS BH 6		Drilling Diameter	256 mm	Static Water Level	247 m
Location	Kenche		Casing Diameter	156 mm	Water Struck at	274 & 310 m
Easting	0420139		Drilling Depth	400.00 m	Drilling method	DTH
Northing	0807171		Well Depth	356.00 m		
Altitude	1868 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
200						200
			33			
205						205
			24			
210						210
			11			
215						215
			17			
220	Qz, Feldspar rick sand med-fine sand, poorly sorted angular to sub-angular grains	Greyish white				220
223	<b>Welded Tuff</b> Moderately fractured	Greenish				225
225	max. grain size 3 cm Pale greenish grey, coarse grain, welded Abandunt qz crystals		22			
230						230
			28			
235						235
			28			
240						240
			16			
245					SWL ▽	245
250						250

データ 5.1 井戸掘削総合柱状図 サイト No-6 (5/8)

Well No.	RVS BH 6	Drilling Diameter	256 mm	Static Water Level	247 m	
Location	Kenche	Casing Diameter	156 mm	Water Struck at	274 & 310 m	
Easting	0420139	Drilling Depth	400.00 m	Drilling method	DTH	
Northing	0807171	Well Depth	356.00 m			
Altitude	1868 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
250						250
252			6			
255	<b>Sand (crystalline)</b> coarse grain size poorly sorted	yellowish				255
257	rounded in shape 50% crystal grains					
260	<b>Welded tuff</b> Highly weathered moderately fractured	Yellowish	13			260
265	Max. grain size 2 cm  sample sand and gravel size Yellowish, weakly welded tuff crumbling		14			265
269						
270	<b>Welded Tuff</b>	Grey	18			270
275	Moderately fractured slightly weathered Max. grain size 1.5 cm containing many feldspar crystals				First water strike zone	274 275
279			23			
280	<b>Welded Tuff</b>	Grey				280
285	Moderately weathered moderately fractured Max. grain size 2 cm		61			285
290			66			290
294			11			295
295	<b>Tuff</b>	Yellowish				295
	Shlightly welded with welded tuff f highly weathered highly fractured Max. grain size 2 cm	Greyish				
300			9			300

データ 5.1 井戸掘削総合柱状図 サイト No-6 (6/8)



Well No.	RVS BH 6		Drilling Diameter	256 mm	Static Water Level	247 m
Location	Kenche		Casing Diameter	156 mm	Water Struck at	274 & 310 m
Easting	0420139		Drilling Depth	400.00 m	Drilling method	DTH
Northing	0807171		Well Depth	356.00 m		
Altitude	1868 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
300						300
301	<b>Sand with gravel</b> Coarse grain size 60 % rounded in shape 40 % angular in shape	Yellowish grey Grey				
305	pumice in origin with some volcanic materials rounded pumice and welded tuff gravel sand grain of grey color containing angular crystals		10			305
310					Second water strike zone( bigger amount of water)	310
315			11			315
317	<b>Pumice</b> fragmented,max. gain size 3 cm	Greyish white				
320	<b>Gravel</b> angular in shape max. grain size 4 cm	Light Grey White	8			320
325	Angular volcanic rock frag subangular pumice and welded tuff frag (grey to white)		25			325
330			15			330
335	<b>Pumice and sand - gravel</b> Max. grain size 3 cm the sand is consolidated pumice max. grain size 3 cm sand max. grain size 2-2.5 cm	Dark Grey				335
340	Gravel subangular greyish white pumice sand 50% rock frag, 50% crystals		18			340
345			12			345
348			13			
350	<b>Gravel with sand</b> 80 % sub rounded in shape	Dark grey				350

データ 5.1 井戸掘削総合柱状図 サイト No-6 (7/8)

Well No.	RVS BH 6	Drilling Diameter	256 mm	Static Water Level	247 m	
Location	Kenche	Casing Diameter	156 mm	Water Struck at	274 & 310 m	
Easting	0420139	Drilling Depth	400.00 m	Drilling method	DTH	
Northing	0807171	Well Depth	356.00 m			
Altitude	1868 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
350	20 % angular in shape moderately sorted max. grain size 1cm Black crumbling gravel of sub-rounded		17		End of casing	350
355						355
357	<b>Gravel with Sand</b> gravel 70 % (black and altered) sand 30 %	Dark Grey Black	19			360
360						365
365	gravel sub rounded in shape the sand very fine grained poorly sorted 90% black altered sand		31			365
366						370
370	<b>Sand</b> fine grained - med grain well sorted	Light grey Dark grey	64			370
375						375
380	Black sand, poorly sorted		25			380
385						385
390	Dark grey with more Qz and Felds grains moderately sorted		20			390
395						395
400			54			400
			62			
			47			

データ 5.1 井戸掘削総合柱状図 サイト No-6 (8/8)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-7**

Well No.	RVS BH-7	Drilling Diameter	254 mm	Static Water Level	4.89 m	
Location	Arba Minch	Casing Diameter	NA mm	Water Struck at	NA m	
Easting	341712	Drilling Depth	200.00 m	Drilling method	Mud rotary	
Northing	670506	Well Depth	200.00 m			
Altitude	1149 m					
Depth	Geology	Colour	Drill time (hrs/ m)	Well Structure	Remark	Depth
0	<b>Top Soil, fine sand and silt</b>	Brown			Surface Casing 12" 1 long	0
	<b>Fine sand</b> moderately sorted angular to subangular grains of fine sand of volcanic rocks and Qz and Pl crystals	Geyish				
5					SWL ▽	5
	6 m below, silt - fine sand		16 hrs (0-15m)			
10						10
15						15
18						
20	<b>Sand</b> poorly sorted fine sand Subangular to subrounded contain less crystal than 5m sample  Coarser toward the bottom, Med sand	greyish varicolor	8 hrs (15-29m)			20
25						25
27						
30	<b>Sand with gravel</b> Med to coarse sand, rounded to sub some volcanic materials quartz , obsidian ,feldspar Max. grain size $\phi$ 0.3 cm 80% dark grey basalt + Qz	Page grey with white, yellowish sponts	11 hrs (29-33m)			30
33	<b>Basalt</b> weathered Max. Grain size 3mm sample mid sand size	Black				35
40	<b>Sand</b> Coarse sand with some pebble size grains, moderately sorted angular to subangular 60% grey basalt	greyish with white spots	10 hrs (33-52m)			40
45	<b>Sand</b> quartz ,obsidian and feldspart some altered volcanic materials 80 % angular in shape 20 % rounded in shape (basalt) sample coarse sand size	Pale grey veige varicolor				45
50						50

データ 5.1 井戸掘削総合柱状図 サイト No-7 (1/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-7**

Well No.	RVS BH-7	Drilling Diameter	254 mm	Static Water Level	4.89 m	
Location	Arba Minch	Casing Diameter	NA mm	Water Struck at	NA m	
Easting	341712	Drilling Depth	200.00 m	Drilling method	Mud rotary	
Northing	670506	Well Depth	200.00 m			
Altitude	1149 m					
Depth	Geology	Colour	Drill Rate (hrs/ m)	Well Structure	Remark	Depth
50	angular pcs are white rhyolite					50
55	around 55 m very coarse max 8mm		17 hrs (52-61m)			55
60						60
61						61
65	<b>Clay</b> silty clay with some sand grains of rounded shape	yellowish grey	12 hrs (61-69m)			65
70	sample as mud cake ( due to drillmud ?)					70
71						71
75	<b>Tuff and pumice</b> Highly to moderately weathered silt containing coarse sand to pebble aize weathered pumice	Brownish white				75
80			8 hrs (69-88m)			80
85						85
90	<b>Sand with gravel</b> Coarse sand with some pebble similar to 50m section but more basalt grains (90%) 40% rounded, 60% angular	Dark grey				90
95	Poorly to moderately sorted max 5mm size		7 hrs (88-100m)			95
100						100

データ 5.1 井戸掘削総合柱状図 サイト No-7 (2/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-7**

Well No.	RVS BH-7	Drilling Diameter	254 mm	Static Water Level	4.89 m			
Location	Arba Minch	Casing Diameter	NA mm	Water Struck at	NA m			
Easting	341712	Drilling Depth	200.00 m	Drilling method	Mud rotary			
Northing	670506	Well Depth	200.00 m					
Altitude	1149 m							
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth		
100	<b>Fine gravel</b> relatively well sorted subrounded to rounded grains max 5mm, 80% black basalt, 20% white rhyolite	Dark grey	45			100		
105			145			105		
110	Qz tuff, reddish vol rock		35					110
115			52					115
120			108					120
123	<b>Medium gravel</b> same composition as above max 2 cm gravel	Dark grey	96					125
127			91					127
130	<b>Fine gravel</b> same as section 100-123m	Dark grey	63					130
135			104					135
140			128					140
145	<b>Coarse sand</b> poorly to moderately sorted max 3 mm 50% subrounded grains 50% angular to subangular		69					145
150								150

データ 5.1 井戸掘削総合柱状図 サイト No-7 (3/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-7**

Well No.	RVS BH-7	Drilling Diameter	254 mm	Static Water Level	4.89 m	
Location	Arba Minch	Casing Diameter	NA mm	Water Struck at	NA m	
Easting	341712	Drilling Depth	200.00 m	Drilling method	Mud rotary	
Northing	670506	Well Depth	200.00 m			
Altitude	1149 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150	fresh black basalt 30% weathered basalt 10 to 20% Other grains (white, reddish, green welded tuff)	Dark grey	113			150
155			54			155
160			104			160
165			146			165
170			162			170
173	Sample lost (clay ?) circulation maintained		162			173
175			189			175
180	<b>Coarse sand</b> sample recovered from this depth Moderately sorted, Max size 1 mm 70% grain rounded. 30% subangular same composition as upper sands		204			180
185			94			185
190			68			190
195			79			195
200						200

データ 5.1 井戸掘削総合柱状図 サイト No-7 (4/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-8**

Well No.	RVS BH-8	Drilling Diameter	254 mm	Static Water Level	15.30 m	
Location	Chamo South	Casing Diameter	156 mm	Water Struck at	25 and 50 m	
Easting	327946	Drilling Depth	150.00 m	Drilling method	Mud	
Northing	630717	Well Depth	152.00 m			
Altitude	1156 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0						0
5	<b>Fine Sand with Silt</b> Moderately sorted 60 % rounded 40 % angular	Yellowish brown	154.8		Surface casing 12" to 1.1m	5
10			126			10
13						
15	<b>Clay with some silt</b> 70 % clay 30 % silt	Yellowish	123		SWL ▽	15
20			198			20
24						
25	<b>Coarse Sand</b>	Dark grey	300			25
30	90 % basalt Well sorted 70 % rounded 30 % angular few crystals		192			30
35	<b>Sticky Clay</b> wet	Reddish brown	300			35
36						
39	<b>Basalt</b> Slightly weathered , uniform sample Max. grain size 1 cm , massive	Dark Grey				
40	<b>Basalt</b> Massive,fresh (41-42 m clay) fine grained compered to the above sand size		720			40
44						
45	<b>Clay</b>	Reddish	540			45
47	<b>Fine Sand</b> 30 % rounded, 70 % angular, uniform	Greyish				
49	<b>Silty Caly</b> wet	Yellowish				
50	<b>Sand</b>	Greyish	84			50

データ 5.1 井戸掘削総合柱状図 サイト No-8 (1/3)

Well No.	RVS BH-8		Drilling Diameter	254 mm	Static Water Level	15.30 m
Location	Chamo South		Casing Diameter	156 mm	Water Struck at	25 and 50 m
Easting	327946		Drilling Depth	150.00 m	Drilling method	Mud
Northing	630717		Well Depth	152.00 m		
Altitude	1156 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50	medium to coarse in grain size 80 % well rounded volcanic materials basalt ,quartz and feldspar	Black Yellowish brown				50
55	<b>Clay</b> Sticky,wet	Brownish	249		55	
58	<b>Basalt</b> Moderately weathered ,slightly fractured Max. 0.5 cm grain Fine grined (coarse sand size)	Dark Grey	300		60	
60	<b>Gravel</b>	Greyish	258		65	
64	well sorted 50 % sub-rounded 5 % angular Max. grain size 1 cm Basaltic origin (> 95 %)		372		70	
65	<b>Clay with gravel</b> 60 % clay in composition (sticky) 40 % gravel	Brownish			74	
74	<b>Basalt</b>	Dark Grey	420		75	
75	moderately weathered & fractured Max. grain size 0.5-1 cm				76	
76	<b>Clay with gravel</b> contain 10 % gravel, mostly rounded high water content	Brownish	267		80	
80	<b>Gravel</b>				85	
85			558		85	
88					88	
90	<b>Basalt</b> Highly weathered to moderately fractured Max. grain size 2 cm	Dark Grey	360		90	
93	<b>Clay and gravel</b> 80 % clay	Brownish	192		95	
95	-Sticky ,brownish in color 20 % gravel - rounded ,basaltic origin 50% sub-rounded 50% sub-angular			100		
100			252	100		

データ 5.1 井戸掘削総合柱状図 サイト No-8 (2/3)



Well No.	RVS BH-8	Drilling Diameter	254 mm	Static Water Level	15.30 m	
Location	Chamo South	Casing Diameter	156 mm	Water Struck at	25 and 50 m	
Easting	327946	Drilling Depth	150.00 m	Drilling method	Mud	
Northing	630717	Well Depth	152.00 m			
Altitude	1156 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
100						100
105			306			105
109						109
110	<b>Basalt</b>	Dark Grey	552			110
	Moderately weathered slightly fractured Max. grain size 2cm					
115	20% sub-rounded grains		570			115
	contain 10% yellowish white weathered fragments					
120			132			120
124						124
125	<b>Clay with some basalt</b>	Brownish	246			125
	sticky, 5 % basalt					
127						127
128	<b>Basalt</b>	Dark grey				128
	moderately weathered					
130	<b>Clay with gravel</b>	Brownish	424.2			130
131	the gravel basaltic origin					131
132	sub rounded in shape, clustered sample					132
	max . grain size 1.5 cm					
134	60 % clay					134
135	40 % gravel		504			135
	<b>Basalt</b>	Greyish				
	moderately weathered					
140	<b>Clay with gravel</b>					140
	the same as 128-131 meters					
	basalt the same as 127-128 meters		378			
	<b>Clay with gravel</b>					
	the same as 128-131 meters					
144						144
145	<b>Gravel</b>	Greyish	252			145
	basaltic origin					
	angular to sub angular in shape					
	moderately sorted					
	max. 2cm, 40% sub-rounded					
150						150
152			552			152

データ 5.1 井戸掘削総合柱状図 サイト No-8 (3/3)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-9N**

Well No.	RVS BH 9-N	Drilling Diameter	256 mm	Static Water Level	44.70 m	
Location	Langano SW	Casing Diameter	156 mm	Water Struck at	89and 100 m	
Easting	464826	Drilling Depth	201.00 m	Drilling method	Mud rotary	
Northing	829769	Well Depth	201.00 m			
Altitude	1629 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0						0
4	<b>Alluvial Sand</b> poorly sorted angular grain, coarse sand	Yellowish	6			
5	<b>Tuff</b>	Yellowish			10inch surface casing up to 28.23m	
7	Weathered, crumbling, contain 5% volcanic materials, quartz cristal		18			
10	<b>Tuff</b> Slightly welded Weathered to highly weathered moderately fractured	Yellowish white				
15	Max. fragement size 3 cm tuff frag. containg fresh Pl crystals and volcanic rock grains		25			
20	17 m - 20 m Highly weathered, crumbling	Yellow	25			
25	<b>Tuff</b> Highly weathered Almost Decomposed to soil	Yellowish				
30			22			
32			26			
35	<b>Tuff (Ditto)</b> containing more crystals and rock fragments					
40			18			
45	<b>Tuff</b> Highly weathered and fractured Slightly welded Max. fragment size 3cm contain large crystals	Yellowish white	8		SWL ▽	
50	sample un-uniform look, aggregates of corase fragments Tuff fragments develop small bescules of up to a few mm		6			

データ 5.1 井戸掘削総合柱状図 サイト No-9N (1/4)

Well No.	RVS BH 9-N	Drilling Diameter	256 mm	Static Water Level	44.70 m	
Location	Langano SW	Casing Diameter	156 mm	Water Struck at	89and 100 m	
Easting	464826	Drilling Depth	201.00 m	Drilling method	Mud rotary	
Northing	829769	Well Depth	201.00 m			
Altitude	1629 m					
Depth		Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50						50
51						
55	<b>Tuff breccia</b> obsidian fragements ,pebbles and gravels angular with sharpe edges	Grey				55
58	max. fragment size 2cm of grey to pale green welded tuff and reddish vol.		9			
60	samples relatively uniform look Below 58m, sample size smaller greyish rhyolite fragments	Grey	78			60
65						65
67						
70	<b>Welded Tuff (Ignimbrite)</b> massive up to 75m ,medium grained	Greenish with Dark grey	321			70
75			456			75
80	sample max 1cm, slightly elongated and flattened with sharpe edges contain tiny pieces of obsidian		30			80
85	<b>Welded Tuff (Ignimbrite)</b> massive	Greenish to grayish	455			85
87	sample max 1cm. Some subrounded pieces of welded tuff, Pl up to 3mm					
89						
90	<b>Tuff and Volcanic sand</b>	Greyish	6		Water Strike point 89 meters	90
95	Volcanic sand ( Obsidian ,glassy and material) Mixture of green tuff (weakly weleded) max 1.5cm and grey, hard welded tuff angular -subangular mx 5mm + pl crystals					95
96	<b>Tuff breccia (Ditto)</b> with some volcanic sand (5%) rounded ,max. fragment size 1.5cm crumbling welded tuff frag (60%)	Greyish	7			
100						100

データ 5.1 井戸掘削総合柱状図 サイト No-9N (2/4)

Well No.	RVS BH 9-N	Drilling Diameter	256 mm	Static Water Level	44.70 m	
Location	Langano SW	Casing Diameter	156 mm	Water Struck at	89and 100 m	
Easting	464826	Drilling Depth	201.00 m	Drilling method	Mud rotary	
Northing	829769	Well Depth	201.00 m			
Altitude	1629 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
100						100
102	<b>Pumice gravel</b> Grey fresh subrounded to rounded pumice gravel of max 3cm	White	6			102
105						
110	Poorly sorted pumice with very fine vesicles 105 - 108 m angular coarse sand		5			110
114	<b>Sand</b> Angular grains of various materials poorly sorted, similar to 90 - 95m section	Grey	9			114
115						
119	<b>Tuff and sand</b> Very sticky, clay sized mixture of crumbling green tuff pieces and vol rock fragments of sand size	Greenish to gray			Possible end of water bearing zone ↑	119
120						
125	<b>Pumice gravel with fine sand</b>	Grey	6			125
130						
135	<b>Silty clay</b> sticky (wet) contain small amount of sand grains Probably decalyed tuff	Greenish grey	10			135
140						
145	Sample wet		9			145
150			7			150
			9			
			14			

データ 5.1 井戸掘削総合柱状図 サイト No-9N (3/4)

Well No.	RVS BH 9-N	Drilling Diameter	256 mm	Static Water Level	44.70 m	
Location	Langano SW	Casing Diameter	156 mm	Water Struck at	89and 100 m	
Easting	464826	Drilling Depth	201.00 m	Drilling method	Mud rotary	
Northing	829769	Well Depth	201.00 m			
Altitude	1629 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150						150
151						
155	<b>Tuff</b> fine grained ash sample dry and uniform look	Pale greish white				
157			11			
160	<b>Silty fine sand</b> decalyed tuff	Greenish grey				
165			18			
170			13			
175			10			
180			11			
184						
185	184-189m Sample clayey		58			185
189						
190						190
195			88			
196	<b>Silty clay</b>	Gery	80			
200			4			200

データ 5.1 井戸掘削総合柱状図 サイト No-9N (4/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-10N**

Well No.	RVS BH 10-N	Drilling Diameter	256 mm	Static Water Level	25.60 m	
Location	Ziway East, Ogolcho	Casing Diameter	156 mm	Water Struck at	66 and 92 m	
Easting	500516	Drilling Depth	202.00 m	Drilling method	Mud rotary	
Northing	889860	Well Depth	202.00 m			
Altitude	1685 m					
Depth	Geology	Colour	Drill time (min/rod)	Well Structure	Remark	Depth
0	<b>Top soil</b> Clay and silt containing vol rock pieces	Yellowish brown Dark grey	5			0
5	<b>Weathered tuff</b> with pumice fragment (whitish) obsidian, 6-7m paler color	Yellowish	19		10inch surface casing up to 21m	5
10	<b>Pumice</b> sample in one chunk contain small amount of greenish welded tuff 14-15m: sample fragmented	Greyish white	23			10
15	<b>Pumice and acidic tuff</b> tuff is greenish white contain small amount of dark brown weathred tuff	Greyish white	73		Small amount of water sruck at 16 m	15
20						20
21	<b>Pumice and acidic tuff</b> same as above but less green pumice up to 3cm pumice fragment		11			21
25					SWL ▽	25
30			9			30
35	<b>Pumice and acidic tuff, weathered</b> max 2cm of crumbling tuff of reddish brown, white, pale green, contain obsidian, feldspar cristals	Grey and brown	8			35
36						36
37	<b>Volcanic sand</b> Coase grained, mostly pumice pieces some rounded. Vol rock, obsidian pcs	Grey				37
38						38
40	<b>Pumice and acidic tuff, weathered</b> <b>Acidic tuff</b> greenish white tuff, max 3cm pieces fine grained some pieces pale green	Grey and brown Greyish brown	11			40
45						45
50			10			50

データ 5.1 井戸掘削総合柱状図 サイト No-10N (1/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-10N**

Well No.	RVS BH 10-N	Drilling Diameter	256 mm	Static Water Level	25.60 m	
Location	Ziway East, Ogolcho	Casing Diameter	156 mm	Water Struck at	66 and 92 m	
Easting	500516	Drilling Depth	202.00 m	Drilling method	Mud rotary	
Northing	889860	Well Depth	202.00 m			
Altitude	1685 m					
Depth		Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
50						50
55			6			55
60			7			60
61						61
65	<b>Sand and gravel</b> mostly angular with small rounded pumice pieces contain obsidian, black basaltic pieces	Grey varicolor	6			65
66	tuff (whitish) pieces flaky big (max 2cm) weathered black glass pcs from welded tuff				Large amount of water struck at 66 m up to 86 m ↓	66
70			7			70
75			7			75
80						80
83	<b>Weathered welded tuff</b> slightly weathered, weakly welded sample piece max 2cm of white and green varicolored tuff with Pl cristal	Green	4			83
85	<b>Sand and gravel</b>	Grey				85
86	same as 61-80m, coarse sand size	varicolor			Possible bottom of water zone ↑	86
90	<b>Fractured welded tuff</b> strongly welded pale green sample amount is less than in other sections contain Pl cristals	Page green	5			90
92					Large amount of water struck at 92 m up to 122 m ↓	92
95			6			95
98						98
100	<b>Weathered welded tuff</b>	Greenish grey				100

データ 5.1 井戸掘削総合柱状図 サイト No-10N (2/4)

**WELL DRILLING GEOLOGICAL LOG DATA for Site No-10N**

Well No.	RVS BH 10-N	Drilling Diameter	256 mm	Static Water Level	25.60 m	
Location	Ziway East, Ogolcho	Casing Diameter	156 mm	Water Struck at	66 and 92 m	
Easting	500516	Drilling Depth	202.00 m	Drilling method	Mud rotary	
Northing	889860	Well Depth	202.00 m			
Altitude	1685 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
100						100
	greenish with white spots moderately welded, crumbling contain fresh Pl crystals sample max 2cm		5			
105						105
			5			
110						110
			5			
115						115
120			11			120
122					Possible end of 2nd water zone↑	122
	<b>Welded tuff</b> Massive, less fractured sample pieces smaller	greenish grey				
125						125
	30 % whitish tuff contain obsidian fragments		240			
128						128
	<b>Weathered welded tuff</b> same as 98 - 122 m					
130						130
	green welded tuff fragments contain black and reddish vol rock pieces		11			
133						133
			12			
135						135
140			12			140
145	<b>Sample lost</b> due to excessive mud loss		3			145
150			13			150

データ 5.1 井戸掘削総合柱状図 サイト No-10N (3/4)



**WELL DRILLING GEOLOGICAL LOG DATA for Site No-10N**

Well No.	RVS BH 10-N	Drilling Diameter	256 mm	Static Water Level	25.60 m	
Location	Ziway East, Ogolcho	Casing Diameter	156 mm	Water Struck at	66 and 92 m	
Easting	500516	Drilling Depth	202.00 m	Drilling method	Mud rotary	
Northing	889860	Well Depth	202.00 m			
Altitude	1685 m					
Depth	Geology	Colour	Drill Rate (min/rod)	Well Structure	Remark	Depth
150		greysh				150
155			6			155
160			9			160
165			4			165
170			4			170
175			5			175
180			3			180
185			3			185
190			3			190
195			3			195
200						200

データ 5.1 井戸掘削総合柱状図 サイト No-10N (4/4)

データ 5.2 ボアホール検層データ サイト No-1 (1/2)

Well No: RVS BH No-1

Date: June 3, 2010

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
48	264	374	1346.4	7629.6	
49	200	72.8	1020.0	1485.1	-13.3
50	35	28.1	178.5	573.2	16.2
51	23	28	117.3	571.2	15.8
52	11.4	27.8	58.1	567.1	15.2
53	10	27	51.0	550.8	14.5
54	9.2	26	46.9	530.4	14.2
55	15	29.4	76.5	599.8	15.7
56	20.3	32.8	103.5	669.1	15.2
57	33	36	168.3	734.4	14.7
58	46.4	39.1	236.6	797.6	15.2
59	39	31	198.9	632.4	14.7
60	31.6	22.5	161.2	459.0	14.3
61	29	19	147.9	387.6	13.3
62	26.9	15.1	137.2	308.0	12.8
63	24	14.5	122.4	295.8	12.7
64	20.2	13.9	103.0	283.6	13.4
65	20.7	14	105.6	285.6	13.1
66	21.2	13.6	108.1	277.4	14.4
67	17.3	13.9	88.2	283.6	12.6
68	13.3	14.1	67.8	287.6	12.1
69	16.8	14.7	85.7	299.9	11.8
70	20.3	15.3	103.5	312.1	12.9
71	19	14.9	96.9	304.0	12.4
72	18.8	14.4	95.9	293.8	12.1
73	19.4	14.33	98.9	292.3	9.2
74	20.1	14.1	102.5	287.6	9.4
75	21	15.5	107.1	316.2	11.7
76	21.8	16.9	111.2	344.8	10.6
77	20.9	16.2	106.6	330.5	12.3
78	20	15.5	102.0	316.2	10.8
79	19	14.5	96.9	295.8	13.7
80	19	13.4	96.9	273.4	17.2
81	21.3	15	108.6	306.0	18.4
82	23.6	16.5	120.4	336.6	16.3
83	22	16	112.2	326.4	14.2
84	20.3	15.4	103.5	314.2	12.9
85	21	15	107.1	306.0	15.3
86	21.1	14.5	107.6	295.8	16
87	19	13.3	96.9	271.3	16.2
88	16.3	12	83.1	244.8	18.4
89	15	12	76.5	244.8	19
90	14.6	11.98	74.5	244.4	19.5
91	14	10.8	71.4	220.3	18.9
92	13.7	9.6	69.9	195.8	20.8
93	15	11	76.5	224.4	18.9
94	17.3	12.5	88.2	255.0	18.9
95	19	14.4	96.9	293.8	19.5
96	21.7	16.2	110.7	330.5	18.7
97	20.2	15.5	103.0	316.2	18
98	18.7	14.8	95.4	301.9	19.5
99	18.8	14.7	95.9	299.9	21.4
100	19	14.6	96.9	297.8	18.1
101	18.5	14.8	94.4	301.9	17.1
102	18	14.9	91.8	304.0	14.6
103	17.3	14.1	88.2	287.6	9.8
104	16.6	13.4	84.7	273.4	9.7
105	17.33	14.6	88.4	297.8	7.7
106	17.9	15.8	91.3	322.3	5.5
107	17	14.3	86.7	291.7	10.3
108	16.2	12.8	82.6	261.1	13.3
109	15.6	12.9	79.6	263.2	5

データ 5.2 ボアホール検層データ サイト No-1 (2/2)

Well No: RVS BH No-1

Date: June 3, 2010

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
110	15.1	13	77.0	265.2	4.8
111	16.7	14.3	85.2	291.7	5.8
112	18.3	15.5	93.3	316.2	6.9
113	17.7	15.2	90.3	310.1	4
114	17.1	14.9	87.2	304.0	2.6
115	15.6	13.6	79.6	277.4	3
116	14.1	12.3	71.9	250.9	10.3
117	13.3	10.9	67.8	222.4	6.2
118	12.4	9.5	63.2	193.8	9.6
119	12.7	10.2	64.8	208.1	15.9
120	13	10.8	66.3	220.3	14.6
121	13.6	11.7	69.4	238.7	14.3
122	14.2	12.5	72.4	255.0	12.3
123	13.8	13	70.4	265.2	9.3
124	13.4	13.6	68.3	277.4	7.6
125	15.5	12.3	79.1	250.9	7.6
126	17.9	11	91.3	224.4	7.9
127	16.9	11.6	86.2	236.6	11.4
128	15.8	12.2	80.6	248.9	11.8
129	18.8	16.8	95.9	342.7	7.9
130	21.7	21.4	110.7	436.6	6.9
131	22.3	22.9	113.7	467.2	6.4
132	22.9	24.4	116.8	497.8	14.5
133	23.7	23	120.9	469.2	11.5
134	24.5	21.4	125.0	436.6	11.9
135	29.7	28	151.5	571.2	12.8
136	34.8	34.8	177.5	709.9	14.7
137	34.8	34	177.5	693.6	13.7
138	33.2	32.6	169.3	665.0	13.9
139	33.7	34.2	171.9	697.7	13.8
140	37	35.8	188.7	730.3	14.2
141	38	38.2	193.8	779.3	7.4
142	29.3	19.9	149.4	406.0	7.3
143	24.5	30	125.0	612.0	13.6
144	21.9	17.9	111.7	365.2	11.8
145	22.5	20.6	114.8	420.2	12.9
146	28.5	29.6	145.4	603.8	9.4
147	38.9	42.9	198.4	875.2	11.9
148	38.3	43.3	195.3	883.3	10.4
149	38.8	43.2	197.9	881.3	8.8
150	39.5	42.9	201.5	875.2	7.8
151	39.6	42.8	202.0	873.1	4.7

データ 5.2 ボアホール検層データ サイト No-2 (1/1)

Well No: RVS BH No-2

Date: May 21, 2010

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
90					-17.2
91					-16.5
92	20.6	16.22	105.06	330.89	-15.3
93	12.4	13.4	63.24	273.36	-15.7
94	13.3	18	67.83	367.20	-13.6
95	17.2	19.6	87.72	399.84	-13.7
96	28	33.8	142.80	689.52	-13.9
97	39.1	47.1	199.41	960.84	-11.6
98	39.2	48.1	199.92	981.24	-19.66
99	29.5	41.4	150.45	844.56	-20.5
100	14.3	20.6	72.93	420.24	-19.8
101	11	14.4	56.10	293.76	-17
102	6.17	8.03	31.47	163.81	-17.2
103	4.63	6.07	23.61	123.83	-16.3
104	4.8	5.54	24.48	113.02	-15.4
105	4.59	5.17	23.41	105.47	-17.3
106	4.77	5.51	24.33	112.40	-19.1
107	4.49	5.02	22.90	102.41	-10.6
108	4.4	5.14	22.44	104.86	-9.7
109	4.22	4.86	21.52	99.14	-8.18
110	4.09	4.58	20.86	93.43	-13.3
111	4.3	4.89	21.93	99.76	-15.8
112	4.22	4.7	21.52	95.88	-20.6
113	4.11	4.62	20.96	94.25	-23
114	4.26	4.98	21.73	101.59	-23.95
115	4.06	4.59	20.71	93.64	-17.5
116	4.16	4.73	21.22	96.49	-17.4
117	4.13	4.69	21.06	95.68	-17.9
118	3.97	4.39	20.25	89.56	-14.9
119	4.09	4.64	20.86	94.66	-17.4
120	4.07	4.41	20.76	89.96	-20
121	3.96	4.32	20.20	88.13	-16.9
122	4.02	4.53	20.50	92.41	-18.7
123	3.59	3.95	18.31	80.58	-9.6
124	3.78	3.99	19.28	81.40	-14.12
125	3.77	3.97	19.23	80.99	-20.17
126	3.67	4.07	18.72	83.03	-21.7
127	3.72	3.98	18.97	81.19	-24.4
128	3.82	4.22	19.48	86.09	-15.8
129	4.96	4.72	25.30	96.29	-22.9
130	7.47	6.35	38.10	129.54	-24.4
131	7.24	6.23	36.92	127.09	-23.4
132	7.24	6.23	36.92	127.09	-21.3
133	7.25	6.23	36.98	127.09	-19.36
134	7.25	6.23	36.98	127.09	-14
135	7.25	6.23	36.98	127.09	-20.3
136	7.26	6.23	37.03	127.09	-23.57
137	7.26	6.23	37.03	127.09	-23.62
138	7.25	6.23	36.98	127.09	-23.64
139	7.25	6.23	36.98	127.09	-23.67
140	7.26	6.23	37.03	127.09	-23.69

データ 5.2 ボアホール検層データ サイト No-3 (1/1)

Well No: RVS BH No-3

Date: June 26, 2010

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
171					
172	24.8	138	126.5	2815.2	-134
173	17.3	10.3	88.2	210.1	-147
174	18	9.9	91.8	202.0	-155
175	17.4	10.3	88.7	210.1	-158
176	16.8	9.9	85.7	202.0	-161
177	16.5	10.4	84.2	212.2	-162
178	21.5	11.5	109.7	234.6	-160
179	25.5	12.1	130.1	246.8	-161
180	26.3	12.7	134.1	259.1	-167
181	26.5	13.7	135.2	279.5	-167
182	27.6	13.6	140.8	277.4	-166
183	26.5	13.6	135.2	277.4	-166
184	24.9	13.2	127.0	269.3	-166
185	12.2	12.6	62.2	257.0	-167
186	19.8	11.9	101.0	242.8	-169
187	12.3	10.3	62.7	210.1	-168
188	10.9	9.1	55.6	185.6	-167
189	10.8	9	55.1	183.6	-170
190	14.5	9.3	74.0	189.7	-174
191	11.6	9.5	59.2	193.8	-174
192	17.7	13.5	90.3	275.4	-171
193	20.5	16.4	104.6	334.6	-183
194	24.8	23.8	126.5	485.5	-186
195	23.3	25.7	118.8	524.3	-187
196	22.6	25.8	115.3	526.3	-189
197	22.5	26.2	114.8	534.5	-190
198	22.6	26.1	115.3	532.4	-191
199	22.4	26.4	114.2	538.6	-192
200	24.4	26.7	124.4	544.7	-192
201	23	26.9	117.3	548.8	-193
202	24.2	26.9	123.4	548.8	-192
203	25.3	27.2	129.0	554.9	-192
204	22.3	27.3	113.7	556.9	-192
205	22.2	27.4	113.2	559.0	-176
206	22.2	27.5	113.2	561.0	-177
207	22.2	27.8	113.2	567.1	-178
208	22	27.8	112.2	567.1	-177
209	22	28	112.2	571.2	-177
210	22	28.1	112.2	573.2	-177
211	22	28.3	112.2	577.3	-177
212	21.9	28.4	111.7	579.4	-177
213	21.9	28.6	111.7	583.4	-177
214	21.9	28.6	111.7	583.4	-177
215	21.9	28.8	111.7	587.5	-177
216	21.8	28.9	111.2	589.6	-177
217	21.8	29.1	111.2	593.6	-178
218	21.9	29.2	111.7	595.7	-177
219	21.9	29.4	111.7	599.8	-177
220	21.8	29.4	111.2	599.8	-178
221	21.8	29.6	111.2	603.8	-178
222	21.6	29.6	110.2	603.8	-178
223	21.6	29.9	110.2	610.0	-178
224	21.4	29.9	109.1	610.0	-178
225	21.4	30.2	109.1	616.1	-179
226	21	30.2	107.1	616.1	-179
227	21	30.5	107.1	622.2	-179
228	20.9	30.6	106.6	624.2	-179
229	21	31	107.1	632.4	-178
230	20.8	30.9	106.1	630.4	-178

データ 5.2 ボアホール検層データ サイト No-4 (1/4)

Well No: RVS BH-4

Date: Oct. 27, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
46	0.165	0.191	1.0362	2.3990	150.4
47	0.17	0.242	1.0676	3.0395	151.4
48	0.194	0.224	1.2183	2.8134	150.4
49	0.182	0.204	1.1430	2.5622	148.4
50	0.154	0.174	0.9671	2.1854	149.4
51	0.042	1.67	0.2638	20.9752	162.5
52	1	1.5	6.2800	18.8400	162.5
53	1.23	1.9	7.7244	23.8640	164.5
54	1.11	3.14	6.9708	39.4384	164.5
55	1.54	4.37	9.6712	54.8872	166.6
56	2.2	5.37	13.8160	67.4472	167.6
57	2.59	6.76	16.2652	84.9056	166.6
58	3	8.48	18.8400	106.5088	167.6
59	3.28	9.71	20.5984	121.9576	167.6
60	3.38	8.56	21.2264	107.5136	166.6
61	3.33	7.45	20.9124	93.5720	166.6
62	3.08	7.12	19.3424	89.4272	165.5
63	2.61	6.77	16.3908	85.0312	166.6
64	2.75	6.38	17.2700	80.1328	167.6
65	2.75	6	17.2700	75.3600	167.6
66	2.7	6.29	16.9560	79.0024	167.6
67	2.76	6.39	17.3328	80.2584	166.6
68	2.91	6.67	18.2748	83.7752	166.6
69	3.26	7.18	20.4728	90.1808	166.6
70	4	9.1	25.1200	114.2960	165.5
71	4.45	13	27.9460	163.2800	165.5
72	5.55	16	34.8540	200.9600	165.5
73	5.2	14.21	32.6560	178.4776	167.6
74	6	13.21	37.6800	165.9176	166.6
75	6.42	15.22	40.3176	191.1632	166.6
76	7.48	20.47	46.9744	257.1032	167.6
77	9.27	25.21	58.2156	316.6376	167.6
78	10.48	27.36	65.8144	343.6416	166.5
79	10.28	25.41	64.5584	319.1496	166.6
80	9.54	22.08	59.9112	277.3248	166.6
81	9.77	20.69	61.3556	259.8664	166.6
82	9.62	21.78	60.4136	273.5568	166.6
83	8.11	18.91	50.9308	237.5096	165.5
84	7.25	19.26	45.5300	241.9056	165.5
85	8.23	18.95	51.6844	238.0120	164.5
86	8.34	18.25	52.3752	229.2200	164.5
87	8.78	21.78	55.1384	273.5568	163.5
88	9	21.88	56.5200	274.8128	163.5
89	9.54	19	59.9112	238.6400	164.5
90	8.76	21.27	55.0128	267.1512	162.5
91	9.39	21.58	58.9692	271.0448	162.5
92	10.28	24.2	64.5584	303.9520	160.5
93	11.49	25.71	72.1572	322.9176	159.5
94	11.9	31.26	74.7320	392.6256	160.5
95	1.84	5.15	11.5552	64.6840	161.5
96	1.59	2.59	9.9852	32.5304	158.5
97	1.51	2.13	9.4828	26.7528	158.5
98	1.6	2.89	10.0480	36.2984	158.5
99	1.9	10.69	11.9320	134.2664	157.5
100	5	21.27	31.4000	267.1512	156.5
101	7.69	21.59	48.2932	271.1704	157.5
102	6.75	17.14	42.3900	215.2784	156.5

