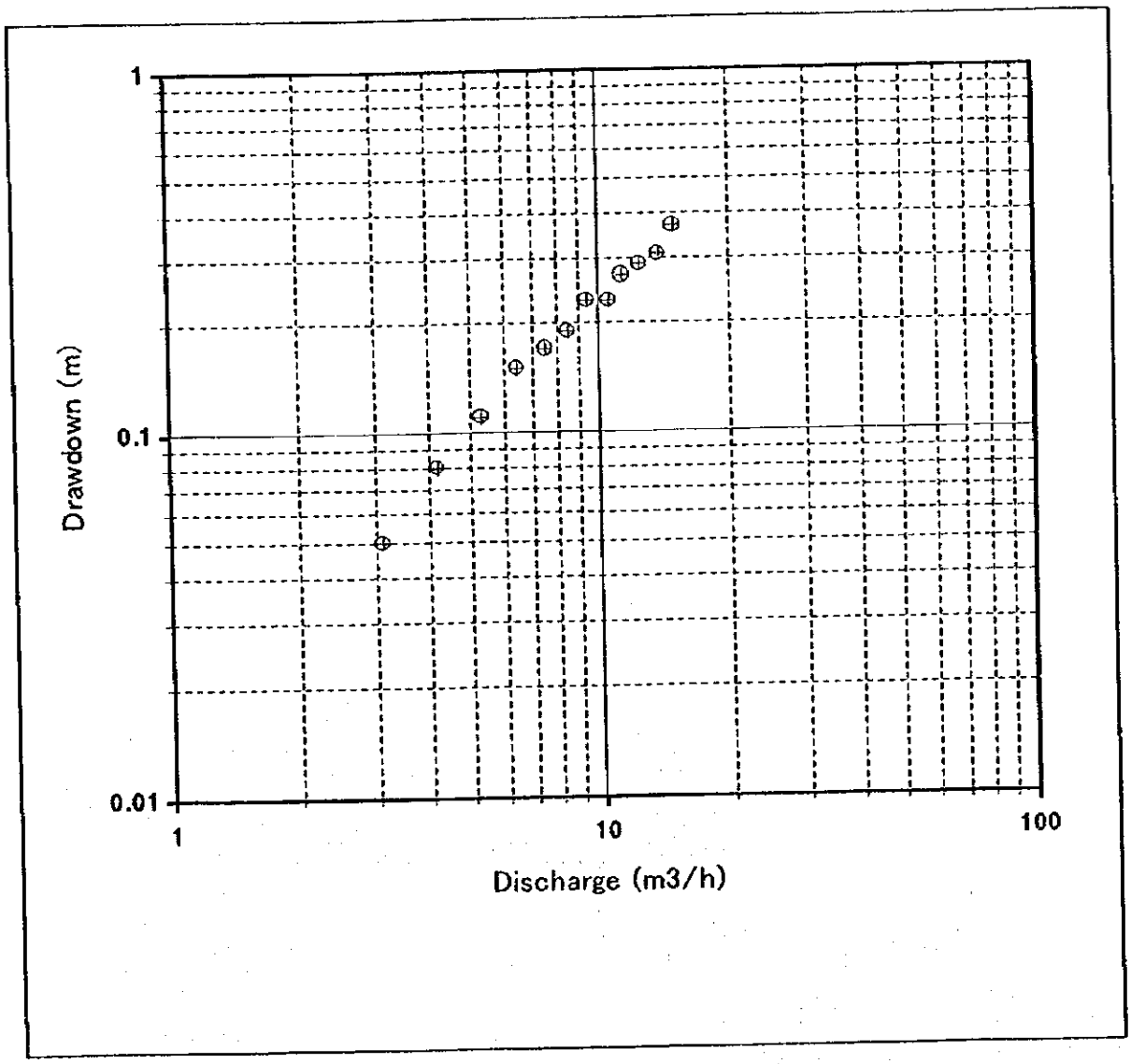
Fig. Result of Preliminary Test

Well No FBE-170 S.W.L. (GL-m) 25.59

Step	Water Level (GL-m)	Drawdown (m)	Discharge (m3/h)	SC (m3/h/m)	SW/Q (m/m3/min)
1	25.64	0.05	3.103	62.06	0.97
2	25.67	0.08	4.186	52.33	1.15
3	25.70	0.11	5.294	48.13	1.25
4	25.74	0.15	6.428	42.85	1.40
5	25.76	0.17	7.500	44.12	1.36
6	25.78	0.19	8.490	44.68	1.34
7	25.82	0.23	9.437	41.03	1.46
8	25.82	0.23	10.586	46.03	1.30
9	25.86	0.27	11.392	42.19	1.42
10	25.88	0.29	12.500	43.10	1.39
11	25.90	0.31	13.856	44.70	1.34
12	25.96	0.37	15.000	40.54	1.48



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 05.11.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 3/AUG/1998
FBE-170	FBE-170 SD
Discharge 16.576 m³/h	Distance from the pumping well 0.100 m

Static water level: 25.590 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	25.590	0.000
2	2.00	25.630	0.040
3	4.00	25.830	0.240
4	6.00	25.880	0.290
5	8.00	25.880	0.290
6	10.00	25.880	0.290
7	12.00	25.880	0.290
8	14.00	25.880	0.290
9	16.00	25.880	0.290
10	20.00	25.880	0.290
11	25.00	25.880	0.290
12	30.00	25.880	0.290
13	35.00	25.880	0.290
14	40.00	25.880	0.290
15	50.00	25.880	0.290
16	60.00	25.890	0.300
17	70.00	25.890	0.300
18	80.00	25.890	0.300
19	90.00	25.890	0.300
20	120.00	25.890	0.300
21	150.00	25.890	0.300
22	152.00	26.000	0.410
23	154.00	26.000	0.410
24	156.00	26.000	0.410
25	158.00	26.000	0.410
26	160.00	26.000	0.410
27	162.00	26.000	0.410
28	164.00	26.000	0.410
29	166.00	26.000	0.410
30	170.00	26.000	0.410
31	175.00	26.000	0.410
32	180.00	26.000	0.410
33	185.00	26.000	0.410
34	190.00	26.000	0.410
35	200.00	26.000	0.410
36	210.00	26.000	0.410
37	220.00	26.000	0.410
38	230.00	26.000	0.410
39	240.00	26.000	0.410
40	270.00	26.000	0.410
41	300.00	26.000	0.410
42	302.00	26.050	0.460
43	304.00	26.070	0.480
44	306.00	26.080	0.490
45	308.00	26.080	0.490
46	310.00	26.080	0.490
47	312.00	26.080	0.490
48	314.00	26.080	0.490
49	316.00	26.080	0.490
50	320.00	26.080	0.490

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 05.11.1998

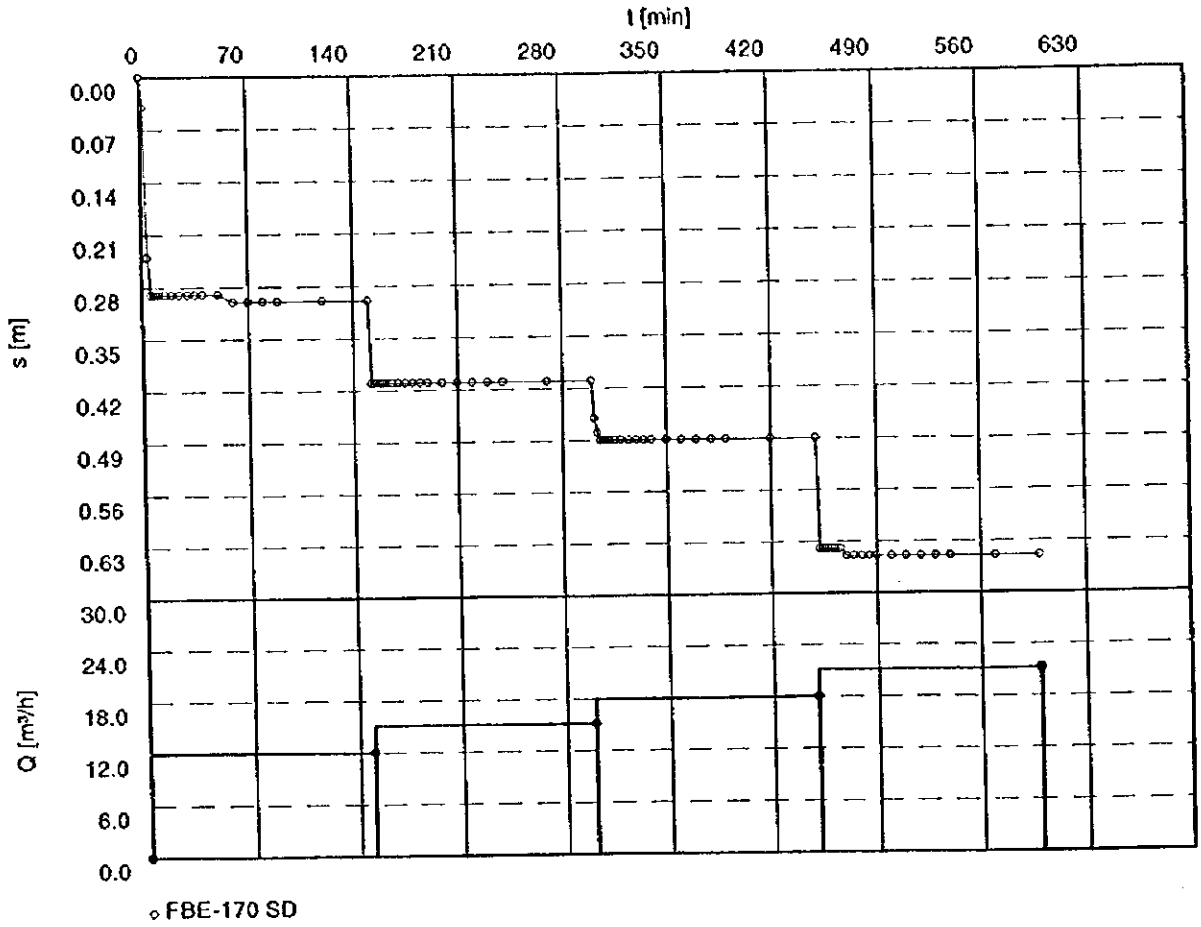
Pumping Test No. STEP-DRAWDOWN	Test conducted on: 3/AUG/1998
FBE-170	FBE-170 SD
Discharge 16.576 m³/h	Distance from the pumping well 0.100 m

Static water level: 25.590 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	325.00	26.080	0.490
52	330.00	26.080	0.490
53	335.00	26.080	0.490
54	340.00	26.080	0.490
55	350.00	26.080	0.490
56	360.00	26.080	0.490
57	370.00	26.080	0.490
58	380.00	26.080	0.490
59	390.00	26.080	0.490
60	420.00	26.080	0.490
61	450.00	26.080	0.490
62	452.00	26.230	0.640
63	454.00	26.230	0.640
64	456.00	26.230	0.640
65	458.00	26.230	0.640
66	460.00	26.230	0.640
67	462.00	26.230	0.640
68	464.00	26.230	0.640
69	466.00	26.230	0.640
70	470.00	26.240	0.650
71	475.00	26.240	0.650
72	480.00	26.240	0.650
73	485.00	26.240	0.650
74	490.00	26.240	0.650
75	500.00	26.240	0.650
76	510.00	26.240	0.650
77	520.00	26.240	0.650
78	530.00	26.240	0.650
79	540.00	26.240	0.650
80	570.00	26.240	0.650
81	600.00	26.240	0.650

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 05.11.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 3/AUG/1998
FBE-170	
Discharge 16.576 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 05.11.1998

Pumping Test No. CR	Test conducted on: 5/AUG/1998
FBE-170	FBE-170 CR
Discharge 18.000 m³/h	Distance from the pumping well 0.100 m

Static water level: 25.600 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	25.600	0.000
2	2.00	26.040	0.440
3	4.00	26.060	0.460
4	6.00	26.060	0.460
5	8.00	26.060	0.460
6	10.00	26.060	0.460
7	15.00	26.060	0.460
8	20.00	26.060	0.460
9	25.00	26.060	0.460
10	30.00	26.060	0.460
11	40.00	26.070	0.470
12	50.00	26.070	0.470
13	60.00	26.070	0.470
14	70.00	26.070	0.470
15	80.00	26.080	0.480
16	90.00	26.080	0.480
17	120.00	26.080	0.480
18	150.00	26.090	0.490
19	180.00	26.090	0.490
20	210.00	26.090	0.490
21	240.00	26.090	0.490
22	300.00	26.090	0.490
23	360.00	26.090	0.490
24	420.00	26.090	0.490
25	480.00	26.090	0.490
26	540.00	26.090	0.490
27	600.00	26.090	0.490
28	660.00	26.090	0.490
29	720.00	26.090	0.490
30	780.00	26.100	0.500
31	840.00	26.100	0.500
32	900.00	26.100	0.500
33	990.00	26.100	0.500
34	1080.00	26.100	0.500
35	1170.00	26.100	0.500
36	1260.00	26.100	0.500
37	1350.00	26.100	0.500
38	1440.00	26.100	0.500
39	1441.00	25.680	0.080
40	1442.00	25.670	0.070
41	1444.00	25.670	0.070
42	1446.00	25.670	0.070
43	1448.00	25.670	0.070
44	1450.00	25.670	0.070
45	1452.00	25.670	0.070
46	1454.00	25.670	0.070
47	1456.00	25.670	0.070
48	1458.00	25.670	0.070
49	1460.00	25.670	0.070
50	1465.00	25.670	0.070

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 05.11.1998

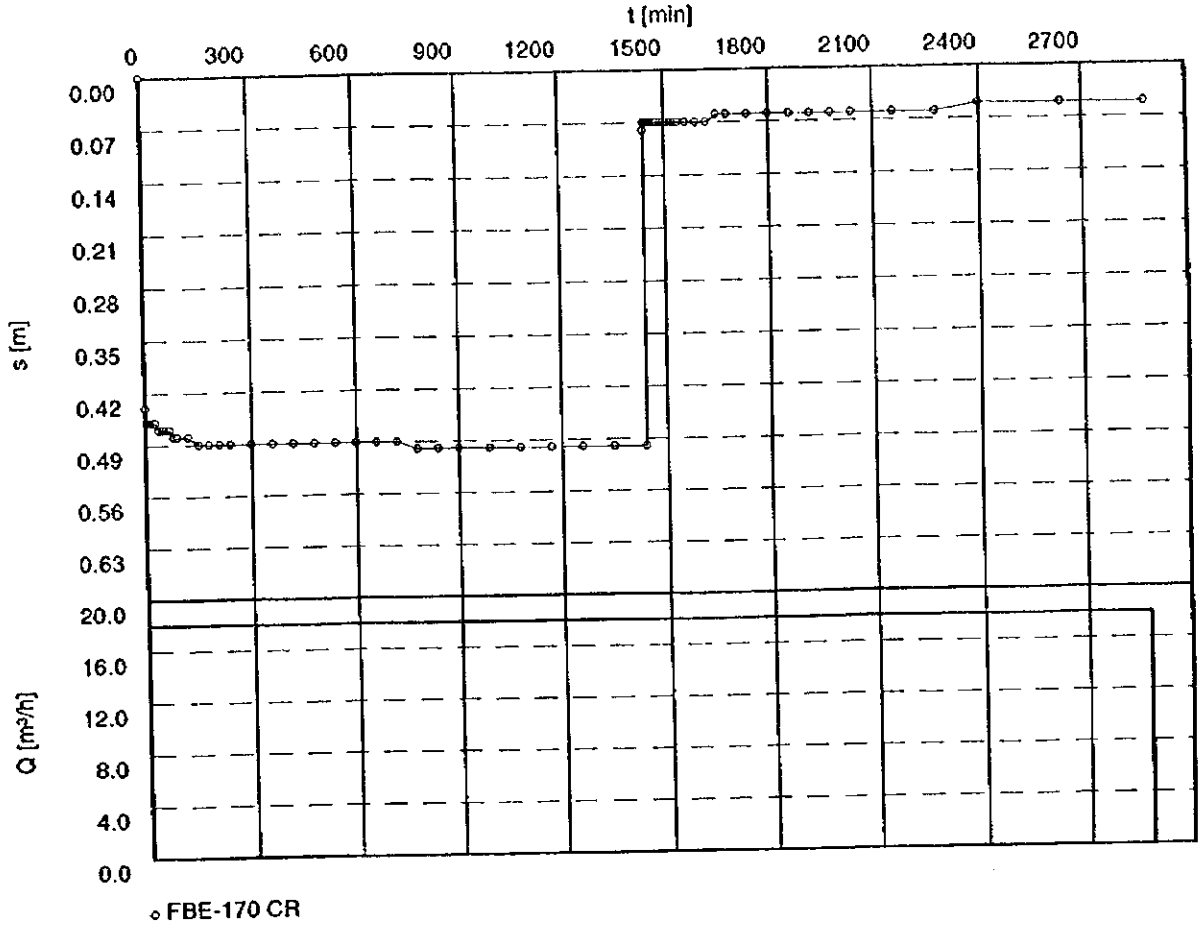
Pumping Test No. CR	Test conducted on: 5/AUG/1998
FBE-170	FBE-170 CR
Discharge 18.000 m³/h	Distance from the pumping well 0.100 m