データ 5.2 ボアホール検層データ サイト No-4 (2/4)

Well No: RVS BH-4

Date: Oct. 27, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
103	5.45	9.18	34.2260	115.3008	156.5
104	4.34	6.74	27.2552	84.6544	152.4
105	3.78	6.87	23.7384	86.2872	152.4
106	4	7.59	25.1200	95.3304	150.4
107	4.23	8.87	26.5644	111.4072	148.4
108	4.99	11.29	31.3372	141.8024	147.4
109	5.92	17.95	37.1776	225.4520	147.4
110	8.89	29.34	55.8292	368.5104	149.4
111	12.5	32.17	78.5000	404.0552	150.4
112	13.51	28.23	84.8428	354.5688	150.2
113	11.09	27.33	69.6452	343.2648	149
114	11.39	28	71.5292	351.6800	148
115	11.59	27.73	72.7852	348.2888	145
116	14	39.93	87.9200	501.5208	136
117	13.51	32.87	84.8428	412.8472	135
118	8.37	16.43	52.5636	206.3608	134
119	4.84	9.58	30.3952	120.3248	104
120	2.32	4.6	14.5696	57.7760	94
121	1.38	2.75	8.6664	34.5400	134
122	0.807	1.35	5.0680	16.9560	125
123	0.584	0.901	3.6675	11.3166	124
124	0.49	0.712	3.0772	8.9427	121
125	0.469	0.64	2.9453	8.0384	91.77
126	0.505	0.781	3.1714	9.8094	103.8
127	0.547	1	3.4352	12.5600	137.1
128	0.57	1.2	3.5796	15.0720	136.1
129	0.712	2.7	4.4714	33.9120	133.1
130	2.5	2.6	15.7000	32.6560	130
131	1.13	1.88	7.0964	23.6128	126
132	1.34	1.88	8.4152	23.6128	120
133	1.24	3.5	7.7872	43.9600	116.9
134	1.16	3.57	7.2848	44.8392	102.8
135	0.827	2.28	5.1936	28.6368	75.23
136	1.18	2.2	7.4104	27.6320	88.14
137	0.922	2.16	5.7902	27.1296	112.9
138	0.875	3.28	5.4950	41.1968	106.9
139	1.4	5	8.7920	62.8000	100.2
140	1.31	4.6	8.2268	57.7760	85.72
141	1.86	3.5	11.6808	43.9600	52.84
142	1.47	4.17	9.2316	52.3752	52.64
143	1.38	8.2	8.6664	102.9920	53.45
144	1.96	6.19	12.3088	77.7464	56.08
145	1.56	3.6	9.7968	45.2160	55.56
146	1.5	3	9.4200	37.6800	55.66
147	1.54	5.85	9.6712	73.4760	56.87
148	1.73	6.26	10.8644	78.6256	60.3
149	1.36	3.65	8.5408	45.8440	62.72
150	1.48	9.65	9.2944	121.2040	67.56
151	0.726	1.95	4.5593	24.4920	73.8
152	0.58	1.19	3.6424	14.9464	123
153	0.695	1.17	4.3646	14.6952	115.9
154	0.684	1.59	4.2955	19.9704	121
155	0.279	2.19	1.7521	27.5064	119
156	0.967	2.53	6.0728	31.7768	117.9
157	1.16	3.53	7.2848	44.3368	113.9
158	0.955	2.45	5.9974	30.7720	110.9
159	0.839	1.6	5.2689	20.0960	106.9
160	0.643	1.55	4.0380	19.4680	102.8

データ 5.2 ボアホール検層データ サイト No-4 (3/4)

Well No: RVS BH-4

Date: Oct. 27, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
161	0.705	1.6	4.4274	20.0960	98.63
162	0.704	1.87	4.4211	23.4872	93.99
163	0.757	1.25	4.7540	15.7000	87.63
164	0.715	1.53	4.4902	19.2168	77.69
165	0.812	1.48	5.0994	18.5888	59.7
166	0.684	1.62	4.2955	20.3472	34.89
167	0.795	1.64	4.9926	20.5984	35.09
168	0.732	1.87	4.5970	23.4872	35.14
169	1.63	1.84	10.2364	23.1104	35.6
170	1.12	1.61	7.0336	20.2216	36.2
171	1.61	4.16	10.1108	52.2496	36.7
172	0.735	1.55	4.6158	19.4680	37.11
173	0.64	1.38	4.0192	17.3328	35.19
174	0.683	1.13	4.2892	14.1928	34.69
175	0.698	0.93	4.3834	11.6808	35.19
176	0.529	0.893	3.3221	11.2161	34.89
177	0.605	0.865	3.7994	10.8644	33.68
178	0.436	1.1	2.7381	13.8160	34.49
179	0.499	0.753	3.1337	9.4577	34.08
180	0.573	0.804	3.5984	10.0982	34.48
181	0.423	0.776	2.6564	9.7466	33.28
182	0.01	0.759	0.0628	9.5330	33.17
183	0.407	0.794	2.5560	9.9726	33.23
184	0.429	1	2.6941	12.5600	32.33
185	0.624	1.34	3.9187	16.8304	31.76
186	0.628	1.51	3.9438	18.9656	31.66
187	0.65	1.5	4.0820	18.8400	31.86
188	0.696	1.53	4.3709	19.2168	31.56
189	0.95	1.6	5.9660	20.0960	31.66
190	0.509	1.67	3.1965	20.9752	31.16
191	0.863	1.66	5.4196	20.8496	30.55
192	0.435	1.66	2.7318	20.8496	30.55
193	0.666	1.6	4.1825	20.0960	30.25
194	1.17	1.84	7.3476	23.1104	30.05
195	0.617	1.55	3.8748	19.4680	30.86
196	0.625	1.46	3.9250	18.3376	32.77
197	0.742	1.44	4.6598	18.0864	31.36
198	0.583	1.2	3.6612	15.0720	31.36
199	0.556	1.13	3.4917	14.1928	31.36
200	0.55	1.24	3.4540	15.5744	31.56
201	0.571	1.34	3.5859	16.8304	31.56
202	0.494	1.27	3.1023	15.9512	31.06
203	0.362	1.23	2.2734	15.4488	30.65
204	0.488	0.937	3.0646	11.7687	30.86
205	0.555	0.904	3.4854	11.3542	31.26
206	0.46	1	2.8888	12.5600	31.06
207	0.554	1.27	3.4791	15.9512	30.96
208	0.557	1.4	3.4980	17.5840	30.75
209	0.584	1.37	3.6675	17.2072	30.75
210	0.604	0.608	3.7931	7.6365	30.65
211	0.545	1.47	3.4226	18.4632	30.55
212	0.603	1.43	3.7868	17.9608	29.95
213	0.606	1.35	3.8057	16.9560	30.15
214	0.596	1.39	3.7429	17.4584	30.45
215	1.4	0.847	8.7920	10.6383	30.31
216	0.55	1.8	3.4540	22.6080	29.75
217	0.525	1.27	3.2970	15.9512	30.05
218	0.479	1.2	3.0081	15.0720	29.44



データ 5.2 ボアホール検層データ サイト No-4 (4/4)

Well No: RVS BH-4

Date: Oct. 27, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
219	0.411	1	2.5811	12.5600	29.34
220	0.42	0.864	2.6376	10.8518	29.04
221	0.339	0.792	2.1289	9.9475	28.74
222	0.427	0.683	2.6816	8.5785	30.25
223	0.371	0.68	2.3299	8.5408	29.94
224	0.384	0.893	2.4115	11.2161	29.34
225	0.352	0.935	2.2106	11.7436	28.64
226	0.463	0.755	2.9076	9.4828	28.64
227	0.35	0.609	2.1980	7.6490	29.54
228	0.36	0.577	2.2608	7.2471	29.75
229	0.431	0.615	2.7067	7.7244	29.44
230	0.719	1.3	4.5153	16.3280	29.54
231	0.937	3.6	5.8844	45.2160	29.34
232	2	6	12.5600	75.3600	28.54
233	2.45	7	15.3860	87.9200	38.33

データ 5.2 ボアホール検層データ サイト No-5N (1/4)

Well No: RVS BH - 5N

Date: July 31, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
21	4.1	4.4	25.75	55.26	342
22	11.4	11.45	71.59	143.81	343
23	19.9	20.2	124.97	253.71	343
24	22.58	23.1	141.80	290.14	343
25	24.5	24.9	153.86	312.74	347
26	25.5	26.7	160.14	335.35	365
27	27.4	27.9	172.07	350.42	364
28	29.7	30.3	186.52	380.57	366
29	29.7	30.6	186.52	384.34	366
30	29.9	30.7	187.77	385.59	365
31	31.4	32.2	197.19	404.43	365
32	31.3	32.35	196.56	406.32	367
33	27.8	28.5	174.58	357.96	366
34	11.8	11.87	74.10	149.09	367
35	6.72	7.07	42.20	88.80	368
36	6.19	6.23	38.87	78.25	369
37	7.83	7.82	49.17	98.22	369
38	10.9	11.12	68.45	139.67	347
39	11.4	11.47	71.59	144.06	367
40	13.35	13.75	83.84	172.70	361
41	17.61	17.74	110.59	222.81	362
42	23.6	24	148.21	301.44	361
43	32.12	32.64	201.71	409.96	363
44	36.15	37.06	227.02	465.47	362
45	36.6	37.9	229.85	476.02	362
46	38.09	38.64	239.21	485.32	362
47	37.9	38.46	238.01	483.06	363
48	30.68	31.3	192.67	393.13	364
49	28.5	29.1	178.98	365.50	363
50	31.1	31.7	195.31	398.15	364
51	29.25	29.39	183.69	369.14	363
52	27.04	27.43	169.81	344.52	358
53	28.35	29	178.04	364.24	357
54	31.6	32.1	198.45	403.18	355
55	32.8	33.5	205.98	420.76	356
56	22.7	23.14	142.56	290.64	356
57	9.69	9.78	60.85	122.84	311
58	9.6	9.7	60.29	121.83	311
59	9.6	9.68	60.29	121.58	312
60	9.61	9.67	60.35	121.46	311
61	9.62	9.67	60.41	121.46	309
62	9.66	9.66	60.66	121.33	309
63	9.49	9.66	59.60	121.33	309
64	23.34	23.82	146.58	299.18	307
65	22.9	23.43	143.81	294.28	306
66	14.7	23.2	92.32	291.39	307
67	17.1	23.9	107.39	300.18	307
68	15.8	23	99.22	288.88	307
69	17.5	23.2	109.90	291.39	307
70	15.5	23.4	97.34	293.90	306
71	23.2	23.3	145.70	292.65	306
72	24.9	25.3	156.37	317.77	305
73	15.14	27.13	95.08	340.75	304
74	28.8	31	180.86	389.36	305
75	33.8	36.6	212.26	459.70	304
76	29.4	39.3	184.63	493.61	303
77	28.9	39	181.49	489.84	302
78	28.1	36	176.47	452.16	299
79	25.3	35.1	158.88	440.86	300
80	22.6	34	141.93	427.04	298
81	18.9	33.6	118.69	422.02	297
82	14.6	25.14	91.69	315.76	296
83	13.5	18.2	84.78	228.59	295
84	7	13	43.96	163.28	294

データ 5.2 ボアホール検層データ サイト No-5N (2/4)

Well No: RVS BH - 5N

Date: July 31, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
85	9	15.9	56.52	199.70	294
86	14.6	27.8	91.69	349.17	295
87	24.4	36.9	153.23	463.46	294
88	20.3	38.5	127.48	483.56	293
89	21.4	36.5	134.39	458.44	292
90	19.4	34.5	121.83	433.32	292
91	3.8	9.7	23.86	121.83	292
92	2.2	4.2	13.82	52.75	290
93	2.3	4	14.44	50.24	289
94	2.4	4.1	15.07	51.50	288
95	1.96	4.1	12.31	51.50	289
96	2.6	3.8	16.33	47.73	289
97	2.2	3.6	13.82	45.22	289
98	2.6	4.05	16.33	50.87	287
99	2.7	5	16.96	62.80	291
100	3.2	6	20.10	75.36	290
101	3.1	6.45	19.47	81.01	291
102	3.6	6.56	22.61	82.39	287
103	2.8	6.97	17.58	87.54	287
104	2.47	7.5	15.51	94.20	287
105	4.5	8.2	28.26	102.99	297
106	2.14	11.5	13.44	144.44	283
107	4.46	11.77	28.01	147.83	290
108	3.95	12	24.81	150.72	289
109	5	11.9	31.40	149.46	290
110	6.6	12.1	41.45	151.98	351
111	6.5	12.2	40.82	153.23	350
112	11.9	12.35	74.73	155.12	351
113	5.2	12	32.66	150.72	352
114	8.7	11.2	54.64	140.67	351
115	12.4	8.7	77.87	109.27	351
116	11.9	4.82	74.73	60.54	350
117	6.8	4.3	42.70	54.01	350
118	7.2	4.5	45.22	56.52	350
119	2.97	4.58	18.65	57.52	350
120	3	4.9	18.84	61.54	350
121	1.56	4.9	9.80	61.54	352
122	1.5	5.6	9.42	70.34	350
123	2.3	5.4	14.44	67.82	351
124	1.7	5.55	10.68	69.71	351
125	2.3	6.2	14.44	77.87	351
126	1.8	6.2	11.30	77.87	351
127	2.25	7.5	14.13	94.20	346
128	2.7	7.1	16.96	89.18	346
129	3.34	7.1	20.98	89.18	246
130	4.1	7.3	25.75	91.69	345
131	3.8	7.43	23.86	93.32	345
132	3.5	8	21.98	100.48	345
133	3.67	6.78	23.05	85.16	345
134	3.9	5.7	24.49	71.59	345
135	4	6.9	25.12	86.66	346
136	3.26	7	20.47	87.92	346
137	2.1	4.6	13.19	57.78	347
138	3.9	4.4	24.49	55.26	347
139	2.65	7.6	16.64	95.46	348
140	2.17	9.7	13.63	121.83	350
141	2.1	9.9	13.19	124.34	351
142	3.3	8.8	20.72	110.53	349
143	1	6.7	6.28	84.15	349
144	4.6	6.9	28.89	86.66	349
145	2.9	7.1	18.21	89.18	349
146	4.9	5.5	30.77	69.08	348
147	2.7	3.9	16.96	48.98	348
148	3.8	3.8	23.86	47.73	347
149	2.4	3.4	15.07	42.70	349

データ 5.2 ボアホール検層データ サイト No-5N (3/4)

Well No: RVS BH - 5N

Date: July 31, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
150	1.5	3.9	9.42	48.98	348
151	1.2	4.8	7.54	60.29	348
152	1.3	4.77	8.16	59.91	348
153	0.87	4.2	5.46	52.75	348
154	1.9	2.87	11.93	36.05	348
155	1.9	2.5	11.93	31.40	348
156	1.7	2.4	10.68	30.14	348
157	0.7	0.9	4.40	11.30	348
158	0.87	0.94	5.46	11.81	348
159	0.84	0.69	5.28	8.67	348
160	0.2	2.1	1.26	26.38	347
161	0.23	2.1	1.44	26.38	347
162	0.17	3.2	1.07	40.19	346
163	0.89	7.32	5.59	91.94	345
164	0.7	8	4.40	100.48	343
165	0.1	8.2	0.63	102.99	347
166	2.7	8.3	16.96	104.25	347
167	3.3	8.5	20.72	106.76	345
168	3.4	8.4	21.35	105.50	344
169	4.9	6.8	30.77	85.41	346
170	3.67	3.2	23.05	40.19	343
171	4.15	2.4	26.06	30.14	343
172	2.76	2.5	17.33	31.40	343
173	1.17	2.9	7.35	36.42	343
174	0.8	3	5.02	37.68	342
175	0.8	2.5	5.02	31.40	341
176	1.04	2.6	6.53	32.66	346
177	1.1	2.4	6.91	30.14	346
178	0.8	2.16	5.02	27.13	345
179	1	2.1	6.28	26.38	345
180	0.6	2	3.77	25.12	345
181	0.7	2.03	4.40	25.50	345
182	0.55	2.12	3.45	26.63	344
183	0.6	2.22	3.77	27.88	342
184	0.39	2.7	2.45	33.91	345
185	0.9	3.67	5.65	46.10	343
186	1.27	4.33	7.98	54.38	341
187	1.4	2.85	8.79	35.80	341
188	1.75	2.2	10.99	27.63	343
189	1.8	2.1	11.30	26.38	342
190	1.16	2.98	7.28	37.43	340
191	0.89	1.96	5.59	24.62	342
192	0.83	2.2	5.21	27.63	341
193	1.96	2.56	12.31	32.15	341
194	1.52	2.98	9.55	37.43	339
195	1.03	2.89	6.47	36.30	339
196	1.9	2.82	11.93	35.42	339
197	2.93	3.2	18.40	40.19	339
198	1.63	2.8	10.24	35.17	338
199	0.75	0.81	4.71	10.17	340
200	1.2	2.7	7.54	33.91	340
201	0.98	2.95	6.15	37.05	342
202	0.77	3.77	4.84	47.35	341
203	1.27	3.76	7.98	47.23	340
204	1.05	2.93	6.59	36.80	337
205	2.4	3.64	15.07	45.72	337
206	3	4.16	18.84	52.25	336
207	2.91	5	18.27	62.80	338
208	3.62	4.58	22.73	57.52	338
209	2.7	3.69	16.96	46.35	336
210	4.99	3.88	31.34	48.73	337
211	4.15	3.23	26.06	40.57	337
212	3.4	2.65	21.35	33.28	337
213	2.52	2.35	15.83	29.52	337
214	2.84	2.8	17.84	35.17	336

データ 5.2 ボアホール検層データ サイト No-5N (4/4)

Well No: RVS BH - 5N

Date: July 31, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
215	2.43	2.7	15.26	33.91	336
216	2.25	2.52	14.13	31.65	338
217	2.31	2.22	14.51	27.88	338
218	2.33	2	14.63	25.12	338
219	1.98	2	12.43	25.12	338
220	1.84	2.22	11.56	27.88	338
221	1.95	2.36	12.25	29.64	337
222	1.98	2.34	12.43	29.39	337
223	2.16	2.75	13.56	34.54	338
224	2.33	2.99	14.63	37.55	338
225	2.18	2.85	13.69	35.80	337
226	1.58	2.6	9.92	32.66	341
227	2.7	2.67	16.96	33.54	340
228	2.45	2.86	15.39	35.92	340
229	2.82	2.81	17.71	35.29	339
230	2.6	2.61	16.33	32.78	335
231	2.67	2.43	16.77	30.52	334
232	2.82	2.47	17.71	31.02	335
233	2.75	2.4	17.27	30.14	337
234	2.52	2.3	15.83	28.89	339
235	2.37	2.37	14.88	29.77	331
236	1.23	2.47	7.72	31.02	330
237	1.49	2.5	9.36	31.40	329
238	1.75	2.8	10.99	35.17	329
239	1.4	3.42	8.79	42.96	329
240	2.45	4.57	15.39	57.40	328
241	2	4.6	12.56	57.78	330
242	2.76	4.76	17.33	59.79	328
243	3.3	4	20.72	50.24	323
244	4.55	3	28.57	37.68	320
245	4.5	2.65	28.26	33.28	319
246	3.78	2.65	23.74	33.28	318

データ 5.2 ボアホール検層データ サイト No-6 (1/3)

Well No: RVS BH - 6

Date: September 7, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
250	31.09	70.77	195.25	888.87	
251	35.84	80.06	225.08	1005.55	
252	36.24	79.96	227.59	1004.30	
253	37.25	74.81	233.93	939.61	
254	32.1	71.99	201.59	904.19	
255	31.5	77.04	197.82	967.62	
256	28.67	76.83	180.05	964.98	
257	33.11	83.19	207.93	1044.87	
258	34.32	66.94	215.53	840.77	
259	32.31	55.83	202.91	701.22	
260	20.29	56.54	127.42	710.14	
261	20.59	60.58	129.31	760.88	
262	18.67	54.82	117.25	688.54	
263	14.53	63.61	91.25	798.94	
264	16.76	48.48	105.25	608.91	
265	15.24	42.6	95.71	535.06	
266	13.63	50.08	85.60	629.00	
267	14.02	52.1	88.05	654.38	
268	12.21	69.16	76.68	868.65	
269	18.27	70.17	114.74	881.34	
270	21.4	68.45	134.39	859.73	
271	20.59	69.66	129.31	874.93	
272	22.71	77.94	142.62	978.93	
273	22.61	78.64	141.99	987.72	
274	25.14	83.09	157.88	1043.61	
275	26.35	92.99	165.48	1167.95	
276	30.08	99.79	188.90	1253.36	
277	30.19	89.25	189.59	1120.98	
278	30.59	100.09	192.11	1257.13	
279	30.59	105	192.11	1318.80	
280	35.64	124	223.82	1557.44	15.67
281	45.53	144.3	285.93	1812.41	32.07
282	47.55	145.3	298.61	1824.97	21.1
283	48.97	170.6	307.53	2142.74	35.32
284	56.84	179.7	356.96	2257.03	38.4
285	59.77	184.7	375.36	2319.83	38.32
286	64.82	198.9	407.07	2498.18	43
287	66.53	198.9	417.81	2498.18	32.59
288	70.88	209	445.13	2625.04	40.82
289	72.9	166.6	457.81	2092.50	93.53
290	45.33	127.2	284.67	1597.63	85.47
291	39.58	124.1	248.56	1558.70	86.42
292	31.9	120.1	200.33	1508.46	91.74
293	35.64	119.1	223.82	1495.90	85.48
294	30.79	120.1	193.36	1508.46	87.32
295	35.84	118.1	225.08	1483.34	89.57
296	35.44	113	222.56	1419.28	93.79
297	30.69	116.1	192.73	1458.22	89.79
298	35.54	118.1	223.19	1483.34	83.42
299	37.45	121.1	235.19	1521.02	87.28
300	36.95	114	232.05	1431.84	84.86
301	38.57	111	242.22	1394.16	80.81
302	28.06	113	176.22	1419.28	93.54
303	35.44	108	222.56	1356.48	124.51
304	34.53	120.1	216.85	1508.46	102.72
305	33.92	115.1	213.02	1445.66	108.5
306	31.3	112	196.56	1406.72	117.12
307	28.67	108	180.05	1356.48	116.34
308	37.45	99.65	235.19	1251.60	92.31
309	30.39	65.83	190.85	826.82	96.94
310	19.68	63.3	123.59	795.05	106.17
311	18.88	53.81	118.57	675.85	97.12
312	15.85	54.22	99.54	681.00	128.31
313	15.85	63.61	99.54	798.94	95.86

データ 5.2 ボアホール検層データ サイト No-6 (2/3)

Well No: RVS BH - 6

Date: September 7, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
314	17.97	56.94	112.85	715.17	106.21
315	19.28	57.14	121.08	717.68	100.58
316	17.46	57.65	109.65	724.08	101.69
317	17.46	58.76	109.65	738.03	108.44
318	15.44	61.49	96.96	772.31	93.79
319	14.33	61.49	89.99	772.31	116.21
320	21	67.85	131.88	852.20	105.2
321	21.6	70.07	135.65	880.08	100
322	22.11	64.11	138.85	805.22	110.7
323	21.8	64.25	136.90	806.98	115.38
324	19.89	65.02	124.91	816.65	105.27
325	18.89	66.33	118.63	833.10	91.16
326	17.77	64.01	111.60	803.97	107.54
327	17.87	54.01	112.22	678.37	112.1
328	19.99	53.91	125.54	677.11	98.29
329	19.48	63.61	122.33	798.94	96.63
330	19.68	61.28	123.59	769.68	73.52
331	19.38	62.29	121.71	782.36	98.89
332	19	61.49	119.32	772.31	117.98
333	18.47	60.98	115.99	765.91	110.97
334	16.66	60.27	104.62	756.99	110.56
335	16.25	55.37	102.05	695.45	75.3
336	15.44	56.44	96.96	708.89	96.28
337	16.68	56.43	104.75	708.76	107.34
338	17.97	53.71	112.85	674.60	64.57
339	18.57	61.99	116.62	778.59	81.85
340	16.15	57.75	101.42	725.34	92.45
341	18.34	57.17	115.18	718.06	88.3
342	18.37	63.1	115.36	792.54	62.96
343	19.08	62.7	119.82	787.51	76.38
344	15.44	58.15	96.96	730.36	75.81
345	17.66	55.33	110.90	694.94	63.34
346	15.04	56	94.45	703.36	42.82
347	16.35	53.21	102.68	668.32	74.03
348	15.24	54.82	95.71	688.54	89.74
349	15.04	44.42	94.45	557.92	72.35
350	15.65	44.12	98.28	554.15	76.05
351	15.34	48.44	96.34	608.41	84.35
352	14.43	45.43	90.62	570.60	77.91
353	14.23	44.72	89.36	561.68	81.28
354	15.24	45.53	95.71	571.86	78.76
355	15.75	46.24	98.91	580.77	94.27
356	15.34	47.45	96.34	595.97	84.17
357	14.74	47.15	92.57	592.20	93.73
358	15.44	44.93	96.96	564.32	42.88
359	15.54	45.33	97.59	569.34	44.25
360	14.43	47.15	90.62	592.20	81.84
361	14.64	49.87	91.94	626.37	97.63
362	15.95	51.79	100.17	650.48	48.28
363	14.64	58.28	91.94	732.00	68.39
364	13.83	49.47	86.85	621.34	82.17
365	15.14	50.98	95.08	640.31	77.85
366	14.64	51.26	91.94	643.83	73.18
367	15.34	50.28	96.34	631.52	87.49
368	15.75	51.49	98.91	646.71	74.22
369	15.14	50.38	95.08	632.77	84.31
370	15.14	50.76	95.08	637.55	87.96
371	15.44	51.49	96.96	646.71	85.16
372	15.65	51.49	98.28	646.71	66.79
373	15.04	51.29	94.45	644.20	90.91
374	15.85	51.79	99.54	650.48	88.64
375	15.85	52.7	99.54	661.91	66.51
376	15.95	54.01	100.17	678.37	70.91
377	16.96	55.93	106.51	702.48	95.59
378	16.15	56.03	101.42	703.74	91.17

データ 5.2 ボアホール検層データ サイト No-6 (3/3)

Well No: RVS BH - 6

Date: September 7, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
379	15.85	56.64	99.54	711.40	80.84
380	15.14	56.03	95.08	703.74	61.98
381	16.25	56.03	102.05	703.74	84.45
382	16.25	56.24	102.05	706.37	63.14
383	15.54	56.13	97.59	704.99	93.81
384	16.66	58.46	104.62	734.26	66.07
385	18.08	56.94	113.54	715.17	69.05
386	17.56	56.13	110.28	704.99	68.15
387	17.46	53.51	109.65	672.09	84.41
388	17.06	54.62	107.14	686.03	94.06
389	17.06	55.12	107.14	692.31	80.75
390	18.88	58.86	118.57	739.28	80.75
391	18.47	62.9	115.99	790.02	
392	18.67	63.4	117.25	796.30	
393	21.1	63.91	132.51	802.71	
394	20.79	64.92	130.56	815.40	
395	19.08	59.26	119.82	744.31	
396	18.17	62.9	114.11	790.02	



データ 5.2 ボアホール検層データ サイト No-7 (1/4)

Well No: RVS BH - 7

Date: July 12, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
2	0.056	0.131	0.35	1.65	
3	0.114	0.121	0.72	1.52	366
4	0.166	12.8	1.04	160.77	366
5	12.66	11.98	79.50	150.47	365
6	11.87	11.94	74.54	149.97	364
7	11.81	11.96	74.17	150.22	364
8	11.8	11.04	74.10	138.66	365
9	10.92	12.84	68.58	161.27	365
10	12.74	17.69	80.01	222.19	365
11	17.59	17.5	110.47	219.80	365
12	17.53	16.5	110.09	207.24	364
13	16.37	18.93	102.80	237.76	364
14	18.8	12.5	118.06	157.00	364
15	12.37	11.93	77.68	149.84	364
16	11.77	11.51	73.92	144.57	364
17	11.38	10.77	71.47	135.27	364
18	10.59	10.56	66.51	132.63	364
19	10.39	10.18	65.25	127.86	364
20	10.07	11.32	63.24	142.18	364
21	11.18	12.82	70.21	161.02	364
22	12.71	12.82	79.82	161.02	364
23	12.68	12.34	79.63	154.99	366
24	12.91	11.11	81.07	139.54	366
25	10.85	10.47	68.14	131.50	366
26	10.24	10.64	64.31	133.64	366
27	10.49	10.56	65.88	132.63	366
28	10.42	9.55	65.44	119.95	366
29	9.42	9.4	59.16	118.06	366
30	9.25	10.22	58.09	128.36	366
31	10.12	10.43	63.55	131.00	365
32	10.29	10.8	64.62	135.65	364
33	10.74	18.95	67.45	238.01	365
34	18.76	17.74	117.81	222.81	364
35	17.62	21.78	110.65	273.56	364
36	21.71	20.19	136.34	253.59	365
37	22	10.26	138.16	128.87	365
38	10.15	9.32	63.74	117.06	365
39	9.19	8.99	57.71	112.91	353
40	8.86	8.56	55.64	107.51	362
41	8.47	8.73	53.19	109.65	362
42	8.62	9.25	54.13	116.18	362
43	9.11	10.15	57.21	127.48	363
44	10.05	15.4	63.11	193.42	366
45	15.33	18.2	96.27	228.59	365
46	18.13	11.92	113.86	149.72	363
47	10.09	9.73	63.37	122.21	365
48	9.6	9.45	60.29	118.69	365
49	9.34	9.82	58.66	123.34	365
50	9.71	9.38	60.98	117.81	364
51	9.26	8.29	58.15	104.12	364
52	8.24	8.71	51.75	109.40	364
53	8.61	8.21	54.07	103.12	364
54	8.05	9.11	50.55	114.42	364
55	9.04	9.35	56.77	117.44	364
56	9.21	8.22	57.84	103.24	363
57	8.11	8.06	50.93	101.23	363
58	7.95	8.45	49.93	106.13	363
59	8.32	8.57	52.25	107.64	363
60	9.46	9.81	59.41	123.21	363
61	9.72	9.01	61.04	113.17	364
62	8.89	8.93	55.83	112.16	365
63	8.81	8.48	55.33	106.51	367
64	8.35	8.98	52.44	112.79	366
65	8.88	10.25	55.77	128.74	363

データ 5.2 ボアホール検層データ サイト No-7 (2/4)

Well No: RVS BH - 7

Date: July 12, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
66	10.17	11.3	63.87	141.93	362
67	11.21	8.6	70.40	108.02	362
68	8.43	7.91	52.94	99.35	363
69	7.9	8.31	49.61	104.37	362
70	8.3	8.4	52.12	105.50	362
71	8.27	7.49	51.94	94.07	361
72	7.38	7.95	46.35	99.85	361
73	7.81	8.72	49.05	109.52	362
74	8.59	8.69	53.95	109.15	363
75	8.59	8.12	53.95	101.99	361
76	7.98	7.93	50.11	99.60	360
77	7.86	8.36	49.36	105.00	355
78	8.26	8.97	51.87	112.66	358
79	8.95	14.78	56.21	185.64	359
80	14.58	9.19	91.56	115.43	359
81	9.1	9.2	57.15	115.55	359
82	9.1	8.53	57.15	107.14	359
83	8.51	8.96	53.44	112.54	359
84	8.9	9.55	55.89	119.95	359
85	9.45	9.39	59.35	117.94	359
86	9.28	9.64	58.28	121.08	359
87	9.54	9.92	59.91	124.60	359
88	9.8	12.24	61.54	153.73	359
89	12.17	11.85	76.43	148.84	358
90	11.74	8.73	73.73	109.65	358
91	8.82	8.52	55.39	107.01	359
92	8.41	7.94	52.81	99.73	360
93	7.82	7.54	49.11	94.70	359
94	7.41	8	46.53	100.48	359
95	7.92	8.58	49.74	107.76	360
96	8.49	8.53	53.32	107.14	362
97	8.42	8.41	52.88	105.63	360
98	8.26	8.12	51.87	101.99	359
99	8.1	8.53	50.87	107.14	359
100	8.41	8.66	52.81	108.77	359
101	8.53	8.92	53.57	112.04	359
102	8.81	8.64	55.33	108.52	359
103	8.51	8.56	53.44	107.51	359
104	8.45	8.85	53.07	111.16	359
105	8.72	9.69	54.76	121.71	359
106	9.59	8.59	60.23	107.89	359
107	8.47	7.97	53.19	100.10	359
108	7.86	7.61	49.36	95.58	359
109	7.19	7.27	45.15	91.31	357
110	7.15	7.32	44.90	91.94	357
111	8.28	8.38	52.00	105.25	357
112	7.5	8.15	47.10	102.36	357
113	7.77	7.61	48.80	95.58	357
114	9.26	7.89	58.15	99.10	357
115	8.1	9.36	50.87	117.56	357
116	9.61	9.6	60.35	120.58	357
117	8.59	9.73	53.95	122.21	357
118	7.62	8.71	47.85	109.40	357
119	7.6	7.73	47.73	97.09	357
120	8.4	7.7	52.75	96.71	357
121	8.54	8.42	53.63	105.76	357
122	7.13	8.71	44.78	109.40	355
123	6.75	7.24	42.39	90.93	355
124	7	6.86	43.96	86.16	354
125	7.96	7.13	49.99	89.55	355
126	7.39	8.1	46.41	101.74	355
127	7	7.45	43.96	93.57	354
128	8.68	7.2	54.51	90.43	354
129	8.97	8.8	56.33	110.53	354
130	9.72	9	61.04	113.04	354

データ 5.2 ボアホール検層データ サイト No-7 (3/4)

Well No: RVS BH - 7

Date: July 12, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
131	9.89	9.6	62.11	120.58	354
132	9.04	9.99	56.77	125.47	354
133	8.61	9.17	54.07	115.18	354
134	8.84	8.75	55.52	109.90	354
135	8.81	8.88	55.33	111.53	354
136	8.1	8.93	50.87	112.16	354
137	8.26	8.24	51.87	103.49	354
138	8.46	8.36	53.13	105.00	345
139	8.41	8.56	52.81	107.51	353
140	10.01	8.52	62.86	107.01	353
141	8.37	10.16	52.56	127.61	354
142	8.8	8.48	55.26	106.51	353
143	8.11	8.9	50.93	111.78	353
144	6.68	8.22	41.95	103.24	353
145	6.64	6.79	41.70	85.28	353
146	7.72	6.75	48.48	84.78	353
147	8.134	7.82	51.08	98.22	353
148	7.24	8.25	45.47	103.62	353
149	7.31	7.34	45.91	92.19	353
150	7.44	7.42	46.72	93.20	353
151	7	7.55	43.96	94.83	353
152	6.92	7.16	43.46	89.93	352
153	7.76	7	48.73	87.92	353
154	7.54	7.87	47.35	98.85	353
155	7.12	7.64	44.71	95.96	352
156	8.49	7.22	53.32	90.68	352
157	7.75	8.61	48.67	108.14	348
158	7.71	7.86	48.42	98.72	347
159	7.97	7.83	50.05	98.34	348
160	7.1	8	44.59	100.48	347
161	7.16	7.19	44.96	90.31	348
162	7.21	7.28	45.28	91.44	346
163	6.91	7.31	43.39	91.81	346
164	6.94	7	43.58	87.92	348
165	6.87	7	43.14	87.92	346
166	6.79	6.89	42.64	86.54	344
167	6.99	6.92	43.90	86.92	343
168	7	7.11	43.96	89.30	342
169	7.18	7.13	45.09	89.55	345
170	7.19	7.29	45.15	91.56	343
171	8.4	7.28	52.75	91.44	344
172	8.89	8.47	55.83	106.38	344
173	8.86	8.96	55.64	112.54	344
174	9.17	8.93	57.59	112.16	344
175	8.61	9.18	54.07	115.30	344
176	8.64	8.76	54.26	110.03	344
177	9.1	8.75	57.15	109.90	344
178	9.22	9.15	57.90	114.92	344
179	8.95	9.33	56.21	117.18	344
180	8.41	9.1	52.81	114.30	344
181	8.18	9.51	51.37	119.45	344
182	8.17	8.26	51.31	103.75	338
183	8.16	8.25	51.24	103.62	334
184	8.2	8.24	51.50	103.49	327
185	10	15.34	62.80	192.67	338
186	12	25.12	75.36	315.51	335
187	11	16	69.08	200.96	337
188	10	12	62.80	150.72	336
189	15	19	94.20	238.64	335
190	20	30	125.60	376.80	334
191	25	35	157.00	439.60	330
192	21	31	131.88	389.36	330
193	23	33	144.44	414.48	330
194	27	34	169.56	427.04	330
195	15	25	94.20	314.00	331

データ 5.2 ボアホール検層データ サイト No-7 (4/4)

Well No: RVS BH - 7

Date: July 12, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
196	12	25	75.36	314.00	332
197	16	28	100.48	351.68	330
198	12	22	75.36	276.32	328
199	12	22	75.36	276.32	327
200			0.00	0.00	326

データ 5.2 ボアホール検層データ サイト No-8 (1/3)

Well No: RVS BH - 8

Date: August 15, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
6	5.7	8.99	35.80	112.91	119
7	6.96	9.83	43.71	123.46	110
8	6.67	9.55	41.89	119.95	116
9	5.76	8.8	36.17	110.53	119
10	5.7	8.9	35.80	111.78	127
11	5.32	8.43	33.41	105.88	122
12	4.43	7.69	27.82	96.59	118
13	4.13	7.69	25.94	96.59	129
14	4.05	7.64	25.43	95.96	131
15	4.14	7.6	26.00	95.46	125
16	4.23	7.39	26.56	92.82	122
17	4.24	7.52	26.63	94.45	127
18	4.16	7.46	26.12	93.70	124
19	4.31	7.43	27.07	93.32	120
20	4.44	7.4	27.88	92.94	125
21	4.35	7.39	27.32	92.82	124
22	4.31	7.28	27.07	91.44	127
23	4.46	7.54	28.01	94.70	129
24	4.51	7.46	28.32	93.70	139
25	4.57	7.45	28.70	93.57	134
26	4.59	7.64	28.83	95.96	133
27	4.64	7.44	29.14	93.45	129
28	4.94	7.75	31.02	97.34	136
29	4.78	7.39	30.02	92.82	165
30	4.88	7.03	30.65	88.30	174
31	5.17	7.6	32.47	95.46	171
32	7.05	8.55	44.27	107.39	165
33	8.74	9.74	54.89	122.33	175
34	11.11	12.61	69.77	158.38	166
35	12.02	12.04	75.49	151.22	160
36	11.8	12.66	74.10	159.01	179
37	6.96	8.99	43.71	112.91	170
38	5.07	7.02	31.84	88.17	161
39	5.65	7.63	35.48	95.83	162
40	5.83	7.33	36.61	92.06	167
41	6.03	7.31	37.87	91.81	142
42	6	7.53	37.68	94.58	141
43	5.83	6.91	36.61	86.79	147
44	5.87	6.66	36.86	83.65	140
45	5.41	6.67	33.97	83.78	149
46	5.41	6.47	33.97	81.26	144
47	4.66	5.78	29.26	72.60	150
48	4.44	5.34	27.88	67.07	151
49	4.44	5.36	27.88	67.32	149
50	4.51	5.24	28.32	65.81	146
51	4.58	5.31	28.76	66.69	147
52	4.66	5.15	29.26	64.68	140
53	6.52	7.47	40.95	93.82	141
54	7.13	11.26	44.78	141.43	142
55	7.84	11.04	49.24	138.66	145
56	7.34	9.99	46.10	125.47	144
57	5.56	6.19	34.92	77.75	143
58	4.9	4.81	30.77	60.41	144
59	4.63	4.67	29.08	58.66	146
60	1.09	4.23	6.85	53.13	149
61	4.43	4.52	27.82	56.77	145
62	1.09	4.41	6.85	55.39	161
63	0.23	4.34	1.44	54.51	141
64	3.62	4.33	22.73	54.38	146
65	2.75	4.48	17.27	56.27	148
66	0.631	5.46	3.96	68.58	141
67	0.234	8.4	1.47	105.50	140
68	2.77	5.69	17.40	71.47	140
69	0.138	1.24	0.87	15.57	141

データ 5.2 ボアホール検層データ サイト No-8 (2/3)

Well No: RVS BH - 8

Date: August 15, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
70	0.939	4.3	5.90	54.01	143
71	3.43	4.26	21.54	53.51	140
72	0.126	0.174	0.79	2.19	145
73	0.028	0.953	0.18	11.97	154
74	0.021	4.62	0.13	58.03	151
75	3.41	3.7	21.41	46.47	153
76	2.96	3.26	18.59	40.95	140
77	0.931	1.81	5.85	22.73	141
78	1.65	3.27	10.36	41.07	143
79	0.016	3.25	0.10	40.82	147
80	5.12	16.5	32.15	207.24	140
81	8.14	31.87	51.12	400.29	179
82	10.44	35.09	65.56	440.73	176
83	11.32	38.17	71.09	479.42	171
84	10.3	36.57	64.68	459.32	170
85	12.13	21.6	76.18	271.30	176
86	13.01	23.01	81.70	289.01	172
87	9.57	22.42	60.10	281.60	177
88	11.33	22.2	71.15	278.83	179
89	8.71	19.55	54.70	245.55	170
90	7.93	18.69	49.80	234.75	170
91	9	17.29	56.52	217.16	171
92	11.43	14.77	71.78	185.51	174
93	6.589	14.07	41.38	176.72	169
94	7.21	16.53	45.28	207.62	167
95	8.25	17.49	51.81	219.67	150
96	8	18.83	50.24	236.50	154
97	9.18	15.48	57.65	194.43	145
98	11	14.39	69.08	180.74	143
99	7	9.46	43.96	118.82	161
100	6.45	12.43	40.51	156.12	149
101	7.15	17.84	44.90	224.07	146
102	8.24	16.11	51.75	202.34	176
103	6.69	14.13	42.01	177.47	174
104	4.51	14.03	28.32	176.22	174
105	6	14.83	37.68	186.26	175
106	5.4	14.96	33.91	187.90	167
107	3.64	11.57	22.86	145.32	170
108	5.49	116.82	34.48	1467.26	171
109	2.14	90.85	13.44	1141.08	169
110	9.51	106.81	59.72	1341.53	177
111	11.5	105.54	72.22	1325.58	175
112	9.46	136.65	59.41	1716.32	175
113	5.09	153.38	31.97	1926.45	178
114	4.4	59.44	27.63	746.57	174
115	4.37	184.71	27.44	2319.96	174
116	4.47	239.26	28.07	3005.11	176
117	4.33	157.4	27.19	1976.94	177
118	4.67	171.78	29.33	2157.56	180
119	4.39	224.64	27.57	2821.48	181
120	4.47	264.8	28.07	3325.89	167
121	6.78	284.44	42.58	3572.57	167
122	9.64	224.03	60.54	2813.82	166
123	5.5	243.39	34.54	3056.98	162
124	5.53	277.72	34.73	3488.16	163
125	4.78	314.63	30.02	3951.75	176
126	4.48	211.71	28.13	2659.08	177
127	4.39	384.5	27.57	4829.32	178
128	5.24	270.46	32.91	3396.98	167
129	4.77	265.25	29.96	3331.54	176
130	4.61	280.28	28.95	3520.32	174
131	4.55	353.43	28.57	4439.08	176
132	4.59	307.4	28.83	3860.94	178
133	4.33	377.16	27.19	4737.13	174
134	4.26	236.16	26.75	2966.17	184

データ 5.2 ボアホール検層データ サイト No-8 (3/3)

Well No: RVS BH - 8

Date: August 15, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
135	4.36	267.16	27.38	3355.53	176
136	4.45	266.82	27.95	3351.26	180
137	4.35	135.58	27.32	1702.88	172
138	4.71	148.6	29.58	1866.42	170
139	5	87.32	31.40	1096.74	160
140	4.85	170.4	30.46	2140.22	170
141	4.78	170.4	30.02	2140.22	170
142	4.78	170.4	30.02	2140.22	150
143	4.78	170.4	30.02	2140.22	110
144	4.78	170.4	30.02	2140.22	97
145	4.78	170.4	30.02	2140.22	

データ 5.2 ボアホール検層データ サイト No-9N (1/3)

Well No: RVS BH - 9N

Date: May 15, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
29	2.60	6.50	26	425	450.8
30	4.52	4.54	45	297	458.3
31	4.81	4.84	48	316	450.8
32	4.80	4.83	48	315	458.3
33	4.75	4.80	48	313	440.9
34	4.64	4.70	47	307	441.2
35	4.72	4.74	47	310	450.2
36	4.71	4.73	47	309	442.1
37	4.74	4.82	48	315	453.2
38	5.11	5.13	51	335	466.6
39	5.41	5.42	54	354	453.4
40	5.37	5.76	54	376	444.3
41	4.92	4.93	49	322	462.0
42	4.57	4.59	46	300	467.8
43	4.47	4.50	45	294	467.3
44	4.56	4.58	46	299	442.1
45	4.77	4.79	48	313	459.2
46	5.06	5.09	51	332	453.2
47	5.77	5.79	58	378	468.0
48	7.29	7.30	73	477	462.3
49	9.64	9.69	97	633	444.2
50	11.02	11.96	111	781	465.3
51	10.89	10.91	109	713	456.0
52	10.61	10.63	107	694	457.3
53	10.60	10.62	107	694	456.0
54	10.40	10.42	104	681	454.4
55	9.80	9.83	98	642	454.3
56	9.30	11.02	93	720	466.0
57	8.57	8.62	86	563	460.9
58	8.63	8.73	87	570	454.2
59	9.34	9.35	94	611	450.3
60	9.09	9.11	91	595	457.2
61	9.46	9.47	95	619	451.3
62	10.85	10.91	109	713	460.1
63	12.57	12.00	126	784	454.2
64	15.65	63.00	157	4115	456.3
65	20.10	15.81	202	1033	422.6
66	24.26	20.14	244	1315	379.4
67	30.25	24.46	304	1598	412.3
68	35.76	30.31	359	1980	357.5
69	36.29	35.83	365	2340	474.0
70	32.71	36.32	329	2372	431.6
71	27.58	34.83	277	2275	295.3
72	25.70	27.64	258	1805	351.8
73	25.83	25.70	260	1679	348.4
74	29.67	25.86	298	1689	350.0
75	35.91	29.82	361	1948	338.3
76	44.05	36.13	443	2360	401.7
77	54.75	44.25	550	2890	451.8
78	64.84	55.30	652	3612	458.7
79	72.08	65.54	724	4281	466.0
80	73.48	72.31	738	4723	467.1
81	73.14	73.52	735	4802	467.7
82	64.37	73.20	647	4781	467.2
83	47.80	65.96	480	4308	467.0
84	33.51	47.90	337	3128	462.4
85	21.83	34.98	219	2285	456.7
86	10.54	21.90	106	1430	458.3
87	10.11	10.60	102	692	460.3
88	11.32	10.26	114	670	461.5
89	11.56	11.33	116	740	463.3
90	11.54	11.57	116	756	465.6
91	11.11	11.55	112	754	465.0



データ 5.2 ボアホール検層データ サイト No-9N (2/3)

Well No: RVS BH - 9N

Date: May 15, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
92	11.24	11.12	113	726	464.5
93	10.11	11.25	102	735	465.2
94	9.41	10.22	95	667	462.7
95	9.40	9.42	94	615	463.7
96	9.40	9.42	94	615	465.0
97	9.40	9.42	94	615	464.6
98	8.04	9.42	81	615	462.6
99	8.64	8.68	87	567	461.6
100	7.40	8.76	74	572	462.0
101	7.43	7.45	75	487	462.6
102	6.30	7.82	63	511	463.6
103	6.66	6.33	67	413	465.2
104	10.30	8.94	103	584	451.8
105	5.72	10.61	57	693	449.2
106	5.53	5.88	56	384	449.0
107	6.17	5.54	62	362	449.5
108	7.32	6.25	74	408	452.5
109	7.39	7.47	74	488	460.8
110	5.71	7.40	57	483	455.0
111	5.99	5.76	60	376	455.9
112	6.36	6.03	64	394	449.1
113	6.95	6.39	70	417	453.1
114	8.15	7.00	82	457	454.1
115	9.11	8.20	92	536	465.9
116	9.48	9.15	95	598	455.0
117	8.16	9.57	82	625	462.6
118	5.88	9.00	59	588	460.5
119	6.40	5.90	64	385	453.9
120	7.65	6.52	77	426	462.5
121	4.55	7.67	46	501	461.7
122	3.20	4.65	32	304	459.8
123	2.92	3.21	29	210	455.6
124	3.23	3.00	32	196	453.0
125	3.50	3.40	35	222	462.1
126	5.43	3.68	55	240	459.0
127	8.23	5.58	83	364	462.6
128	5.63	8.24	57	538	465.8
129	3.65	5.74	37	375	465.8
130	5.69	3.72	57	243	466.3
131	6.69	5.84	67	381	449.7
132	6.56	6.78	66	443	462.7
133	5.48	6.64	55	434	456.5
134	7.16	5.55	72	362	455.0
135	3.32	7.25	33	474	458.4
136	3.18	3.63	32	237	462.8
137	3.20	3.20	32	209	463.3
138	2.80	3.20	28	209	462.1
139	2.93	2.81	29	184	460.0
140	3.65	2.94	37	192	447.7
141	11.65	3.93	117	257	457.6
142	9.56	11.95	96	780	461.7
143	5.63	9.65	57	630	460.3
144	2.96	5.68	30	371	456.4
145	2.50	2.98	25	195	456.5
146	2.79	2.52	28	165	453.6
147	4.84	2.80	49	183	455.6
148	7.13	4.88	72	319	453.6
149	6.26	7.19	63	470	451.3
150	7.44	6.30	75	411	450.2
151	9.62	7.47	97	488	459.2
152	8.46	9.66	85	631	459.6
153	2.71	8.50	27	555	458.5
154	2.45	2.72	25	178	457.7
155	2.46	2.47	25	161	457.4
156	3.10	2.48	31	162	457.3

データ 5.2 ボアホール検層データ サイト No-9N (3/3)

Well No: RVS BH - 9N

Date: May 15, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
157	2.83	3.17	28	207	458.8
158	2.55	2.85	26	186	459.6
159	2.63	2.57	26	168	459.8
160	2.85	2.65	29	173	459.7
161	3.10	2.88	31	188	460.6
162	3.05	3.11	31	203	460.5
163	3.60	3.07	36	201	457.6
164	5.16	3.61	52	236	455.6
165	5.95	5.21	60	340	451.7
166	7.52	6.00	76	392	436.6
167	11.28	7.66	113	500	436.7
168	11.85	11.43	119	747	437.0
169	11.25	11.90	113	777	443.3
170	8.96	11.30	90	738	456.2
171	3.80	9.00	38	588	455.5
172	3.43	3.85	34	251	451.9
173	3.83	3.44	38	225	451.0
174	3.12	3.84	31	251	451.1
175	3.10	3.13	31	204	449.9
176	3.02	3.11	30	203	448.1
177	2.80	3.02	28	197	446.3
178	2.64	2.90	27	189	442.5
179	3.29	2.66	33	174	441.0
180	3.28	3.99	33	261	450.0
181	3.04	3.29	31	215	447.3
182	2.68	3.04	27	199	442.8
183	2.70	2.70	27	176	452.3
184	2.99	2.71	30	177	452.8
185	3.71	3.02	37	197	452.9
186	3.06	3.72	31	243	451.6
187	2.82	3.07	28	201	451.2
188	2.88	2.83	29	185	450.7
189	2.80	2.89	28	189	451.3
190	2.74	2.81	28	184	450.0
191	2.94	2.75	30	180	450.3
192	3.08	2.95	31	193	448.9
193	2.68	3.09	27	202	449.2
194	2.90	3.42	29	223	452.4

データ 5.2 ボアホール検層データ サイト No-10N (1/3)

Well No: RVS BH - 10N

Date: February 18, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
21	23.49	23.50	236	1535	399
22	17.15	17.18	172	1122	396
23	13.39	13.38	135	874	429
24	12.08	12.10	121	790	491
25	12.64	12.63	127	825	511
26	11.00	11.00	111	718	443
27	7.67	7.69	77	502	508
28	9.46	9.42	95	615	494
29	19.84	19.82	199	1294	448
30	24.32	24.31	244	1588	425
31	24.30	24.29	244	1586	425
32	23.12	23.11	232	1509	423
33	24.54	24.70	247	1613	407
34	18.16	18.17	182	1187	416
35	17.44	17.45	175	1140	500
36	18.04	18.03	181	1178	522
37	17.55	17.54	176	1146	524
38	18.30	18.29	184	1195	528
39	20.36	20.34	205	1328	529
40	18.76	18.77	189	1226	523
41	18.23	18.22	183	1190	523
42	16.84	16.85	169	1101	522
43	11.40	11.38	115	743	521
44	11.08	11.07	111	723	520
45	14.19	14.10	143	921	519
46	12.06	14.18	121	926	518
47	14.39	12.08	145	789	516
48	13.95	14.19	140	927	514
49	13.05	14.09	131	920	513
50	15.44	13.04	155	852	512
51	15.61	15.45	157	1009	514
52	13.38	15.60	134	1019	514
53	14.39	13.39	145	875	511
54	13.33	14.38	134	939	512
55	21.18	18.26	213	1193	509
56	22.88	21.13	230	1380	512
57	24.19	22.85	243	1492	507
58	26.06	24.20	262	1581	507
59	25.80	26.07	259	1703	513
60	25.00	25.89	251	1691	513
61	24.41	25.02	245	1634	512
62	22.21	24.39	223	1593	512
63	23.23	22.20	233	1450	510
64	27.00	23.07	271	1507	511
65	33.44	27.11	336	1771	514
66	34.76	33.35	349	2178	516
67	33.63	34.75	338	2270	516
68	32.27	33.64	324	2197	518
69	31.42	32.38	316	2115	519
70	29.67	31.42	298	2052	520
71	26.89	29.86	270	1950	520
72	22.79	26.90	229	1757	518
73	22.91	22.80	230	1489	519
74	17.21	18.93	173	1236	522
75	16.55	17.22	166	1125	524
76	15.86	16.54	159	1080	528
77	15.15	15.84	152	1035	532
78	14.33	15.16	144	990	536
79	13.76	13.78	138	900	538
80	14.33	14.34	144	937	540
81	13.76	13.78	138	900	542
82	13.43	13.44	135	878	545
83	13.78	13.79	138	901	545

データ 5.2 ボアホール検層データ サイト No-10N (2/3)

Well No: RVS BH - 10N

Date: February 18, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
84	13.80	13.79	139	901	549
85	13.00	13.00	131	849	549
86	12.44	12.45	125	813	553
87	14.00	14.01	141	915	555
88	15.81	15.82	159	1033	556
89	16.69	16.68	168	1089	557
90	16.94	16.96	170	1108	560
91	16.87	16.88	170	1102	561
92	16.64	16.67	167	1089	561
93	16.53	16.54	166	1080	560
94	16.41	16.42	165	1072	559
95	16.18	16.59	163	1084	559
96	16.08	16.09	162	1051	559
97	16.17	16.16	162	1055	560
98	16.51	16.55	166	1081	559
99	17.13	17.15	172	1120	559
100	17.50	17.52	176	1144	560
101	17.52	17.53	176	1145	560
102	17.42	17.44	175	1139	560
103	17.44	17.45	175	1140	559
104	17.52	17.53	176	1145	559
105	17.81	17.83	179	1165	559
106	19.95	17.96	200	1173	560
107	17.90	17.92	180	1170	561
108	17.75	17.81	178	1163	561
109	17.77	17.76	179	1160	561
110	17.80	17.82	179	1164	562
111	17.91	17.90	180	1169	561
112	18.63	18.64	187	1217	561
113	21.47	21.48	216	1403	557
114	25.98	25.99	261	1697	556
115	28.22	28.23	284	1844	555
116	29.90	29.92	300	1954	556
117	31.27	31.28	314	2043	556
118	32.49	31.24	326	2040	555
119	34.17	34.18	343	2232	557
120	36.85	36.84	370	2406	557
121	40.46	40.47	407	2643	559
122	45.71	45.72	459	2986	561
123	52.04	52.05	523	3399	561
124	62.77	62.78	631	4100	560
125	73.00	73.02	734	4769	557
126	73.17	73.18	735	4780	556
127	66.89	66.97	672	4374	556
128	53.12	53.13	534	3470	556
129	43.76	43.77	440	2859	557
130	41.40	41.41	416	2705	559
131	39.99	40.00	402	2612	556
132	37.28	37.29	375	2435	558
133	32.58	32.59	327	2129	557
134	27.72	27.74	279	1812	557
135	25.12	25.13	252	1641	556
136	27.82	27.83	280	1818	556
137	34.93	34.95	351	2283	556
138	34.73	35.74	349	2334	558
139	33.05	32.09	332	2096	561
140	30.55	30.56	307	1996	563
141	27.95	27.97	281	1827	562
142	25.53	25.54	257	1668	561
143	22.94	22.95	231	1499	563
144	20.71	20.73	208	1354	564
145	15.01	15.02	151	981	562
146	10.72	10.73	108	701	561
147	10.54	10.55	106	689	559
148	9.84	9.84	99	643	564

データ 5.2 ボアホール検層データ サイト No-10N (3/3)

Well No: RVS BH - 10N

Date: February 18, 2011

Depth (GL-m)	Resistance(Ohm)		Resistivity (Ohm-m)		SP(mv)
	Short Normal	Long Normal	Short Normal	Long Normal	
149	8.07	8.08	81	528	562
150	7.04	7.05	71	460	562
151	6.42	6.43	65	420	561
152	6.08	6.09	61	398	561
153	8.03	8.02	81	524	562
154	8.25	8.27	83	540	562
155	8.28	8.27	83	540	561
156	6.85	6.85	69	447	560
157	6.50	6.51	65	425	561
158	7.15	7.15	72	467	560
159	6.68	6.68	67	436	560
160	6.15	6.16	62	402	559
161	6.06	6.06	61	396	560
162	6.05	6.06	61	396	560
163	6.00	6.01	60	393	560
164	6.03	6.04	61	394	560
165	5.88	5.89	59	385	560
166	5.84	5.84	59	381	560
167	5.91	5.92	59	387	560
168	5.98	5.98	60	391	559
169	5.94	5.93	60	387	559
170	5.77	5.78	58	378	558
171	5.85	5.86	59	383	558
172	5.95	5.96	60	389	557
173	5.84	5.85	59	382	556
174	5.91	5.90	59	385	555
175	5.92	5.93	59	387	557
176	5.85	5.87	59	383	557
177	5.88	5.89	59	385	558
178	5.87	5.88	59	384	555
179	5.78	5.78	58	378	553
180	5.78	5.79	58	378	552
181	5.74	5.75	58	376	551
182	5.69	5.70	57	372	548
183	5.78	5.76	58	376	542
184	5.71	5.70	57	372	560
185	5.64	5.65	57	369	560
186	5.58	5.59	56	365	559
187	5.56	5.57	56	364	560
188	5.46	5.49	55	359	559
189	5.77	5.78	58	378	558
190	5.76	5.75	58	376	558
191	5.72	5.73	57	374	557
192	5.77	5.78	58	378	557
193	5.64	5.65	57	369	557
194	5.55	5.55	56	362	560
195	5.48	5.49	55	359	559
196	5.33	5.34	54	349	558
197	5.27	5.28	53	345	558

データ 5.3 揚水試験データ サイト No-1 (1/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 8 June 2010

**SHEET No. : 1/5**

Location: Abaya North, Walayta, SNNPRS  
GPS Reading: 383508 E, 734719 N

Site No.: **RVS BH No-1**

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 94 - 124 m  
Static Groundwater Level (FToC) 47.35 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.38 m  
Pump Setting: 66.00 m, Discharge (Q): 8.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
8-Jun-10	10:30	0	0	47.35	0.00			
			1	50.76	3.41			
			2	51.00	3.65			
			4	51.10	3.75			
			6	51.14	3.79			
			8	51.12	3.77			
			10	51.12	3.77			
			12	51.14	3.79			
			14	51.15	3.80			
			16	51.18	3.83			
			18	51.21	3.86			
			20	51.22	3.87			
			25	51.23	3.88			
			30	51.22	3.87			
			35	51.22	3.87			
			40	51.22	3.87			
			45	51.23	3.88			
			50	51.23	3.88			
			55	51.23	3.88			
	11:30	1	60	51.23	3.88			
			70	51.23	3.88			
			80	51.23	3.88			
			90	51.23	3.88			
			100	51.23	3.88			
			110	51.23	3.88			
	12:30	2	120	51.23	3.88			

データ 5.3 揚水試験データ サイト No-1 (2/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 8 June 2010

**SHEET No. : 2/5**

Location: Abaya North, Walayta, SNNPRS  
GPS Reading: 383508 E, 734719 N

Site No.: RVS BH No-1

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 94 - 124 m  
Static Groundwater Level (FToC) 47.35 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.38 m  
Pump Setting: 66.00 m, Discharge (Q): 9 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
8-Jun-10	12:30	0	0	51.23	0.00			
			1	51.45	0.22			
			2	51.50	0.27			
			4	51.55	0.32			
			6	51.56	0.33			
			8	51.58	0.35			
			10	51.60	0.37			
			12	51.66	0.43			
			14	51.66	0.43			
			16	51.67	0.44			
			18	51.65	0.42			
			20	51.66	0.43			
			25	51.66	0.43			
			30	51.66	0.43			
			35	51.66	0.43			
			40	51.66	0.43			
			45	51.67	0.44			
			50	51.66	0.43			
			55	51.66	0.43			
	13:30	1	60	51.67	0.44			
			70	51.68	0.45			
			80	51.67	0.44			
			90	51.68	0.45			
			100	51.69	0.46			
			110	51.68	0.45			
	14:30	2	120	51.69	0.46			

データ 5.3 揚水試験データ サイト No-1 (3/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 8 June 2010

**SHEET No. : 3/5**

Location: Abaya North, Walayta, SNNPRS  
GPS Reading: 383508 E, 734719 N

Site No.: RVS BH No-1

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 94 - 124 m  
Static Groundwater Level (FToC) 47.35 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.38 m  
Pump Setting: 66.00 m, Discharge (Q): 11.5 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
8-Jun-10	14:30	0	0	51.69	0.00			
			1	52.40	0.71			
			2	52.30	0.61			
			4	52.45	0.76			
			6	52.52	0.83			
			8	52.54	0.85			
			10	52.56	0.87			
			12	52.58	0.89			
			14	52.56	0.87			
			16	52.58	0.89			
			18	52.56	0.87			
			20	52.57	0.88			
			25	52.59	0.90			
			30	52.58	0.89			
			35	52.58	0.89			
			40	52.58	0.89			
			45	52.58	0.89			
			50	52.58	0.89			
			55	52.58	0.89			
	15:30	1	60	52.58	0.89			
			70	52.58	0.89			
			80	52.58	0.89			
			90	52.58	0.89			
			100	52.58	0.89			
			110	52.58	0.89			
	16:30	2	120	52.58	0.89			



データ 5.3 揚水試験データ サイト No-1 (4/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 8 June 2010

**SHEET No. : 4/5**

Location: Abaya North, Walayta, SNNPRS  
GPS Reading: 383508 E, 734719 N

Site No.: **RVS BH No-1**

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 94 - 124 m  
Static Groundwater Level (FToC) 47.35 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.38 m  
Pump Setting: 66.00 m, Discharge (Q): 14.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
8-Jun-10	16:30	0	0	52.58	0.00			
			1	53.15	0.57			
			2	53.21	0.63			
			4	53.25	0.67			
			6	53.32	0.74			
			8	53.32	0.74			
			10	53.34	0.76			
			12	53.34	0.76			
			14	53.34	0.76			
			16	53.34	0.76			
			18	53.34	0.76			
			20	53.34	0.76			
			25	53.34	0.76			
			30	53.35	0.77			
			35	53.35	0.77			
			40	53.35	0.77			
			45	53.35	0.77			
			50	53.35	0.77			
			55	53.35	0.77			
	17:30	1	60	53.36	0.78			
			70	53.36	0.78			
			80	53.37	0.79			
			90	53.37	0.79			
			100	53.37	0.79			
			110	53.38	0.80			
	18:30	2	120	53.38	0.80			

データ 5.3 揚水試験データ サイト No-1 (5/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 15 June 2010

**SHEET No. : 5/5**

Location: Abaya North, Walayta, SNNPRS

Site No.: RVS BH No-1

GPS Reading: 383508 E, 734719 N

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 94 - 124 m

Static Groundwater Level (FToC) 47.35 m Screen Length: 30.00 m

Pump Type: Submersible Casing stick up: 0.38 m

Pump Setting: 66.00 m, Discharge (Q): 16.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
15-Jun-10	18:30	0	0	53.38	0.00			
			1	54.35	0.97			
			2	54.37	0.99			
			4	54.42	1.04			
			6	54.48	1.10			
			8	54.50	1.12			
			10	54.52	1.14			
			12	54.56	1.18			
			14	54.57	1.19			
			16	54.57	1.19			
			18	54.58	1.20			
			20	54.58	1.20			
			25	54.58	1.20			
			30	54.58	1.20			
			35	54.58	1.20			
			40	54.58	1.20			
			45	54.58	1.20			
			50	54.59	1.21			
			55	54.59	1.21			
	19:30	1	60	54.59	1.21			
			70	54.60	1.22			
			80	54.60	1.22			
			90	54.60	1.22			
			100	54.60	1.22			
			110	54.60	1.22			
	20:30	2	120	54.60	1.22			

データ 5.3 揚水試験データ サイト No-1 (6/8)

**CONTINUOUS PUMPING TEST DATA SHEET**

Date: 9 June 2010

**SHEET No. : 1/2**

Location: Abaya North, Walayta, SNNPRS  
GPS Reading: 383508 E, 734719 N

Site No.: **RVS BH No-1**

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 94 - 124 m  
Static Groundwater Level (FToC) 47.35 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.38 m  
Pump Setting: 66.00 m, Discharge (Q): 12.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
9-Jun-10	12:30		0	47.31	0			
			1	52.02	4.71			
			2	52.23	4.92			
			3	52.30	4.99			
			4	52.35	5.04			
			5	52.40	5.09			
			6	52.45	5.14			
			8	52.52	5.21			
			10	52.58	5.27			
			15	52.60	5.29			
			20	52.63	5.32			
			25	52.67	5.36			
			30	52.68	5.37	54	7.19	31.6
			35	52.70	5.39			
			40	52.72	5.41			
			45	52.74	5.43			
			50	52.76	5.45			
			55	52.78	5.47	55	7.19	31
	13:30	1	60	52.81	5.50			
			70	52.82	5.51			
			80	52.83	5.52			
			90	52.84	5.53			
			100	52.86	5.55			
			110	52.88	5.57			
	14:30	2	120	52.89	5.58			
			140	52.90	5.59			
			160	52.91	5.60			

データ 5.3 揚水試験データ サイト No-1 (7/8)

**CONTINUOUS PUMPING TEST DATA SHEET**

Date: 9 June 2010

**SHEET No. : 2/2**

Location: Abaya North, Walayta, SNNPRS  
GPS Reading: 383508 E, 734719 N

Site No.: RVS BH No-1

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 94 - 124 m  
Static Groundwater Level (FToC\*) 47.35 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.38 m  
Pump Setting: 66.00 m, Discharge (Q): 12.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)	
		(hour)	(min)						
9-Jun-10	15:30	3	180	52.91	0				
			210	52.92	0.01				
		4	240	52.93	0.02				
			270	52.94	0.03				
		5	300	52.95	0.04	65	7.15	31.6	
			330	52.96	0.05	64	7.24	30.4	
		6	360	52.97	0.06	65	7.25	31.3	
			7	420	53.10	0.19	65	7.23	30.6
		8	480	53.05	0.14	65	7.22	30.3	
			9	540	53.06	0.15	64	7.23	32.0
		10	600	53.07	0.16	63	7.23	31.6	
660	53.08		0.17	64	7.22	32.4			
10 June 2010	0:00	12	720	53.09	0.18	65	7.22	31.5	
		13	780	53.10	0.19	64	7.23	32.5	
		14	840	53.12	0.21	60	7.22	31.5	
		15	900	53.13	0.22	55	7.2	31.4	
		16	960	53.15	0.24	54	7.23	31.3	
		18	1080	53.16	0.25	54	7.22	31.0	
		20	1200	53.17	0.26	54	7.22	31.3	
		21	1260	53.18	0.27	50	7.23	30.7	
		22	1320	53.19	0.28	48	7.23	32.0	
		24	1440	53.20	0.29	44	7.24	33.0	

データ 5.3 揚水試験データ サイト No-1 (8/8)

**RECOVERY TEST DATA SHEET**

Date: 10 June 2010

**SHEET No. : 1/1**

Location: Abaya North, Walayta, SNNPRS

Site No.: **RVS BH No-1**

GPS Reading: 383508 E,

734719 N

Well No.: No-1 Well Depth: 150.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 94 - 124 m

Static Groundwater Level (FToC) 47.35 m Screen Length: 30.00 m

Pump Type: Submersible Casing stick up: 0.38 m

Pump Setting: 66.00 m, Discharge (Q): NA L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t]		Time since Pumping Started, [t] (min)	Time Ratio, [t/t]	Water Level (GL - m)	Residual Drawdown, [s] (m)
		(hour)	(min)				
10-Jun-10	12:30		0	1440		53.20	5.85
			1	1441	1441	48.01	0.66
			2	1442	721	47.58	0.23
			4	1444	361	47.55	0.20
			6	1446	241	47.43	0.08
			8	1448	181	47.42	0.07
			10	1450	145	47.42	0.07
			12	1452	121	47.40	0.05
			14	1454	104	47.39	0.04
			16	1456	91	47.38	0.03
			18	1458	81	47.38	0.03
			20	1460	73	47.37	0.02
			25	1465	59	47.37	0.02
			30	1470	49	47.36	0.01
			35	1475	42	47.36	0.01
			40	1480	37	47.36	0.01
			45	1485	33	47.35	0.00
			50	1490	30	47.34	
	13:30	1	60	1500	25	47.33	
			70	1510	22		
			80	1520	19		
			90	1530	17		
			100	1540	100		
			110	1550	110		
		2	120	1560	120		
			150	1590	150		
		3	180	1620	9		
			210	1650	8		
		4	240	1680	7		

データ 5.3 揚水試験データ サイト No-2 (1/7)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 May 2010

**SHEET No. : 1/4**

Location: Meki, West Shoa, Oromiya Site No.: **RVS BH No-2**

GPS Reading: 486788 E, 907743 N

Well No.: No-2 Well Depth: 147.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC) 92.20 m Screen Length: 30.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 103.50 m, Discharge (Q): 7.70 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-May-10	17:30	0	0	92.20	0.00			
			1	92.25	0.05			
			2	92.26	0.06			
			4	92.27	0.07			
			6	92.28	0.08			
			8	92.28	0.08			
			10	92.29	0.09			
			12	92.30	0.10			
			14	92.31	0.11			
			16	92.32	0.12			
			18	92.33	0.13			
			20	92.34	0.14			
			25	92.37	0.17			
			30	92.39	0.19	134.2	8.6	32.2
			35	92.40	0.20			
			40	92.40	0.20			
			45	92.41	0.21			
			50	92.41	0.21			
			55	92.42	0.22			
	18:30	1	60	92.42	0.22	113.8	8.7	32.2
			70	92.42	0.22			
			80	92.43	0.23			
			90	92.43	0.23	133.6	8.4	32.2
			100	92.43	0.23			
			110	92.45	0.25			
	19:30	2	120	92.46	0.26	130	8.6	32.2

データ 5.3 揚水試験データ サイト No-2 (2/7)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 May 2010

**SHEET No. : 2/5**

Location: Meki, West Shoa, Oromiya Site No.: **RVS BH No-2**

GPS Reading: 486788 E, 907743 N

Well No.: No-2 Well Depth: 147.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC) 92.20 m Screen Length: 30.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 103.50 m, Discharge (Q): 8.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-May-10	19:30	0	0	92.46	0.00			
			1	92.50	0.04			
			2	92.52	0.06			
			4	92.53	0.07			
			6	92.53	0.07			
			8	92.54	0.08			
			10	92.54	0.08			
			12	92.56	0.10			
			14	92.57	0.11			
			16	92.58	0.12			
			18	92.58	0.12			
			20	92.59	0.13			
			25	92.60	0.14			
			30	92.61	0.15			
			35	92.61	0.15			
			40	92.62	0.16			
			45	92.62	0.16			
			50	92.63	0.17			
			55	92.63	0.17			
	20:30	1	60	92.65	0.19	124.6	8.5	32.2
			70	92.66	0.20			
			80	92.67	0.21			
			90	92.68	0.22	124.8	8.5	32.2
			100	92.69	0.23			
			110	92.69	0.23			
	21:30	2	120	92.73	0.27	130.7	8.5	32.2

データ 5.3 揚水試験データ サイト No-2 (3/7)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 May 2010

**SHEET No. : 3/5**

Location: Meki, West Shoa, Oromiya Site No.: **RVS BH No-2**

GPS Reading: 486788 E, 907743 N

Well No.: No-2 Well Depth: 147.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC) 92.20 m Screen Length: 30.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 103.50 m, Discharge (Q): 8.50 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-May-10	21:30	0	0	92.73	0.00			
			1	92.81	0.08			
			2	92.83	0.10			
			4	92.84	0.11			
			6	92.85	0.12			
			8	92.85	0.12			
			10	92.87	0.14			
			12	92.88	0.15			
			14	92.88	0.15			
			16	92.89	0.16			
			18	92.89	0.16			
			20	92.90	0.17			
			25	92.91	0.18			
			30	92.91	0.18	132.8	8.5	32.3
			35	92.92	0.19			
			40	92.92	0.19			
			45	92.93	0.20			
			50	92.94	0.21			
			55	92.95	0.22			
	22:30	1	60	92.96	0.23	131.1	8.5	32.1
			70	92.96	0.23			
			80	92.97	0.24			
			90	92.98	0.25	133.2	8.8	32.1
			100	92.98	0.25			
			110	92.99	0.26			
	23:30	2	120	93.00	0.27	124.5	8.28	32.3



データ 5.3 揚水試験データ サイト No-2 (4/7)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 May 2010