Static water level: 25.600 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	1470.00	25.670	0.070
52	1475.00	25.670	0.070
53	1480.00	25.670	0.070
54	1490.00	25.670	0.070
55	1500.00	25.670	0.070
56	1510.00	25.670	0.070
57	1520.00	25.670	0.070
58	1530.00	25.670	0.070
59	1540.00	25.670	0.070
60	1560.00	25.670	0.070
61	1590.00	25.670	0.070
62	1620.00	25.670	0.070
63	1650.00	25.660	0.060
64	1680.00	25.660	0.060
65	1740.00	25.660	0.060
66	1800.00	25.660	0.060
67	1860.00	25.660	0.060
68	1920.00	25.660	0.060
69	1980.00	25.660	0.060
70	2040.00	25.660	0.060
71	2160.00	25.660	0.060
72	2280.00	25.660	0.060
73	2400.00	25.650	0.050
74	2640.00	25.650	0.050
75	2880.00	25.650	0.050

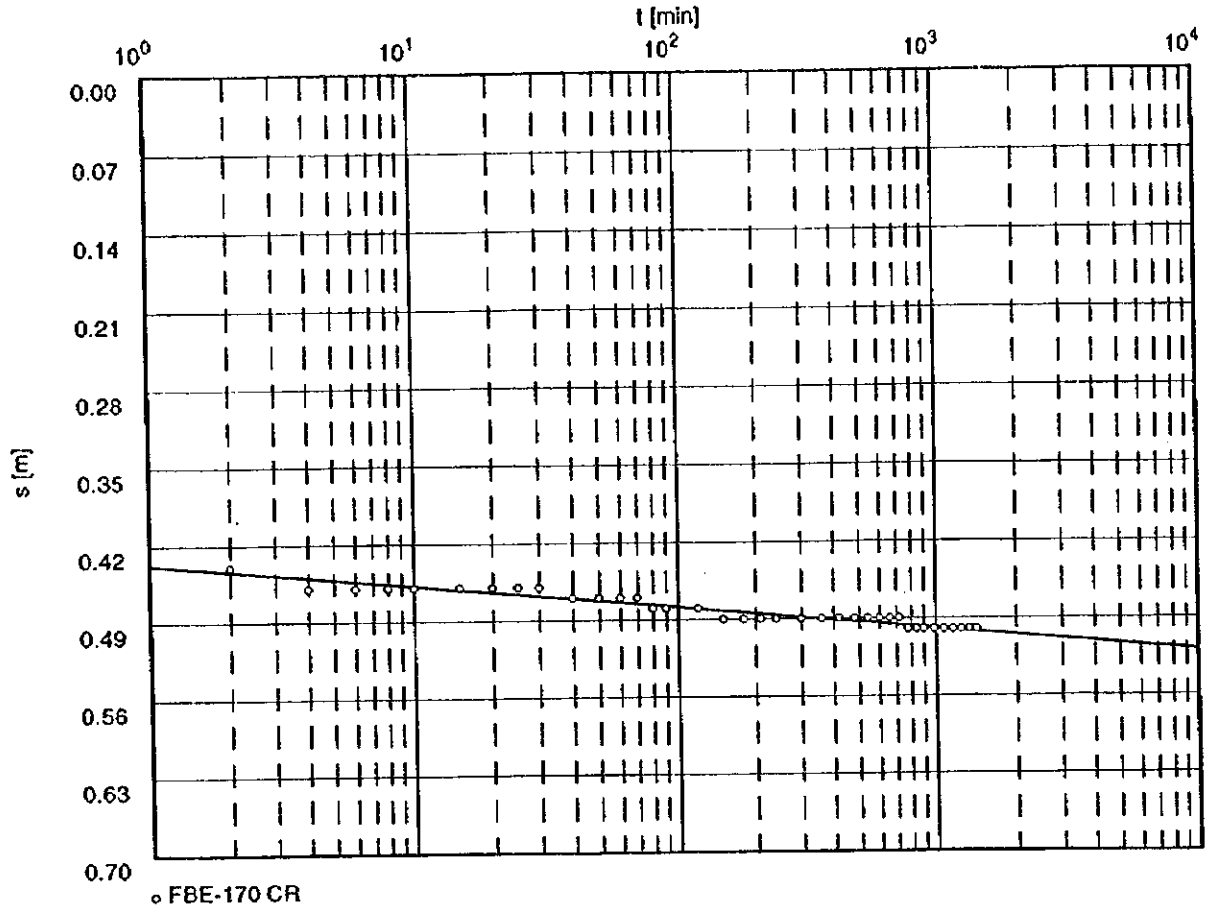
INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 05.11.1998

Pumping Test No. CR	Test conducted on: 5/AUG/1998
FBE-170	
Discharge 18.000 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown-method after COOPER & JACOB Confined aquifer	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 05.11.1998

Pumping Test No. CR	Test conducted on: 5/AUG/1998
FBE-170	
Discharge 18.000 m³/h	

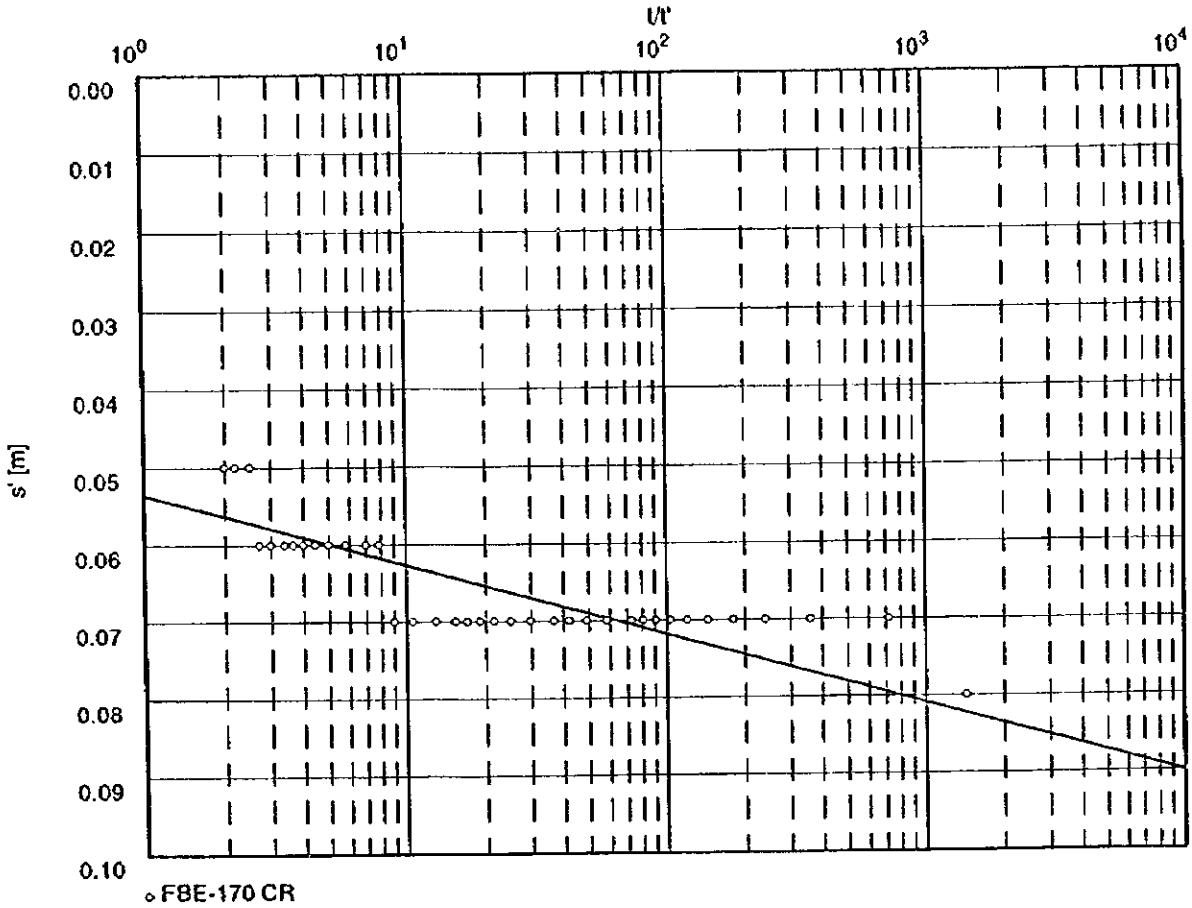


Transmissivity [m²/min]: 2.68×10^{0}

Storativity: 2.44×10^{-19}

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Recovery method after THEIS & JACOB Confined aquifer	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 05.11.1998

Pumping Test No. CR	Test conducted on: 5/AUG/1998
FBE-170	
Discharge 18.000 m³/h	
	Pumping test duration: 1440.00 min

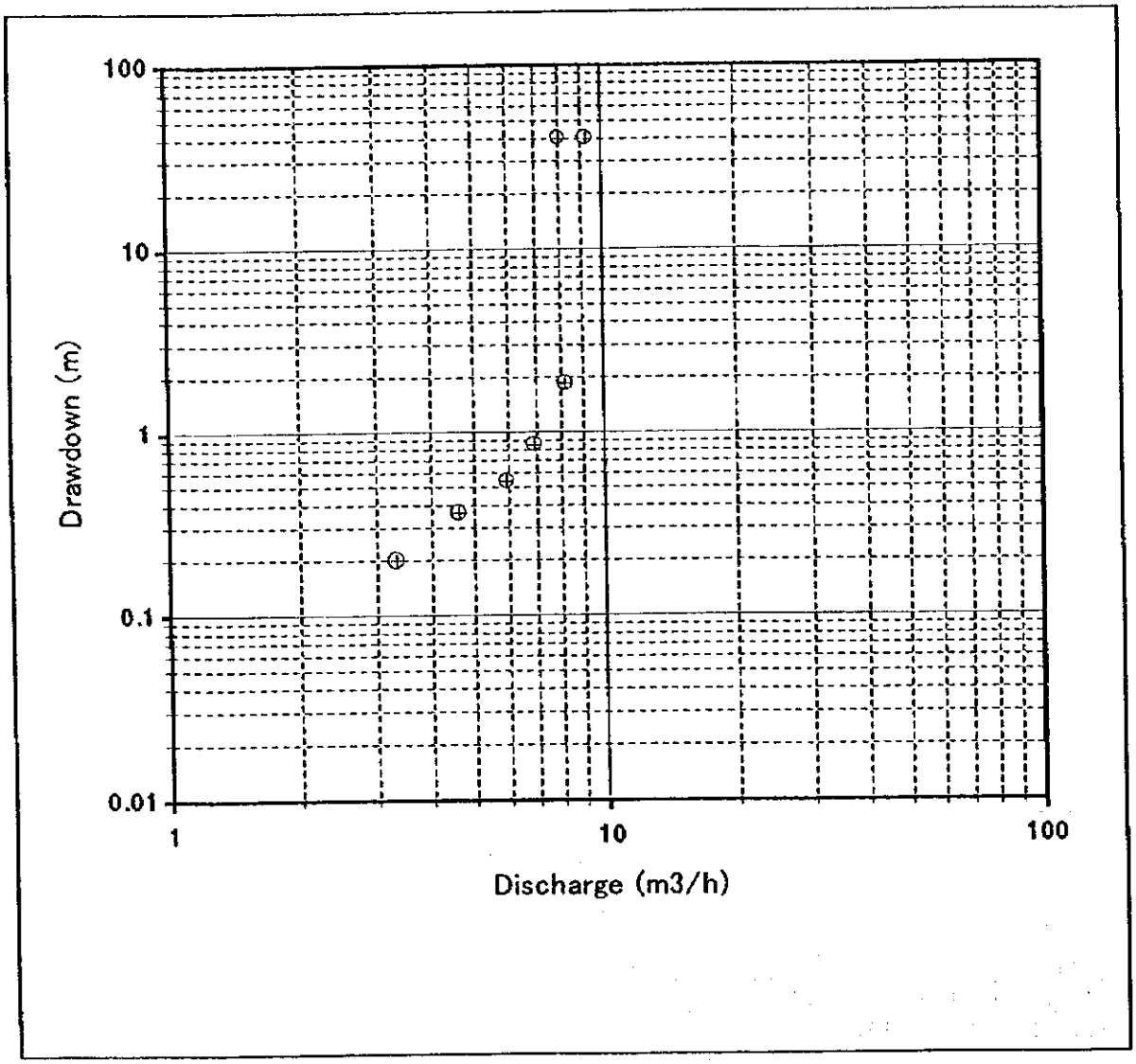


Transmissivity [m²/min]: 6.03×10^0

Fig. Result of Preliminary Test

Well No FBE-172 S.W.L. (GL-m) 5.60

Step	Water Level (GL-m)	Drawdown (m)	Discharge (m3/h)	SC (m3/h/m)	SW/Q (m/m3/min)
1	5.65	0.20	3.330	16.65	3.60
2	5.81	0.36	4.615	12.82	4.68
3	5.99	0.54	5.921	10.96	5.47
4	6.30	0.85	6.923	8.14	7.37
5	7.29	1.84	8.181	4.45	13.49
6	43.10	39.70	9.278	0.23	256.74
7	45.30	39.85	8.035	0.20	297.57



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 05.11.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 23/07/98
172	FBE-172 SD
Discharge 6.175 m³/h	Distance from the pumping well 0.100 m

Static water level: 5.600 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	5.600	0.000
2	2.00	5.740	0.140
3	4.00	5.770	0.170
4	6.00	5.770	0.170
5	8.00	5.770	0.170
6	10.00	5.800	0.200
7	12.00	5.860	0.260
8	14.00	5.890	0.290
9	16.00	5.910	0.310
10	20.00	5.930	0.330
11	25.00	5.950	0.350
12	30.00	5.960	0.360
13	35.00	5.970	0.370
14	40.00	5.990	0.390
15	50.00	6.010	0.410
16	60.00	6.030	0.430
17	70.00	6.060	0.460
18	80.00	6.060	0.460
19	90.00	6.070	0.470
20	120.00	6.130	0.530
21	150.00	6.170	0.570
22	152.00	6.240	0.640
23	154.00	6.300	0.700
24	156.00	6.390	0.790
25	158.00	6.490	0.890
26	160.00	6.650	1.050
27	162.00	6.770	1.170
28	164.00	6.790	1.190
29	166.00	6.810	1.210
30	170.00	6.890	1.290
31	175.00	6.950	1.350
32	180.00	6.950	1.350
33	185.00	6.950	1.350
34	190.00	6.950	1.350
35	200.00	6.950	1.350
36	210.00	6.950	1.350
37	220.00	6.950	1.350
38	230.00	6.950	1.350
39	240.00	6.950	1.350
40	270.00	6.950	1.350
41	300.00	6.950	1.350
42	302.00	7.280	1.680
43	304.00	7.370	1.770
44	306.00	9.370	3.770
45	308.00	11.790	6.190
46	310.00	11.800	6.200
47	312.00	14.000	8.400
48	314.00	14.990	9.390
49	316.00	14.990	9.390
50	320.00	16.500	10.900