**SHEET No. : 4/5**

Location: Meki, West Shoa, Oromiya Site No.: **RVS BH No-2**

GPS Reading: 486788 E, 907743 N

Well No.: No-2 Well Depth: 147.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC 92.20 m Screen Length: 30.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 103.50 m, Discharge (Q): 9.20 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-May-10	23:30	0	0	93.00	0.00			
			1	93.07	0.07			
			2	93.09	0.09			
			4	93.11	0.11			
			6	93.12	0.12			
			8	93.13	0.13			
			10	93.15	0.15			
			12	93.15	0.15			
			14	93.16	0.16			
			16	93.17	0.17			
			18	93.19	0.19			
			20	93.20	0.20			
			25	93.21	0.21			
			30	93.23	0.23	132	8.4	32.2
			35	93.23	0.23			
			40	93.24	0.24			
			45	93.25	0.25			
			50	93.26	0.26			
			55	93.27	0.27			
1-Jun-10	0:30	1	60	93.27	0.27	124.5	8.28	2.3
			70	93.28	0.28			
			80	93.29	0.29			
			90	93.29	0.29			
			100	93.30	0.30			
			110	93.31	0.31			
	1:30	2	120	93.32	0.32	124.2	8.24	32.2

データ 5.3 揚水試験データ サイト No-2 (5/7)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 1 June 2010

Location: Meki, West Shoa, Oromiya Site No.: **RVS BH No-2**  
GPS Reading: 486788 E, 907743 N  
Well No.: No-2 Well Depth: 147.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 99 - 135 m  
Static Groundwater Level (FToC 92.20 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.45 m  
Pump Setting: 103.50 m, Discharge (Q): 8.50 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
1-Jun-10	6:30		0	92.41	0			
			1	93.00	0.59			
			2	93.10	0.69			
			3	93.18	0.77			
			4	93.20	0.79			
			5	93.21	0.80			
			6	93.22	0.81			
			8	93.24	0.83			
			10	93.27	0.86			
			15	93.28	0.87			
			20	93.28	0.87	144.1	8.23	30.4
			25	93.29	0.88			
			30	93.28	0.87	145.2	8.25	30.1
			35	93.29	0.88			
			40	93.29	0.88			
			45	93.28	0.87			
			50	93.29	0.88			
			55	93.30	0.89			
	7:30	1	60	93.31	0.90	143.2	8.25	30.8
			70	93.31	0.90			
			80	93.30	0.89			
			90	93.32	0.91			
			100	93.31	0.90			
			110	93.31	0.90			
	8:30	2	120	93.31	0.90	144.8	8.28	30.3
			140	93.31	0.90			
			160	93.31	0.90			

データ 5.3 揚水試験データ サイト No-2 (6/7)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 1 June 2010

Location: Meki, West Shoa, Oromiya Site No.: **RVS BH No-2**  
GPS Reading: 486788 E, 907743 N  
Well No.: No-2 Well Depth: 147.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 99 - 135 m  
Static Groundwater Level (FToC\*) 92.20 m Screen Length: 30.00 m  
Pump Type: Submersible Casing stick up: 0.45 m  
Pump Setting: 103.50 m, Discharge (Q): 8.50 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
1-Jun-10	9:30	3	180	93.31	1.11	134.3	8.2	32
			210	93.30	1.10	134.4	8.16	32
		4	240	93.31	1.11	134.7	8.14	32.1
			270	93.31	1.11	134.6	8.13	32.3
		5	300	93.30	1.10	134.3	8.2	32.3
			330	93.31	1.11	134.2	8.19	32.1
		6	360	93.31	1.11	134.2	8.28	32.3
		7	420	93.32	1.12	134.2	8.1	32.1
		8	480	93.33	1.13	144.2	8.15	32.2
		9	540	93.34	1.14	144.8	8.14	32.4
		10	600	93.35	1.15	144.6	8.16	32.5
		11	660	93.35	1.15	143.5	8.13	32.4
	18:30	12	720	93.36	1.16	147.3	8.14	32.2
		13	780	93.37	1.17	143.5	8.19	32.3
		14	840	93.38	1.18	144.2	8.15	32
		15	900	93.38	1.18	144.6	8.16	31.8
		16	960	93.39	1.19	142.8	8.17	30.8
2-Jun-10	0:30	18	1080	93.40	1.20	144.6	8.14	30.5
		20	1200	93.40	1.20	144.7	8.16	29.6
		21	1260	93.41	1.21	147	8.15	28.7
		22	1320	93.42	1.22	147	8.16	30
	6:30	24	1440	93.43	1.23	146.8	8.24	31.6

データ 5.3 揚水試験データ サイト No-2 (7/7)

**RECOVERY TEST DATA SHEET**

Date: 2 June 2010

**SHEET No. : 1/1**

Location: Meki, West Shoa, Oromiya Site No.: **RVS BH No-2**  
 GPS Reading: 486788 E, 907743 N  
 Well No.: No-2 Well Depth: 147.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 99 - 135 m  
 Static Groundwater Level (FToC 92.20 m Screen Length: 30.00 m  
 Pump Type: Submersible Casing stick up: 0.45 m  
 Pump Setting: 103.50 m, Discharge (Q): NA L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t']		Time since Pumping Started, [t] (min)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s'] (m)
		(hour)	(min)				
2-Jun-10	6:30		0	1440		93.43	1.23
			1	1441	1441	92.90	0.70
			2	1442	721	92.72	0.52
			4	1444	361	92.65	0.45
			6	1446	241	92.62	0.42
			8	1448	181	92.60	0.40
			10	1450	145	92.60	0.40
			12	1452	121	92.59	0.39
			14	1454	104	92.58	0.38
			16	1456	91	92.58	0.38
			18	1458	81	92.58	0.38
			20	1460	73	92.57	0.37
			25	1465	59	92.57	0.37
			30	1470	49	92.56	0.36
			35	1475	42	92.55	0.35
			40	1480	37	92.54	0.34
			45	1485	33	92.54	0.34
			50	1490	30	92.53	0.33
	7:30	1	60	1500	25	92.53	0.33
			70	1510	22	92.51	0.31
			80	1520	19	92.50	0.30
			90	1530	17	92.50	0.30
			100	1540	100	92.49	0.29
			110	1550	110	92.49	0.29
	8:30	2	120	1560	120	92.48	0.28
			150	1590	150	92.48	0.28
		3	180	1620	9	92.47	0.27
			210	1650	8	92.46	0.26
		4	240	1680	7	92.46	0.26
			270	1710	6	92.45	0.25
		5	300	1740	6	92.45	0.25
			330	1770	5	92.44	0.24
		6	360	1800	5	92.44	0.24
			390	1830	5	92.43	0.23
	13:30	7	420	1860	4	92.42	0.22

データ 5.3 揚水試験データ サイト No-3 (1/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 July 2010

**SHEET No. : 1/4**

Location: Sheshemene, Oromiya Site No.: **RVS BH No-3**

GPS Reading: 448141 E, 796423 N

Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC) 172.00 m Screen Length: 36.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 187.00 m, Discharge (Q): 0.30 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-Jul-10	17:30	0	0	172.38	0.00			
			1	172.45	0.07			
			2	172.48	0.10			
			4	172.51	0.13			
			6	172.52	0.14			
			8	172.54	0.16			
			10	172.55	0.17			
			12	172.55	0.17			
			14	172.56	0.18			
			16	172.57	0.19			
			18	172.57	0.19			
			20	172.58	0.20			
			25	172.6	0.22			
			30	172.61	0.23			
			35	172.63	0.25			
			40	172.64	0.26			
			45	172.65	0.27			
			50	172.67	0.29			
			55	172.68	0.30			
	18:30	1	60	172.69	0.31			
			70	172.72	0.34			
			80	172.74	0.36			
			90	172.75	0.37			
			100	172.76	0.38			
			110	172.77	0.39			
	19:30	2	120	172.79	0.41			

データ 5.3 揚水試験データ サイト No-3 (2/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 July 2010

**SHEET No. : 2/5**

Location: Sheshemene, Oromiya Site No.: **RVS BH No-3**  
 GPS Reading: 448141 E, 796423 N  
 Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 99 - 135 m  
 Static Groundwater Level (FToC 172.00 m Screen Length: 36.00 m  
 Pump Type: Submersible Casing stick up: 0.45 m  
 Pump Setting: 187.00 m, Discharge (Q): 0.60 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-Jul-10	19:30	0	0	172.79	0.00			
			1	172.90	0.11			
			2	172.94	0.15			
			4	172.79	0.00			
			6	173.01	0.22			
			8	173.03	0.24			
			10	173.06	0.27			
			12	173.08	0.29			
			14	173.11	0.32			
			16	173.13	0.34			
			18	173.15	0.36			
			20	173.18	0.39			
			25	173.24	0.45			
			30	173.29	0.50			
			35	173.35	0.56			
			40	173.40	0.61			
			45	173.49	0.70			
			50	173.59	0.80			
			55	173.52	0.73			
	20:30	1	60	173.56	0.77			
			70	173.60	0.81			
			80	173.66	0.87			
			90	173.70	0.91			
			100	173.74	0.95			
			110	173.77	0.98			
	21:30	2	120	173.80	1.01			

データ 5.3 揚水試験データ サイト No-3 (3/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 July 2010

**SHEET No. : 3/5**

Location: Sheshemene, Oromiya Site No.: **RVS BH No-3**

GPS Reading: 448141 E, 796423 N

Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC) 172.00 m Screen Length: 36.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 187.00 m, Discharge (Q): 0.90 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-Jul-10	21:30	0	0	173.80	0.00			
			1	173.95	0.15			
			2	174.01	0.21			
			4	174.08	0.28			
			6	174.16	0.36			
			8	174.23	0.43			
			10	174.30	0.50			
			12	174.36	0.56			
			14	174.44	0.64			
			16	174.51	0.71			
			18	174.56	0.76			
			20	174.62	0.82			
			25	174.70	0.90			
			30	174.81	1.01			
			35	174.90	1.10			
			40	174.95	1.15			
			45	175.05	1.25			
			50	175.15	1.35			
			55	175.24	1.44			
	22:30	1	60	175.32	1.52			
			70	175.46	1.66			
			80	175.64	1.84			
			90	175.76	1.96			
			100	175.82	2.02			
			110	175.89	2.09			
	23:30	2	120	175.95	2.15			

データ 5.3 揚水試験データ サイト No-3 (4/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 July 2010

**SHEET No. : 4/5**

Location: Sheshemene, Oromiya Site No.: **RVS BH No-3**

GPS Reading: 448141 E, 796423 N

Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC) 172.00 m Screen Length: 36.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 187.00 m, Discharge (Q): 1.20 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-Jul-10	23:30	0	0	175.95	0.00			
			1	176.15	0.20			
			2	176.32	0.37			
			4	176.57	0.62			
			6	176.92	0.97			
			8	176.75	0.80			
			10	177.06	1.11			
			12	177.20	1.25			
			14	177.35	1.40			
			16	177.49	1.54			
			18	177.62	1.67			
			20	177.76	1.81			
			25	178.00	2.05			
			30	178.22	2.27			
			35	178.43	2.48			
			40	178.60	2.65			
			45	178.78	2.83			
			50	178.90	2.95			
			55	179.00	3.05			
1-Jun-10	0:30	1	60	179.07	3.12			
			70	179.15	3.20			
			80	179.20	3.25			
			90	179.26	3.31			
			100	179.34	3.39			
			110	179.40	3.45			
	1:30	2	120	179.45	3.50			



データ 5.3 揚水試験データ サイト No-3 (5/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 31 July 2010

**SHEET No. : 5/5**

Location: Sheshemene, Oromiya Site No.: **RVS BH No-3**

GPS Reading: 448141 E, 796423 N

Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 99 - 135 m

Static Groundwater Level (FToC) 172.00 m Screen Length: 36.00 m

Pump Type: Submersible Casing stick up: 0.45 m

Pump Setting: 187.00 m, Discharge (Q): 1.50 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-Jul-10	23:30	0	0	179.45	0.00			
			1	179.85	0.40			
			2	180.14	0.69			
			4	180.64	1.19			
			6	180.94	1.49			
			8	181.14	1.69			
			10	181.33	1.88			
			12	181.51	2.06			
			14	181.69	2.24			
			16	181.84	2.39			
			18	181.99	2.54			
			20	182.11	2.66			
			25	182.30	2.85			
			30	182.51	3.06			
			35	182.74	3.29			
			40	182.89	3.44			
			45	183.00	3.55			
			50	183.10	3.65			
			55	183.19	3.74			
1-Jun-10	0:30	1	60	183.28	3.83			
			70	183.38	3.93			
			80		-179.45			
			90		-179.45			
			100		-179.45			
			110		-179.45			
	1:30	2	120		-179.45			

データ 5.3 揚水試験データ サイト No-3 (6/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 31 July 2010

Location: Sheshemene, Oromiya Site No.: **RVS BH No-3**  
GPS Reading: 448141 E, 796423 N  
Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 99 - 135 m  
Static Groundwater Level (FToC) 172.00 m Screen Length: 36.00 m  
Pump Type: Submersible Casing stick up: 0.45 m  
Pump Setting: 187.00 m, Discharge (Q): 8.50 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
31-Jul-10	6:30		0	172.40	0			
			1	173.01	0.61			
			2	173.30	0.90			
			3	173.56	1.16			
			4	173.83	1.43			
			5	173.99	1.59			
			6	174.13	1.73			
			8	174.34	1.94			
			10	174.52	2.12			
			15	174.84	2.44			
			20	175.09	2.69			
			25	175.35	2.95			
			30	175.57	3.17	47.4	7.09	30
			35	175.78	3.38			
			40	176.19	3.79			
			45	176.40	4.00			
			50	176.59	4.19			
			55	176.76	4.36			
	7:30	1	60	176.76	4.36	47.5	7.1	30
			70	177.00	4.60			
			80	177.22	4.82			
			90	177.41	5.01	47.4	7.08	30
			100	177.57	5.17			
			110	177.70	5.30			
	8:30	2	120	177.81	5.41	47.3	7.09	30.3
			140	177.92	5.52			
			160	178.01	5.61			

データ 5.3 揚水試験データ サイト No-3 (7/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 31 July 2010

Location: Sheshemene, Oromiya Site No.: RVS BH No-3  
 GPS Reading: 448141 E, 796423 N  
 Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 99 - 135 m  
 Static Groundwater Level (FToC\* 172.00 m Screen Length: 36.00 m  
 Pump Type: Submersible Casing stick up: 0.45 m  
 Pump Setting: 187.00 m, Discharge (Q): 8.50 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
8-Jan-10	18:30	3	180	178.12	6.12			
			210	178.26	6.26			
		4	240	178.39	6.39			
			270	178.52	6.52			
		5	300	178.64	6.64			
			330	178.90	6.90			
		6	360	179.06	7.06			
		7	420	179.12	7.12			
		8	480	179.18	7.18			
		9	540	179.25	7.25			
		10	600	179.31	7.31			
		11	660	179.35	7.35			
	1:30	12	720	179.38	7.38			
	1:30	13	780	179.42	7.42			
	2:30	14	840	179.45	7.45			
	3:30	15	900	179.46	7.46			
	4:30	16	960	179.52	7.52			
	6:30	18	1080	179.57	7.57			
	8:30	20	1200	179.61	7.61			
	9:30	21	1260	179.64	7.64			
	10:30	22	1320	179.68	7.68			
40217	12:30	24	1440	179.70	7.70			

データ 5.3 揚水試験データ サイト No-3 (8/8)

**RECOVERY TEST DATA SHEET**

Date: 31 July 2010

**SHEET No. : 1/1**

Location: Sheshemene, Oromiya Site No.: **RVS BH No-3**  
 GPS Reading: 448141 E, 796423 N  
 Well No.: No-3 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 99 - 135 m  
 Static Groundwater Level (FToC) 172.00 m Screen Length: 36.00 m  
 Pump Type: Submersible Casing stick up: 0.45 m  
 Pump Setting: 187.00 m, Discharge (Q): NA L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t']		Time since Pumping Started, [t] (min)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s'] (m)
		(hour)	(min)				
31-Jul-10	6:30		0	1440		179.70	7.70
			1	1441	1441	178.50	6.50
			2	1442	721	177.00	5.00
			4	1444	361	177.55	5.55
			6	1446	241	176.00	4.00
			8	1448	181	176.45	4.45
			10	1450	145	175.00	3.00
			12	1452	121	175.50	3.50
			14	1454	104	175.10	3.10
			16	1456	91	174.85	2.85
			18	1458	81	174.60	2.60
			20	1460	73	174.41	2.41
			25	1465	59	174.23	2.23
			30	1470	49	174.08	2.08
			35	1475	42	173.93	1.93
			40	1480	37	173.83	1.83
			45	1485	33	173.70	1.70
			50	1490	30	173.65	1.65
	7:30	1	60	1500	25	173.40	1.40
			70	1510	22	173.54	1.54
			80	1520	19	173.50	1.50
			90	1530	17	175.47	3.47
			100	1540	100	173.45	1.45
			110	1550	110	173.41	1.41
	8:30	2	120	1560	120	173.36	1.36
			150	1590	150	173.25	1.25
		3	180	1620	9	173.20	1.20
			210	1650	8		
		4	240	1680	7		
			270	1710	6		
		5	300	1740	6		
			330	1770	5		
		6	360	1800	5		
			390	1830	5		
	13:30	7	420	1860	4		

データ 5.3 揚水試験データ サイト No-4 (1/6)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 16 November 2011

**SHEET No. : 1/5**

Location: Yirga Alem Site No.: **RVS BH-4**

GPS Reading: 424918 E, 745467 N

Well No.: RVS-BH - 4 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 82 - 106 and 124 - 154 m

Static Groundwater Level (FToC\*): 7.70 m Screen Length: 54.00 m

Pump Type: Submersible Casing stick up: 0.70 m

Pump Setting: 82.00 m, Discharge (Q): 4.20 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
16-Nov-11	19:30	0	0	7.70	0.00			
			1	19.35	11.65			
			2	25.00	17.30			
			4	30.30	22.60			
			6	31.85	24.15			
			8	31.95	24.25			
			10	32.00	24.30			
			12	32.03	24.33			
			14	32.10	24.40			
			16	32.24	24.54			
			18	32.28	24.58			
			20	32.34	24.64			
			25	32.48	24.78			
			30	32.55	24.85			
			35	32.60	24.90			
			40	33.05	25.35			
			45	33.30	25.60			
			50	33.42	25.72			
			55	33.44	25.74			
	20:30	1	60	33.51	25.81	0.56	11.04	36.3
			70	33.63	25.93			
			80	33.68	25.98			
			90	33.72	26.02			
			100	33.77	26.07			
			110	33.79	26.09			
	21:30	2	120	33.80	26.10	0.5	11.5	36.6

データ 5.3 揚水試験データ サイト No-4 (2/6)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 16 November 2011

**SHEET No. : 2/5**

Location: Yirga Alem Site No.: **RVS BH-4**

GPS Reading: 424918 E, 745467 N

Well No.: RVS-BH - 4 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 82 - 106 and 124 - 154 m

Static Groundwater Level (FToC\*): 7.70 m Screen Length: 54.00 m

Pump Type: Submersible Casing stick up: 0.70 m

Pump Setting: 82.00 m, Discharge (Q): 5.20 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
16-Nov-11	17:30	0	0	33.80	0.00			
			1	35.00	1.20			
			2	36.20	2.40			
			4	38.35	4.55			
			6	39.30	5.50			
			8	39.75	5.95			
			10	40.00	6.20			
			12	40.02	6.22			
			14	40.03	6.23			
			16	40.13	6.33			
			18	40.19	6.39			
			20	40.26	6.46			
			25	40.39	6.59			
			30	40.51	6.71			
			35	40.59	6.79			
			40	40.65	6.85			
			45	40.67	6.87			
			50	40.68	6.88			
			55	40.72	6.92			
	18:30	1	60	40.73	6.93	0.58	11.4	36.7
			70	40.78	6.98			
			80	40.84	7.04			
			90	40.97	7.17			
			100	41.04	7.24			
			110	41.09	7.29			
	19:30	2	120	41.09	7.29	0.62	11.32	36.7

データ 5.3 揚水試験データ サイト No-4 (3/6)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 16 November 2011

**SHEET No. : 3/5**

Location: Yirga Alem Site No.: **RVS BH-4**

GPS Reading: 424918 E, 745467 N

Well No.: RVS-BH - 4 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 82 - 106 and 124 - 154 m

Static Groundwater Level (FToC\*): 7.70 m Screen Length: 54.00 m

Pump Type: Submersible Casing stick up: 0.70 m

Pump Setting: 82.00 m, Discharge (Q): 6.20 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
16-Nov-11	21:30	0	0	41.09	0.00			
			1	43.75	2.66			
			2	45.00	3.91			
			4	47.00	5.91			
			6	47.80	6.71			
			8	48.25	7.16			
			10	48.47	7.38			
			12	48.50	7.41			
			14	48.64	7.55			
			16	48.71	7.62			
			18	48.80	7.71			
			20	48.84	7.75			
			25	48.98	7.89			
			30	49.00	7.91			
			35	49.05	7.96			
			40	49.10	8.01			
			45	49.13	8.04			
			50	49.23	8.14			
			55	49.28	8.19			
	22:30	1	60	49.37	8.28	0.51	11.02	36.7
			70	49.38	8.29			
			80	49.40	8.31			
			90	49.42	8.33			
			100	49.50	8.41			
			110	49.53	8.44			
	23:30	2	120	49.55	8.46	0.57	11.04	36.7

データ 5.3 揚水試験データ サイト No-4 (4/6)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 16 November 2011

Location: Yirga Alem Site No.: RVS BH-4  
 GPS Reading: 424918 E, 745467 N  
 Well No.: RVS-BH - 4 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 82 - 106 and 124 - 154 m  
 Static Groundwater Level (FToC\*): 7.70 m Screen Length: 54.00 m  
 Pump Type: Submersible Casing stick up: 0.70 m  
 Pump Setting: 82.00 m, Discharge (Q): 6.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
16-Nov-11	6:30		0	7.70	0			
			1	19.10	11.40			
			2	25.67	17.97			
			3	31.00	23.30			
			4	32.07	24.37			
			5	33.70	26.00			
			6	34.95	27.25			
			8	36.38	28.68			
			10	37.15	29.45			
			15	38.08	30.38			
			20	38.53	30.83			
			25	38.80	31.10			
			30	38.97	31.27			
			35	39.10	31.40			
			40	39.19	31.49			
			45	39.33	31.63			
			50	39.36	31.66			
			55	39.41	31.71			
	7:30	1	60	39.46	31.76	0.63	11.42	36.5
			70	39.60	31.90			
			80	39.64	31.94			
			90	39.73	32.03			
			100	39.74	32.04			
			110	39.75	32.05			
	8:30	2	120	40.00	32.30	0.58	11.39	36.5
			140	40.83	33.13			
			160	41.17	33.47			



データ 5.3 揚水試験データ サイト No-4 (5/6)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 17 November 2011

Location: Yirga Alem Site No.: **RVS BH-4**  
GPS Reading: 424918 E, 745467 N

Well No.: RVS-BH - 4 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 82 - 106 and 124 - 154 m  
Static Groundwater Level (FToC\*): 7.70 m Screen Length: 54.00 m  
Pump Type: Submersible Casing stick up: 0.70 m  
Pump Setting: 82.00 m, Discharge (Q): 6.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
17-Aug-11	18:30	3	180	41.25	33.55	0.77	11.36	36.7
			210	41.36	33.66			
		4	240	41.48	33.78	0.79	11.32	36.7
			270	41.60	33.90			
		5	300	41.71	34.01	0.79	11.4	36.7
			330	41.81	34.11			
		6	360	41.90	34.20	0.80	11.4	36.7
		7	420	42.20	34.50	0.80	11.4	36.7
		8	480	42.46	34.76	0.79	11.38	36.8
		9	540	42.68	34.98	0.78	11.36	36.8
		10	600	42.95	35.25	0.75	11.31	36.7
		11	660	43.30	35.60	0.70	11.35	36.7
	1:30	12	720	43.56	35.86	0.66	11.44	36.7
	1:30	13	780	43.74	36.04	0.56	11.43	36.8
	2:30	14	840	43.91	36.21	0.56	11.45	36.8
	3:30	15	900	44.05	36.35	0.51	11.45	36.9
	4:30	16	960	44.20	36.50	0.53	11.4	36.9
	6:30	18	1080	44.40	36.70	0.57	11.4	36.9
	8:30	20	1200	44.50	36.80	0.68	11.43	36.8
	9:30	21	1260	44.65	36.95	0.67	11.42	36.8
	10:30	22	1320	44.76	37.06	0.65	11.43	36.7
	12:30	24	1440	44.90	37.20	0.65	11.44	36.7

データ 5.3 揚水試験データ サイト No-4 (6/6)

**RECOVERY TEST DATA SHEET**  
**SHEET No. : 1/1**

Date: 17 November 2011

Location: Yirga Alem Site No.: **RVS BH-4**  
 GPS Reading: 424918 E, 745467 N  
 Well No.: RVS-BH - 4 Well Depth: 247.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 82 - 106 and 124 - 154 m  
 Static Groundwater Level (FToC\*): 7.70 m Screen Length: 54.00 m  
 Pump Type: Submersible Casing stick up: 0.70 m  
 Pump Setting: \_\_\_\_\_ m, Discharge (Q): \_\_\_\_\_ L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t']		Time since Pumping Started, [t] (min)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s] (m)
		(hour)	(min)				
17-Nov-11	6:30		0	1440		44.90	37.20
			1	1441	1441	27.20	19.50
			2	1442	721	16.37	8.67
			4	1444	361	8.75	1.05
			6	1446	241	8.25	0.55
			8	1448	181	8.14	0.44
			10	1450	145	8.09	0.39
			12	1452	121	8.05	0.35
			14	1454	104	8.02	0.32
			16	1456	91	7.98	0.28

データ 5.3 揚水試験データ サイト No-6 (1/6)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 29/10/2011

**SHEET No. : 1/3**

Location: Alaba Site No.: **RVS BH-6**

GPS Reading: 420139 E, 807171 N

Well No.: RVS-BH-6 Well Depth: 400.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 266-284, 296-320, & 326-350 m

Static Groundwater Level (FToC\*): 247.60 m Screen Length: 66.00 m

Pump Type: Submersible Casing stick up: 0.50 m

Pump Setting: 286.00 m, Discharge (Q): 4.20 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
29/10/2011	19:30	0	0	247.60	0.00			
			1	250.60	3.00			
			2	250.90	3.30			
			4	251.00	3.40			
			6	251.20	3.60			
			8	251.22	3.62			
			10	251.28	3.68			
			12	251.31	3.71			
			14	251.60	4.00			
			16	251.70	4.10			
			18	251.78	4.18			
			20	251.80	4.20			
			25	251.84	4.24			
			30	251.96	4.36			
			35	252.01	4.41			
			40	252.10	4.50			
			45	252.15	4.55			
			50	252.20	4.60			
			55	252.21	4.61			
	20:30	1	60	252.23	4.63	0.94	8.7	40.6
			70	252.27	4.67			
			80	252.29	4.69			
			90	252.32	4.72			
			100	252.40	4.80			
			110	252.50	4.90			
	21:30	2	120	252.53	4.93	0.96	8.8	40.5

データ 5.3 揚水試験データ サイト No-6 (2/6)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 29/10/2011

**SHEET No. : 2/3**

Location: Alaba Site No.: RVS BH-6

GPS Reading: 420139 E, 807171 N

Well No.: RVS-BH-6 Well Depth: 400.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 266-284, 296-320, & 326-350 m

Static Groundwater Level (FToC\*): 247.60 m Screen Length: 66.00 m

Pump Type: Submersible Casing stick up: 0.50 m

Pump Setting: 286.00 m, Discharge (Q): 4.40 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
29/10/2011	17:30	0	0	252.53	0.00			
			1	252.56	0.03			
			2	252.57	0.04			
			4	252.58	0.05			
			6	252.59	0.06			
			8	252.59	0.06			
			10	252.60	0.07			
			12	252.60	0.07			
			14	252.60	0.07			
			16	252.60	0.07			
			18	252.60	0.07			
			20	252.60	0.07			
			25	252.60	0.07			
			30	252.60	0.07			
			35	252.61	0.08			
			40	252.62	0.09			
			45	252.63	0.10			
			50	252.64	0.11			
			55	252.65	0.12			
	18:30	1	60	252.66	0.13	0.93	8.9	40.8
			70	252.66	0.13			
			80	252.67	0.14			
			90	252.68	0.15			
			100	252.72	0.19			
			110	252.73	0.20			
	19:30	2	120	252.73	0.20	0.9	8.7	40.8

データ 5.3 揚水試験データ サイト No-6 (3/6)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 29/10/2011

**SHEET No. : 3/3**

Location: Alaba Site No.: **RVS BH-6**

GPS Reading: 420139 E, 807171 N

Well No.: RVS-BH-6 Well Depth: 400.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 266-284, 296-320, & 326-350 m

Static Groundwater Level (FToC\*): 247.60 m Screen Length: 66.00 m

Pump Type: Submersible Casing stick up: 0.50 m

Pump Setting: 286.00 m, Discharge (Q): 4.60 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
29/10/2011	21:30	0	0	252.73	0.00			
			1	252.74	0.01			
			2	252.76	0.03			
			4	252.78	0.05			
			6	252.79	0.06			
			8	252.80	0.07			
			10	252.80	0.07			
			12	252.82	0.09			
			14	252.92	0.19			
			16	253.00	0.27			
			18	253.04	0.31			
			20	253.06	0.33			
			25	253.08	0.35			
			30	253.12	0.39			
			35	253.15	0.42			
			40	253.20	0.47			
			45	253.24	0.51			
			50	253.30	0.57			
			55	253.34	0.61			
	22:30	1	60	253.37	0.64	0.89	8.6	40.8
			70	253.41	0.68			
			80	253.40	0.67			
			90	253.41	0.68			
			100	253.40	0.67			
			110	253.41	0.68			
	23:30	2	120	253.40	0.67	0.92	8.8	40.8

データ 5.3 揚水試験データ サイト No-6 (4/6)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 29/10/2011

Location: Alaba Site No.: **RVS BH-6**  
GPS Reading: 420139 E, 807171 N

Well No.: RVS-BH-6 Well Depth: 400.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 266-284, 296-320, & 326-350 m  
Static Groundwater Level (FToC\*): 247.68 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 286.00 m, Discharge (Q): 4.60 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
29/10/2011	6:30		0	247.68	0			
			1	250.70	3.02			
			2	250.95	3.27			
			3	251.06	3.38			
			4	251.11	3.43			
			5	251.23	3.55			
			6	251.35	3.67			
			8	251.55	3.87			
			10	251.70	4.02			
			15	251.85	4.17			
			20	251.92	4.24			
			25	252.05	4.37			
			30	252.10	4.42			
			35	252.18	4.50			
			40	252.20	4.52			
			45	252.30	4.62			
			50	252.36	4.68			
			55	252.48	4.80			
	7:30	1	60	252.53	4.85	1.01	8.6	40.6
			70	252.55	4.87			
			80	252.65	4.97			
			90	252.72	5.04			
			100	252.74	5.06			
			110	252.76	5.08			
	8:30	2	120	252.84	5.16			
			140	252.86	5.18			
			160	252.88	5.20	1.01	8.7	40.6

データ 5.3 揚水試験データ サイト No-6 (5/6)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 30/10/2011

Location: Alaba Site No.: RVS BH-6  
GPS Reading: 420139 E, 807171 N

Well No.: RVS-BH-6 Well Depth: 400.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 266-284, 296-320, & 326-350 m  
Static Groundwater Level (FToC\*): 247.68 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 286.00 m, Discharge (Q): 4.60 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
5-Mar-11	18:30	3	180	252.98	5.30	1.01	8.8	40.6
			210	252.98	5.30			
		4	240	252.98	5.30	1.02	8.8	40.5
			270	252.98	5.30			
		5	300	252.98	5.30	1.02	8.6	40.6
			330	253.00	5.32			
		6	360	253.03	5.35	1.08	8.9	40.6
		7	420	253.05	5.37	1.02	8.8	40.5
		8	480	253.06	5.38	1.05	8.8	40.5
		9	540	253.09	5.41	1.05	8.8	40.6
		10	600	253.10	5.42	1.05	8.9	40.5
		11	660	253.10	5.42	1.05	8.9	40.5
	0:30	12	720	253.11	5.43	1.05	8.8	40.6
	1:30	13	780	253.10	5.42	1.05	8.8	40.5
	2:30	14	840	253.12	5.44	1	8.8	40.5
	3:30	15	900	253.16	5.48	0.85	8.7	40.5
	4:30	16	960	253.18	5.50	0.86	8.7	40.5
	6:30	18	1080	253.19	5.51	0.87	8.6	40.5
	8:30	20	1200	253.20	5.52	0.87	8.8	40.5
	9:30	21	1260	253.20	5.52	0.87	8.8	40.5
	10:30	22	1320	253.21	5.53	0.87	8.9	40.5
	12:30	24	1440	253.20	5.52	0.87	8.8	40.5

データ 5.3 揚水試験データ サイト No-6 (6/6)

**RECOVERY TEST DATA SHEET**  
**SHEET No. : 1/1**

Date: 31/10/2011

Location: Alaba Site No.: **RVS BH-6**  
GPS Reading: 420139 E, 807171 N  
Well No.: RVS-BH-6 Well Depth: 400.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 266-284, 296-320, & 326-350 m  
Static Groundwater Level (FToC\*): 247.68 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 286.00 m, Discharge (Q): \_\_\_\_\_ L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t']		Time since Pumping Started, [t] (min)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s] (m)
		(hour)	(min)				
31/10/2011	6:30		0	1440		253.20	5.52
			1	1441	1441	250.03	2.35
			2	1442	721	249.50	1.82
			4	1444	361	248.00	0.32
			6	1446	241	248.98	1.30
			8	1448	181	248.68	1.00
			10	1450	145	248.30	0.62
			12	1452	121	248.28	0.60
			14	1454	104	248.26	0.58
			16	1456	91	248.24	0.56
			18	1458	81	248.20	0.52
			20	1460	73	248.18	0.50
			25	1465	59	248.14	0.46
			30	1470	49	248.11	0.43
			35	1475	42	248.09	0.41
			40	1480	37	248.00	0.32
			45	1485	33	247.98	0.30
			50	1490	30	247.97	0.29
	7:30	1	60	1500	25	247.96	0.28
			70	1510	22	247.94	0.26
			80	1520	19	247.93	0.25
			90	1530	17	247.92	0.24
			100	1540	100	247.90	0.22
			110	1550	110	247.88	0.20
	8:30	2	120	1560	120	247.86	0.18
			150	1590	150	247.83	0.15
		3	180	1620	9	247.80	0.12
			210	1650	8	247.79	0.11
		4	240	1680	7	247.79	0.11



データ 5.3 揚水試験データ サイト No-7 (1/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 15 August 2011

**SHEET No. : 1/5**

Location: Arba Minch Site No.: **RVS BH-7**

GPS Reading: 341712 E, 670506 N

Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 86-146 m

Static Groundwater Level (FToC\*): 4.89 m Screen Length: 60.00 m

Pump Type: Submersible Casing stick up: 0.77 m

Pump Setting: 75.00 m, Discharge (Q): 9.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
15-Aug-11	19:30	0	0	4.89	0.00			
			1	18.10	13.21			
			2	21.35	16.46			
			4	23.18	18.29			
			6	24.66	19.77			
			8	25.39	20.50			
			10	25.83	20.94			
			12	26.19	21.30			
			14	26.37	21.48			
			16	26.59	21.70			
			18	26.85	21.96			
			20	27.05	22.16			
			25	27.50	22.61			
			30	27.85	22.96			
			35	28.14	23.25			
			40	28.41	23.52			
			45	28.65	23.76			
			50	28.80	23.91			
			55	29.00	24.11			
	20:30	1	60	29.21	24.32	0.26	8.4	26.3
			70	29.49	24.60			
			80	30.19	25.30			
			90	31.02	26.13			
			100	31.16	26.27			
			110	31.40	26.51			
	21:30	2	120	31.65	26.76	0.26	8.4	26.3

データ 5.3 揚水試験データ サイト No-7 (2/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 15 August 2011

**SHEET No. : 2/5**

Location: Arba Minch Site No.: **RVS BH-7**  
 GPS Reading: 341712 E, 670506 N  
 Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 86-146 m  
 Static Groundwater Level (FToC\*): 4.89 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.77 m  
 Pump Setting: 75.00 m, Discharge (Q): 11.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
15-Aug-11	17:30	0	0	31.65	0.00			
			1	34.2	2.55			
			2	34.9	3.25			
			4	35.9	4.25			
			6	36.2	4.55			
			8	36.42	4.77			
			10	36.74	5.09			
			12	36.83	5.18			
			14	36.99	5.34			
			16	37.08	5.43			
			18	37.16	5.51			
			20	37.26	5.61			
			25	37.37	5.72			
			30	37.56	5.91			
			35	37.76	6.11			
			40	37.9	6.25			
			45	37.97	6.32			
			50	38.09	6.44			
			55	38.17	6.52			
	18:30	1	60	38.41	6.76	0.29	8.43	26.5
			70	39.5	7.85			
			80	39.65	8.00			
			90	39.8	8.15			
			100	40.16	8.51			
			110	40.26	8.61			
	19:30	2	120	40.36	8.71	0.26	8.47	26

データ 5.3 揚水試験データ サイト No-7 (3/8)

**STEP-DRAWDOWN TEST DATA SHEET**  
**SHEET No. : 3/5**

Date: 15 August 2011

Location: Arba Minch Site No.: **RVS BH-7**  
 GPS Reading: 341712 E, 670506 N  
 Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 86-146 m  
 Static Groundwater Level (FToC\*): 4.89 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.77 m  
 Pump Setting: 75.00 m, Discharge (Q): 13.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
15-Aug-11	21:30	0	0	40.36	0.00			
			1	42.60	2.24			
			2	42.82	2.46			
			4	44.56	4.20			
			6	44.66	4.30			
			8	44.80	4.44			
			10	44.89	4.53			
			12	44.98	4.62			
			14	45.03	4.67			
			16	45.12	4.76			
			18	45.14	4.78			
			20	45.20	4.84			
			25	45.32	4.96			
			30	45.41	5.05			
			35	45.46	5.10			
			40	45.56	5.20			
			45	45.62	5.26			
			50	45.70	5.34			
			55	45.77	5.41			
	22:30	1	60	45.83	5.47	0.26	8.35	26.5
			70	46.11	5.75			
			80	46.24	5.88			
			90	46.45	6.09			
			100	46.56	6.20			
			110	46.63	6.27			
	23:30	2	120	46.70	6.34	0.26	8.44	26

データ 5.3 揚水試験データ サイト No-7 (4/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 15 August 2011

**SHEET No. : 4/5**

Location: Arba Minch Site No.: **RVS BH-7**  
 GPS Reading: 341712 E, 670506 N  
 Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 86-146 m  
 Static Groundwater Level (FToC\*): 4.89 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.77 m  
 Pump Setting: 75.00 m, Discharge (Q): 15.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
15-Aug-11	2:24	0	0	46.76	0.00			
			1	48.70	1.94			
			2	49.43	2.67			
			4	49.90	3.14			
			6	50.10	3.34			
			8	50.18	3.42			
			10	50.24	3.48			
			12	50.25	3.49			
			14	50.26	3.50			
			16	50.32	3.56			
			18	50.38	3.62			
			20	50.39	3.63			
			25	50.45	3.69			
			30	50.55	3.79			
			35	50.65	3.89			
			40	50.71	3.95			
			45	50.86	4.10			
			50	50.87	4.11			
			55	50.94	4.18			
15-Aug-11	3:24	1	60	51.87	5.11	0.3	8.43	26.4
			70	52.72	5.96			
			80	52.80	6.04			
			90	52.91	6.15			
			100	52.96	6.20			
			110	53.09	6.33			
	4:24	2	120	53.10	6.34	0.3	8.44	26.4

データ 5.3 揚水試験データ サイト No-7 (5/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 15 August 2011

**SHEET No. : 5/5**

Location: Arba Minch Site No.: **RVS BH-7**

GPS Reading: 341712 E, 670506 N

Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 86-146 m

Static Groundwater Level (FToC\*): 4.89 m Screen Length: 60.00 m

Pump Type: Submersible Casing stick up: 0.77 m

Pump Setting: 75.00 m, Discharge (Q): 17.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
15-Aug-11	23:30	0	0	53.10	0.00			
			1	54.45	1.35			
			2	54.70	1.60			
			4	55.05	1.95			
			6	55.70	2.60			
			8	56.26	3.16			
			10	56.37	3.27			
			12	56.40	3.30			
			14	56.46	3.36			
			16	56.51	3.41			
			18	56.56	3.46			
			20	56.60	3.50			
			25	56.64	3.54			
			30	56.66	3.56			
			35	56.67	3.57			
			40	56.68	3.58			
			45	56.70	3.60			
			50	56.72	3.62			
			55	56.74	3.64			
15-Aug-11	0:30	1	60	56.77	3.67	0.31	8.33	26.4
			70	56.80	3.70			
			80	56.85	3.75			
			90	56.89	3.79			
			100	56.91	3.81			
			110	56.92	3.82			
	1:30	2	120	57.23	4.13	0.33	8.3	26.3

データ 5.3 揚水試験データ サイト No-7 (6/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 16 August 2011

Location: Arba Minch Site No.: RVS BH-7  
 GPS Reading: 341712 E, 670506 N  
 Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 86-146 m  
 Static Groundwater Level (FToC\*): 6.10 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.77 m  
 Pump Setting: 75.00 m, Discharge (Q): 16.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
16-Aug-11	6:30		0	6.10	0			
			1	32.33	26.23			
			2	36.95	30.85			
			3	38.63	32.53			
			4	39.02	32.92			
			5	39.05	32.95			
			6	39.36	33.26			
			8	39.70	33.60			
			10	40.00	33.90			
			15	41.27	35.17			
			20	42.00	35.90			
			25	42.32	36.22			
			30	42.73	36.63			
			35	43.20	37.10			
			40	43.40	37.30			
			45	43.68	37.58			
			50	43.97	37.87			
			55	44.23	38.13			
	7:30	1	60	44.83	38.73	0.29	8.43	26.3
			70	45.76	39.66			
			80	46.23	40.13			
			90	46.90	40.80			
			100	46.09	39.99			
			110	47.41	41.31			
	8:30	2	120	47.62	41.52	0.29	8.47	26.4
			140	48.21	42.11			
			160	48.40	42.30			

データ 5.3 揚水試験データ サイト No-7 (7/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 17 August 2011

Location: Arba Minch Site No.: RVS BH-7  
 GPS Reading: 341712 E, 670506 N  
 Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 86-146 m  
 Static Groundwater Level (FToC\*): 6.10 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.77 m  
 Pump Setting: 75.00 m, Discharge (Q): 16.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
17-Aug-11	18:30	3	180	48.60	42.50	0.25	8.43	26.2
			210	48.70	42.60			
		4	240	49.00	42.90	0.26	8.44	26.5
			270	49.25	43.15			
		5	300	49.55	43.45	0.26	8.44	26.5
			330	49.85	43.75			
		6	360	50.00	43.90	0.26	8.35	26.5
		7	420	50.18	44.08	0.3	8.34	26.5
		8	480	50.45	44.35	0.3	8.44	26.4
		9	540	51.00	44.90	0.31	8.44	26.4
		10	600	51.60	45.50	0.31	8.38	26.3
		11	660	51.82	45.72	0.34	8.4	26.3
	1:30	12	720	51.95	45.85	0.34	8.41	26.4
	1:30	13	780	51.98	45.88	0.31	8.43	26.2
	2:30	14	840	52.38	46.28	0.32	8.44	26.4
	3:30	15	900	52.53	46.43	0.33	8.43	26.3
	4:30	16	960	52.65	46.55	0.32	8.44	26.3
	6:30	18	1080	52.90	46.80	0.32	8.43	26.4
	8:30	20	1200	53.32	47.22	0.33	8.44	26.4
	9:30	21	1260	53.44	47.34	0.3	8.44	26.4
	10:30	22	1320	53.76	47.66	0.35	8.45	26.4
	12:30	24	1440	53.80	47.70	0.34	8.44	26.4

データ 5.3 揚水試験データ サイト No-7 (8/8)

**RECOVERY TEST DATA SHEET**  
**SHEET No. : 1/1**

Date: 18 August 2011

Location: Arba Minch Site No.: **RVS BH-7**  
 GPS Reading: 341712 E, 670506 N  
 Well No.: RVS-BH 7 Well Depth: 200.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 86-146 m  
 Static Groundwater Level (FToC\*): 6.10 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.77 m  
 Pump Setting: 75.00 m, Discharge (Q):      L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t']		Time since Pumping Started, [t] (min)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s'] (m)
		(hour)	(min)				
18-Aug-11	6:30		0	1440		53.80	47.70
			1	1441	1441	31.50	25.40
			2	1442	721	28.20	22.10
			4	1444	361	25.17	19.07
			6	1446	241	23.72	17.62
			8	1448	181	22.80	16.70
			10	1450	145	22.01	15.91
			12	1452	121	21.46	15.36
			14	1454	104	21.02	14.92
			16	1456	91	20.41	14.31
			18	1458	81	20.12	14.02
			20	1460	73	19.85	13.75
			25	1465	59	19.15	13.05
			30	1470	49	18.76	12.66
			35	1475	42	18.21	12.11
			40	1480	37	17.98	11.88
			45	1485	33	17.48	11.38
			50	1490	30	17.19	11.09
	7:30	1	60	1500	25	17.50	11.40
			70	1510	22	15.95	9.85
			80	1520	19	15.79	9.69
			90	1530	17	15.65	9.55
			100	1540	100	14.77	8.67
			110	1550	110	14.63	8.53
	8:30	2	120	1560	120	14.10	8.00
			150	1590	150	14.00	7.90
		3	180	1620	9	13.25	7.15
			210	1650	8	12.00	5.90
		4	240	1680	7	11.40	5.30
			270	1710	6	11.00	4.90
		5	300	1740	6	10.85	4.75
			330	1770	5	10.70	4.60
		6	360	1800	5	10.44	4.34
			390	1830	5	10.00	3.90
	13:30	7	420	1860	4	9.80	3.70



データ 5.3 揚水試験データ サイト No-8 (1/3)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 28 August 2011

Location: Chamo South Site No.: **RVS BH-8**  
 GPS Reading: 327946 E, 630717 N  
 Well No.: RVS-BH 8 Well Depth: 152.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 50-74,86-122 m  
 Static Groundwater Level (FToC\*): 15.40 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.72 m  
 Pump Setting: 45.00 m, Discharge (Q): 26.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
28-Aug-11	6:30		0	15.40	0			
			1	17.06	1.66			
			2	17.06	1.66			
			3	17.08	1.68			
			4	17.08	1.68			
			5	17.10	1.70			
			6	17.10	1.70			
			8	17.13	1.73			
			10	17.13	1.73			
			15	17.18	1.78			
			20	17.31	1.91			
			25	17.34	1.94			
			30	17.55	2.15			
			35	17.56	2.16			
			40	17.61	2.21			
			45	17.62	2.22			
			50	17.64	2.24			
			55	17.66	2.26			
	7:30	1	60	17.68	2.28			
			70	17.72	2.32			
			80	17.72	2.32			
			90	17.78	2.38			
			100	17.78	2.38			
			110	17.78	2.38			
	8:30	2	120	17.78	2.38			
			140	17.78	2.38			
			160	17.79	2.39			

データ 5.3 揚水試験データ サイト No-8 (2/3)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 28 August 2011

Location: Chamo South Site No.: RVS BH-8  
 GPS Reading: 327946 E, 630717 N  
 Well No.: RVS-BH 8 Well Depth: 152.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 50-74 ,86-122 m  
 Static Groundwater Level (FToC\*): 15.40 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.72 m  
 Pump Setting: 45.00 m, Discharge (Q): 26.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
7-Jun-11	18:30	3	180	17.79	2.39			
			210	17.80	2.40			
		4	240	17.84	2.44			
			270	17.86	2.46			
		5	300	17.89	2.49			
			330	17.90	2.50			
		6	360	17.89	2.49			
		7	420	17.88	2.48			
		8	480	17.89	2.49			
		9	540	17.89	2.49			

データ 5.3 揚水試験データ サイト No-8 (3/3)

**RECOVERY TEST DATA SHEET**  
**SHEET No. : 1/1**

Date: 29 August 2011

Location: Chamo South Site No.: **RVS BH-8**  
 GPS Reading: 327946 E, 630717 N  
 Well No.: RVS-BH 8 Well Depth: 152.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 50-74 ,86-122 m  
 Static Groundwater Level (FToC\*): 15.40 m Screen Length: 60.00 m  
 Pump Type: Submersible Casing stick up: 0.72 m  
 Pump Setting: 45.00 m, Discharge (Q):      L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t']		Time since Pumping Started, [t] (min)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s'] (m)
		(hour)	(min)				
29-Aug-11	6:30		0	1440		17.89	2.49
			1	1441	1441	16.70	1.30
			2	1442	721	16.40	1.00
			4	1444	361	16.36	0.96
			6	1446	241	16.34	0.94
			8	1448	181	16.30	0.90
			10	1450	145	16.28	0.88
			12	1452	121	16.21	0.81
			14	1454	104	16.20	0.80
			16	1456	91	16.20	0.80
			18	1458	81	16.10	0.70
			20	1460	73	16.10	0.70
			25	1465	59	16.05	0.65
			30	1470	49	16.03	0.63
			35	1475	42	15.95	0.55
			40	1480	37	15.93	0.53
			45	1485	33	15.90	0.50
			50	1490	30	15.88	0.48
	7:30	1	60	1500	25	15.80	0.40
			70	1510	22	15.72	0.32
			80	1520	19	15.72	0.32
			90	1530	17	15.70	0.30
			100	1540	100	15.69	0.29
			110	1550	110	15.67	0.27
	8:30	2	120	1560	120	15.65	0.25
			150	1590	150	15.63	0.23
		3	180	1620	9	15.62	0.22
			210	1650	8	15.60	0.20
		4	240	1680	7	15.57	0.17
			270	1710	6	15.54	0.14
		5	300	1740	6	15.52	0.12
			330	1770	5	15.48	0.08

データ 5.3 揚水試験データ サイト No-9N (1/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 5 June 2011

**SHEET No. : 1/5**

Location: Langano SW Site No.: **RVS BH-9N**  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.41 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): 8.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level ( m FToC)	Drawdown, [s] (m)	EC (mS/cm)	pH	Temp. (°C)
		(hour)	(min)					
5-Jun-11	19:30	0	0	43.41	0.00			
			1	46.02	2.61			
			2	46.30	2.89			
			4	46.57	3.16			
			6	46.92	3.51			
			8	47.07	3.66			
			10	47.18	3.77			
			12	47.66	4.25			
			14	47.77	4.36			
			16	46.07	2.66			
			18	46.67	3.26			
			20	46.74	3.33			
			25	47.08	3.67			
			30	47.20	3.79			
			35	47.24	3.83			
			40	47.28	3.87			
			45	47.33	3.92			
			50	47.35	3.94			
			55	47.37	3.96			
	20:30	1	60	47.41	4.00			
			70	47.41	4.00			
			80	47.49	4.08			
			90	47.56	4.15			
			100	47.59	4.18			
			110	47.61	4.20			
	21:30	2	120	47.63	4.22			

データ 5.3 揚水試験データ サイト No-9N (2/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 5 June 2011

**SHEET No. : 2/5**

Location: Langano SW Site No.: **RVS BH-9N**  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.41 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): 10.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level ( m FToC)	Drawdown, [s] (m)	EC (mS/cm)	pH	Temp. (°C)
		(hour)	(min)					
5-Jun-11	17:30	0	0	47.63	0.00			
			1	47.9	0.27			
			2	48.2	0.57			
			4	48.35	0.72			
			6	48.39	0.76			
			8	48.42	0.79			
			10	48.45	0.82			
			12	48.47	0.84			
			14	48.49	0.86			
			16	48.51	0.88			
			18	48.52	0.89			
			20	48.54	0.91			
			25	48.55	0.92			
			30	48.56	0.93			
			35	48.58	0.95			
			40	48.61	0.98			
			45	48.62	0.99			
			50	48.63	1.00			
			55	48.64	1.01			
	18:30	1	60	48.65	1.02			
			70	48.67	1.04			
			80	48.69	1.06			
			90	48.7	1.07			
			100	48.71	1.08			
			110	48.72	1.09			
	19:30	2	120	48.73	1.10	0.54	9.46	37.2

データ 5.3 揚水試験データ サイト No-9N (3/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 5 June 2011

**SHEET No. : 3/5**

Location: Langano SW Site No.: **RVS BH-9N**  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.41 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): 12.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level ( m FToC)	Drawdown, [s] (m)	EC (mS/cm)	pH	Temp. (°C)
		(hour)	(min)					
5-Jun-11	21:30	0	0	48.73	0.00			
			1	49.46	0.73			
			2	49.55	0.82			
			4	49.56	0.83			
			6	49.63	0.90			
			8	49.66	0.93			
			10	49.68	0.95			
			12	49.70	0.97			
			14	49.71	0.98			
			16	49.73	1.00			
			18	49.74	1.01			
			20	49.75	1.02			
			25	49.78	1.05			
			30	49.80	1.07			
			35	49.81	1.08			
			40	49.83	1.10			
			45	49.84	1.11			
			50	49.85	1.12			
			55	49.86	1.13			
	22:30	1	60	49.87	1.14	0.54	9.43	37.3
			70	49.88	1.15			
			80	49.89	1.16			
			90	49.91	1.18			
			100	49.92	1.19			
			110	49.93	1.20			
	23:30	2	120	49.94	1.21			

データ 5.3 揚水試験データ サイト No-9N (4/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 5 June 2011

**SHEET No. : 4/5**

Location: Langano SW Site No.: **RVS BH-9N**  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.41 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): 14.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level ( m FToC)	Drawdown, [s] (m)	EC (mS/cm)	pH	Temp. (°C)
		(hour)	(min)					
5-Jun-11	2:24	0	0	49.94	0.00			
			1	50.61	0.67			
			2	50.66	0.72			
			4	50.70	0.76			
			6	50.78	0.84			
			8	50.81	0.87			
			10	50.83	0.89			
			12	50.84	0.90			
			14	50.86	0.92			
			16	50.87	0.93			
			18	50.88	0.94			
			20	50.89	0.95			
			25	50.91	0.97			
			30	50.94	1.00			
			35	50.96	1.02			
			40	50.97	1.03			
			45	50.98	1.04			
			50	50.99	1.05			
			55	51.00	1.06			
4-Mar-11	3:24	1	60	51.01	1.07	0.5	9.31	37.3
			70	51.04	1.10			
			80	51.05	1.11			
			90	51.07	1.13			
			100	51.10	1.16			
			110	51.11	1.17			
	4:24	2	120	51.14	1.20			

データ 5.3 揚水試験データ サイト No-9N (5/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 5 June 2011

**SHEET No. : 5/5**

Location: Langano SW Site No.: **RVS BH-9N**  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.41 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): 16.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level ( m FToC)	Drawdown, [s] (m)	EC (mS/cm)	pH	Temp. (°C)
		(hour)	(min)					
5-Jun-11	23:30	0	0	51.14	0.00			
			1	51.83	0.69			
			2	51.91	0.77			
			4	51.98	0.84			
			6	52.01	0.87			
			8	52.04	0.90			
			10	52.06	0.92			
			12	52.07	0.93			
			14	52.09	0.95			
			16	52.11	0.97			
			18	52.12	0.98			
			20	52.13	0.99			
			25	52.15	1.01			
			30	52.16	1.02			
			35	52.18	1.04			
			40	52.19	1.05			
			45	52.20	1.06			
			50	52.22	1.08			
			55	52.23	1.09			
5-Mar-11	0:30	1	60	52.23	1.09	0.52	9.44	37.4
			70	52.24	1.10			
			80	52.25	1.11			
			90	52.26	1.12			
			100	52.27	1.13			
			110	52.28	1.14			
	1:30	2	120	52.29	1.15			



データ 5.3 揚水試験データ サイト No-9N (6/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 6 June 2011

Location: Langano SW Site No.: RVS BH-9N  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.42 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): 16.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/cm)	pH	Temp. (°C)
		(hour)	(min)					
6-Jun-11	6:30		0	43.42	0			
			1	48.32	4.90			
			2	49.02	5.60			
			3	49.39	5.97			
			4	49.64	6.22			
			5	49.79	6.37			
			6	49.93	6.51			
			8	50.17	6.75			
			10	50.34	6.92			
			15	50.66	7.24			
			20	50.79	7.37			
			25	50.92	7.50			
			30	51.01	7.59			
			35	51.10	7.68			
			40	51.15	7.73			
			45	51.21	7.79			
			50	51.26	7.84			
			55	51.30	7.88			
	7:30	1	60	51.33	7.91	0.57	9.49	37.3
			70	51.41	7.99			
			80	51.47	8.05			
			90	51.52	8.10			
			100	51.56	8.14			
			110	51.59	8.17			
	8:30	2	120	51.62	8.20	0.55	9.5	37.2
			140	51.70	8.28			
			160	51.74	8.32			

データ 5.3 揚水試験データ サイト No-9N (7/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 7 June 2011

Location: Langano SW Site No.: RVS BH-9N  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.41 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): 16.00 L/s

\* FToC: From Top of Casing

Date	Time	Elapsed Time, [t]		Water Level (GL - m)	Drawdown, [s] (m)	EC (mS/cm)	pH	Temp. (°C)
		(hour)	(min)					
7-Jun-11	18:30	3	180	51.75	8.34	0.56	9.48	37.0
			210	51.80	8.39			
		4	240	51.84	8.43	0.55	9.50	37.3
			270	51.88	8.47			
		5	300	51.90	8.49	0.56	9.49	37.3
			330	51.96	8.55			
		6	360	51.99	8.58	0.56	9.49	37.0
		7	420	52.02	8.61	0.55	9.49	37.2
		8	480	52.05	8.64	0.56	9.49	37.2
		9	540	52.12	8.71	0.57	9.48	37.3
		10	600	52.16	8.75	0.57	9.49	37.2
		11	660	52.18	8.77	0.56	9.49	37.2
	1:30	12	720	52.22	8.81	0.55	9.49	37.2
	1:30	13	780	52.24	8.83	0.55	9.50	37.1
	2:30	14	840	52.26	8.85	0.56	9.50	37.0
	3:30	15	900	52.29	8.88	0.55	9.49	37.3
	4:30	16	960	52.30	8.89	0.55	9.49	37.3
	6:30	18	1080	52.31	8.90	0.64	9.49	37.2
	8:30	20	1200	52.38	8.97	0.65	9.50	37.0
	9:30	21	1260	52.40	8.99	0.65	9.48	37.0
	10:30	22	1320	52.42	9.01	0.64	9.47	37.3
	12:30	24	1440	52.37	8.96	0.58	9.37	37.3

データ 5.3 揚水試験データ サイト No-9N (8/8)

**RECOVERY TEST DATA SHEET**  
**SHEET No. : 1/1**

Date: 7 June 2011

Location: Langanos SW Site No.: **RVS BH-9N**  
 GPS Reading: 464826 E, 829769 N  
 Well No.: RVS-BH 9N Well Depth: 201.00 m, Well Diameter:  $\phi$  6.00 "  
 Screen Depth(s): 87-105 m  
 Static Groundwater Level (FToC\*): 43.41 m Screen Length: 18.00 m  
 Pump Type: Submersible Casing stick up: 0.51 m  
 Pump Setting: 80.00 m, Discharge (Q): NA L/s

\* FToC: From Top of Casing

Date	Time	Time since Pumping Stopped, [t']		Time since Pumping Started, [t] (min)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s] (m)
		(hour)	(min)				
7-Jun-11	6:30		0	1440		52.37	8.96
			1	1441	1441	46.65	3.24
			2	1442	721	46.23	2.82
			4	1444	361	45.82	2.41
			6	1446	241	45.65	2.24
			8	1448	181	45.35	1.94
			10	1450	145	45.22	1.81
			12	1452	121	45.08	1.67
			14	1454	104	45.00	1.59
			16	1456	91	44.91	1.50
			18	1458	81	44.88	1.47
			20	1460	73	44.80	1.39
			25	1465	59	44.61	1.20
			30	1470	49	44.58	1.17
			35	1475	42	44.50	1.09
			40	1480	37	44.43	1.02
			45	1485	33	44.35	0.94
			50	1490	30	44.31	0.90
	7:30	1	60	1500	25	44.26	0.85
			70	1510	22	44.18	0.77
			80	1520	19	44.11	0.70
			90	1530	17	44.07	0.66
			100	1540	100	44.02	0.61
			110	1550	110	44.00	0.59
	8:30	2	120	1560	120	43.92	0.51
			150	1590	150	43.86	0.45
		3	180	1620	9	43.81	0.40
			210	1650	8	43.76	0.35
		4	240	1680	7	43.73	0.32
			270	1710	6	43.70	0.29
		5	300	1740	6	43.67	0.26
			330	1770	5	43.64	0.23
		6	360	1800	5	43.62	0.21
			390	1830	5		
	13:30	7	420	1860	4		

データ 5.3 揚水試験データ サイト No-10N (1/8)

**STEP-DRAWDOWN TEST DATA SHEET**  
**SHEET No. : 1/5**

Date: 4 March 2011

Location: Ziway East Site No.: **RVS BH-10N**  
GPS Reading: 500516 E, 889860 N

Well No.: RVS-BH 10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 64-118 and 130-142 m  
Static Groundwater Level (FToC\*): 25.36 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 44.00 m, Discharge (Q): 13.00 L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Elapsed Time, [t]		Water Level (FToC - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
4-Mar-11	15:00	0	0	25.36	0.00			
			1	29.30	3.94			
			2	29.48	4.12			
			4	29.60	4.24			
			6	29.55	4.19			
			8	29.56	4.20			
			10	29.66	4.30			
			12	29.65	4.29			
			14	29.80	4.44			
			16	29.80	4.44			
			18	29.81	4.45			
			20					
			25	29.84	4.48			
			30	29.85	4.49			
			35	29.86	4.50			
			40	29.88	4.52			
			45	29.90	4.54			
			50	29.90	4.54			
			55	29.91	4.55			
	16:00	1	60	30.16	4.80			
			70	30.20	4.84			
			80	30.20	4.84			
			90	30.21	4.85			
			100	30.21	4.85			
			110	30.23	4.87			
	17:00	2	120	30.24	4.88			

データ 5.3 揚水試験データ サイト No-10N (2/8)

**STEP-DRAWDOWN TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 4 March 2011

Location: Ziway East Site No.: **RVS BH-10N**  
GPS Reading: 500516 E, 889860 N

Well No.: RVS-BH 10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 64-118 and 130-142 m  
Static Groundwater Level (FToC\*): 25.36 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 44.00 m, Discharge (Q): 14.50 L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Elapsed Time, [t]		Water Level (FToC - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
4-Mar-11	18:00	0	0	30.24	0.00			
			1	30.81	0.57			
			2	30.82	0.58			
			4	30.9	0.66			
			6	30.95	0.71			
			8	31.02	0.78			
			10	31.02	0.78			
			12	31.02	0.78			
			14	31.04	0.80			
			16	31.03	0.79			
			18	31.03	0.79			
			20	31.02	0.78			
			25	31.04	0.80			
			30	31.04	0.80			
			35	31.05	0.81			
			40	31.06	0.82			
			45	31.05	0.81			
			50	31.08	0.84			
			55	31.09	0.85			
	19:00	1	60	31.09	0.85			
			70	31.12	0.88			
			80	31.12	0.88			
			90	3.12	-27.12			
			100	31.13	0.89			
			110	31.16	0.92			
	20:00	2	120	31.21	0.97			

データ 5.3 揚水試験データ サイト No-10N (3/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 4 March 2011

**SHEET No. : 3/5**

Location: Ziway East Site No.: **RVS BH-10N**

GPS Reading: 500516 E, 889860 N

Well No.: RVS-BH 10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 64 - 118 m and 130 - 142 m m

Static Groundwater Level (FToC\*): 25.36 m Screen Length: 66.00 m

Pump Type: Submersible Casing stick up: 0.50 m

Pump Setting: 44.00 m, Discharge (Q): 16.00 L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Elapsed Time, [t]		Water Level (FToC - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
4-Mar-11	21:00	0	0	31.21	0.00			
			1	31.70	0.49			
			2	31.70	0.49			
			4	31.78	0.57			
			6	31.79	0.58			
			8	31.86	0.65			
			10	31.92	0.71			
			12	31.98	0.77			
			14	31.99	0.78			
			16	32.00	0.79			
			18	32.01	0.80			
			20	32.01	0.80			
			25	32.03	0.82			
			30	32.04	0.83			
			35	35.05	3.84			
			40	32.06	0.85			
			45	32.06	0.85			
			50	32.07	0.86			
			55	32.07	0.86			
	22:00	1	60	32.09	0.88			
			70	32.10	0.89			
			80	32.11	0.90			
			90	32.12	0.91			
			100	32.13	0.92			
			110	32.15	0.94			
	23:00	2	120	32.15	0.94			

データ 5.3 揚水試験データ サイト No-10N (4/8)

**STEP-DRAWDOWN TEST DATA SHEET**

Date: 5 March 2011

**SHEET No. : 4/5**

Location: Ziway East Site No.: **RVS BH-10N**

GPS Reading: 500516 E, 889860 N

Well No.: RVS-BH 10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "

Screen Depth(s): 64 - 118 m and 130 - 142 m m

Static Groundwater Level (FToC\*): 25.36 m Screen Length: 66.00 m

Pump Type: Submersible Casing stick up: 0.50 m

Pump Setting: 44.00 m, Discharge (Q): 17.50 L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Elapsed Time, [t]		Water Level (FToC - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
5-Mar-11	0:00	0	0	32.15	0.00			
			1	32.47	0.32			
			2	32.50	0.35			
			4	32.53	0.38			
			6	32.53	0.38			
			8	32.54	0.39			
			10	32.56	0.41			
			12	32.55	0.40			
			14	32.56	0.41			
			16	32.57	0.42			
			18	32.57	0.42			
			20	32.59	0.44			
			25	32.60	0.45			
			30	32.61	0.46			
			35	32.62	0.47			
			40	32.63	0.48			
			45	32.63	0.48			
			50	32.62	0.47			
			55	32.64	0.49			
	1:00	1	60	32.64	0.49	0.28	8.48	24
			70	32.66	0.51			
			80	32.65	0.50			
			90	32.65	0.50			
			100	32.67	0.52			
			110	32.67	0.52			
	2:00	2	120	32.69	0.54	0.29	8.33	23.9

データ 5.3 揚水試験データ サイト No-10N (5/8)

**STEP-DRAWDOWN TEST DATA SHEET**  
**SHEET No. : 5/5**

Date: 5 March 2011

Location: Ziway East Site No.: **RVS BH-10N**  
GPS Reading: 500516 E, 889860 N

Well No.: RVS-BH 10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 64 - 118 m and 130 - 142 m m  
Static Groundwater Level (FToC\*): 25.36 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 44.00 m, Discharge (Q): 19.00 L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Elapsed Time, [t]		Water Level (FToC - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
5-Mar-11	1:00	0	0	32.69	0.00			
			1	33.45	0.76			
			2	33.52	0.83			
			4	33.60	0.91			
			6	33.64	0.95			
			8	33.64	0.95			
			10	33.64	0.95			
			12	33.64	0.95			
			14	33.65	0.96			
			16	33.65	0.96			
			18	33.66	0.97			
			20	33.66	0.97			
			25	33.67	0.98			
			30	33.69	1.00			
			35	33.69	1.00			
			40	33.71	1.02			
			45	33.73	1.04			
			50	33.73	1.04			
			55	33.74	1.05			
	2:00	1	60	33.75	1.06	0.29	8	23.9
			70	33.75	1.06			
			80	33.76	1.07			
			90	33.77	1.08			
			100	33.78	1.09			
			110	33.78	1.09			
	3:00	2	120	33.79	1.10			



データ 5.3 揚水試験データ サイト No-10N (6/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 1/2**

Date: 5 March 2011

Location: Ziway East Site No.: RVS BH-10N  
GPS Reading: 500516 E, 889860 N

Well No.: RVS BH-10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 64 - 118 m and 130 - 142 m m  
Static Groundwater Level (FToC\*): 25.32 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 44.00 m, Discharge (Q): 18.50 L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Elapsed Time, [t]		Water Level (FToC - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
5-Mar-11	12:00		0	25.32	0			
			1	32.00	6.68			
			2	32.32	7.00			
			3	32.45	7.13			
			4	32.60	7.28			
			5	32.73	7.41			
			6	32.73	7.41			
			8	32.84	7.52			
			10	32.94	7.62			
			15	33.02	7.70			
			20	33.06	7.74			
			25	33.08	7.76			
			30	33.10	7.78	0.21	8.3	24.6
			35	33.12	7.80			
			40	33.14	7.82			
			45	33.16	7.84			
			50	33.18	7.86			
			55	33.20	7.88			
	13:00	1	60	33.22	7.90	0.24	8.26	24.6
			70	33.24	7.92			
			80	33.25	7.93			
			90	33.27	7.95			
			100	33.28	7.96			
			110	33.30	7.98			
	14:00	2	120	33.31	7.99	0.23	8.38	24.5
			140	33.36	8.04			
			160	33.40	8.08			

データ 5.3 揚水試験データ サイト No-10N (7/8)

**CONTINUOUS PUMPING TEST DATA SHEET**  
**SHEET No. : 2/2**

Date: 5 March 2011

Location: Ziway East Site No.: RVS BH-10N  
GPS Reading: 500516 E, 889860 N

Well No.: RVS BH-10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 64 - 118 m and 130 - 142 m m  
Static Groundwater Level (FToC\*): 25.32 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 44.00 m, Discharge (Q): 18.50 L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Elapsed Time, [t]		Water Level (FToC - m)	Drawdown, [s] (m)	EC (mS/m)	pH	Temp. (°C)
		(hour)	(min)					
5-Mar-11	15:00	3	180	33.41	8.09	0.23	8.4	24.2
			210	33.42	8.10			
	16:00	4	240	33.47	8.15	0.22	8.23	24.1
			270	33.50	8.18			
	17:00	5	300	33.53	8.21	0.23	8.2	24.1
			330	33.55	8.23			
	18:00	6	360	33.57	8.25	0.25	8.2	24.1
	19:00	7	420	33.64	8.32	0.25	8.29	24.1
	20:00	8	480	33.68	8.36	0.27	8.23	24.1
	21:00	9	540	33.73	8.41	0.28	8.24	24.3
	22:00	10	600	33.77	8.45	0.28	8.22	24.2
23:00	11	660	33.82	8.50	0.27	8.24	24.2	
6-Mar-11	0:00	12	720	33.84	8.52	0.27	8.23	24.1
	1:00	13	780	33.88	8.56	0.27	8.24	24.1
	2:00	14	840	33.90	8.58	0.27	8.24	24.1
	3:00	15	900	33.93	8.61	0.27	8.29	24.1
	4:00	16	960	33.99	8.67	0.27	8.29	24.1
	6:00	18	1080	34.00	8.68	0.28	8.3	24.1
	8:00	20	1200	34.02	8.70	0.28	8.24	24.1
	9:00	21	1260	34.04	8.72	0.22	8.36	24.1
	10:00	22	1320	34.04	8.72	0.21	8.32	24.1
	12:00	24	1440	34.05	8.73	0.24	8.34	24.2

データ 5.3 揚水試験データ サイト No-10N (8/8)

**RECOVERY TEST DATA SHEET**  
**SHEET No. : 1/1**

Date: 6 March 2011

Location: Ziway East Site No.: **RVS BH-10N**  
GPS Reading: 500516 E, 889860 N

Well No.: RVS BH-10N Well Depth: 202.00 m, Well Diameter:  $\phi$  6.00 "  
Screen Depth(s): 64 - 118 m and 130 - 142 m m  
Static Groundwater Level (FToC\*): 25.32 m Screen Length: 66.00 m  
Pump Type: Submersible Casing stick up: 0.50 m  
Pump Setting: 44.00 m, Discharge (Q): NA L/s

\* FToC: From Top of Casing (stick up 0.5 m)

Date	Time	Time since Pumping Stopped, [t']		Water Level (FToC - m)	Time Ratio, [t/t']	Water Level (GL - m)	Residual Drawdown, [s'] (m)	
		(hour)	(min)					
6-Mar-11	12:00		0	1440		34.05	8.73	
			1	1441	1441	26.66	1.34	
			2	1442	721	26.40	1.08	
			4	1444	361	26.26	0.94	
			6	1446	241	26.19	0.87	
			8	1448	181	26.16	0.84	
			10	1450	145	26.13	0.81	
			12	1452	121	26.08	0.76	
			14	1454	104	26.08	0.76	
			16	1456	91	26.08	0.76	
			18	1458	81	26.08	0.76	
			20	1460	73	26.06	0.74	
			25	1465	59	26.04	0.72	
			30	1470	49	26.02	0.70	
			35	1475	42	26.01	0.69	
	40	1480	37	26.00	0.68			
	45	1485	33	25.98	0.66			
	50	1490	30	25.97	0.65			
	13:00	1	60	1500	25	25.96	0.64	
			70	1510	22	25.94	0.62	
			80	1520	19	25.92	0.60	
			90	1530	17	25.90	0.58	
			100	1540	100	25.88	0.56	
		110	1550	110	25.87	0.55		
	14:00	2	120	1560	120	25.86	0.54	
			150	1590	150	25.82	0.50	
			3	180	1620	9	25.78	0.46
				210	1650	8	25.75	0.43
			4	240	1680	7	25.72	0.40
				270	1710	6	25.69	0.37
			5	300	1740	6	25.65	0.33
			330	1770	5	25.64	0.32	
		6	360	1800	5	25.62	0.30	
			390	1830	5	25.61	0.29	
	19:00	7	420	1860	4	25.58	0.26	

データ 5.4 掘削中の水質サンプル分析データ

Sample ID.No.	RVBH-4		RVBH-4		RVBH-4		RVBH-5		WHO maximum allowable Concentration
	well	depth	well	depth	well	depth	well	depth	
Source of sample	well		well		well		well		
depth	42-47m		82-87m		97-102m		29-34m		
Date received (year/m/d)	2011/11/10		2011/11/10		2011/11/10		2011/11/10		
Lab ID No.	696/04		694/04		697/04		699		
Electrical Conductivity (µS/cm)	530		469		332		871		--
Fluoride(F)mg/l)	1.22		0.58		1.34		2.42		1.5

Sample ID.No.	RVBH-6		RVBH-6		RVBH-6		RVBH-8		WHO maximum allowable Concentration
	well	depth	well	depth	well	depth	well	depth	
Source of sample	well		well		well		well		
depth	274-284m		314-324m		354-364m		0-20m		
Date received (year/m/d)	2011/11/10		2011/11/10		2011/11/10		2011/11/10		
Lab ID No.	702		701		700		705/04		
Electrical Conductivity (µS/cm)	750		747		698		656		--
Fluoride(F)mg/l)	0.68		1.22		1.06		0.74		1.5