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 05.11.1998

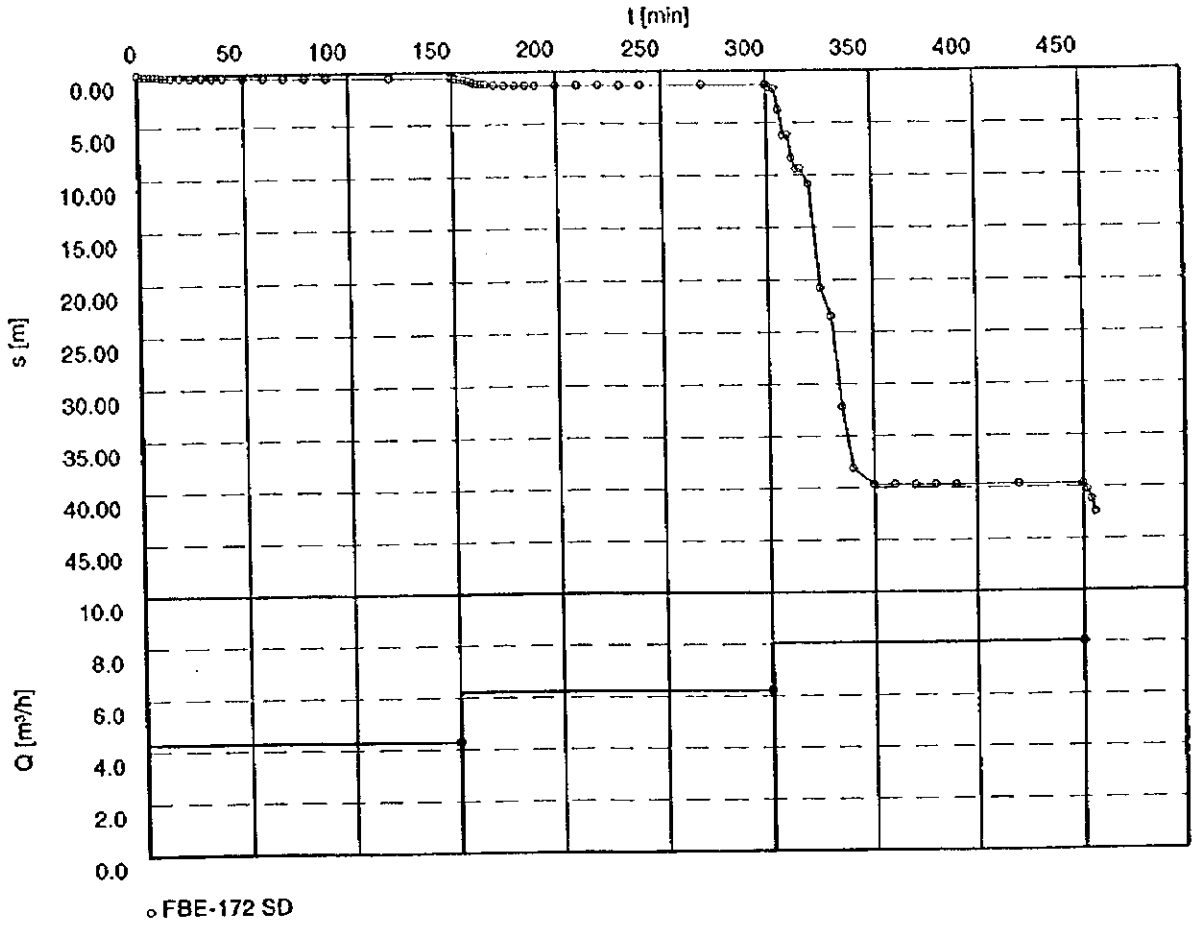
Pumping Test No. STEP-DRAWDOWN	Test conducted on: 23/07/98
172	FBE-172 SD
Discharge 6.175 m³/h	Distance from the pumping well 0.100 m

Static water level: 5.600 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	325.00	26.400	20.800
52	330.00	29.100	23.500
53	335.00	37.800	32.200
54	340.00	43.700	38.100
55	350.00	45.300	39.700
56	360.00	45.300	39.700
57	370.00	45.300	39.700
58	380.00	45.300	39.700
59	390.00	45.300	39.700
60	420.00	45.300	39.700
61	450.00	45.300	39.700
62	452.00	45.900	40.300
63	454.00	46.800	41.200
64	456.00	48.000	42.400

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 05.11.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 23/07/98
172	
Discharge 6.175 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: JICA INGRH	
		Evaluated by: KI	Date: 05.11.1998

Pumping Test No. CONT-REC	Test conducted on: 25/JUL/1998
172	FBE-174 CR
Discharge 6.204 m³/h	Distance from the pumping well 0.100 m

Static water level: 5.600 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]	Corrected drawdown [m]
1	0.00	5.600	0.000	0.000
2	2.00	5.890	0.290	0.286
3	4.00	5.900	0.300	0.296
4	6.00	5.900	0.300	0.296
5	8.00	5.900	0.300	0.296
6	10.00	5.900	0.300	0.296
7	15.00	6.020	0.420	0.411
8	20.00	6.030	0.430	0.421
9	25.00	6.040	0.440	0.430
10	30.00	6.050	0.450	0.440
11	40.00	6.060	0.460	0.449
12	50.00	6.080	0.480	0.468
13	60.00	6.140	0.540	0.525
14	70.00	6.170	0.570	0.554
15	80.00	6.190	0.590	0.573
16	90.00	6.220	0.620	0.601
17	120.00	6.280	0.680	0.657
18	150.00	6.310	0.710	0.685
19	180.00	6.370	0.770	0.740
20	210.00	6.440	0.840	0.805
21	240.00	6.500	0.900	0.860
22	300.00	6.660	1.060	1.004
23	360.00	6.790	1.190	1.119
24	420.00	6.950	1.350	1.259
25	480.00	7.180	1.580	1.455
26	540.00	15.020	9.420	4.983
27	600.00	17.960	12.360	4.722
28	660.00	22.080	16.480	2.900
29	720.00	24.790	19.190	0.777
30	780.00	27.290	21.690	-1.833
31	840.00	28.900	23.300	-3.844
32	900.00	29.700	24.100	-4.941
33	990.00	30.990	25.390	-6.843
34	1080.00	32.290	26.690	-8.928
35	1170.00	36.600	31.000	-17.050
36	1260.00	39.300	33.700	-23.085
37	1350.00	41.750	36.150	-29.191
38	1440.00	43.540	37.940	-34.032
39	1441.00	38.600	33.000	-21.450
40	1442.00	32.790	27.190	-9.775
41	1444.00	24.100	18.500	1.388
42	1446.00	16.430	10.830	4.966
43	1448.00	11.500	5.900	4.160
44	1450.00	7.500	1.900	1.720
45	1452.00	7.300	1.700	1.556
46	1454.00	7.180	1.580	1.455
47	1456.00	6.950	1.350	1.259
48	1458.00	6.860	1.260	1.181
49	1460.00	6.800	1.200	1.128
50	1465.00	6.710	1.110	1.048

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3 Project: JICA INGRH Evaluated by: KI | Date: 05.11.1998

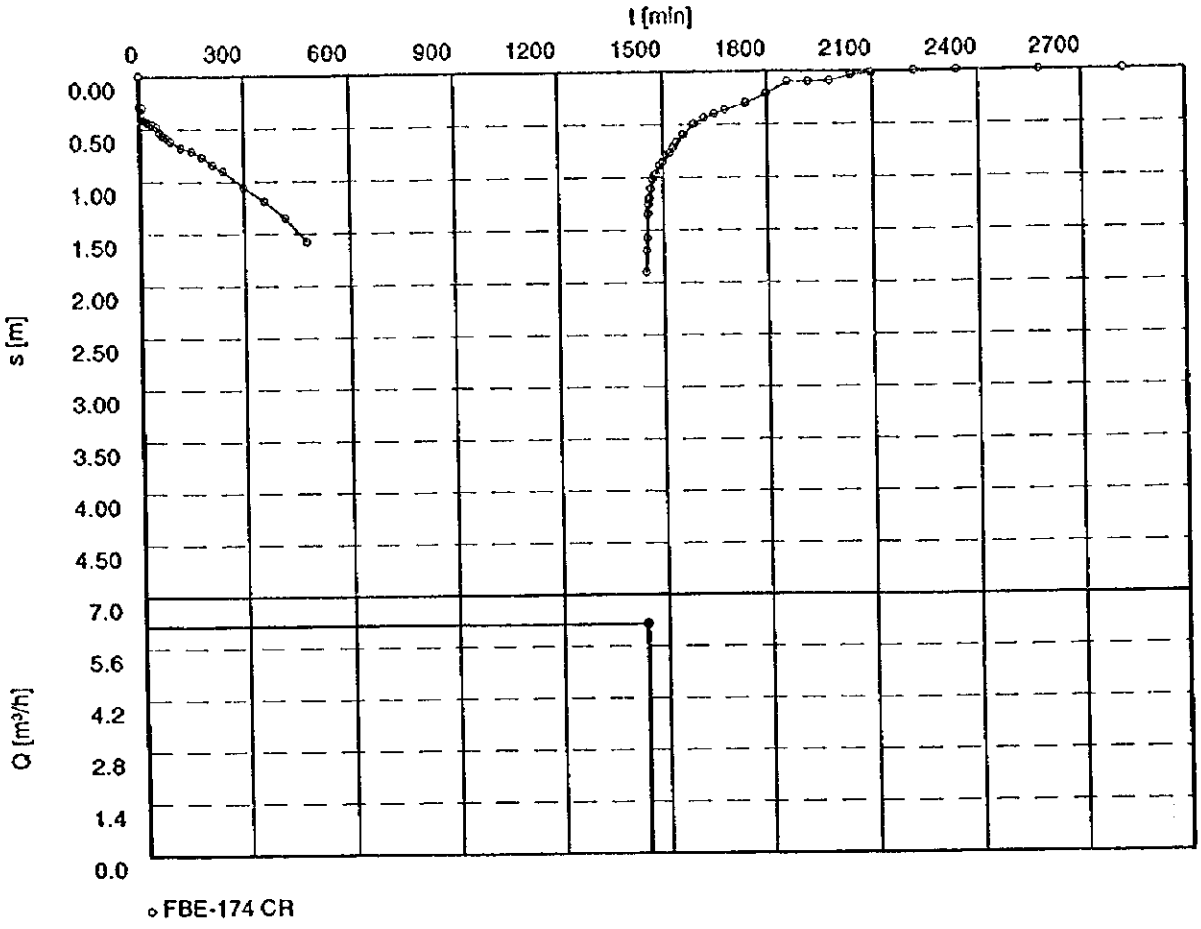
Pumping Test No. CONT-REC	Test conducted on: 25/JUL/1998
172	FBE-174 CR
Discharge 6.204 m³/h	Distance from the pumping well 0.100 m

Static water level: 5.600 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]	Corrected drawdown [m]
51	1470.00	6.620	1.020	0.968
52	1475.00	6.590	0.990	0.941
53	1480.00	6.570	0.970	0.923
54	1490.00	6.490	0.890	0.850
55	1500.00	6.460	0.860	0.823
56	1510.00	6.390	0.790	0.759
57	1520.00	6.370	0.770	0.740
58	1530.00	6.320	0.720	0.694
59	1540.00	6.270	0.670	0.648
60	1560.00	6.200	0.600	0.582
61	1590.00	6.100	0.500	0.488
62	1620.00	6.040	0.440	0.430
63	1650.00	6.000	0.400	0.392
64	1680.00	5.960	0.360	0.354
65	1740.00	5.900	0.300	0.296
66	1800.00	5.810	0.210	0.208
67	1860.00	5.700	0.100	0.099
68	1920.00	5.700	0.100	0.099
69	1980.00	5.690	0.090	0.090
70	2040.00	5.640	0.040	0.040
71	2100.00	5.620	0.020	0.020
72	2220.00	5.600	0.000	0.000
73	2340.00	5.600	0.000	0.000
74	2580.00	5.600	0.000	0.000
75	2820.00	5.600	0.000	0.000

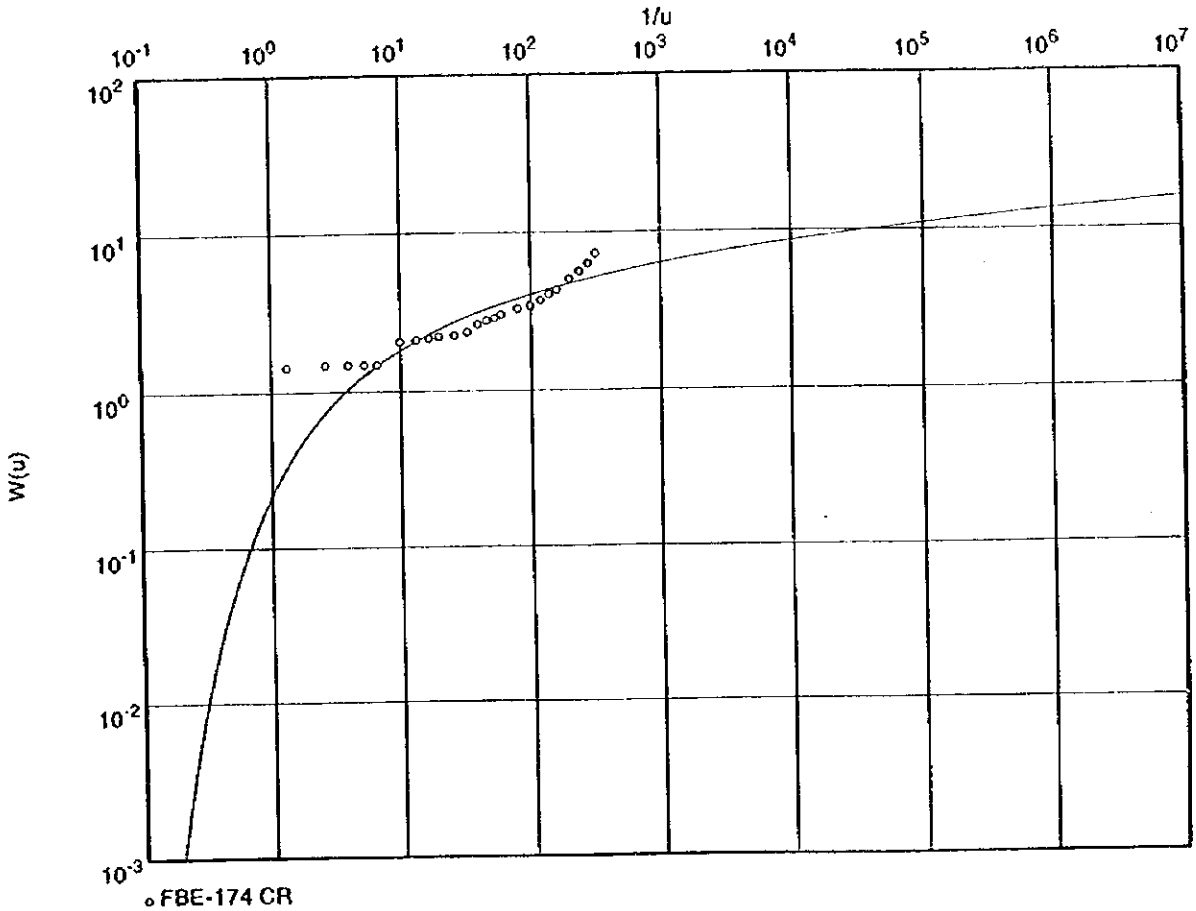
INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: JICA INGRH	
		Evaluated by: KI	Date: 05.11.1998

Pumping Test No. CONT-REC	Test conducted on: 25/JUL/1998
172	
Discharge 6.204 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Theis analysis method Unconfined aquifer	ANNEX, Page 1 Project: JICA INGRH Evaluated by: KI | Date: 05.11.1998

Pumping Test No. CONT-REC	Test conducted on: 25/JUL/1998
172	
Discharge 6.204 m³/h	



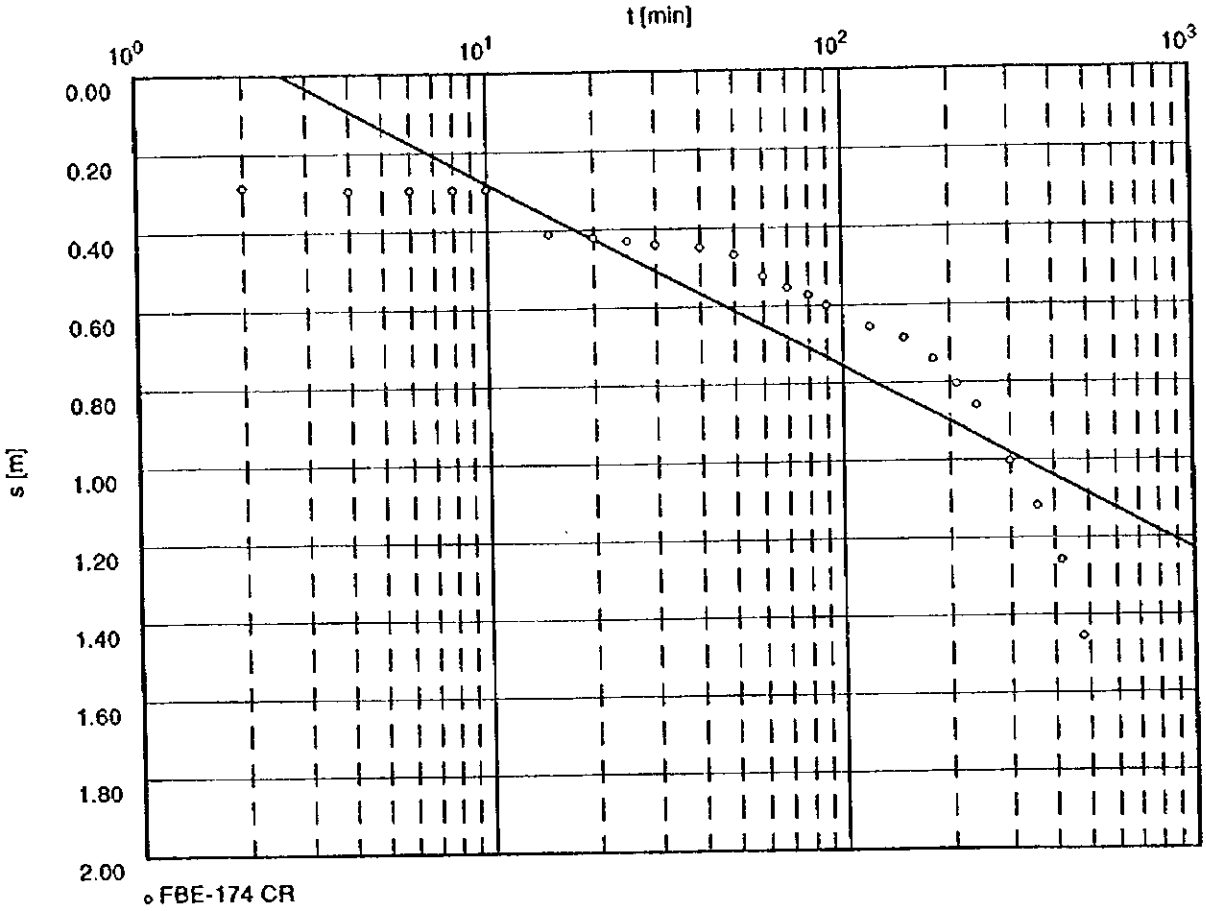
Transmissivity [m²/min]: 4.11×10^{-2}

Hydraulic conductivity [m/min]: 4.11×10^{-3}

Aquifer thickness [m]: 10.000

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown-method after COOPER & JACOB Unconfined aquifer	ANNEX, Page 1	
		Project: JICA INGRH	
		Evaluated by: KI	Date: 05.11.1998