## 6. 地下水モデリング

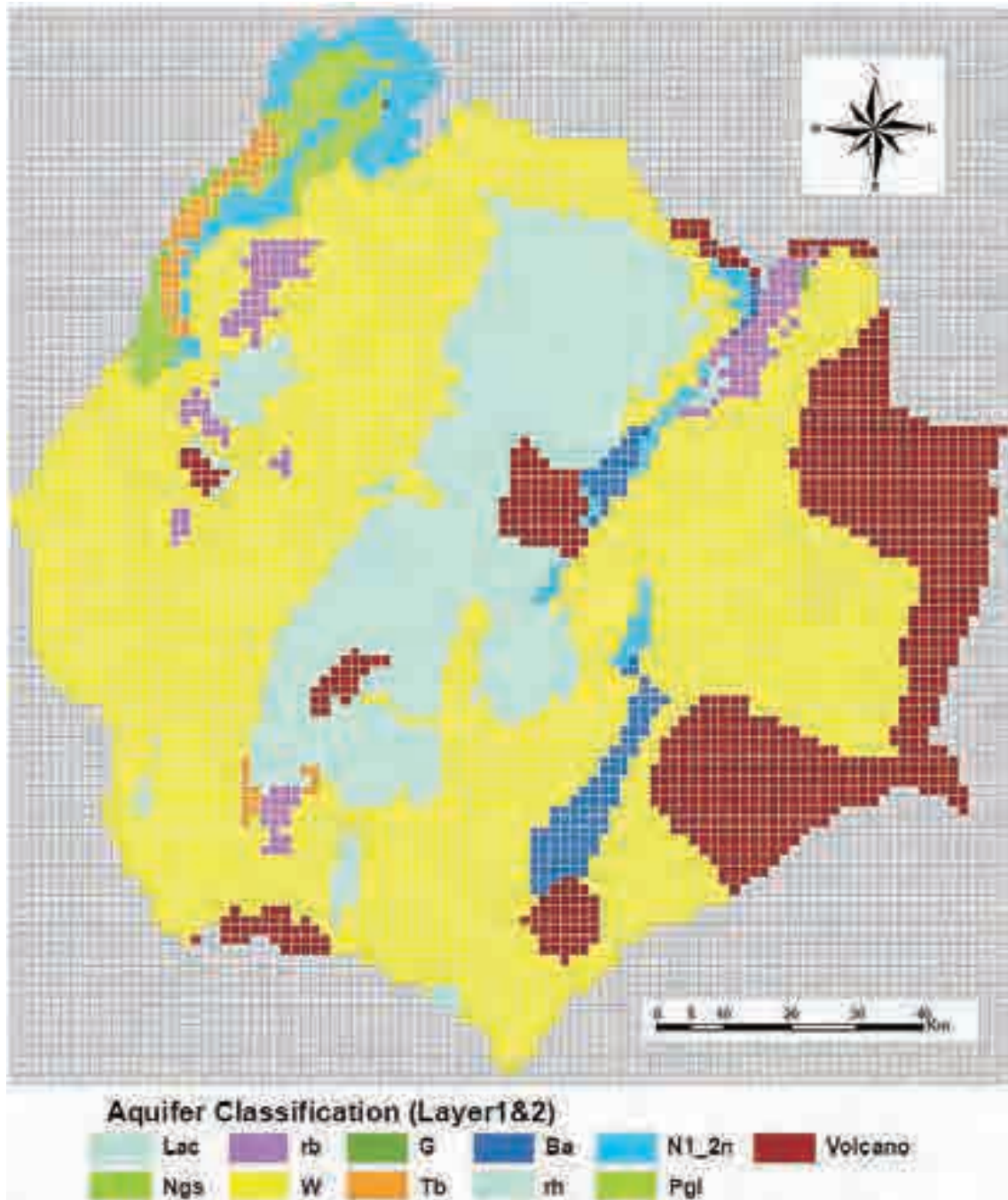
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### データ 6.1 モデルの地質レイヤー(1/7)

Ziway Model Aquifer Classification in Each Layer

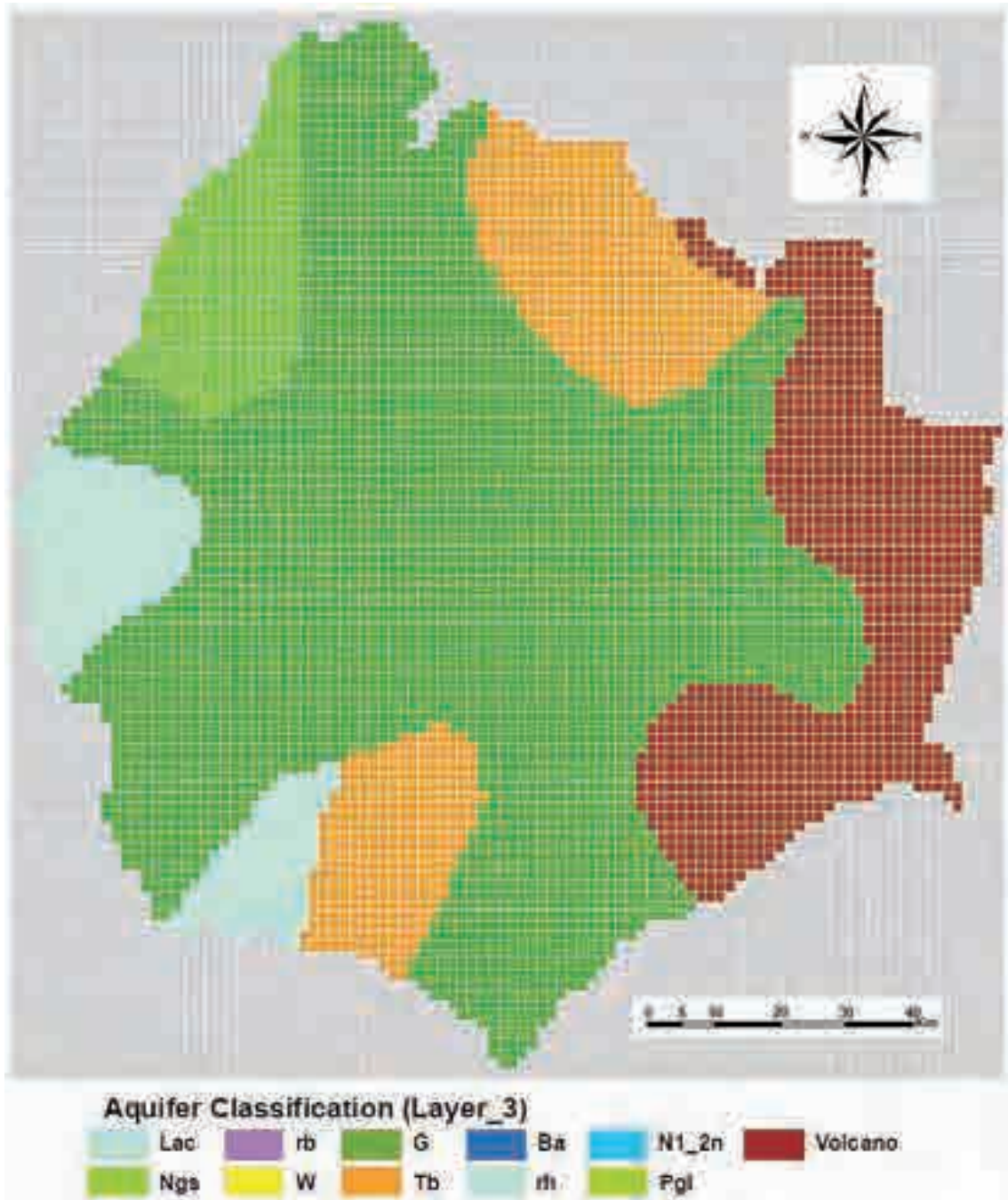
Layer\_1&2





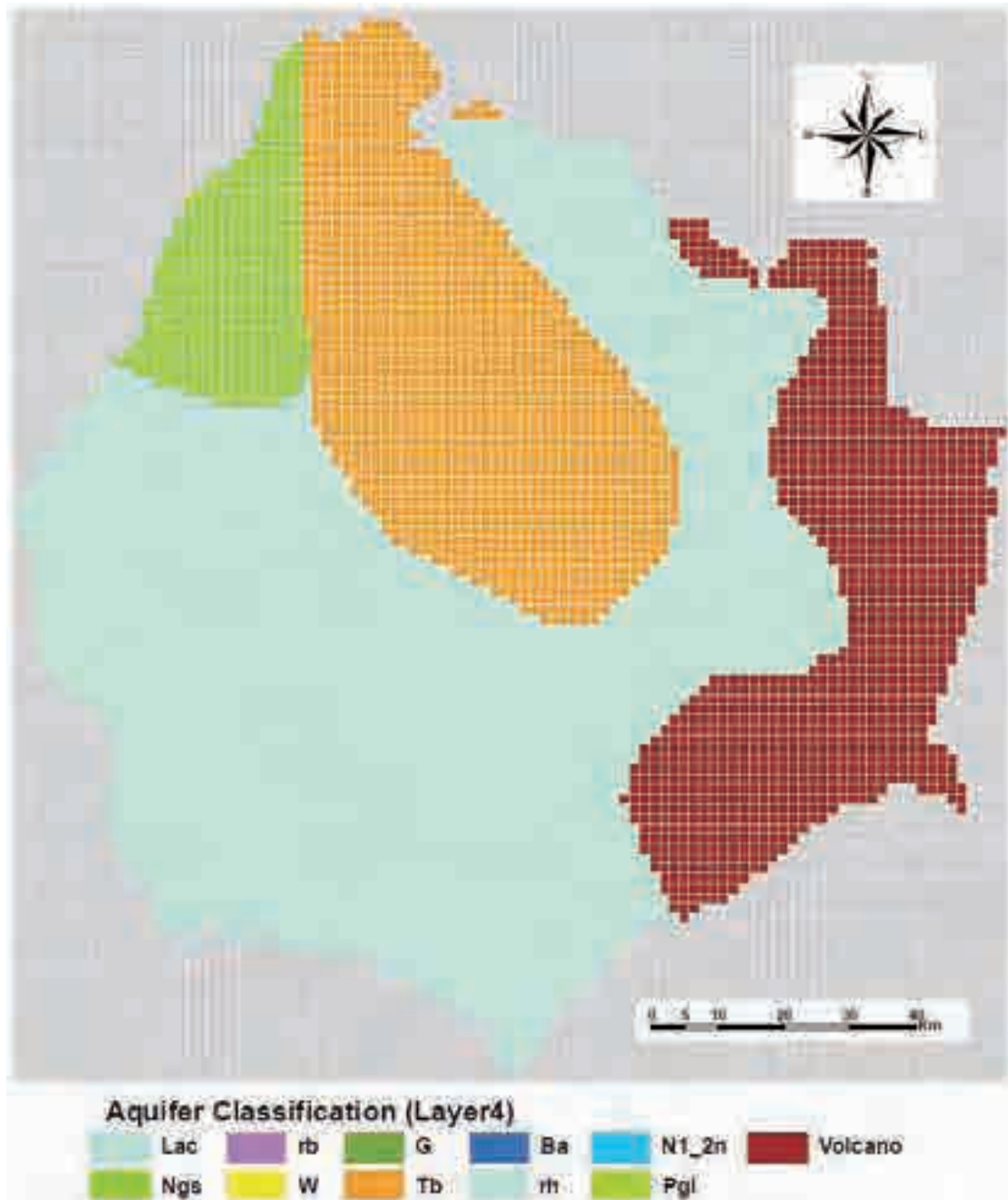
データ 6.1 モデルの地質レイヤー(2/7)

Layer\_3



データ 6.1 モデルの地質レイヤー(3/7)

Layer\_4





### データ 6.1 モデルの地質レイヤー(4/7)

Billate Model Aquifer Classification in Each Layer

Layer\_1&2



Layer\_3



Layer\_4



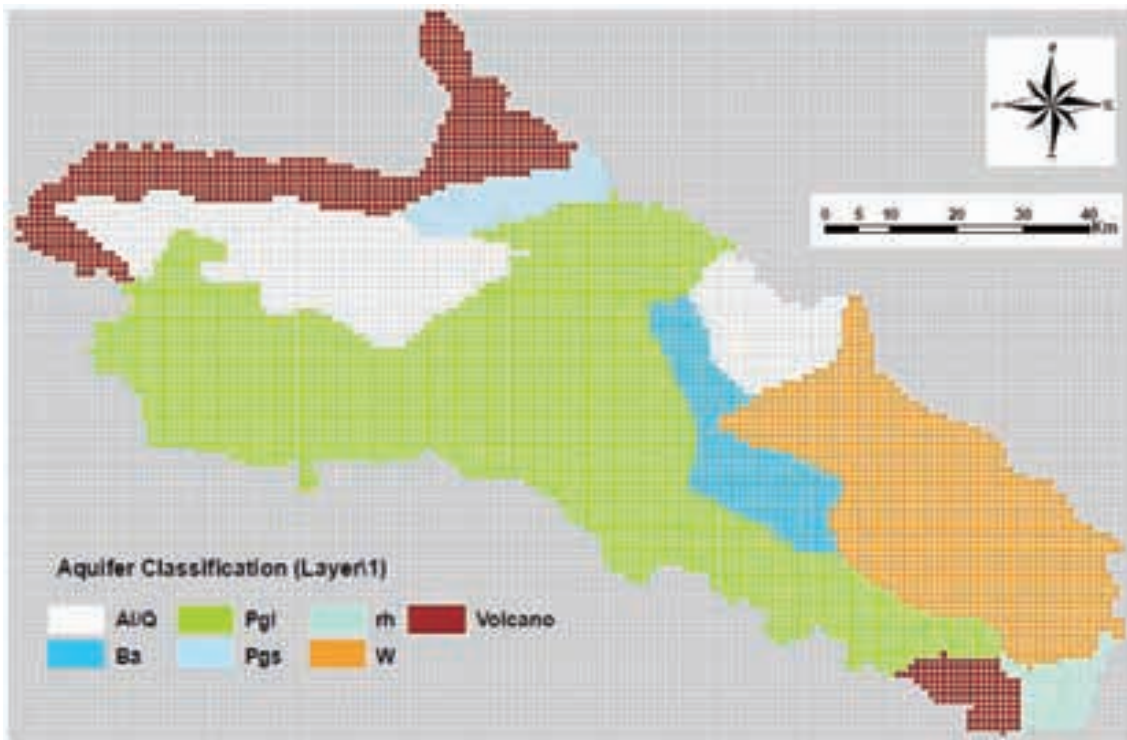
### データ 6.1 モデルの地質レイヤー(5/7)

Layer\_5



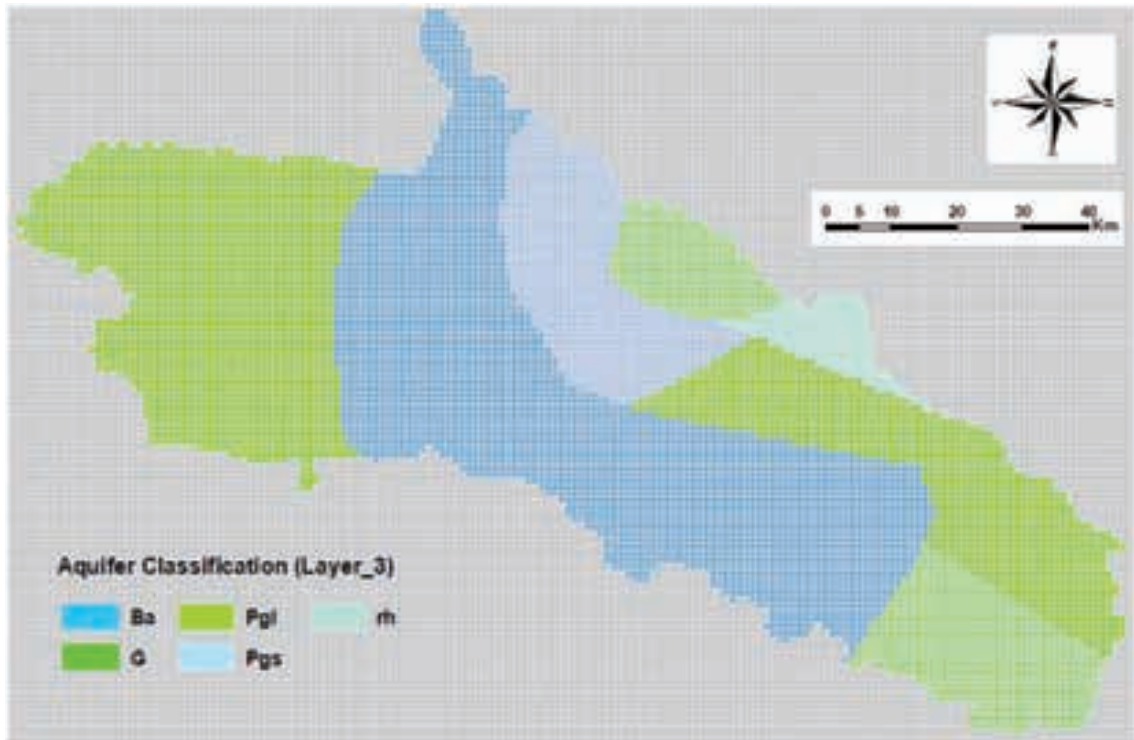
Eastern Abaya Model Aquifer Classification in Each Layer

Layer\_1&2

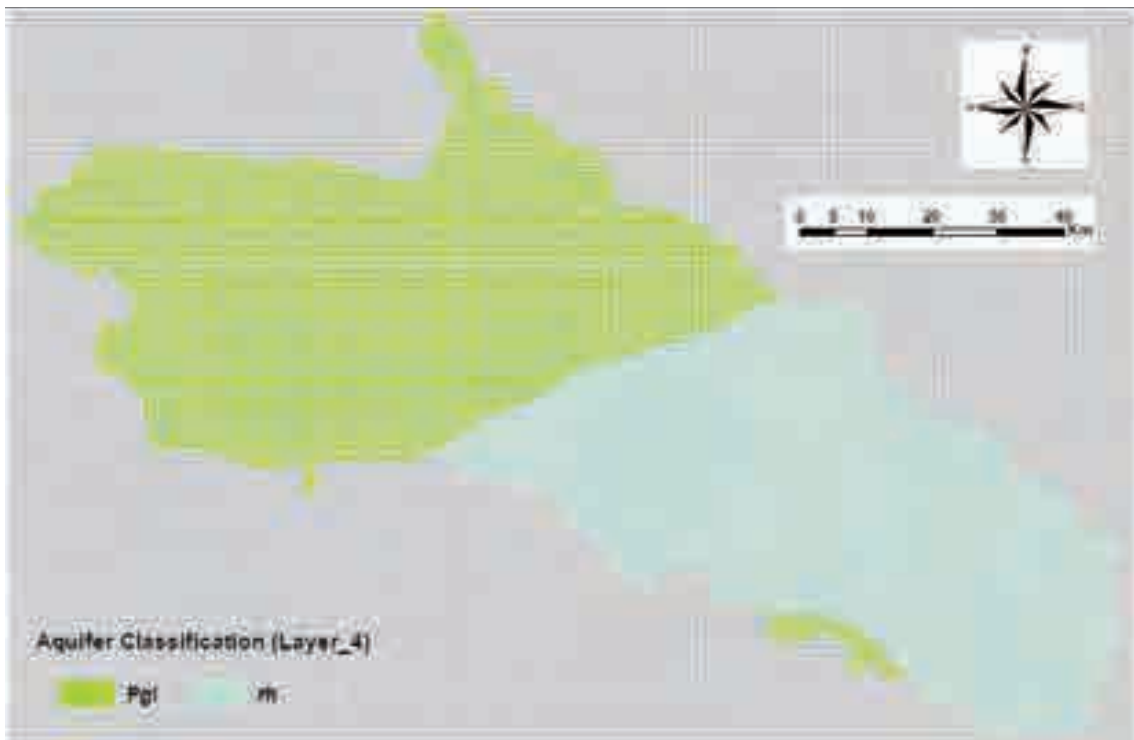


データ 6.1 モデルの地質レイヤー(6/7)

Layer\_3



Layer\_4

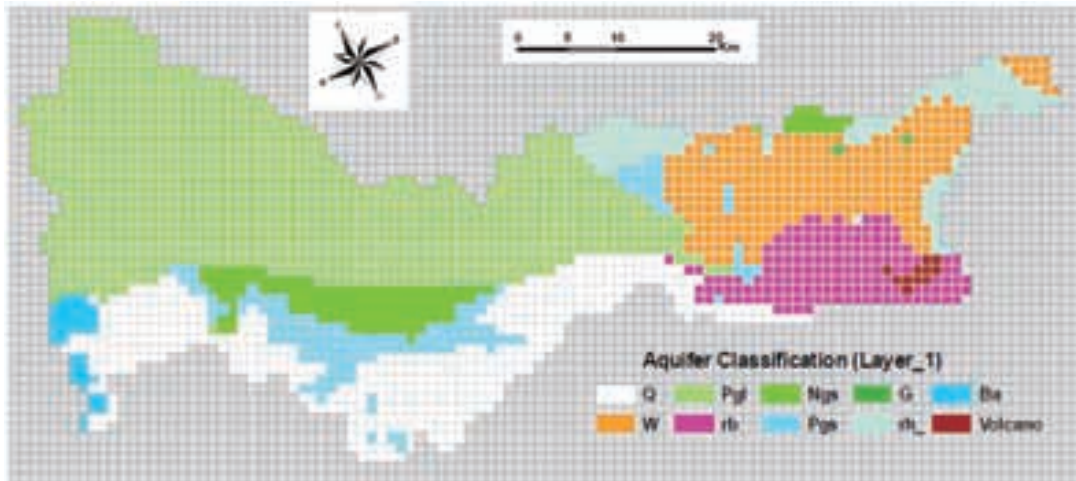




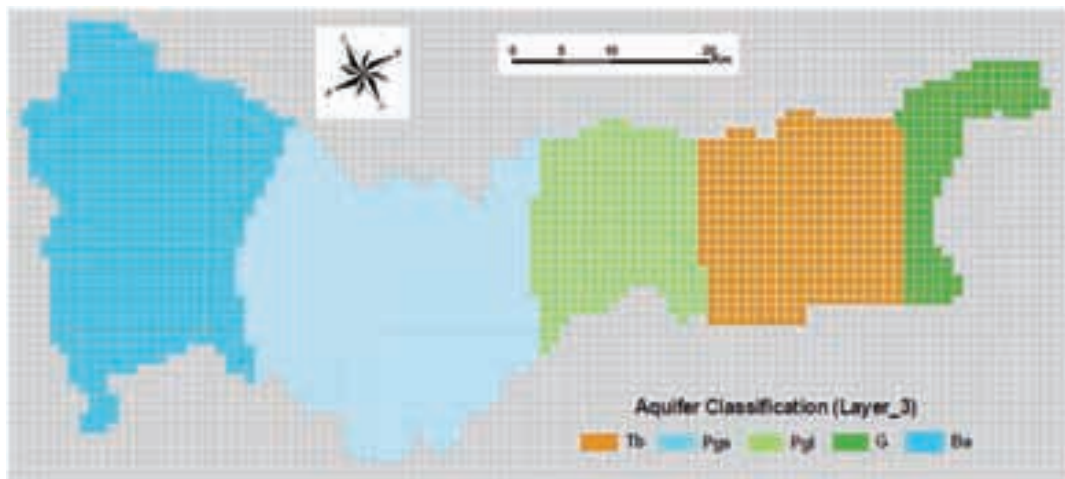
### データ 6.1 モデルの地質レイヤー(7/7)

Western Abaya Model Aquifer Classification in Each Layer

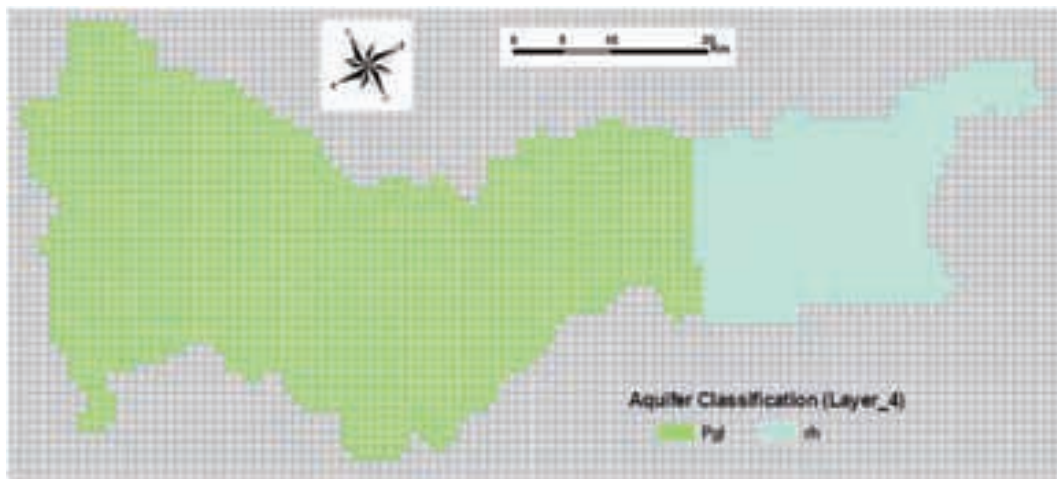
Layer1&2



Layer\_3



Layer\_4



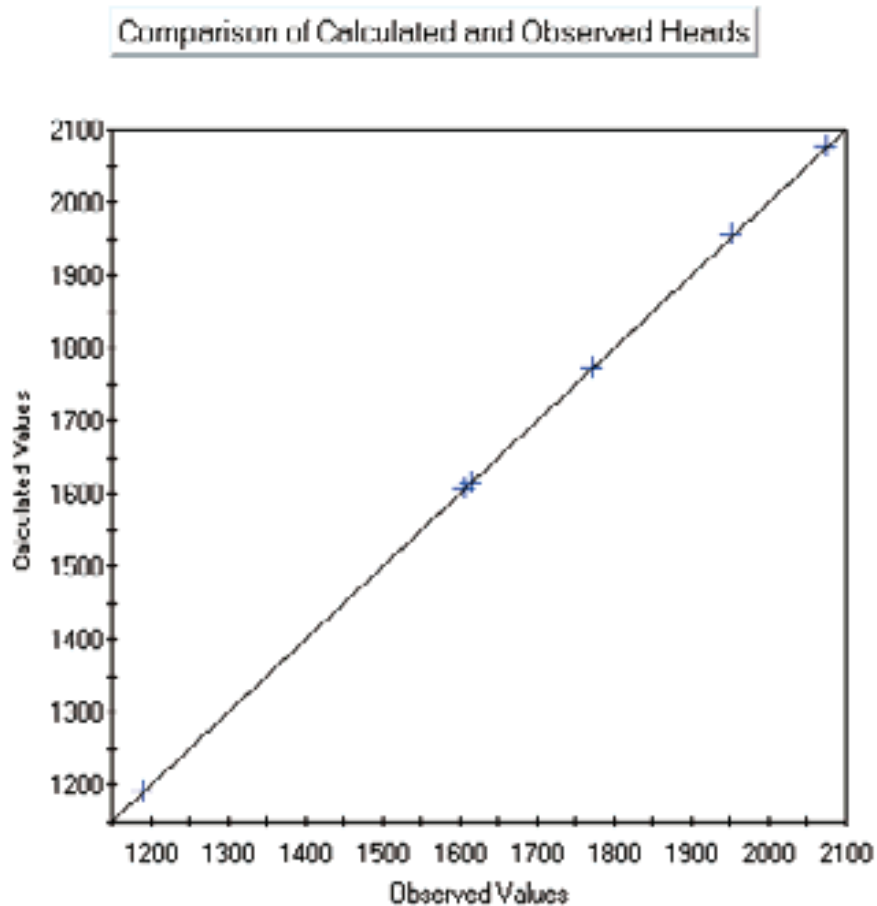
### データ 6.2 モデル内挿検定結果 (1/3)

#### Billate Model

Location of observation wells



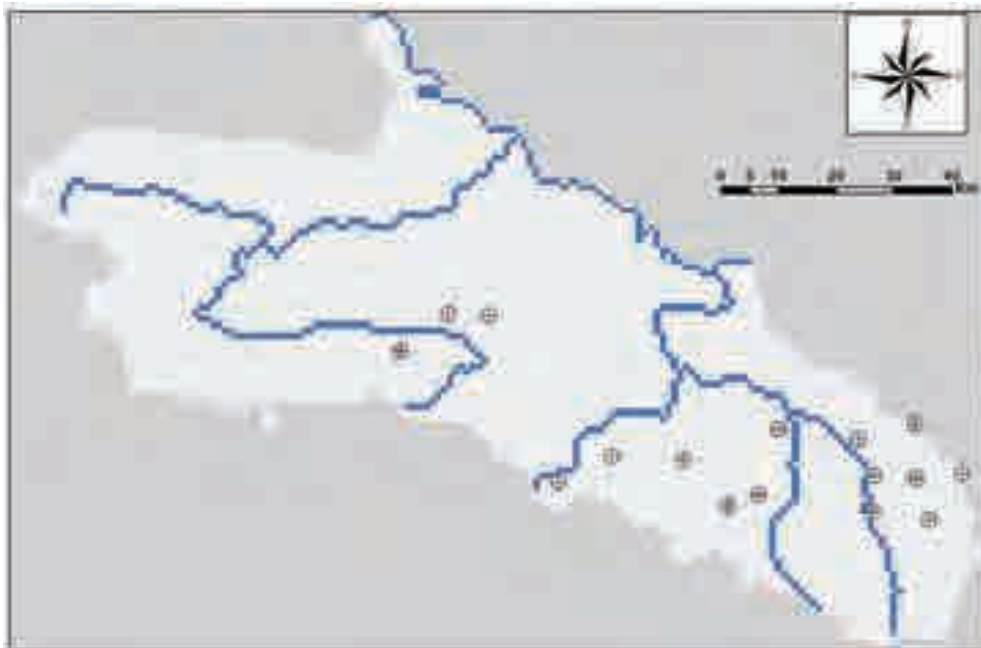
Result of Model calibration



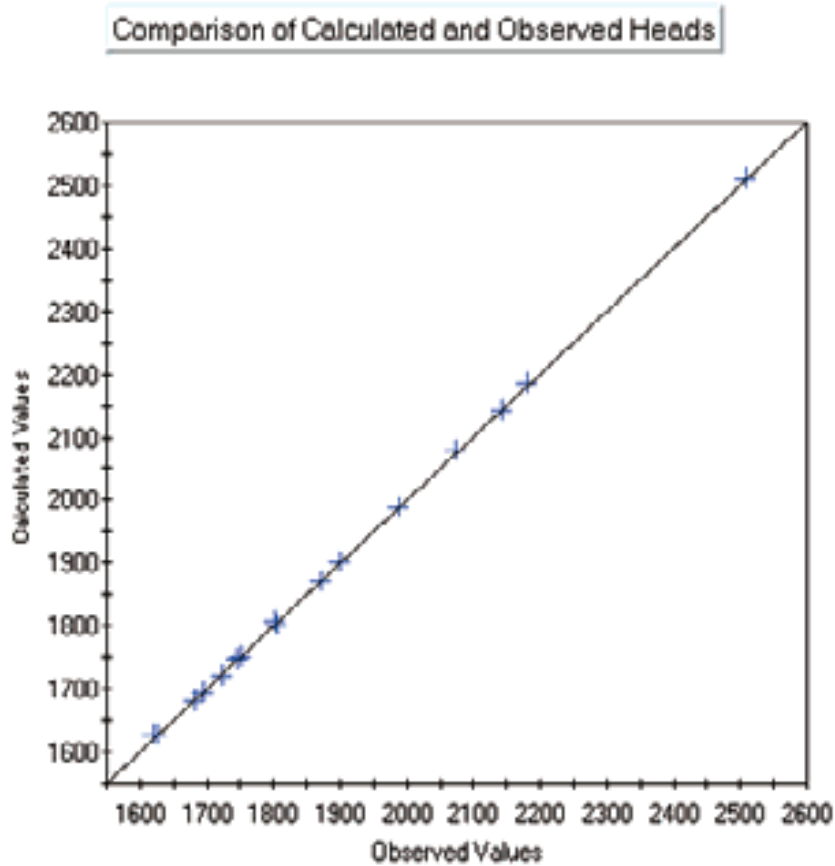
### データ 6.2 モデル内挿検定結果 (2/3)

#### Eastern Abaya Model

Location of observation wells



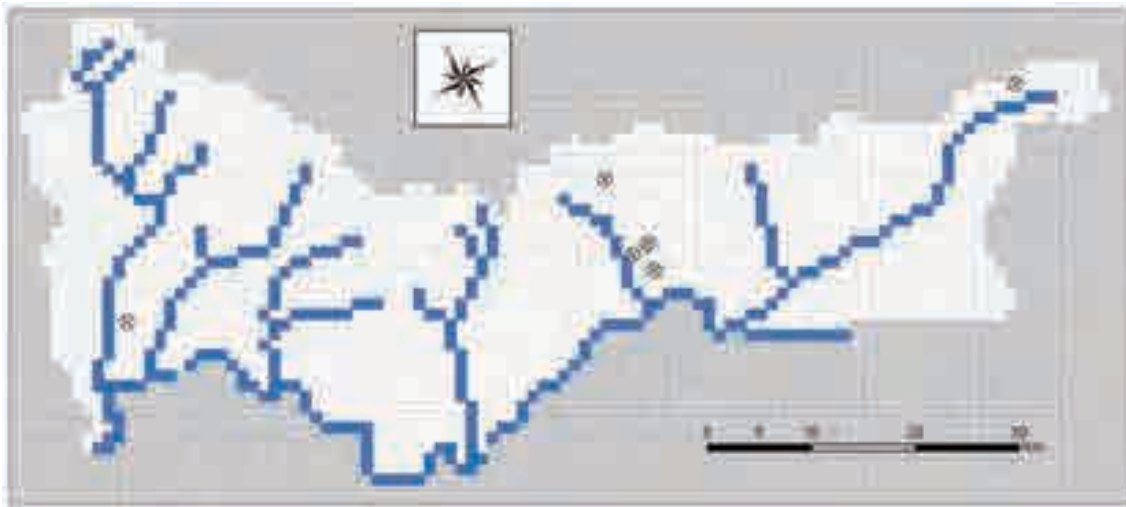
Result of Model calibration



### データ 6.2 モデル内挿検定結果 (3/3)

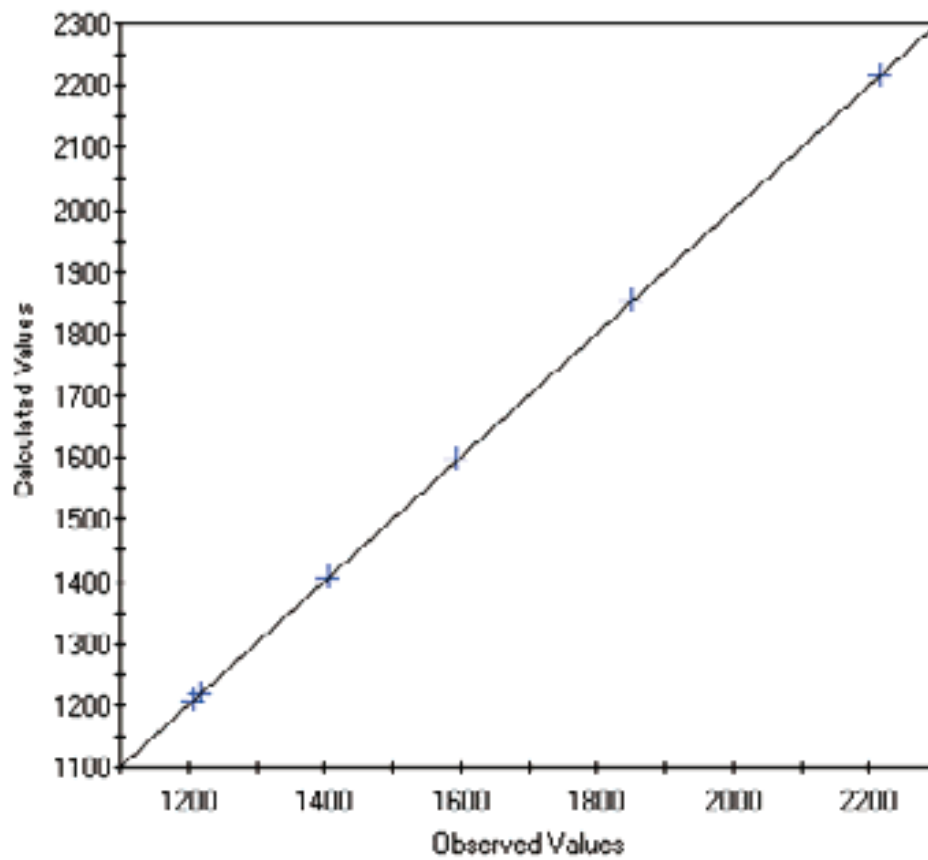
#### Western Abaya Model

Location of observation wells



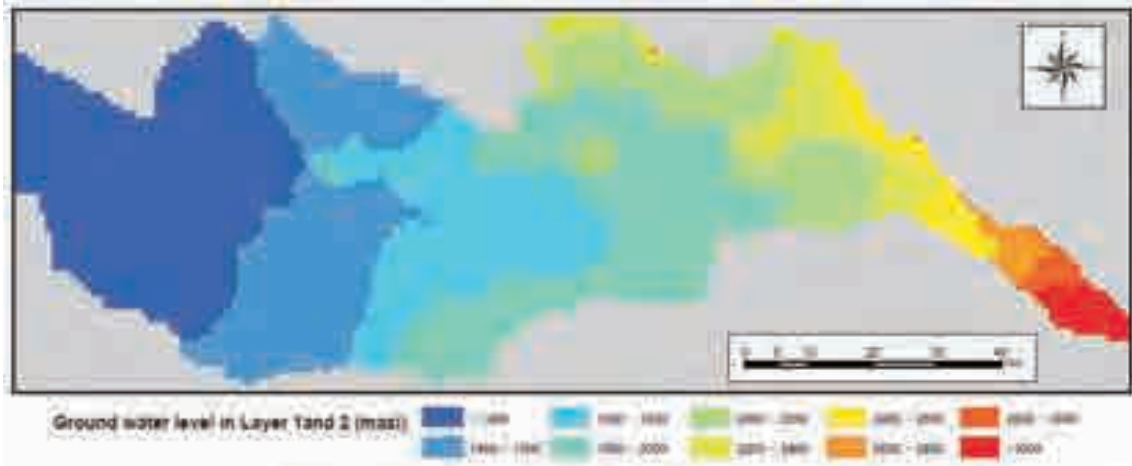
Result of Model calibration

Comparison of Calculated and Observed Heads

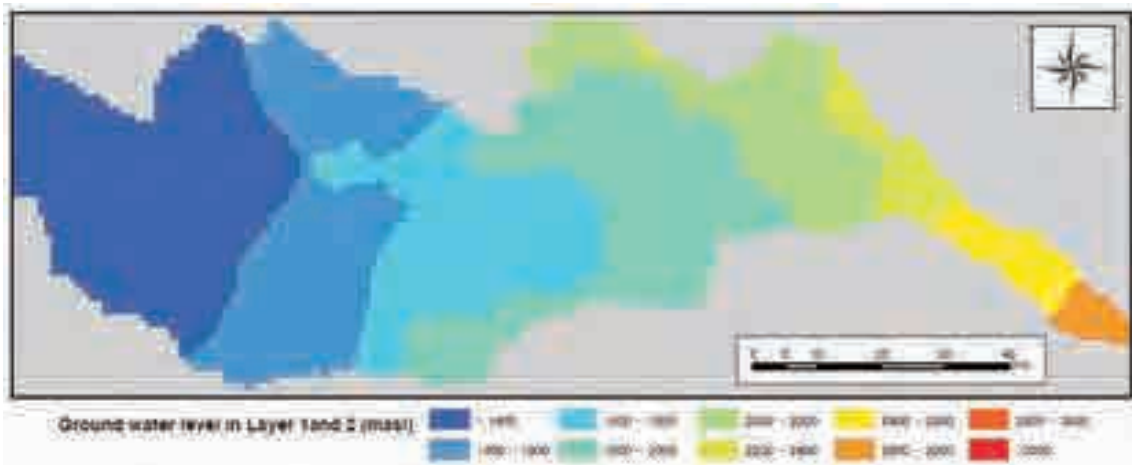


### データ 6.3 モデリング結果 (1/4)

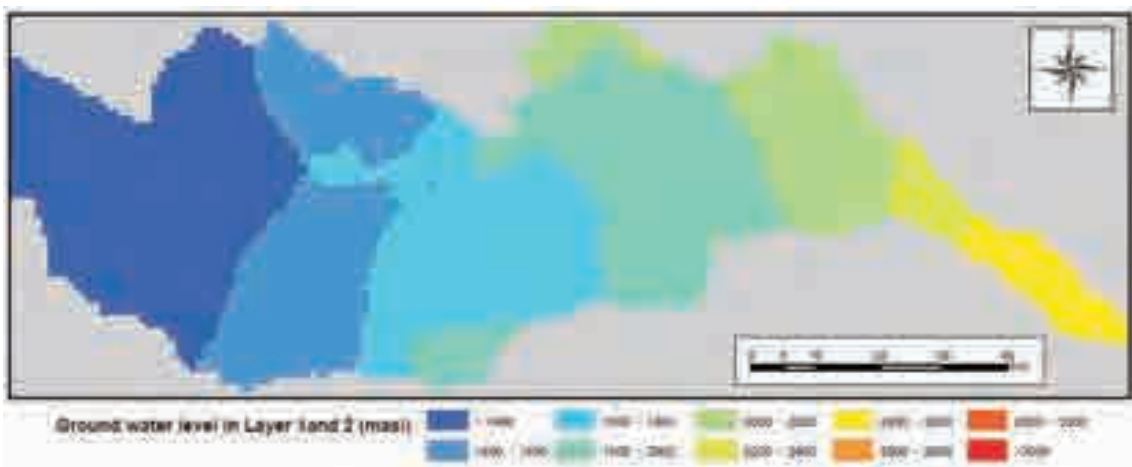
Groundwater Head Distribution in Layer\_1, Billate Model



Groundwater Head Distribution in Layer\_3, Billate Model



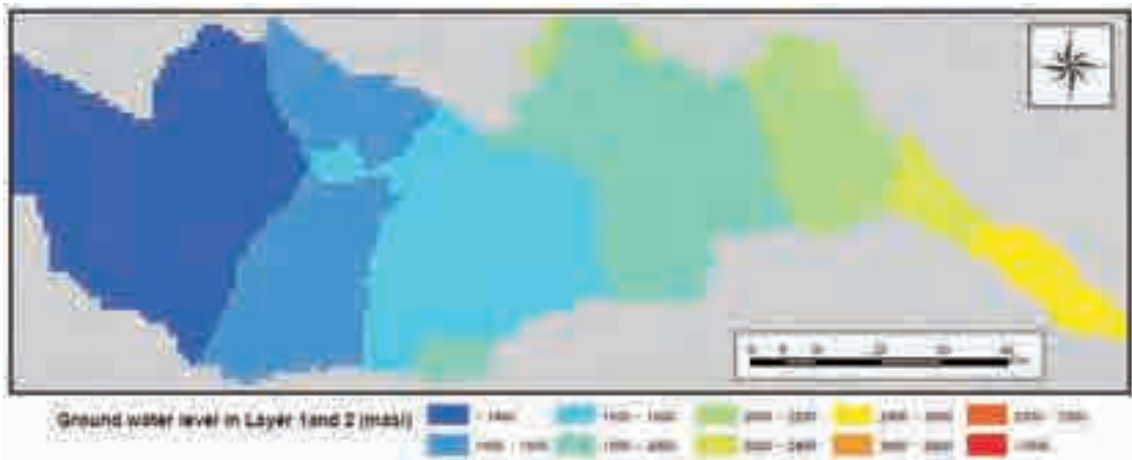
Groundwater Head Distribution in Layer\_4, Billate Model



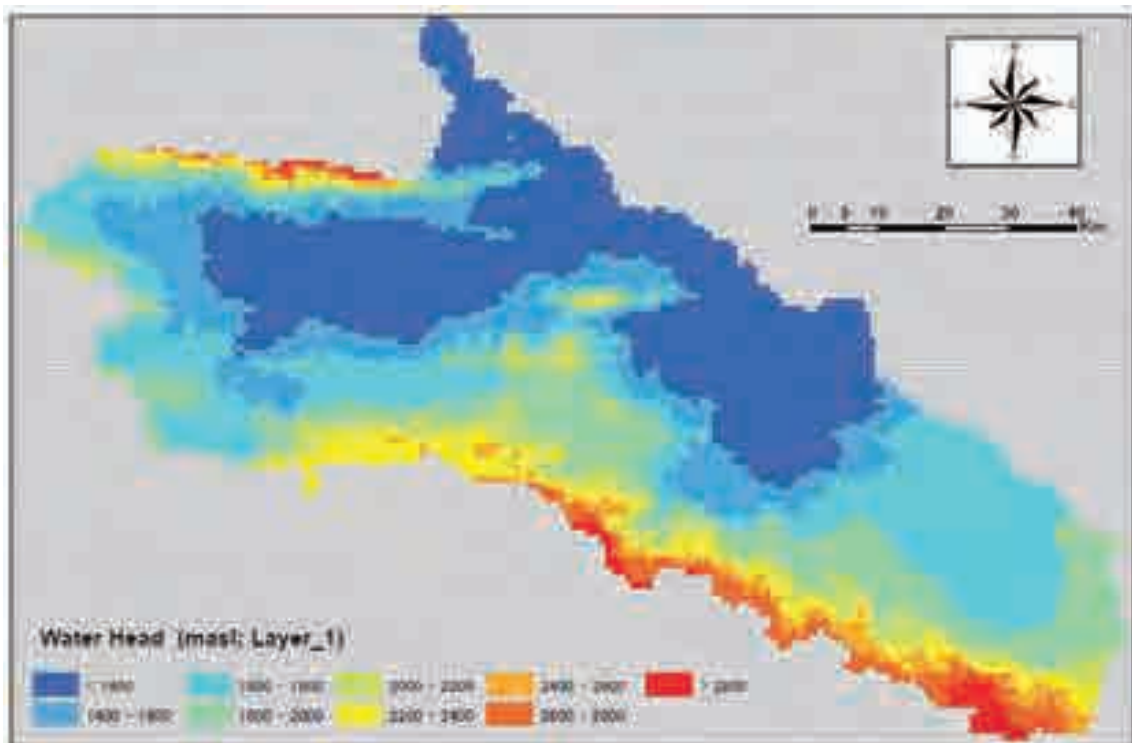


### データ 6.3 モデリング結果 (2/4)

Groundwater Head Distribution in Layer\_5, Billate Model

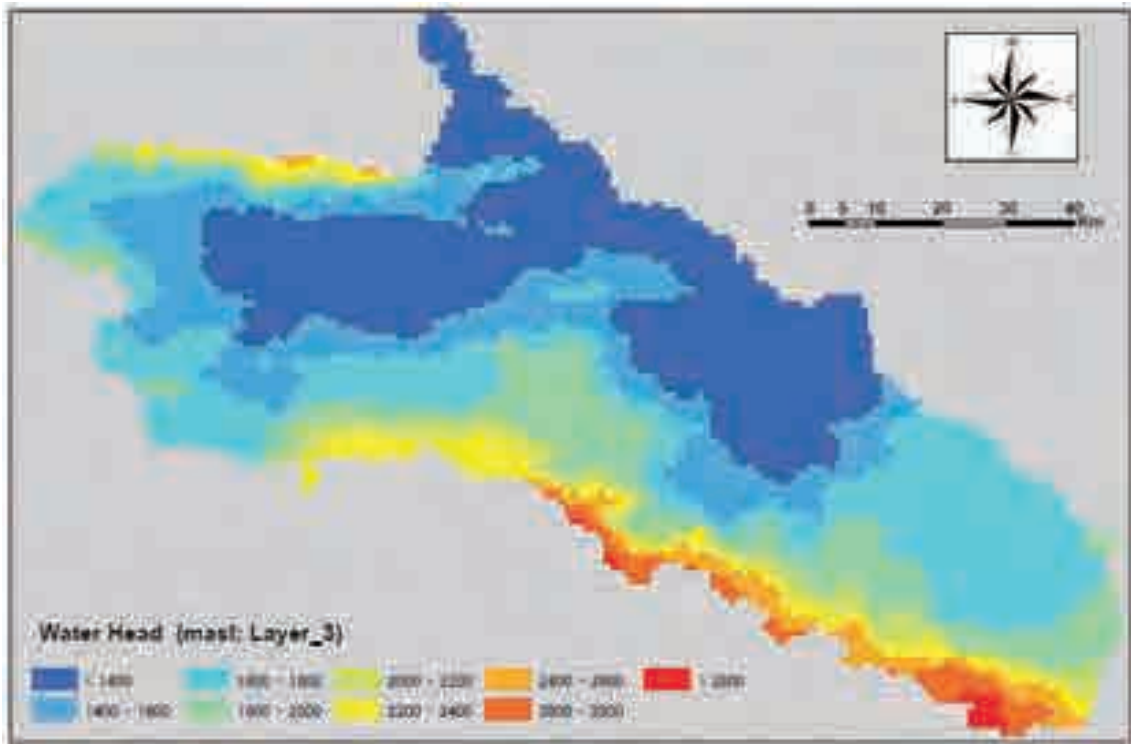


Groundwater Head Distribution in Layer\_1, Eastern Abaya Model

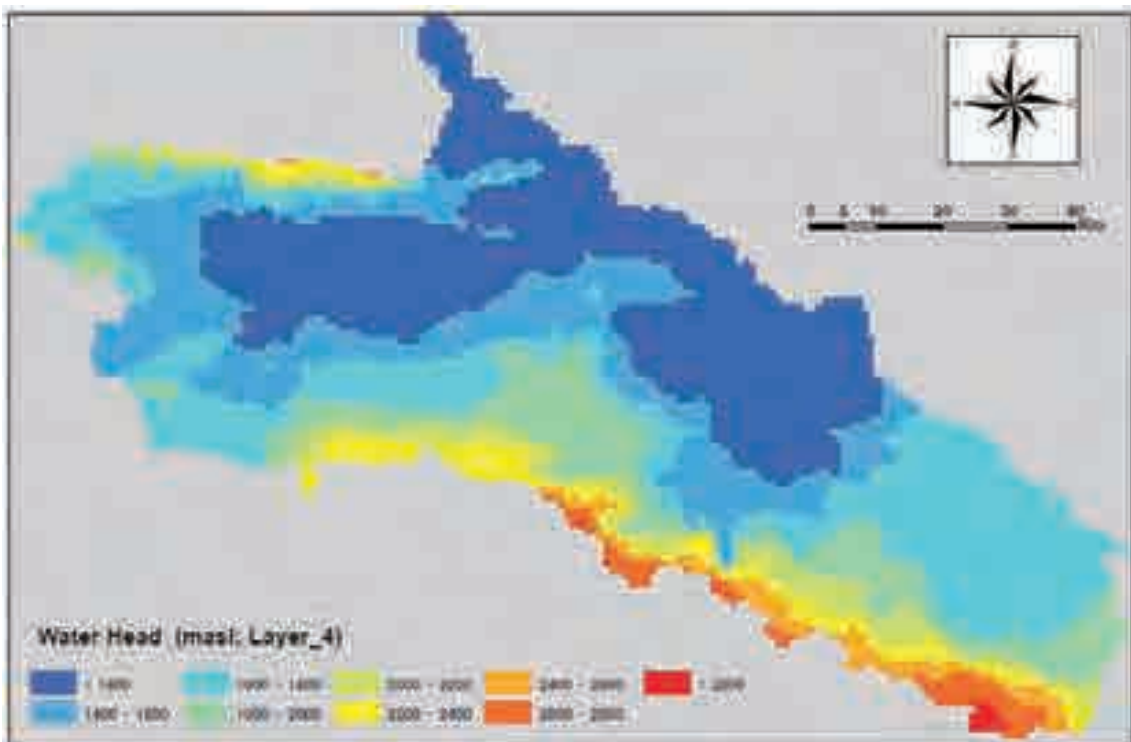


### データ 6.3 モデリング結果 (3/4)

Groundwater Head Distribution in Layer\_3, Eastern Abaya Model

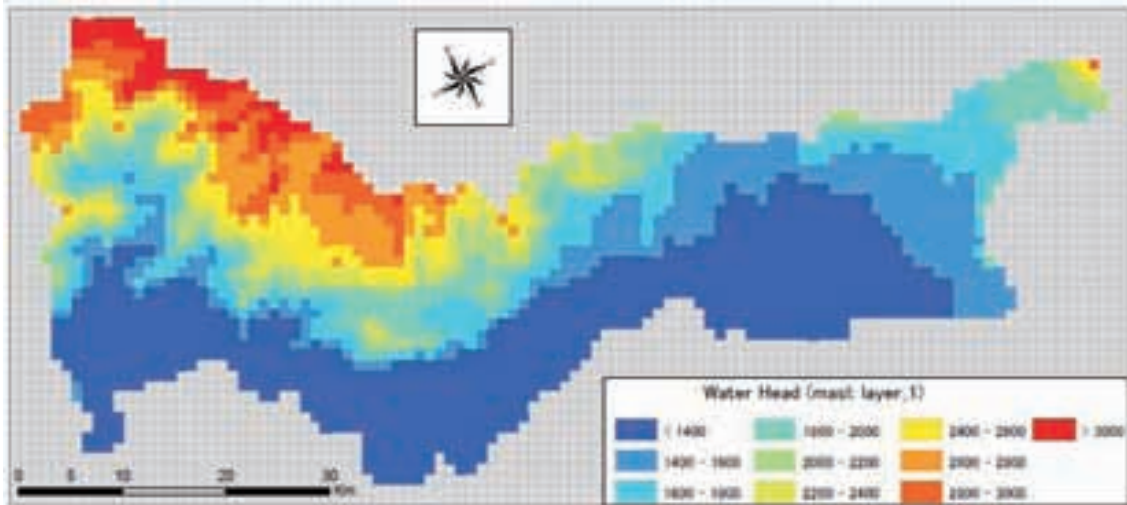


Groundwater Head Distribution in Layer\_4, Eastern Abaya Model

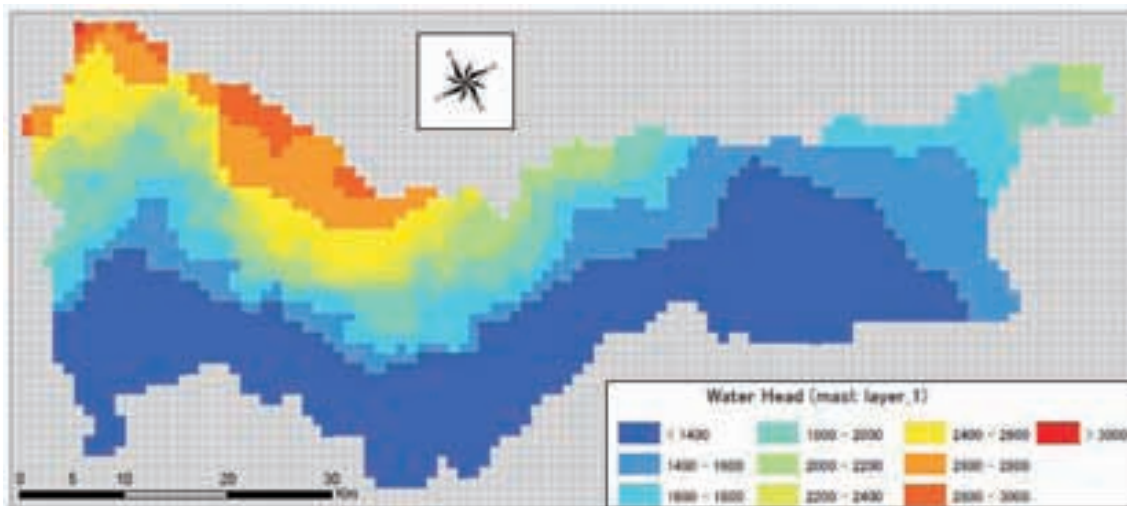


### データ 6.3 モデリング結果 (4/4)

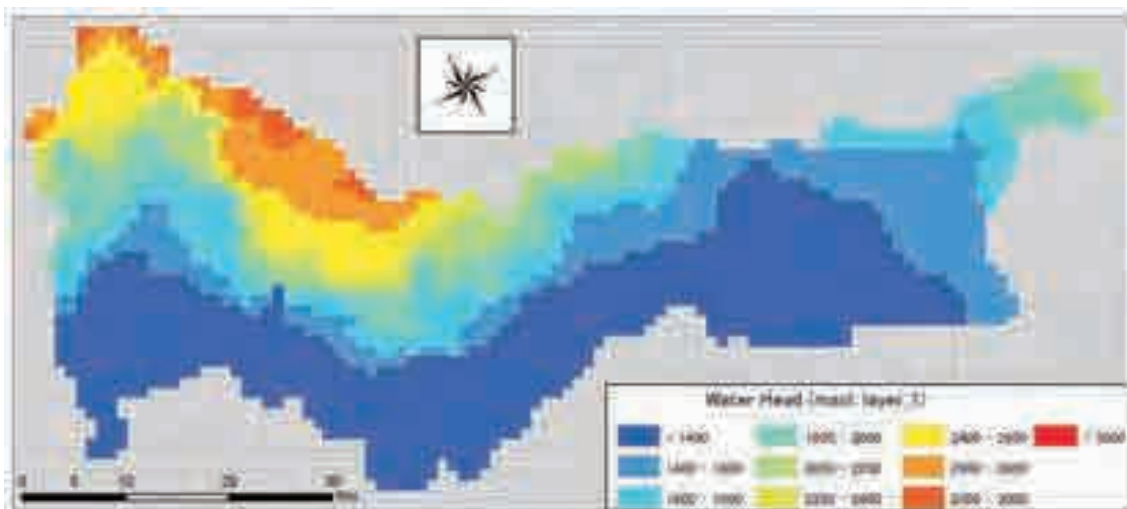
Groundwater Head Distribution in Layer\_1, Western Abaya Model



Groundwater Head Distribution in Layer\_3, Western Abaya Model

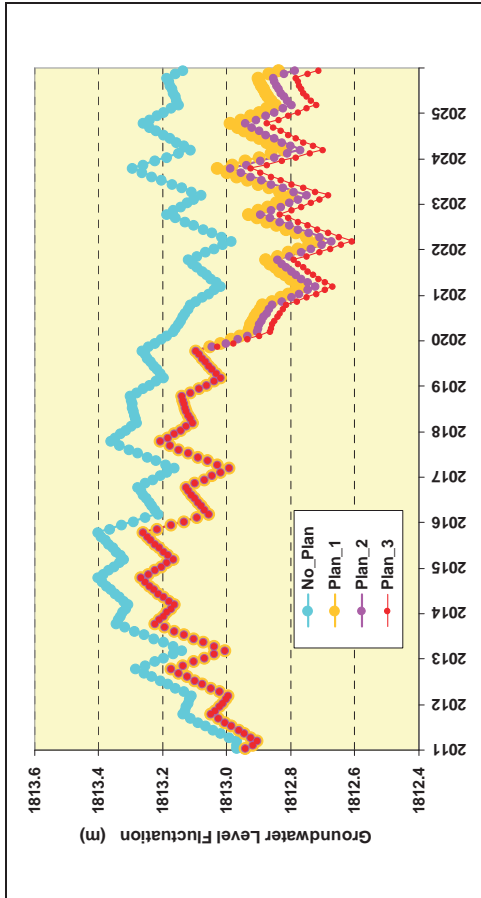
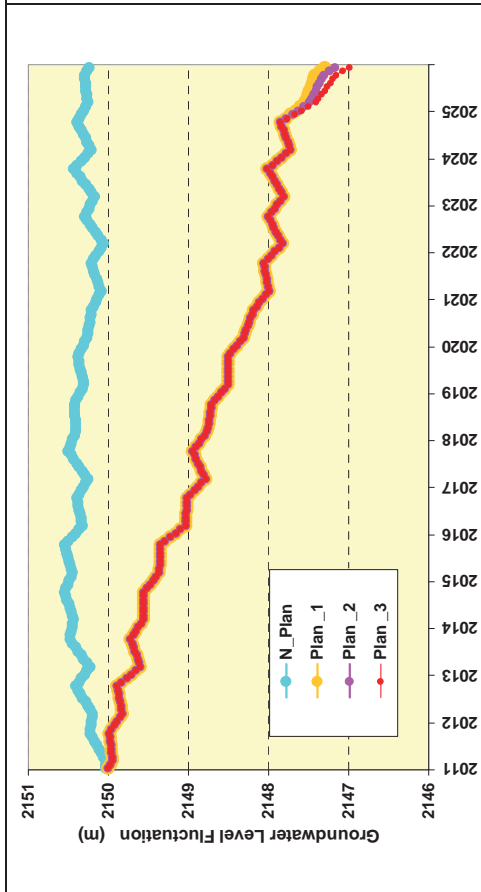


Groundwater Head Distribution in Layer\_4, Western Abaya Model

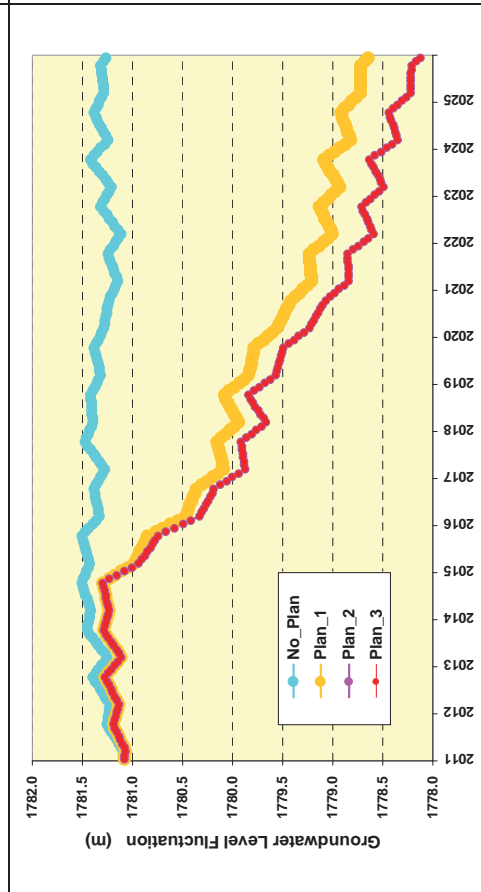


データ 6.4 地下水水位変動予測 (1/16)

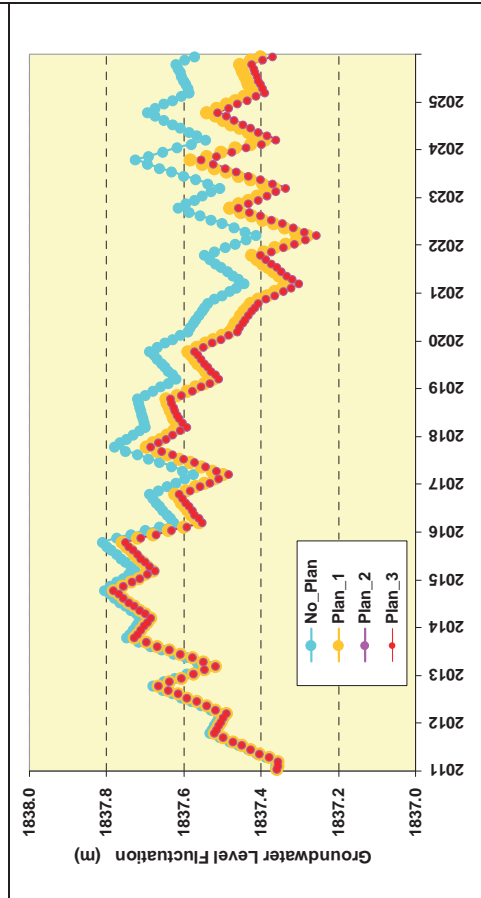
Model Eastern Abaya Lake



Production Well O\_32



Production Well S\_16

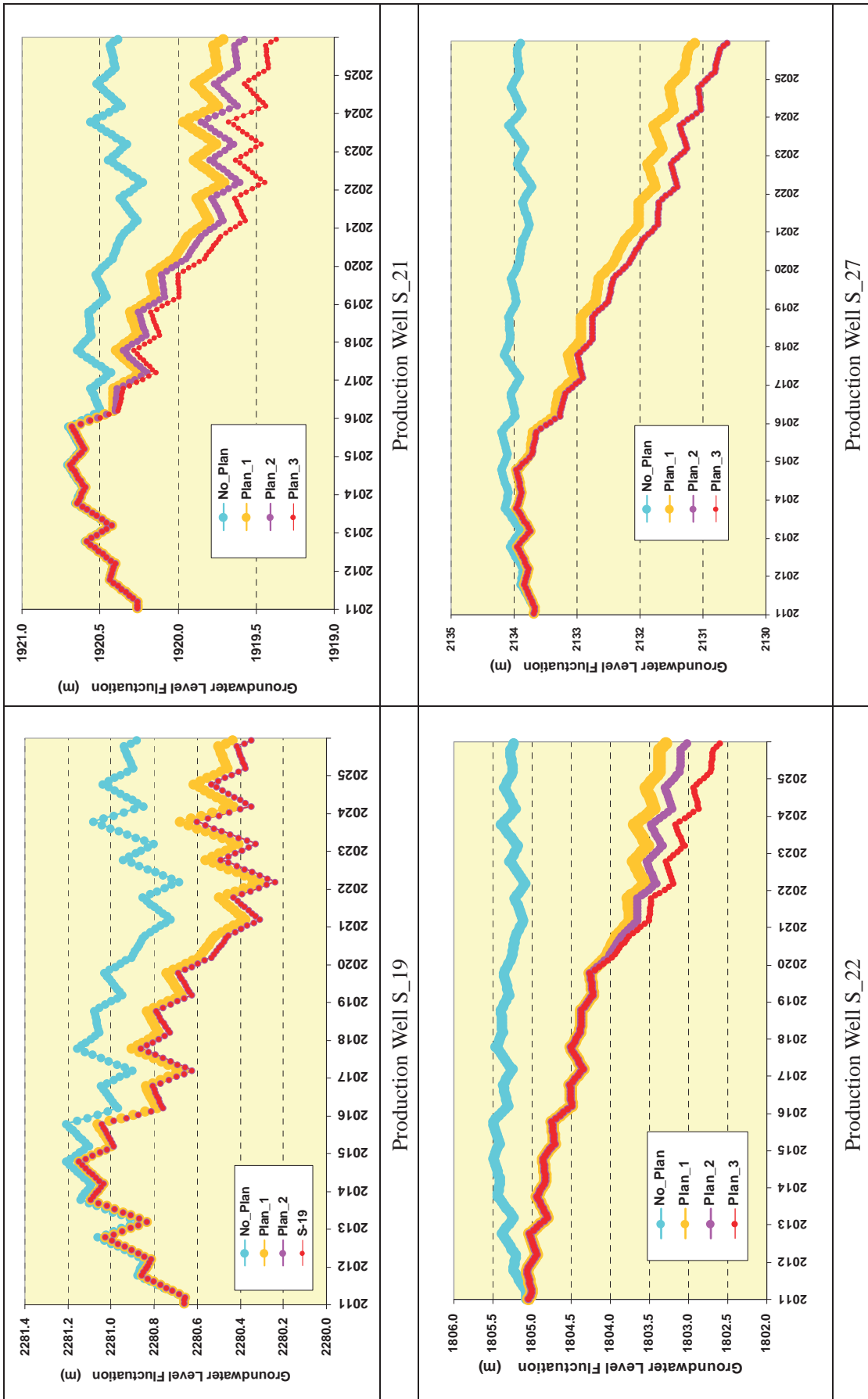


Production Well S\_17

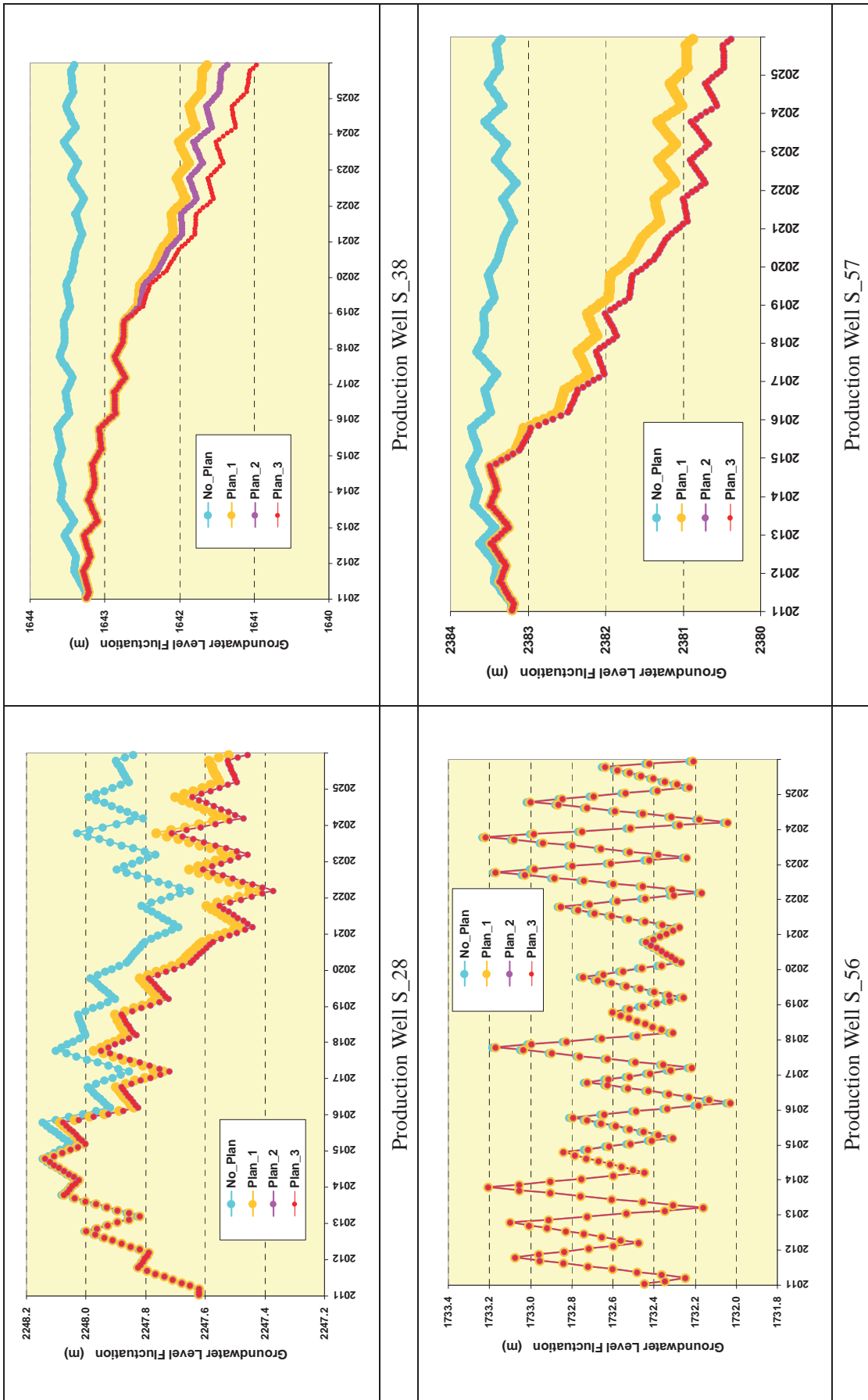
Production Well S\_18



データ 6.4 地下水水位変動予測 (2/16)

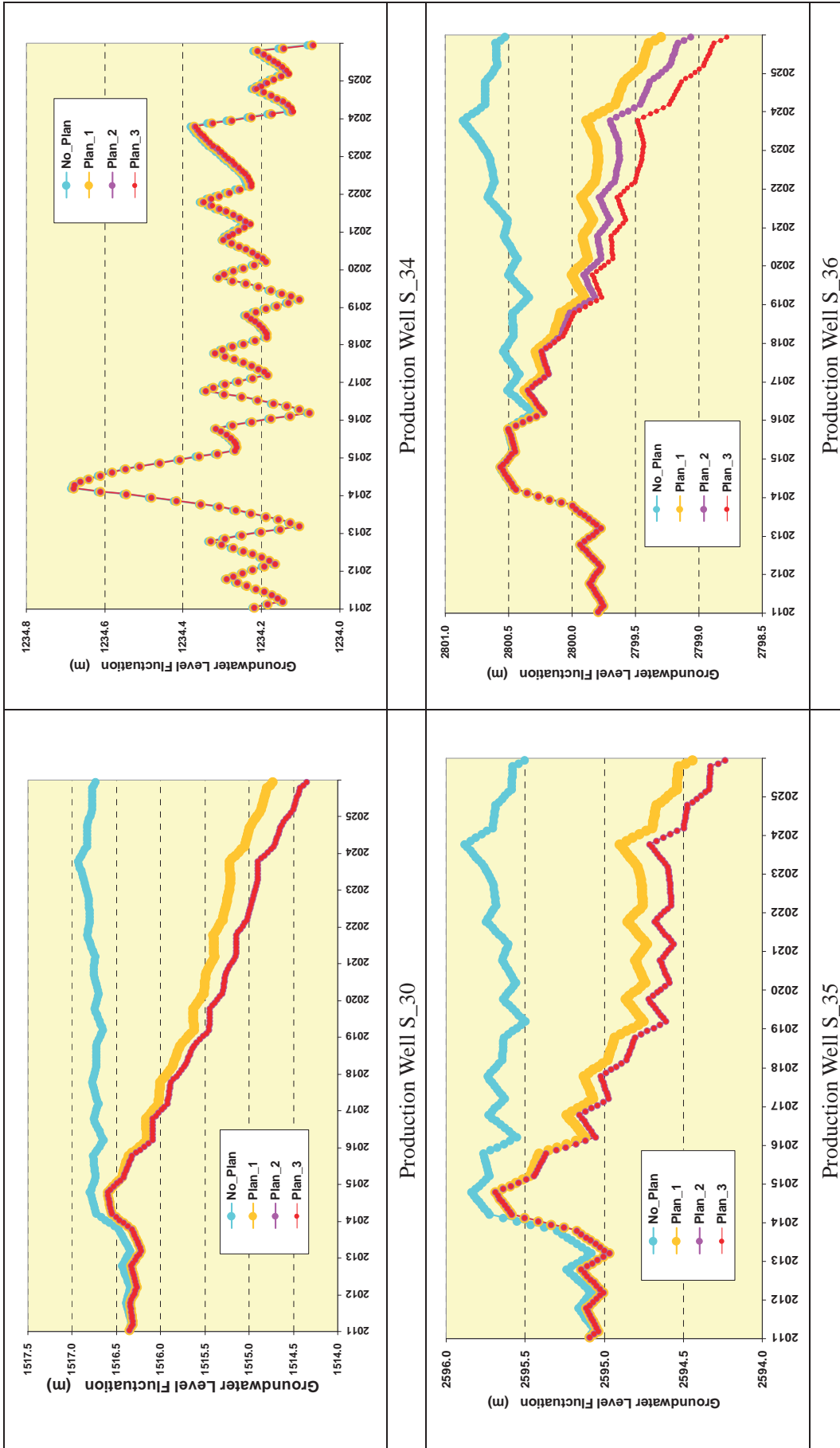


データ 6.4 地下水水位変動予測 (3/16)

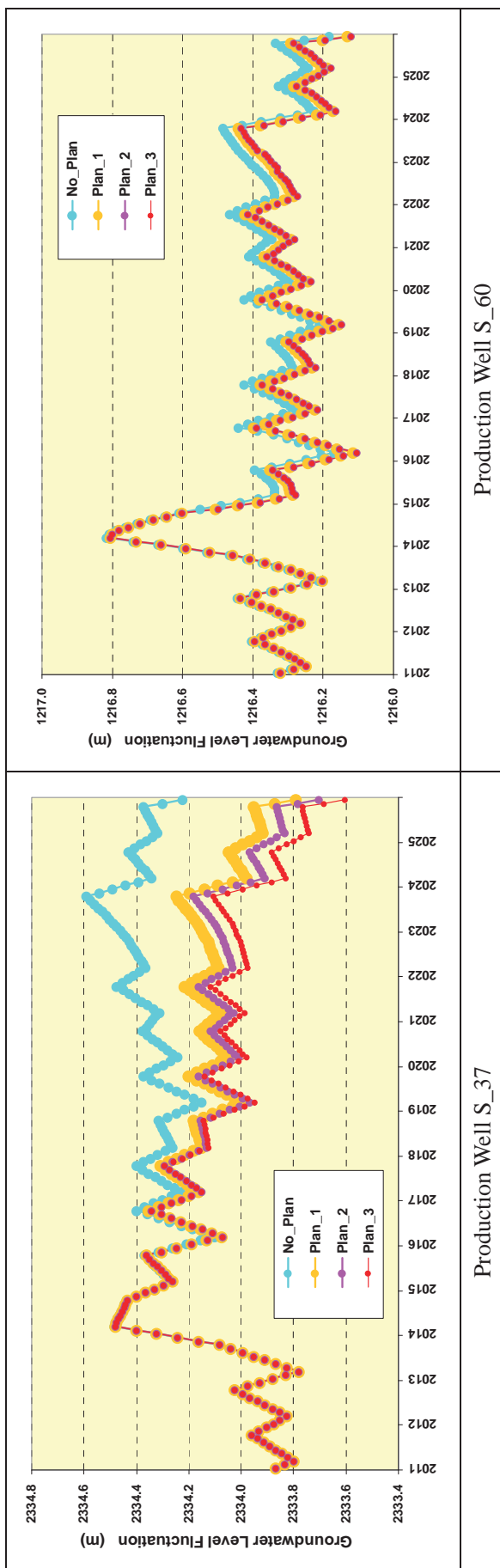


Model Western Abaya Lake

データ 6.4 地下水水位変動予測 (4/16)