Pumping Test No. CONT-REC	Test conducted on: 25/JUL/1998
172	
Discharge 6.204 m³/h	

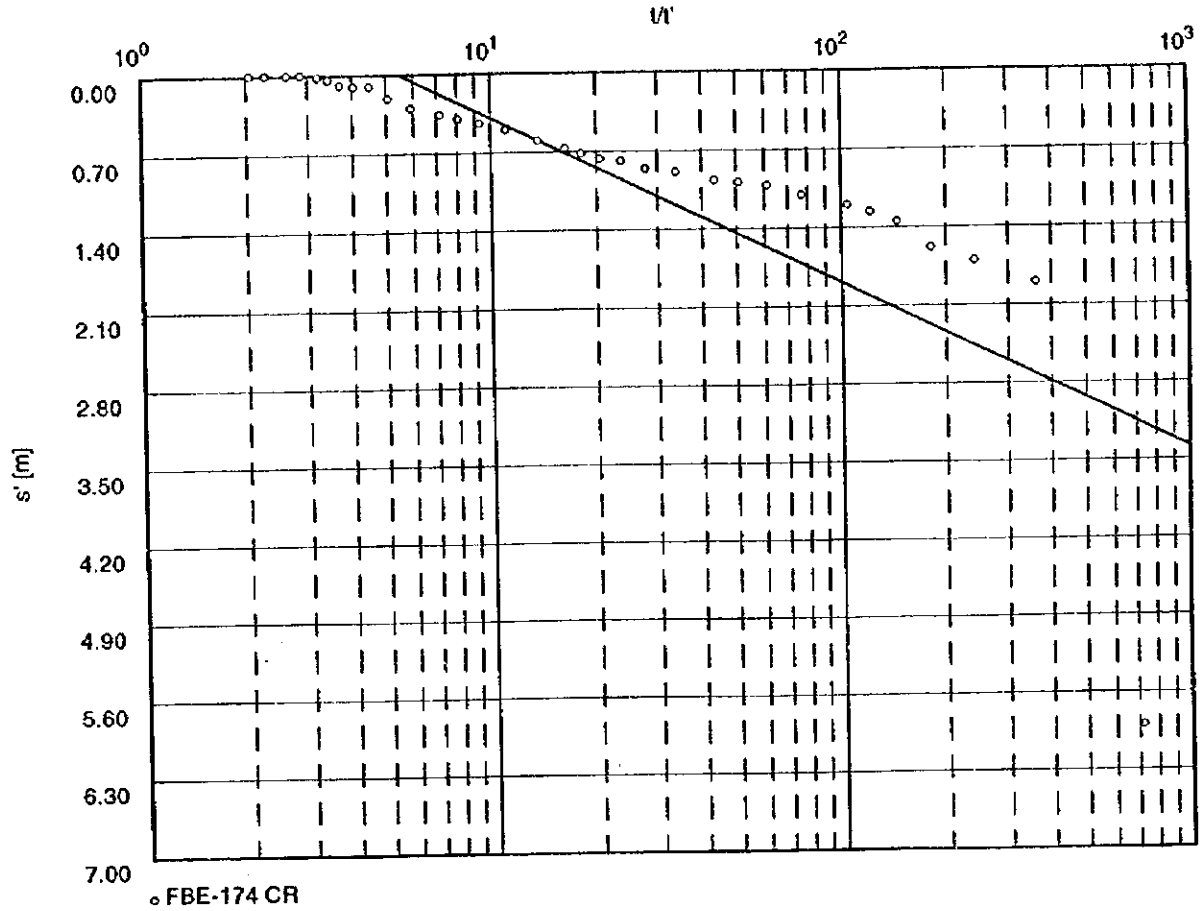


Transmissivity [m²/min]: 3.99×10^{-2}

Hydraulic conductivity [m/min]: 3.99×10^{-3}

Aquifer thickness [m]: 10.000

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Recovery method after THEIS & JACOB Confined aquifer	ANNEX, Page 1	
		Project: JICA INGRH	
		Evaluated by: KI	Date: 05.11.1998
Pumping Test No. CONT-REC		Test conducted on: 25/JUL/1998	
172			
Discharge 6.204 m³/h			
		Pumping test duration: 1446.00 min	



Transmissivity [m²/min]: 1.26×10^{-2}

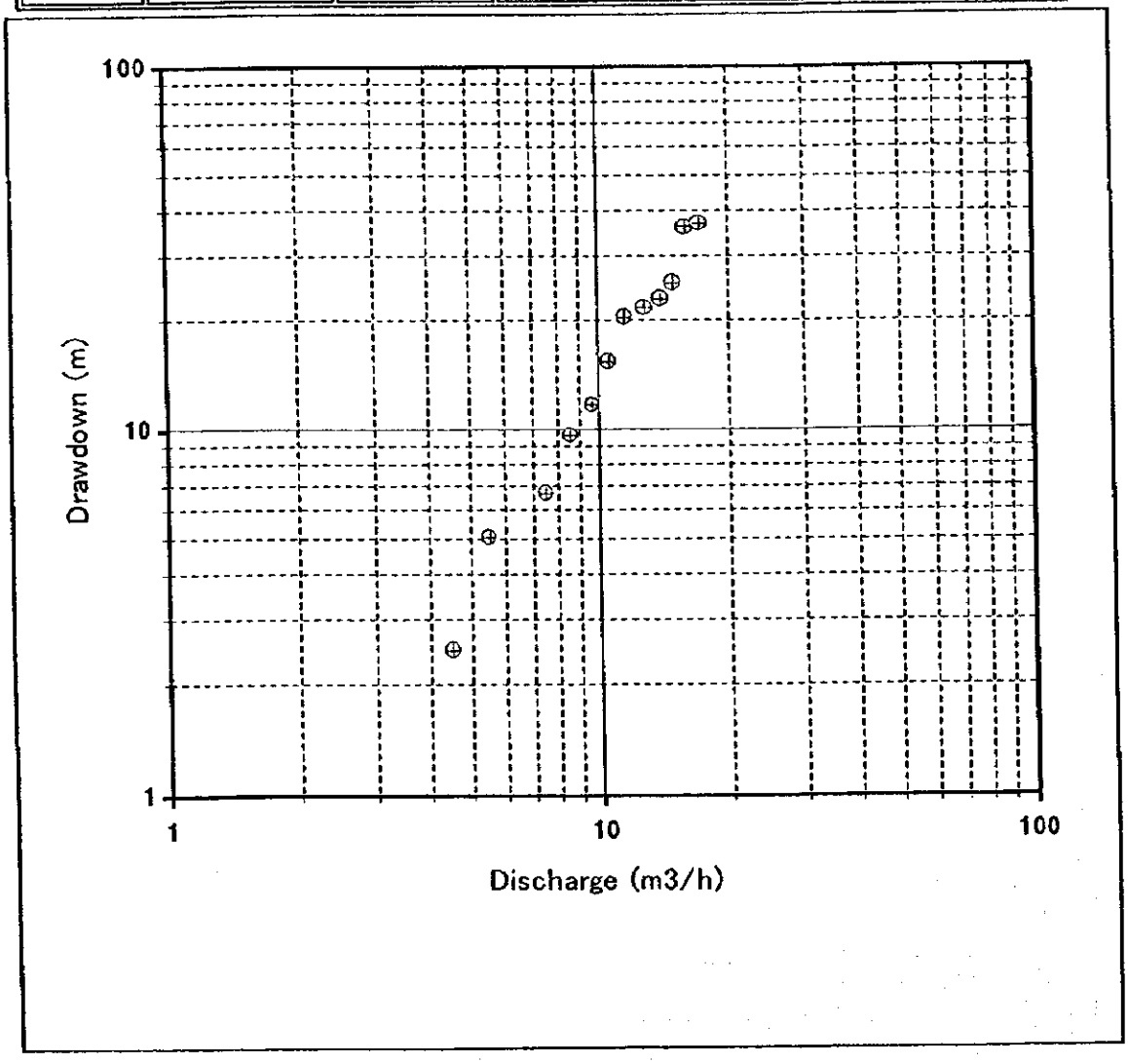
Hydraulic conductivity [m/min]: 1.26×10^{-3}

Aquifer thickness [m]: 10.000

Fig. Result of Preliminary Test

Well No FBE-180 S.W.L. (GL-m) 107.84

Step	Water Level (GL-m)	Drawdown (m)	Discharge (m3/h)	SC (m3/h/m)	SW/Q (m/m3/min)
1	110.32	2.48	4.500	1.81	33.07
2	112.88	5.04	5.521	1.10	54.77
3	114.50	6.66	7.500	1.13	53.28
4	117.45	9.61	8.571	0.89	67.27
5	119.52	11.68	9.677	0.83	72.42
6	123.18	15.34	10.588	0.69	86.93
7	128.18	20.34	11.538	0.57	105.77
8	129.50	21.66	12.857	0.59	101.08
9	130.62	22.78	14.062	0.62	97.20
10	133.12	25.28	15.000	0.59	101.12
11	143.90	36.06	16.071	0.45	134.63
12	144.76	36.92	17.307	0.47	127.99



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2 Project: JICA-INGRH Evaluated by: KI | Date: 06.11.1998

Pumping Test No. SD	Test conducted on: 23/SEP/1998
FBE-180	FBE-180 SD
Discharge 12.277 m³/h	Distance from the pumping well 0.100 m

Static water level: 107.840 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	107.840	0.000
2	2.00	111.000	3.160
3	4.00	111.370	3.530
4	6.00	111.470	3.630
5	8.00	111.600	3.760
6	10.00	111.750	3.910
7	12.00	111.950	4.110
8	14.00	112.120	4.280
9	16.00	112.180	4.340
10	20.00	112.260	4.420
11	25.00	112.380	4.540
12	30.00	112.540	4.700
13	35.00	112.630	4.790
14	40.00	112.630	4.790
15	50.00	112.720	4.880
16	60.00	112.830	4.990
17	70.00	112.900	5.060
18	80.00	112.950	5.110
19	90.00	113.020	5.180
20	120.00	113.120	5.280
21	150.00	113.230	5.390
22	152.00	116.340	8.500
23	154.00	116.670	8.830
24	156.00	117.070	9.230
25	158.00	117.280	9.440
26	160.00	117.390	9.550
27	162.00	117.520	9.680
28	164.00	117.760	9.920
29	166.00	117.780	9.940
30	170.00	117.800	9.960
31	175.00	117.820	9.980
32	180.00	117.860	10.020
33	185.00	117.860	10.020
34	190.00	117.860	10.020
35	200.00	117.880	10.040
36	210.00	117.880	10.040
37	220.00	117.920	10.080
38	230.00	117.950	10.110
39	240.00	117.950	10.110
40	270.00	117.980	10.140
41	300.00	118.000	10.160
42	302.00	122.090	14.250
43	304.00	123.750	15.910
44	306.00	123.860	16.020
45	308.00	124.290	16.450
46	310.00	124.520	16.680
47	312.00	125.150	17.310
48	314.00	125.340	17.500
49	316.00	125.340	17.500
50	320.00	125.460	17.620

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

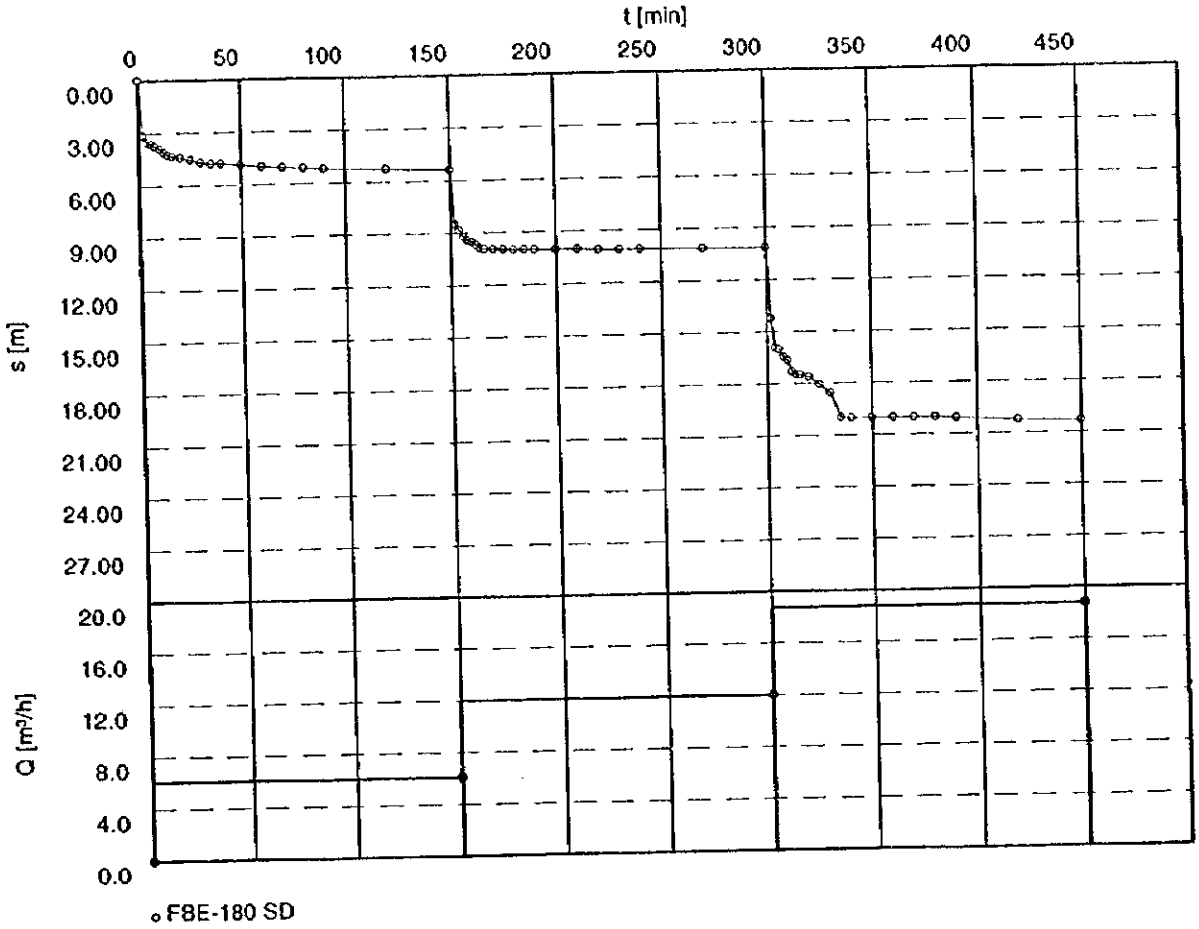
Pumping Test No. SD	Test conducted on: 23/SEP/1998
FBE-180	FBE-180 SD
Discharge 12.277 m³/h	Distance from the pumping well 0.100 m

Static water level: 107.840 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	325.00	125.900	18.060
52	330.00	126.400	18.560
53	335.00	127.830	19.990
54	340.00	127.850	20.010
55	350.00	127.850	20.010
56	360.00	127.850	20.010
57	370.00	127.850	20.010
58	380.00	127.850	20.010
59	390.00	127.930	20.090
60	420.00	128.100	20.260
61	450.00	128.180	20.340

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 06.11.1998

Pumping Test No. SD	Test conducted on: 23/SEP/1998
FBE-180	
Discharge 12.277 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

Pumping Test No. CR	Test conducted on: 26/SEP/1998
FBE-180	FBE-180 CR
Discharge 22.297 m³/h	Distance from the pumping well 0.100 m