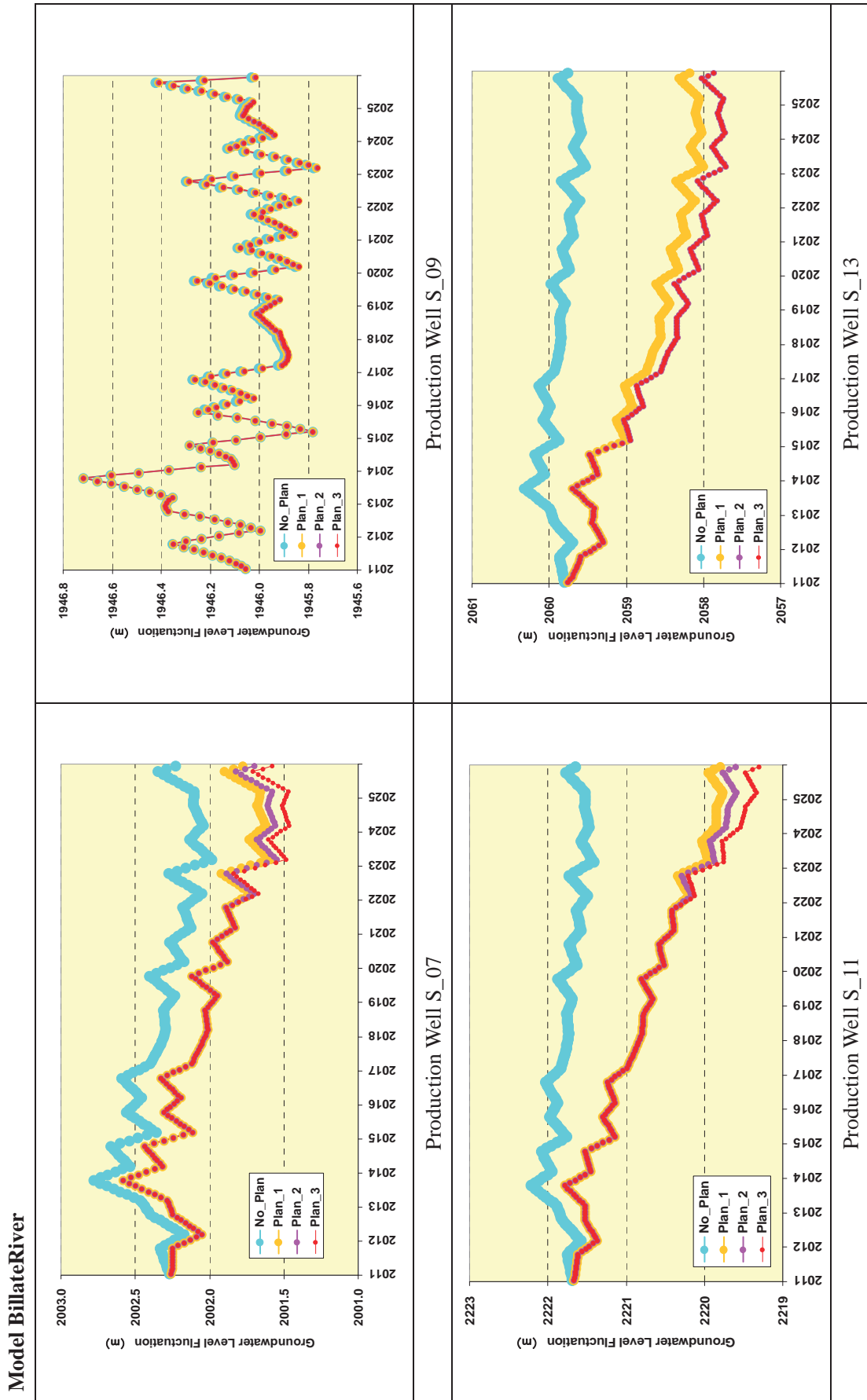


データ 6.4 地下水水位変動予測 (5/16)

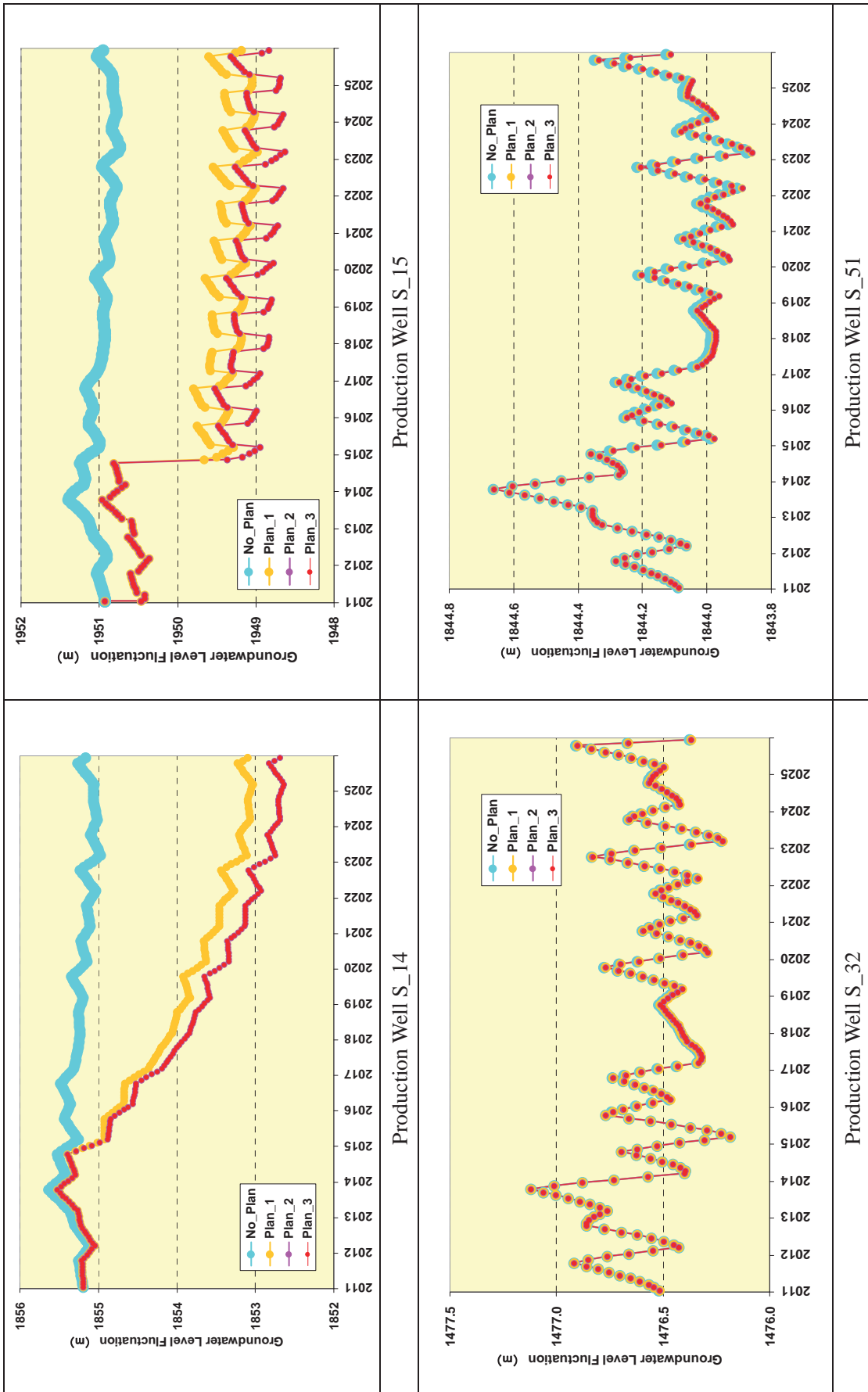




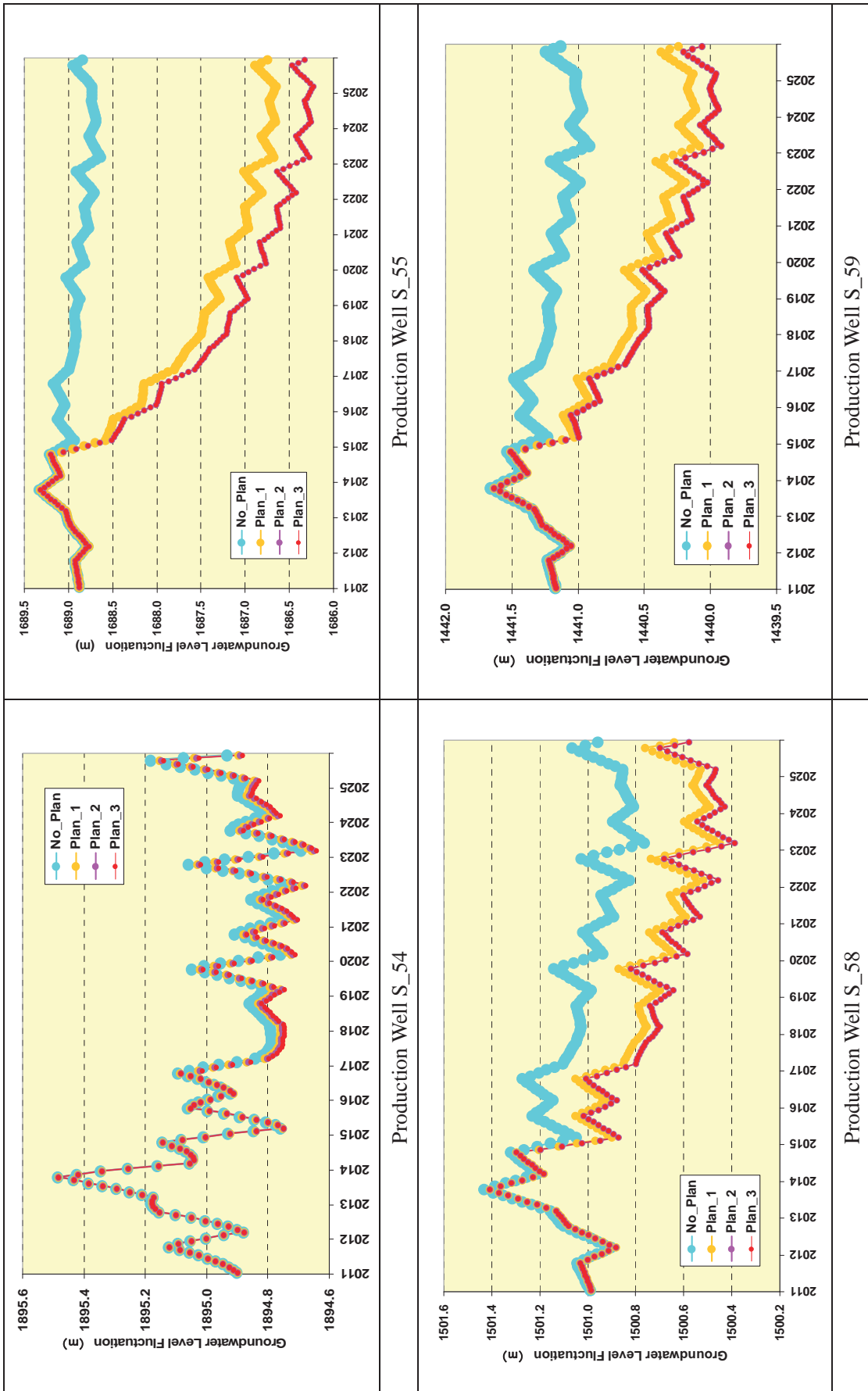
データ 6.4 地下水水位変動予測 (6/16)



データ 6.4 地下水水位変動予測 (7/16)

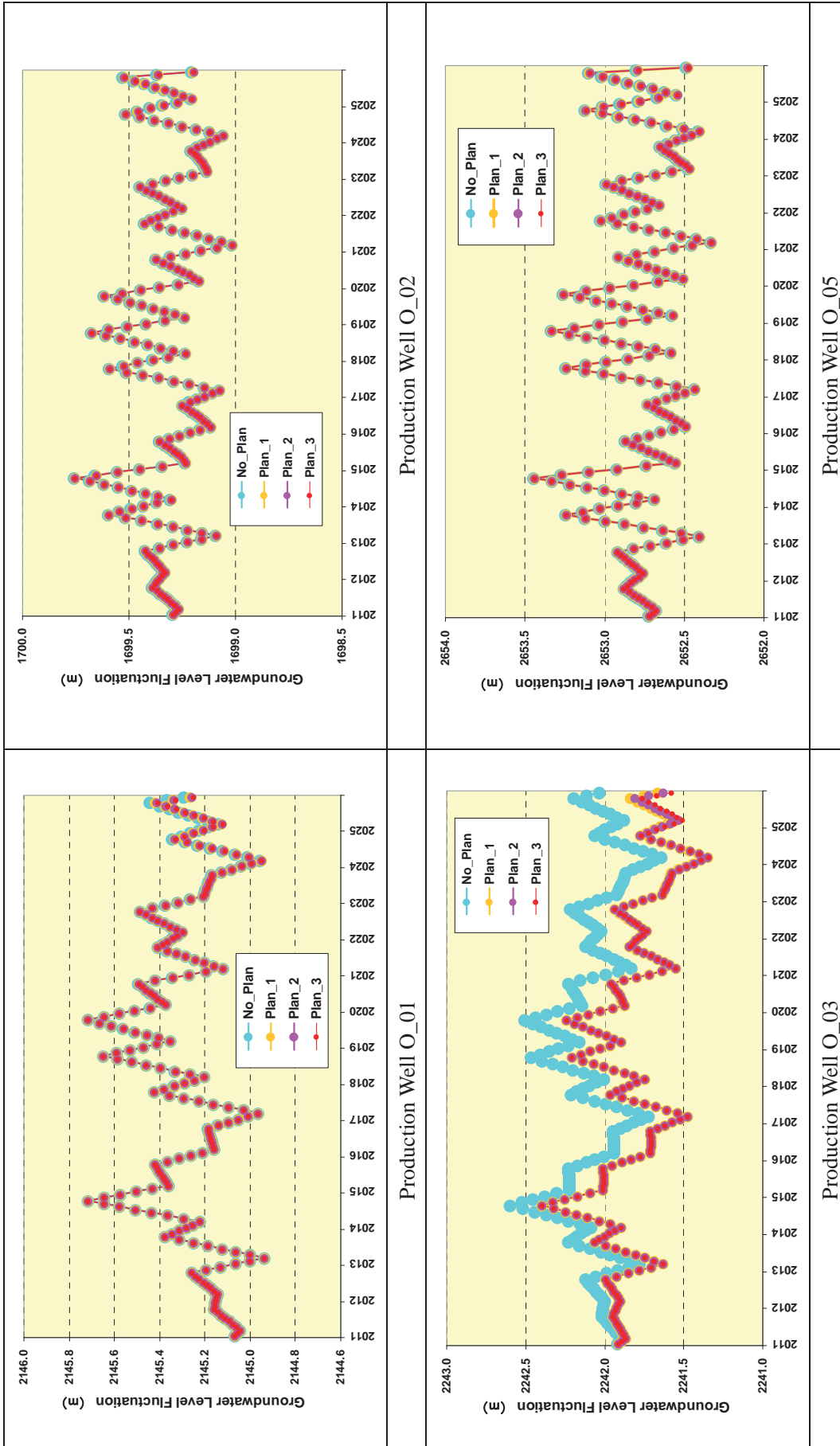


データ 6.4 地下水水位変動予測 (8/16)

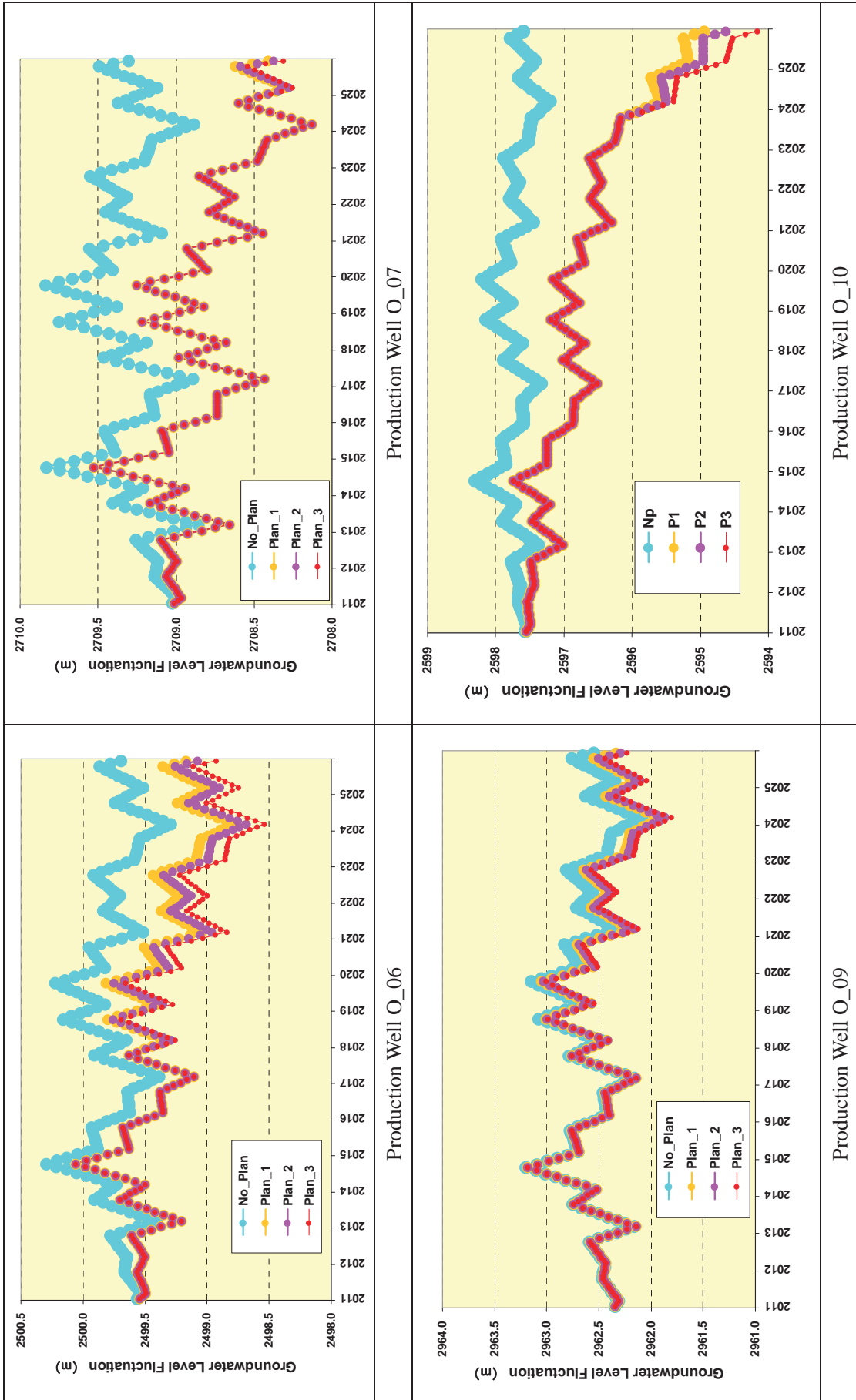


Model Ziway Basin

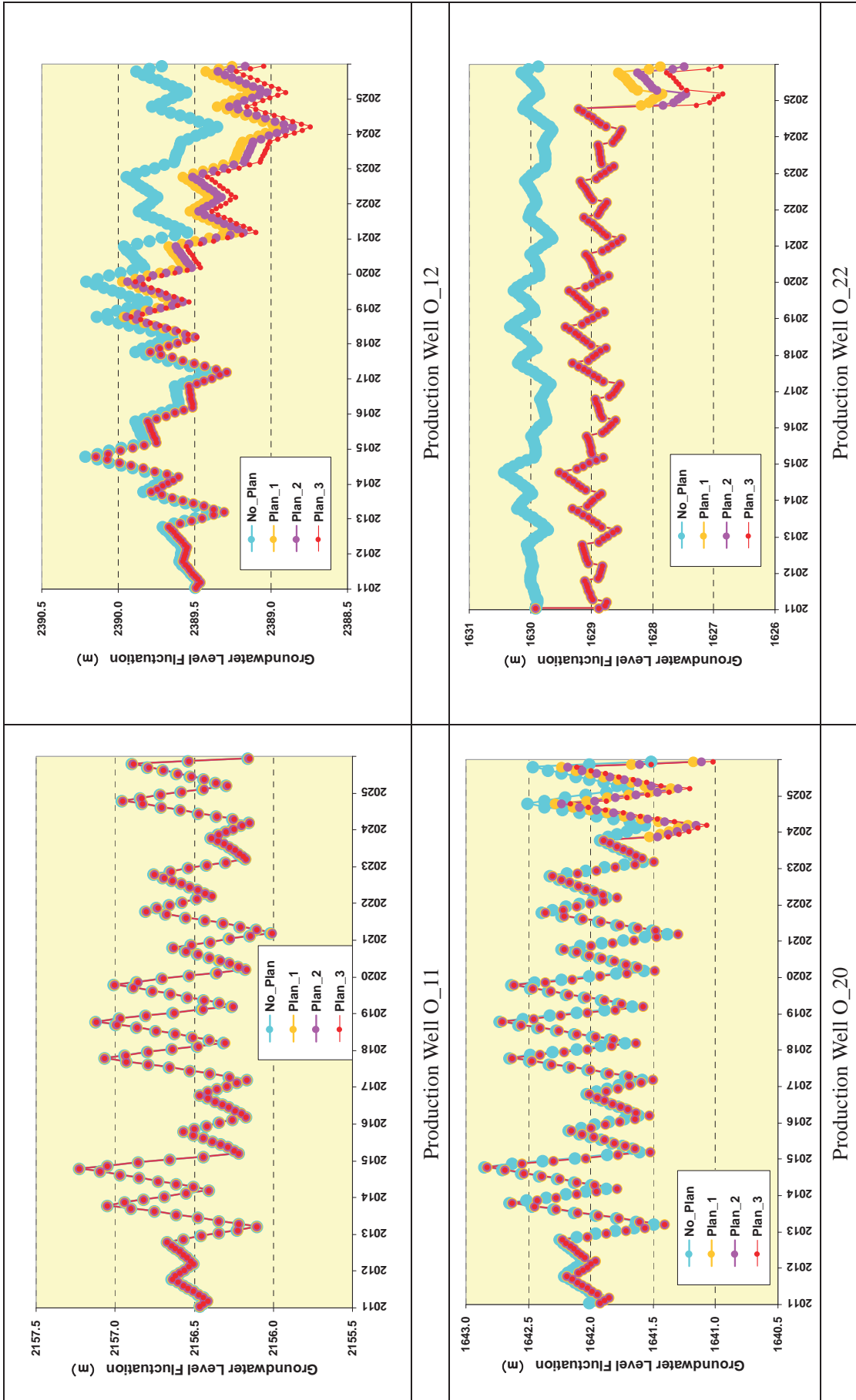
データ 6.4 地下水水位変動予測 (9/16)



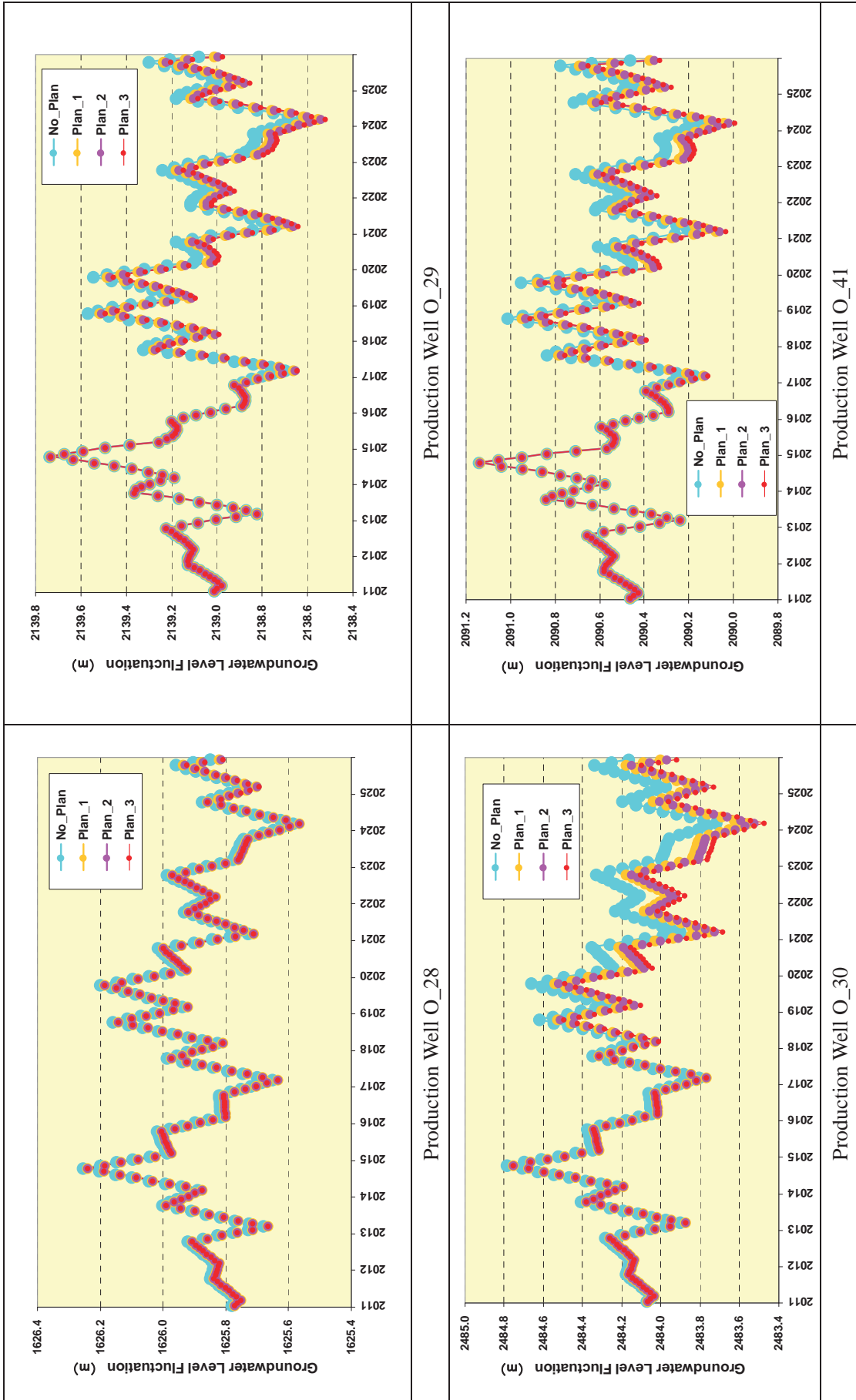
データ 6.4 地下水水位変動予測 (10/16)



データ 6.4 地下水水位変動予測 (11/16)

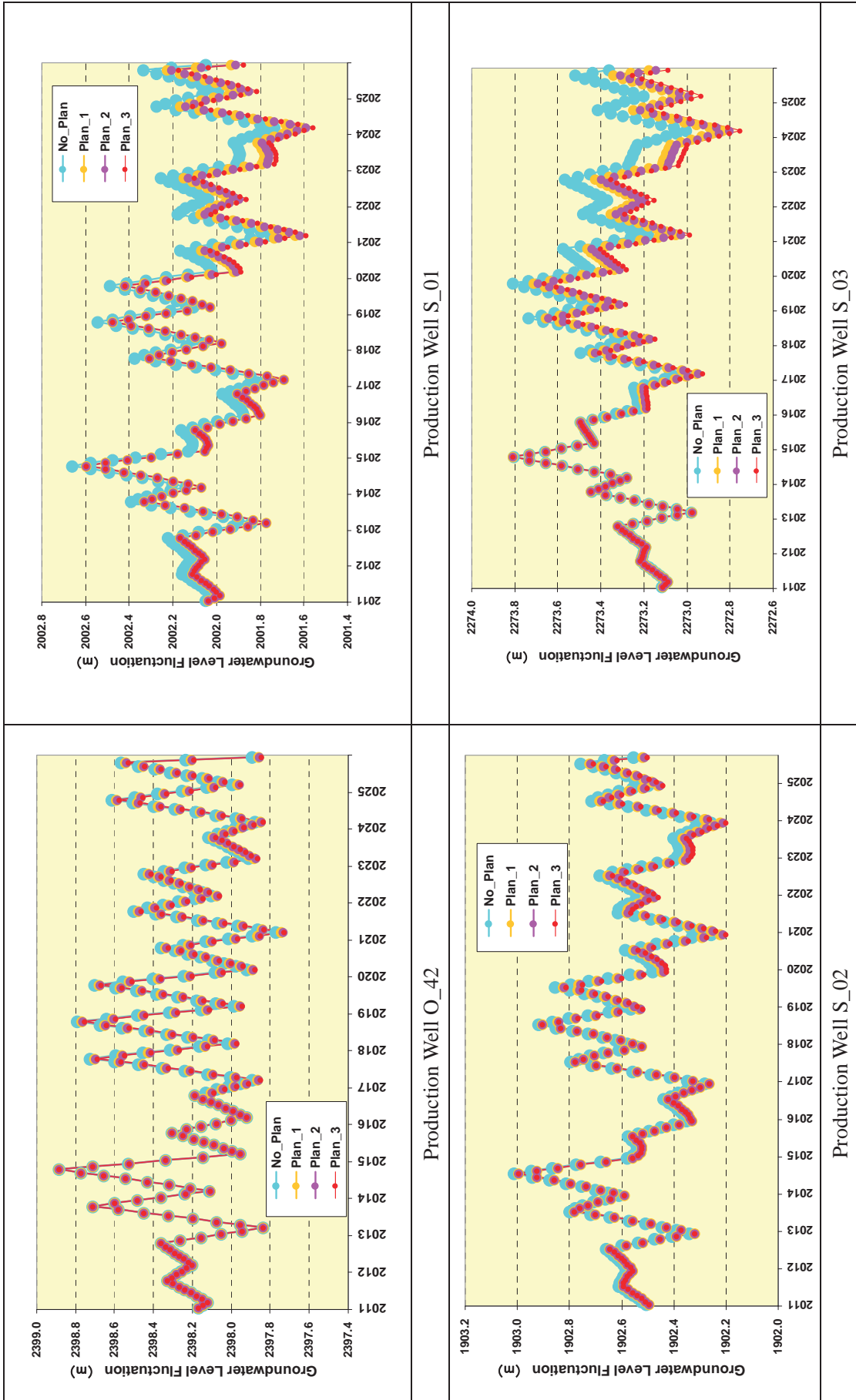


データ 6.4 地下水水位変動予測 (12/16)



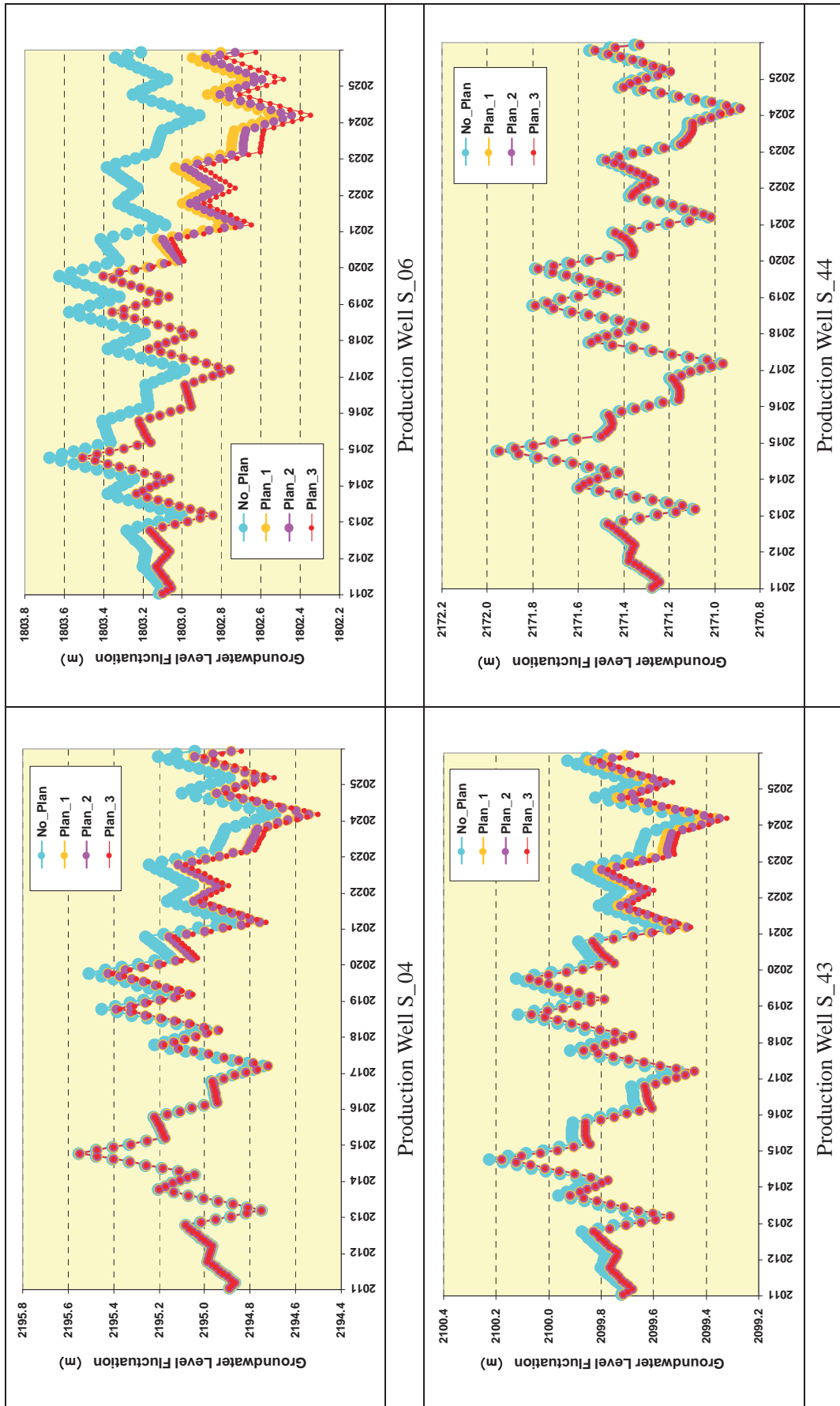


データ 6.4 地下水水位変動予測 (13/16)

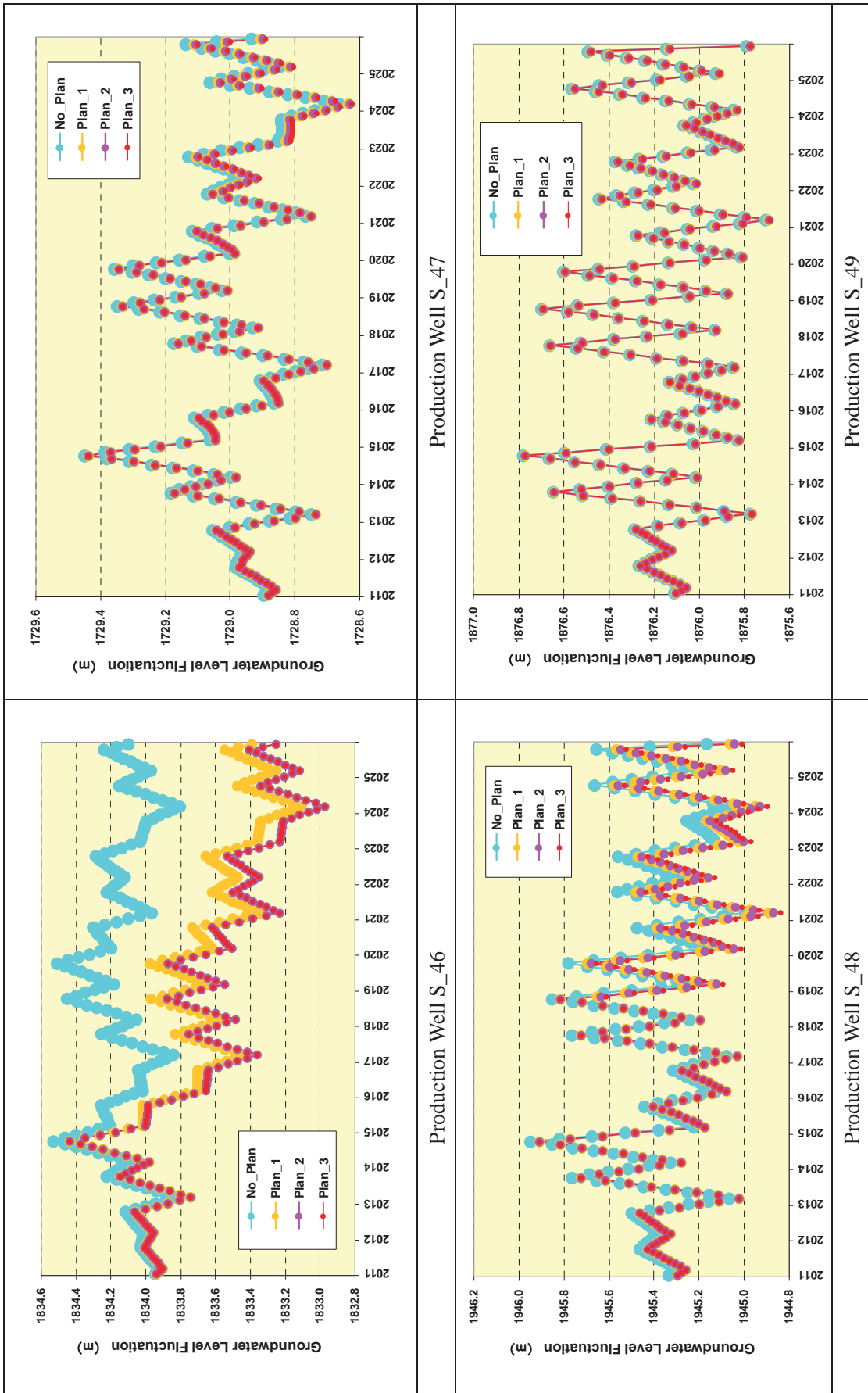




データ 6.4 地下水水位変動予測 (14/16)



データ 6.4 地下水水位変動予測 (15/16)



データ 6.4 地下水水位変動予測 (16/16)