Static water level: 107.840 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]	
1	0.00	107.840	0.000	
2	2.00	123.350	15.510	
3	4.00	128.640	20.800	
4	6.00	128.950	21.110	
5	8.00	129.080	21.240	
6	10.00	129.320	21.480	
7	15.00	130.180	22.340	
8	20.00	134.390	26.550	
9	25.00	143.220	35.380	
10	30.00	145.150	37.310	
11	40.00	147.800	39.960	
12	50.00	149.200	41.360	
13	60.00	150.960	43.120	
14	70.00	152.020	44.180	
15	80.00	152.950	45.110	
16	90.00	153.550	45.710	
17	120.00	155.600	47.760	
18	150.00	156.700	48.860	
19	180.00	157.300	49.460	
20	210.00	157.350	49.510	
21	240.00	157.400	49.560	
22	300.00	157.620	49.780	
23	360.00	157.750	49.910	
24	420.00	157.850	50.010	
25	480.00	158.150	50.310	
26	540.00	151.720	43.880	
27	600.00	151.780	43.940	
28	660.00	151.920	44.080	
29	720.00	152.080	44.240	
30	721.00	130.220	22.380	
31	722.00	127.880	20.040	
32	724.00	127.490	19.650	
33	726.00	127.300	19.460	
34	728.00	127.000	19.160	
35	730.00	126.990	19.150	
36	732.00	126.840	19.000	
37	734.00	126.770	18.930	
38	736.00	122.700	14.860	
39	738.00	116.790	8.950	
40	740.00	116.240	8.400	
41	745.00	114.870	7.030	
42	750.00	113.750	5.910	
43	755.00	112.950	5.110	
44	760.00	112.340	4.500	
45	770.00	111.330	3.490	
46	780.00	110.440	2.600	
47	790.00	109.880	2.040	
48	800.00	109.400	1.560	
49	810.00	109.150	1.310	
50	820.00	108.900	1.060	

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3 Project: JICA-INGRH Evaluated by: KI | Date: 06.11.1998

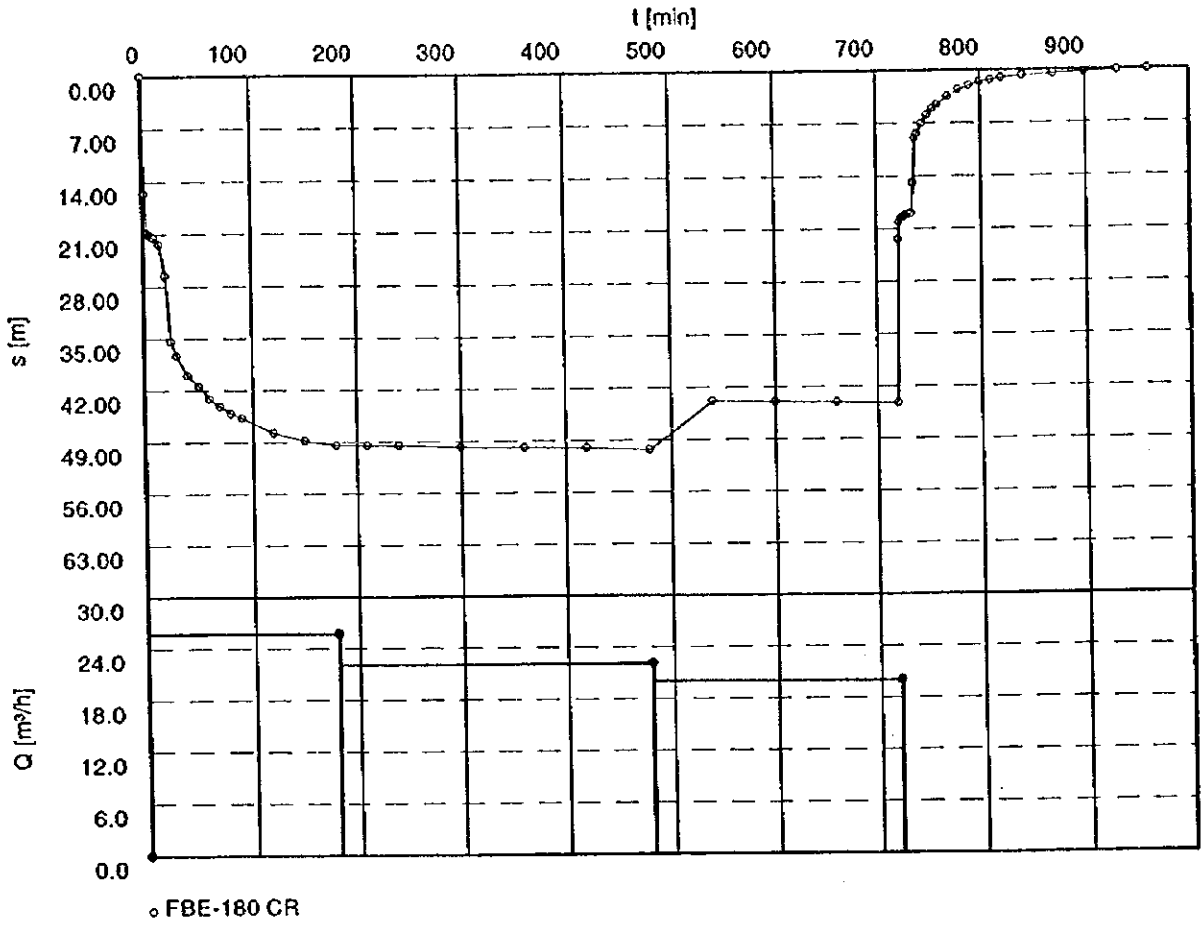
Pumping Test No. CR	Test conducted on: 26/SEP/1998
FBE-180	FBE-180 CR
Discharge 22.297 m³/h	Distance from the pumping well 0.100 m

Static water level: 107.840 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	840.00	108.620	0.780
52	870.00	108.410	0.570
53	900.00	108.200	0.360
54	930.00	108.010	0.170
55	960.00	107.930	0.090

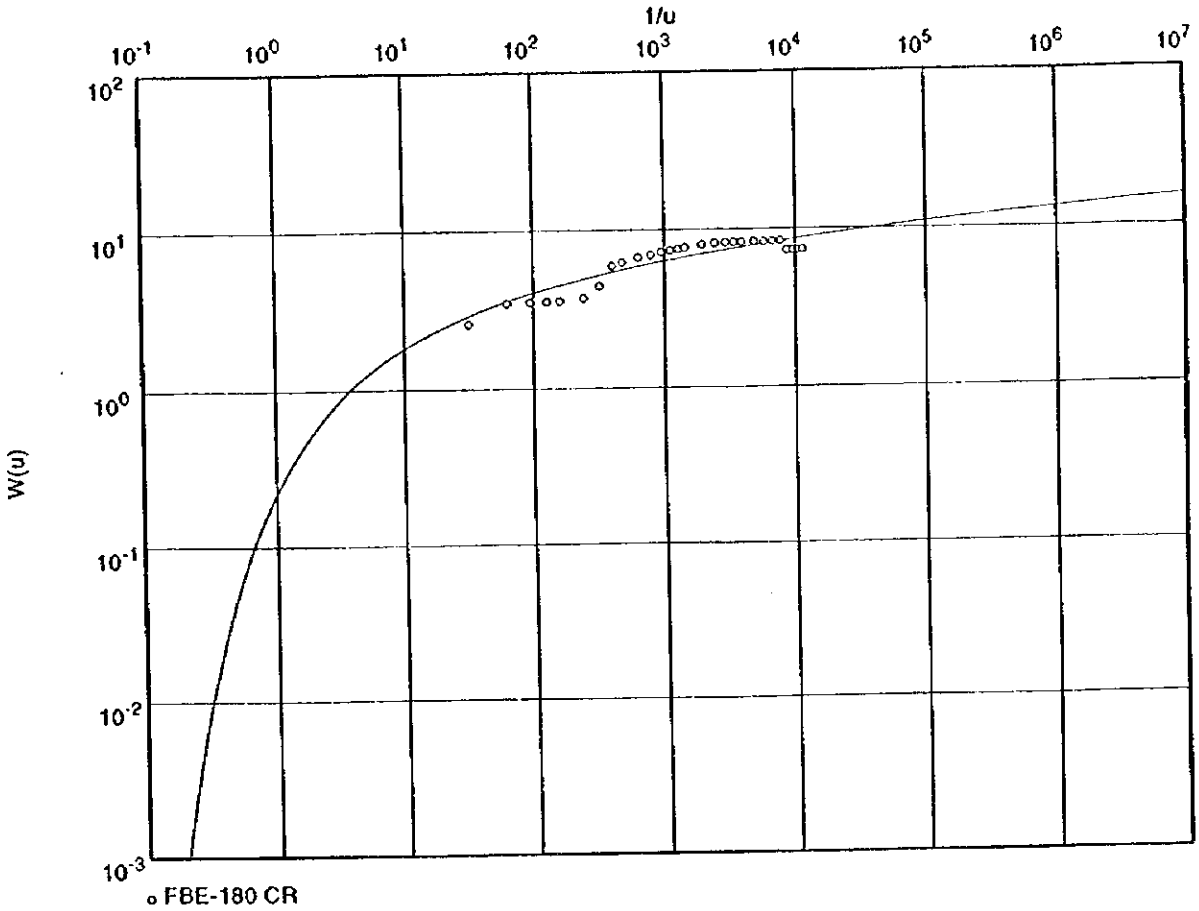
INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

Pumping Test No. CR	Test conducted on: 26/SEP/1998
FBE-180	
Discharge 22.297 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Theis analysis method Confined aquifer	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 06.11.1998

Pumping Test No. CR	Test conducted on: 26/SEP/1998
FBE-180	
Discharge 22.297 m³/h	

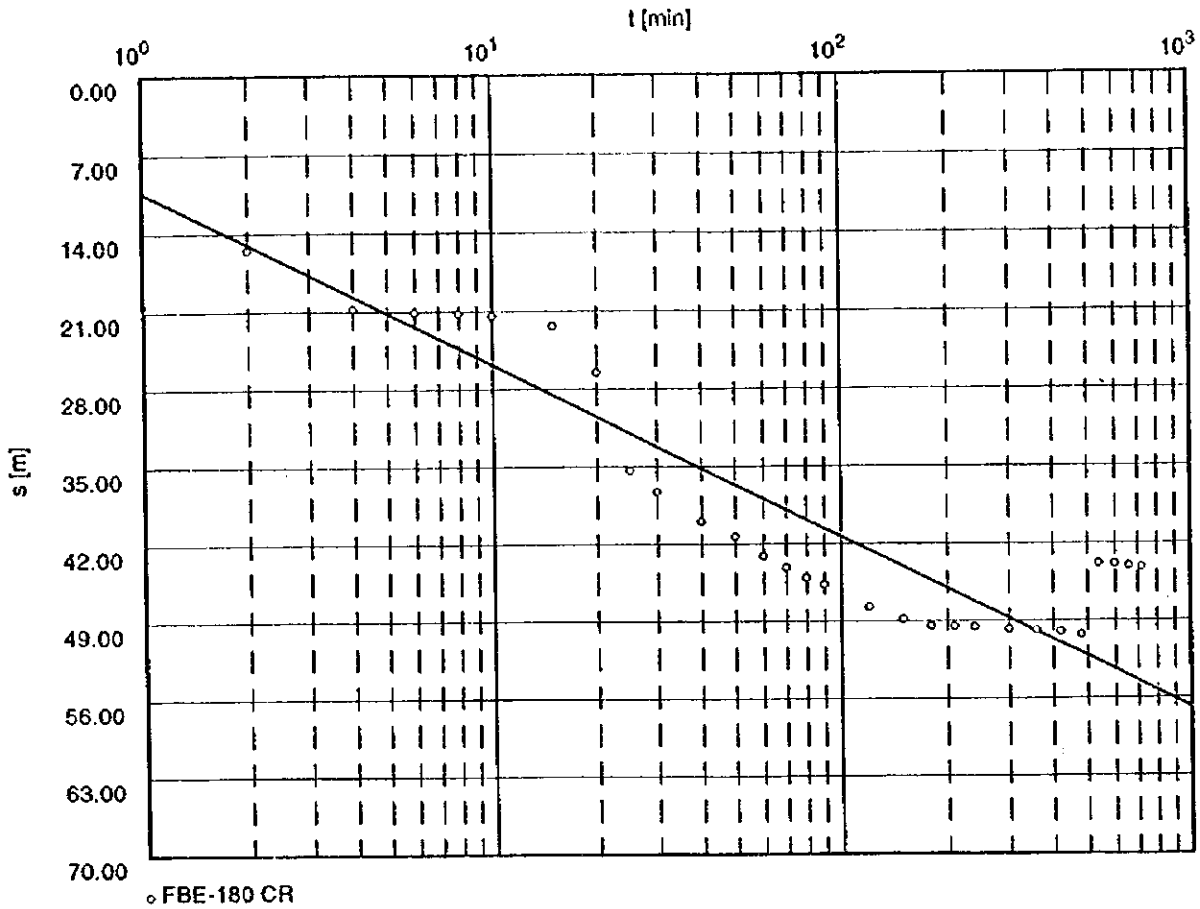


Transmissivity [m²/min]: 4.91×10^{-3}

Storativity: 1.23×10^{-1}

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown-method after COOPER & JACOB Confined aquifer	ANNEX, Page 1	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

Pumping Test No. CR	Test conducted on: 26/SEP/1998
FBE-180	
Discharge 22.297 m³/h	



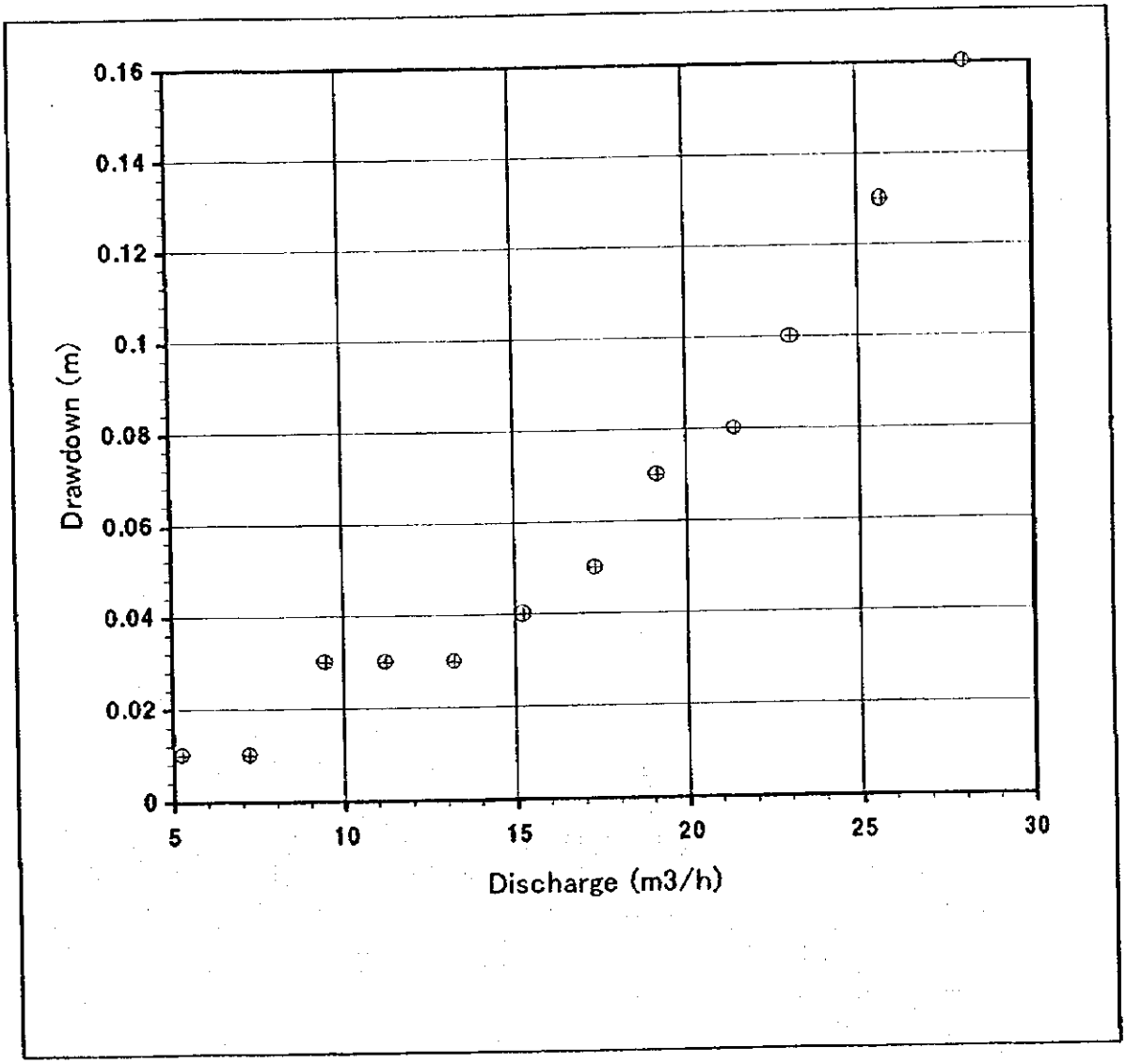
Transmissivity [m²/min]: 4.38×10^{-3}

Storativity: 2.13×10^{-1}

Fig. Result of Preliminary Test

Well No SST-25 S.W.L. (GL-m) 93.79

Step	Water Level (GL-m)	Drawdown (m)	Discharge (m3/h)	SC (m3/h/m)	SW/Q (m/m3/min)
1	93.80	0.01	5.294	529.40	0.11
2	93.80	0.01	7.200	720.00	0.08
3	93.82	0.03	9.473	315.77	0.19
4	93.82	0.03	11.250	375.00	0.16
5	93.82	0.03	13.235	441.17	0.14
6	93.83	0.04	15.254	381.35	0.16
7	93.84	0.05	17.307	346.14	0.17
8	93.86	0.07	19.148	273.54	0.22
9	93.87	0.08	21.428	267.85	0.22
10	93.89	0.10	23.076	230.76	0.26
11	93.92	0.13	25.714	197.80	0.30
12	93.95	0.16	28.125	175.78	0.34



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 30.11.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 19/10/98
SST-25	SST-25 sd
Discharge 17.731 m³/h	Distance from the pumping well 0.100 m
Static water level: 93.790 m below datum	

	Pumping test duration [min]	Water level [m]	Drawdown [m]	
1	0.00	93.790	0.000	
2	2.00	93.810	0.020	
3	4.00	93.820	0.030	
4	6.00	93.820	0.030	
5	8.00	93.820	0.030	
6	10.00	93.820	0.030	
7	12.00	93.820	0.030	
8	14.00	93.820	0.030	
9	16.00	93.820	0.030	
10	20.00	93.820	0.030	
11	25.00	93.820	0.030	
12	30.00	93.820	0.030	
13	35.00	93.820	0.030	
14	40.00	93.820	0.030	
15	50.00	93.820	0.030	
16	60.00	93.820	0.030	
17	70.00	93.820	0.030	
18	80.00	93.820	0.030	
19	90.00	93.820	0.030	
20	120.00	93.820	0.030	
21	150.00	93.820	0.030	
22	152.00	93.850	0.060	
23	154.00	93.850	0.060	
24	156.00	93.850	0.060	
25	158.00	93.850	0.060	
26	160.00	93.850	0.060	
27	162.00	93.850	0.060	
28	164.00	93.850	0.060	
29	166.00	93.850	0.060	
30	170.00	93.850	0.060	
31	175.00	93.850	0.060	
32	180.00	93.850	0.060	
33	185.00	93.850	0.060	
34	190.00	93.850	0.060	
35	200.00	93.850	0.060	
36	210.00	93.850	0.060	
37	220.00	93.850	0.060	
38	230.00	93.850	0.060	
39	240.00	93.850	0.060	
40	270.00	93.850	0.060	
41	300.00	93.850	0.060	
42	302.00	93.890	0.100	
43	304.00	93.900	0.110	
44	306.00	93.900	0.110	
45	308.00	93.900	0.110	
46	310.00	93.900	0.110	
47	312.00	93.900	0.110	
48	314.00	93.900	0.110	
49	316.00	93.900	0.110	
50	320.00	93.900	0.110	

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 30.11.1998

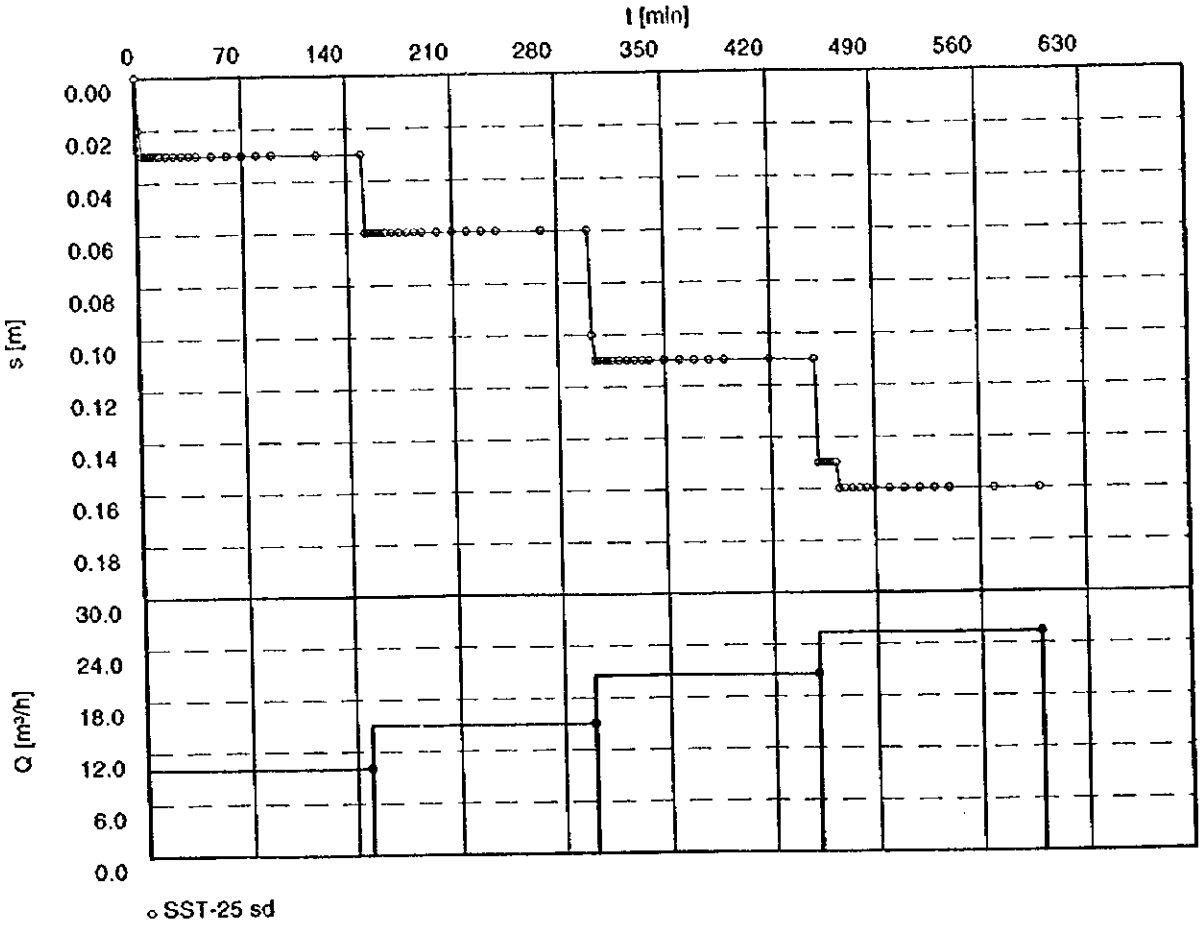
Pumping Test No. STEP-DRAWDOWN	Test conducted on: 19/10/98
SST-25	SST-25 sd
Discharge 17.731 m³/h	Distance from the pumping well 0.100 m

Static water level: 93.790 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	325.00	93.900	0.110
52	330.00	93.900	0.110
53	335.00	93.900	0.110
54	340.00	93.900	0.110
55	350.00	93.900	0.110
56	360.00	93.900	0.110
57	370.00	93.900	0.110
58	380.00	93.900	0.110
59	390.00	93.900	0.110
60	420.00	93.900	0.110
61	450.00	93.900	0.110
62	452.00	93.940	0.150
63	454.00	93.940	0.150
64	456.00	93.940	0.150
65	458.00	93.940	0.150
66	460.00	93.940	0.150
67	462.00	93.940	0.150
68	464.00	93.940	0.150
69	466.00	93.950	0.160
70	470.00	93.950	0.160
71	475.00	93.950	0.160
72	480.00	93.950	0.160
73	485.00	93.950	0.160
74	490.00	93.950	0.160
75	500.00	93.950	0.160
76	510.00	93.950	0.160
77	520.00	93.950	0.160
78	530.00	93.950	0.160
79	540.00	93.950	0.160
80	570.00	93.950	0.160
81	600.00	93.950	0.160

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 30.11.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 19/10/98
SST-25	
Discharge 17.731 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2 Project: INGRH-JICA Evaluated by: KI | Date: 30.11.1998

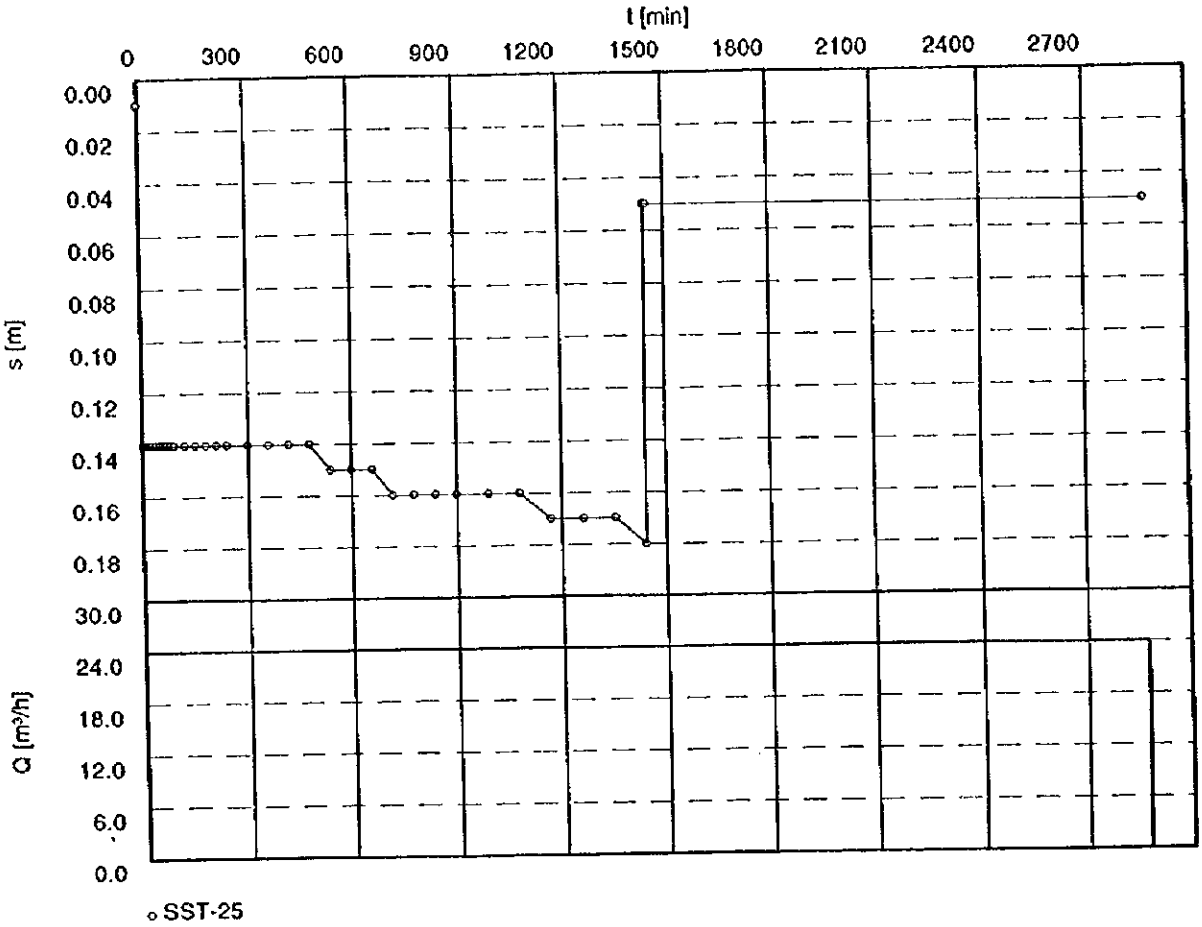
Pumping Test No. CR	Test conducted on: 20/10/98
SST-25	SST-25
Discharge 24.000 m³/h	Distance from the pumping well 0.100 m

Static water level: 93.790 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	93.800	0.010
2	2.00	93.930	0.140
3	4.00	93.930	0.140
4	6.00	93.930	0.140
5	8.00	93.930	0.140
6	10.00	93.930	0.140
7	15.00	93.930	0.140
8	20.00	93.930	0.140
9	25.00	93.930	0.140
10	30.00	93.930	0.140
11	40.00	93.930	0.140
12	50.00	93.930	0.140
13	60.00	93.930	0.140
14	70.00	93.930	0.140
15	80.00	93.930	0.140
16	90.00	93.930	0.140
17	120.00	93.930	0.140
18	150.00	93.930	0.140
19	180.00	93.930	0.140
20	210.00	93.930	0.140
21	240.00	93.930	0.140
22	300.00	93.930	0.140
23	360.00	93.930	0.140
24	420.00	93.930	0.140
25	480.00	93.930	0.140
26	540.00	93.940	0.150
27	600.00	93.940	0.150
28	660.00	93.940	0.150
29	720.00	93.950	0.160
30	780.00	93.950	0.160
31	840.00	93.950	0.160
32	900.00	93.950	0.160
33	990.00	93.950	0.160
34	1080.00	93.950	0.160
35	1170.00	93.960	0.170
36	1260.00	93.960	0.170
37	1350.00	93.960	0.170
38	1440.00	93.970	0.180
39	1441.00	93.840	0.050
40	1442.00	93.840	0.050
41	1444.00	93.840	0.050
42	1446.00	93.840	0.050
43	1448.00	93.840	0.050
44	1450.00	93.840	0.050
45	2880.00	93.840	0.050

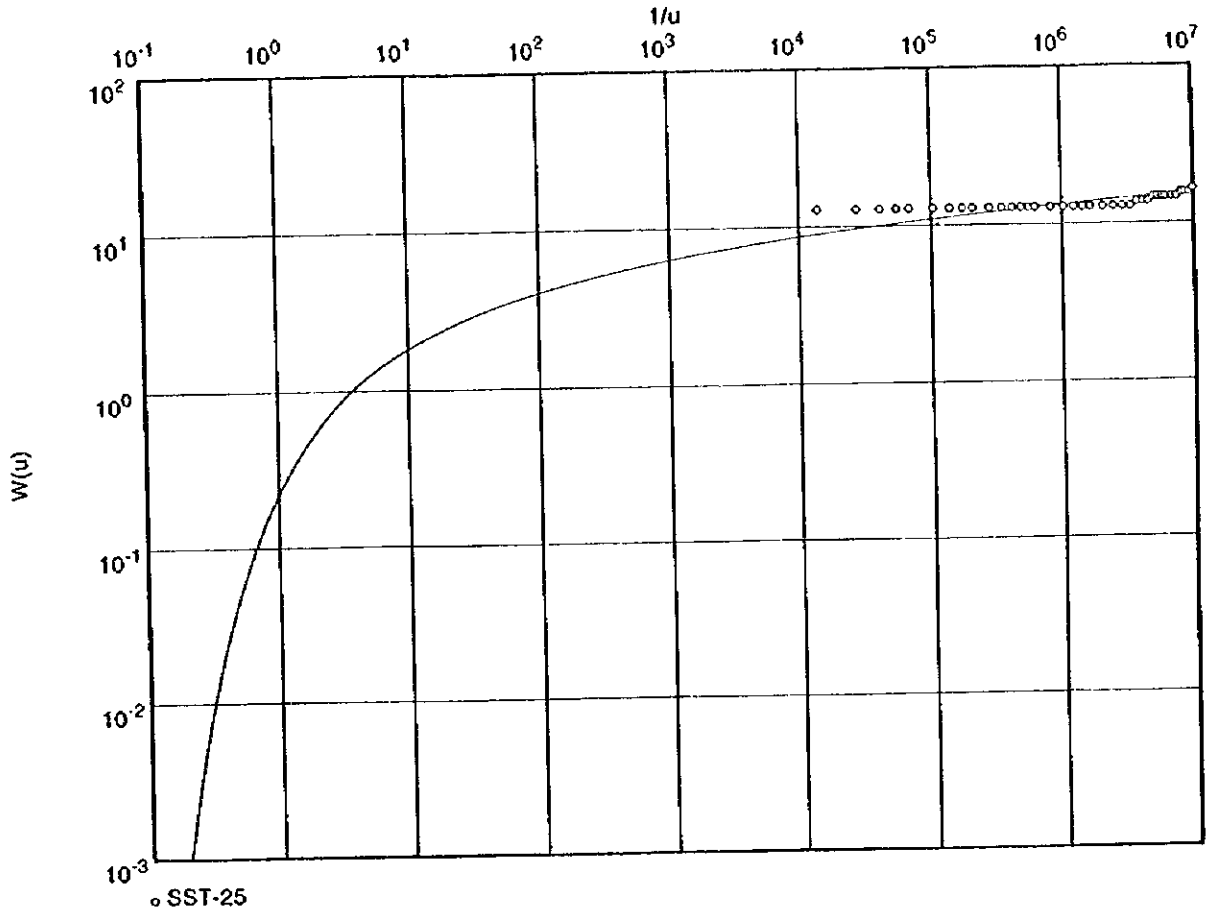
INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 30.11.1998

Pumping Test No. CR	Test conducted on: 20/10/98
SST-25	
Discharge 24.000 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Theis analysis method Confined aquifer	ANNEX, Page 1 Project: INGRH-JICA Evaluated by: KI | Date: 30.11.1998

Pumping Test No. CR	Test conducted on: 20/10/98
SST-25	
Discharge 24.000 m³/h	

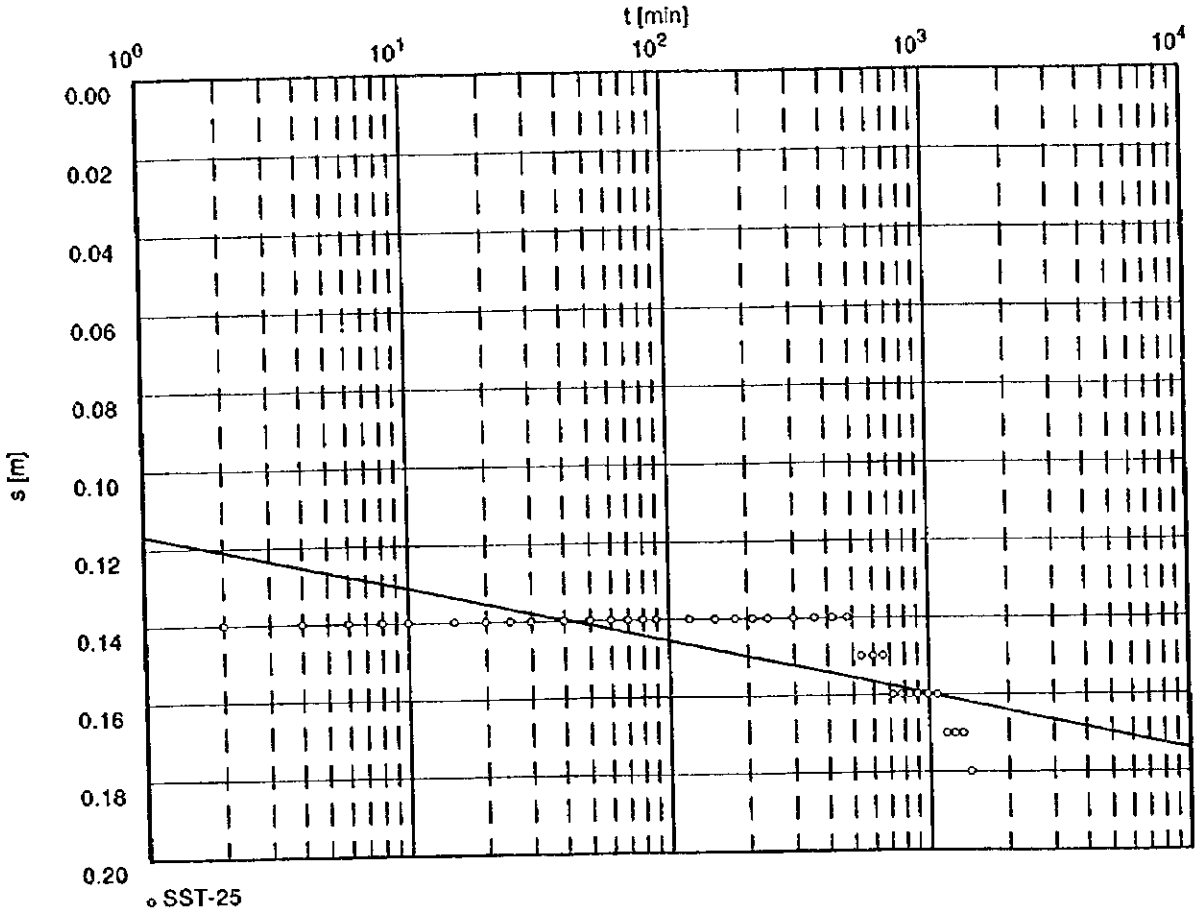


Transmissivity [m²/min]: 2.89×10^{0}

Storativity: 1.66×10^{-1}

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown-method after COOPER & JACOB Confined aquifer	ANNEX, Page 1	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 30.11.1998

Pumping Test No. CR	Test conducted on: 20/10/98
SST-25	
Discharge 24.000 m³/h	



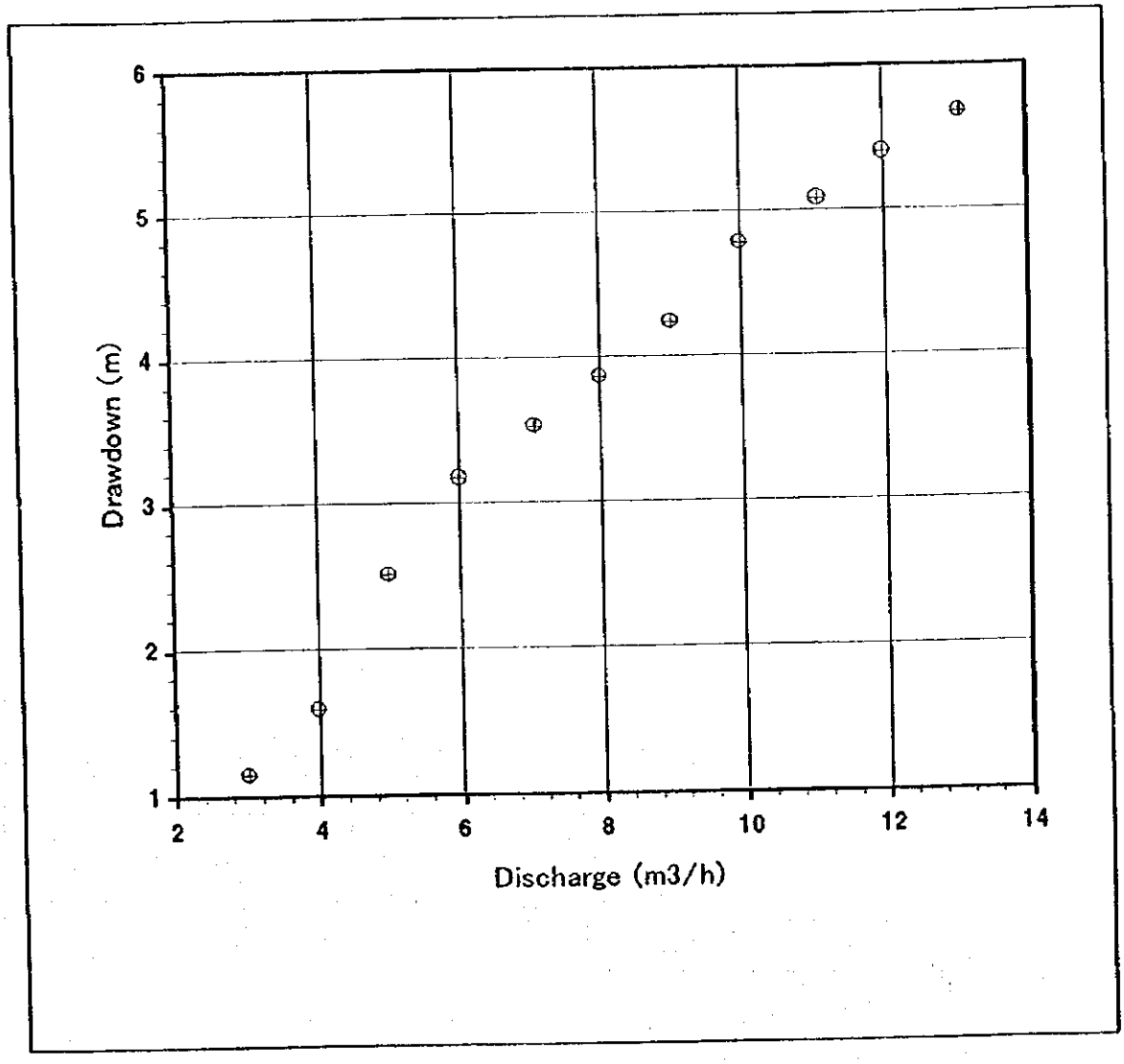
Transmissivity [m²/min]: 5.09×10^{0}

Storativity: 8.65×10^{-6}

Fig. Result of Preliminary Test

Well No FT-271 S.W.L. (GL-m) 14.37

Step	Water Level (GL-m)	Drawdown (m)	Discharge (m3/h)	SC (m3/h/m)	SW/Q (m/m3/min)
1	15.52	1.14	3.000	2.63	22.80
2	15.97	1.59	4.000	2.52	23.85
3	16.92	2.51	5.000	1.99	30.12
4	17.55	3.17	6.000	1.89	31.70
5	17.90	3.52	7.058	2.01	29.92
6	18.24	3.86	8.000	2.07	28.95
7	18.61	4.23	9.000	2.13	28.20
8	19.16	4.78	10.000	2.09	28.68
9	19.46	5.08	11.076	2.18	27.52
10	19.78	5.40	12.000	2.22	27.00
11	20.05	5.67	13.090	2.31	25.99



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 01.12.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 13/11/98
FT-271	FT-271 SD
Discharge 9.000 m³/h	Distance from the pumping well 0.100 m

Static water level: 14.720 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	14.720	0.000
2	2.00	17.200	2.480
3	4.00	17.260	2.540
4	6.00	17.260	2.540
5	8.00	17.280	2.560
6	10.00	17.290	2.570
7	12.00	17.300	2.580
8	14.00	17.310	2.590
9	16.00	17.310	2.590
10	20.00	17.310	2.590
11	25.00	17.320	2.600
12	30.00	17.320	2.600
13	35.00	17.330	2.610
14	40.00	17.330	2.610
15	50.00	17.330	2.610
16	60.00	17.330	2.610
17	70.00	17.330	2.610
18	80.00	17.330	2.610
19	90.00	17.330	2.610
20	120.00	17.330	2.610
21	150.00	17.330	2.610
22	152.00	18.260	3.540
23	154.00	18.260	3.540
24	156.00	18.260	3.540
25	158.00	18.260	3.540
26	160.00	18.260	3.540
27	162.00	18.260	3.540
28	164.00	18.260	3.540
29	166.00	18.260	3.540
30	170.00	18.260	3.540
31	175.00	18.260	3.540
32	180.00	18.260	3.540
33	185.00	18.260	3.540
34	190.00	18.260	3.540
35	200.00	18.260	3.540
36	210.00	18.260	3.540
37	220.00	18.260	3.540
38	230.00	18.260	3.540
39	240.00	18.260	3.540
40	270.00	18.260	3.540
41	300.00	18.260	3.540
42	302.00	18.750	4.030
43	304.00	18.810	4.090
44	306.00	18.810	4.090
45	308.00	18.810	4.090
46	310.00	18.810	4.090
47	312.00	18.810	4.090
48	314.00	18.810	4.090
49	316.00	18.810	4.090
50	320.00	18.810	4.090

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 01.12.1998

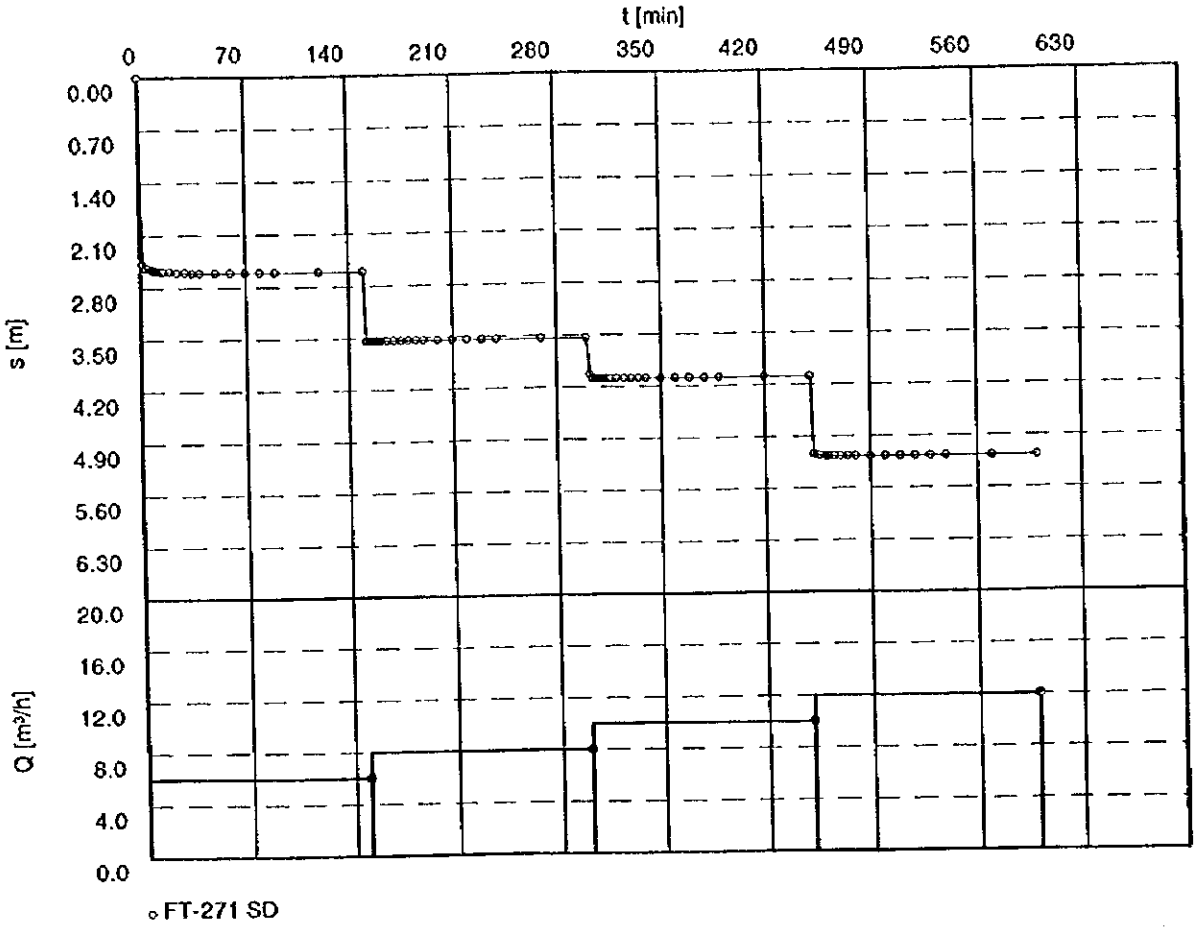
Pumping Test No. STEP-DRAWDOWN	Test conducted on: 13/11/98
FT-271	FT-271 SD
Discharge 9.000 m³/h	Distance from the pumping well 0.100 m

Static water level: 14.720 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	325.00	18.810	4.090
52	330.00	18.810	4.090
53	335.00	18.810	4.090
54	340.00	18.810	4.090
55	350.00	18.810	4.090
56	360.00	18.810	4.090
57	370.00	18.810	4.090
58	380.00	18.810	4.090
59	390.00	18.810	4.090
60	420.00	18.810	4.090
61	450.00	18.810	4.090
62	452.00	19.860	5.140
63	454.00	19.870	5.150
64	456.00	19.880	5.160
65	460.00	19.890	5.170
66	462.00	19.890	5.170
67	464.00	19.890	5.170
68	466.00	19.890	5.170
69	470.00	19.890	5.170
70	475.00	19.890	5.170
71	480.00	19.890	5.170
72	490.00	19.890	5.170
73	500.00	19.890	5.170
74	510.00	19.890	5.170
75	520.00	19.890	5.170
76	530.00	19.890	5.170
77	540.00	19.890	5.170
78	570.00	19.890	5.170
79	600.00	19.890	5.170

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 01.12.1998

Pumping Test No. STEP-DRAWDOWN	Test conducted on: 13/11/98
FT-271	
Discharge 9.000 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2 Project: INGRH-JICA Evaluated by: KI | Date: 01.12.1998

Pumping Test No. CR	Test conducted on: 15/11/98
FT-271	FT-271 CR
Discharge 10.000 m³/h	Distance from the pumping well 0.100 m

Static water level: 14.720 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	14.720	0.000
2	2.00	18.770	4.050
3	4.00	18.840	4.120
4	6.00	18.860	4.140
5	8.00	18.870	4.150
6	10.00	18.890	4.170
7	15.00	18.900	4.180
8	20.00	18.920	4.200
9	25.00	18.920	4.200
10	30.00	18.920	4.200
11	40.00	18.920	4.200
12	50.00	18.930	4.210
13	60.00	18.930	4.210
14	70.00	18.930	4.210
15	80.00	18.930	4.210
16	90.00	18.930	4.210
17	120.00	18.940	4.220
18	150.00	18.940	4.220
19	180.00	18.940	4.220
20	210.00	18.940	4.220
21	240.00	18.940	4.220
22	300.00	18.940	4.220
23	360.00	18.940	4.220
24	420.00	18.940	4.220
25	480.00	18.940	4.220
26	540.00	18.950	4.230
27	600.00	18.950	4.230
28	660.00	18.950	4.230
29	720.00	18.950	4.230
30	780.00	18.950	4.230
31	840.00	18.950	4.230
32	900.00	18.950	4.230
33	990.00	18.950	4.230
34	1080.00	18.950	4.230
35	1170.00	18.950	4.230
36	1260.00	18.950	4.230
37	1350.00	18.950	4.230
38	1440.00	18.950	4.230
39	1441.00	15.220	0.500
40	1442.00	15.100	0.380
41	1444.00	15.060	0.340
42	1446.00	14.940	0.220
43	1448.00	14.870	0.150
44	1450.00	14.840	0.120
45	1452.00	14.820	0.100
46	1454.00	14.810	0.090
47	1456.00	14.810	0.090
48	1458.00	14.800	0.080
49	1460.00	14.790	0.070
50	1465.00	14.790	0.070

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 01.12.1998

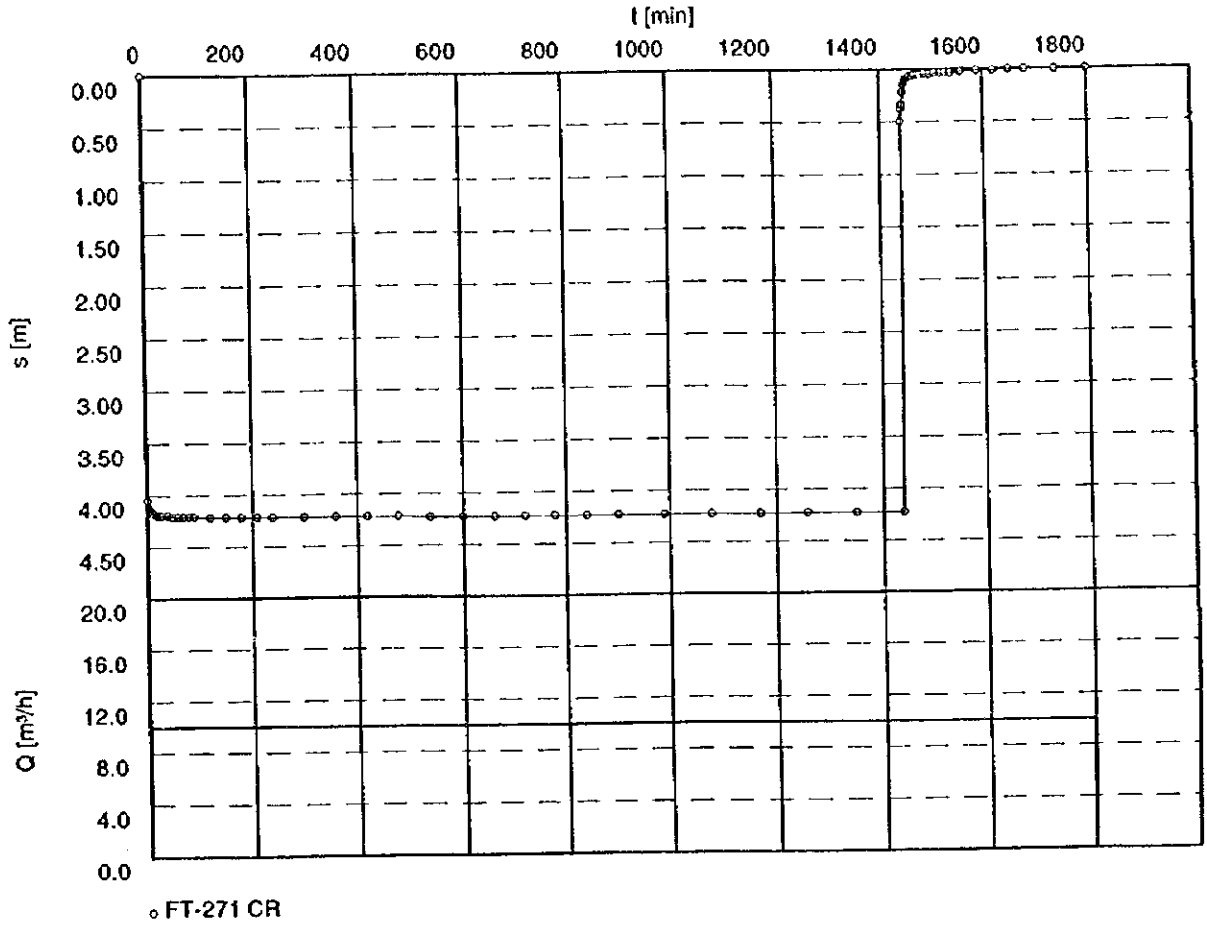
Pumping Test No. CR	Test conducted on: 15/11/98
FT-271	FT-271 CR
Discharge 10.000 m³/h	Distance from the pumping well 0.100 m

Static water level: 14.720 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	1470.00	14.780	0.060
52	1475.00	14.780	0.060
53	1480.00	14.780	0.060
54	1490.00	14.770	0.050
55	1500.00	14.770	0.050
56	1510.00	14.760	0.040
57	1520.00	14.760	0.040
58	1530.00	14.760	0.040
59	1540.00	14.760	0.040
60	1560.00	14.750	0.030
61	1590.00	14.740	0.020
62	1620.00	14.740	0.020
63	1650.00	14.730	0.010
64	1680.00	14.730	0.010
65	1740.00	14.730	0.010
66	1800.00	14.720	0.000

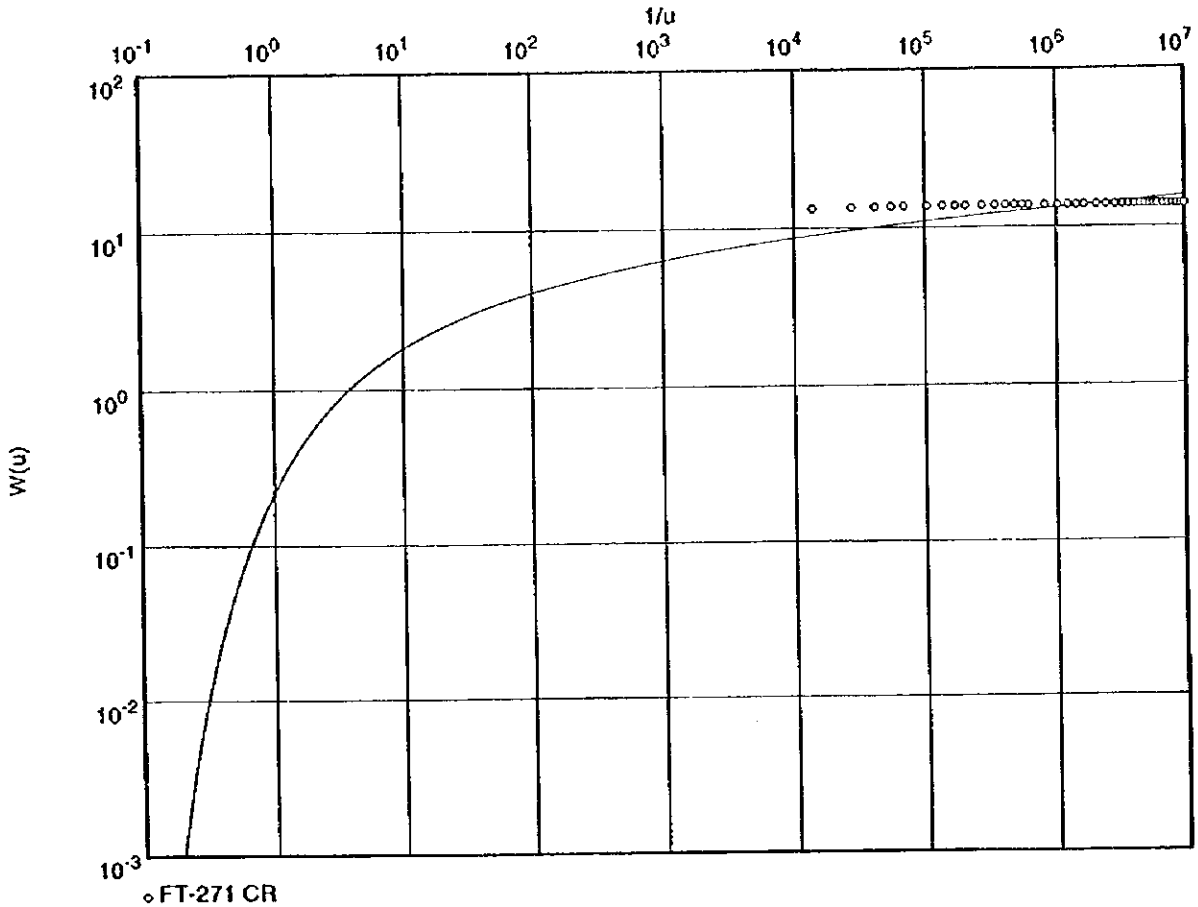
INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 01.12.1998

Pumping Test No. CR	Test conducted on: 15/11/98
FT-271	
Discharge 10.000 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Theis analysis method Confined aquifer	ANNEX, Page 1	
		Project: INGRH-JICA	
		Evaluated by: KI	Date: 01.12.1998

Pumping Test No. CR	Test conducted on: 15/11/98
FT-271	
Discharge 10.000 m³/h	

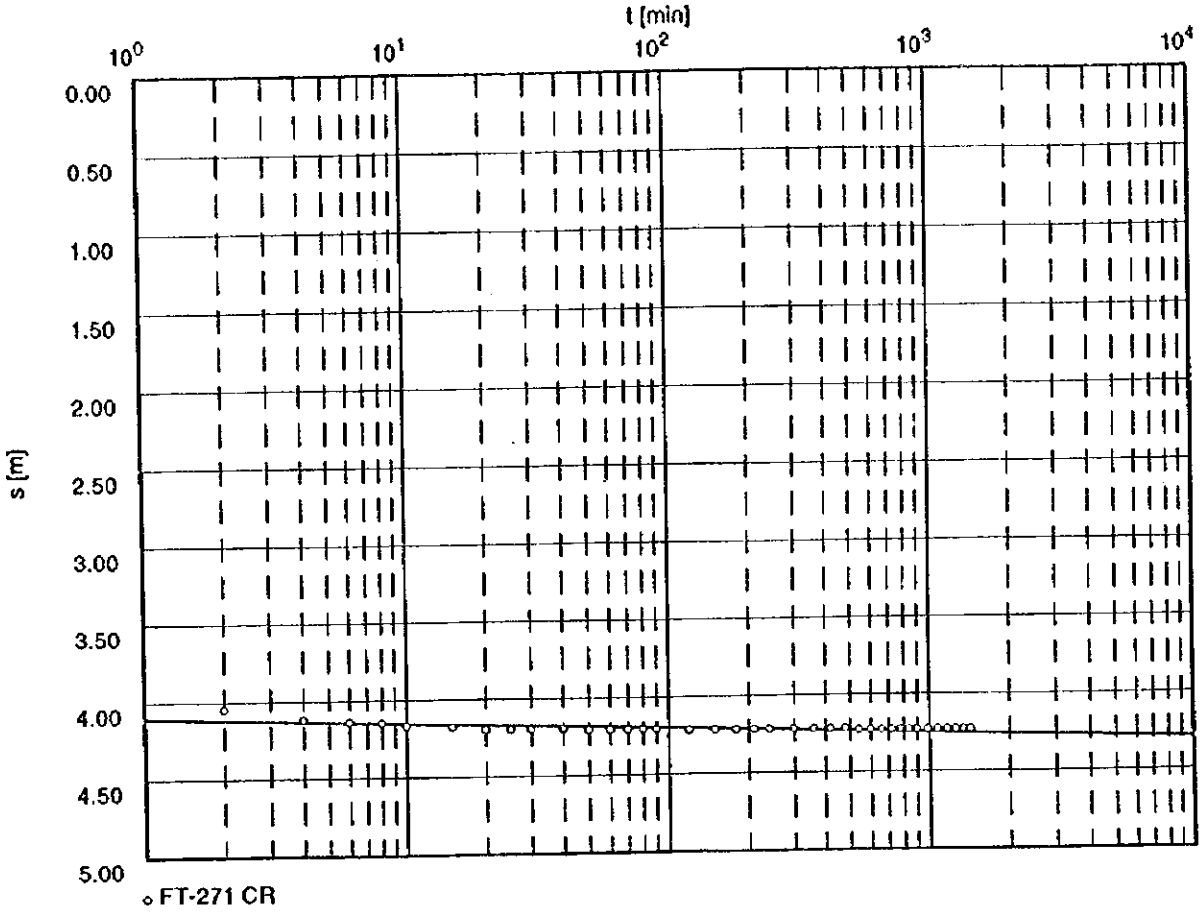


Transmissivity [m²/min]: 4.32×10^{-2}

Storativity: 2.48×10^{-3}

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown-method after COOPER & JACOB Confined aquifer	ANNEX, Page 1 Project: INGRH-JICA Evaluated by: KI | Date: 01.12.1998

Pumping Test No. CR	Test conducted on: 15/11/98
FT-271	
Discharge 10.000 m³/h	



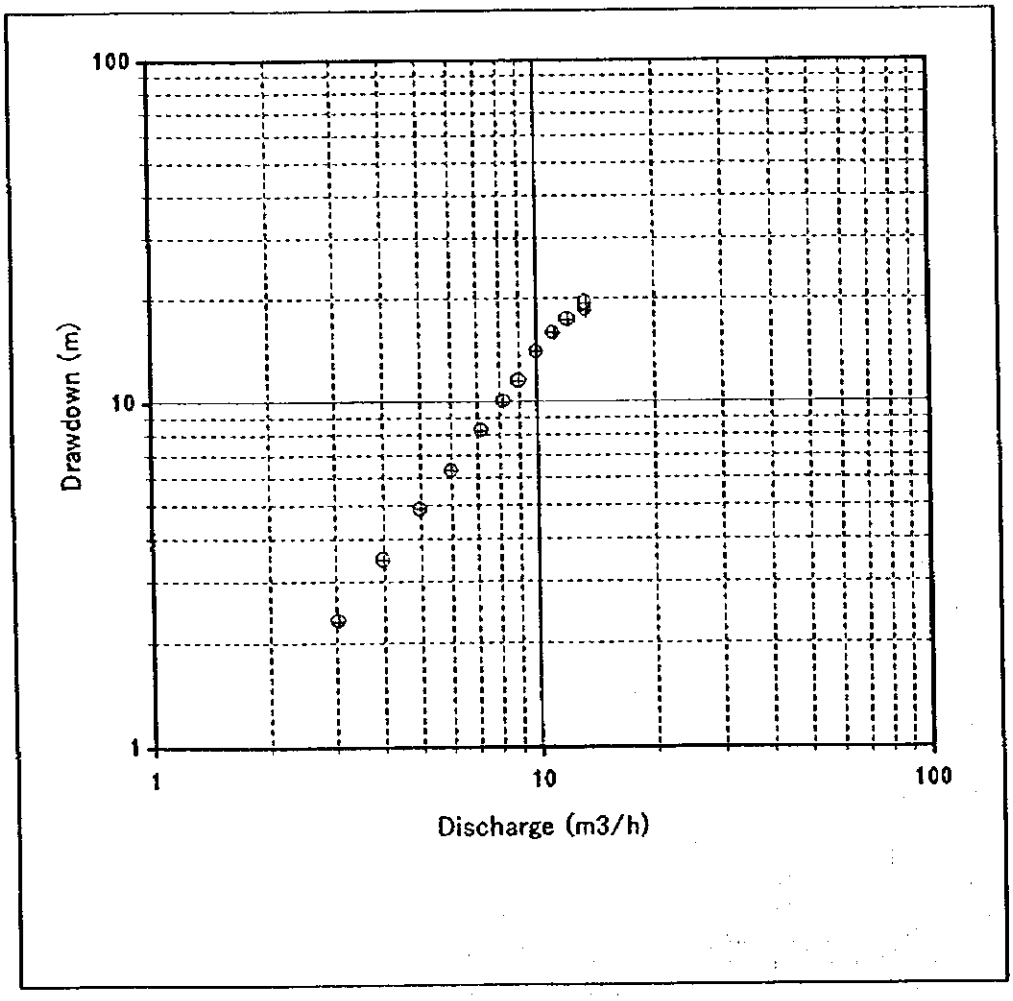
Transmissivity [m²/min]: 6.59×10^{-1}

Storativity: 0.00×10^{0}

Fig. Result of Preliminary Test

Well No FBE-97 S.W.L. (GL-m) 2.20

Step	Water Level (GL-m)	Drawdown (m)	Discharge (m3/h)	SC (m3/h/m)	SW/Q (m/m3/min)
1	24.50	2.30	3.050	1.33	45.25
2	25.66	3.46	4.000	1.16	51.90
3	27.08	4.88	5.000	1.02	58.56
4	28.50	6.30	6.000	0.95	63.00
5	30.39	8.19	7.142	0.87	68.80
6	32.15	9.95	8.181	0.82	72.97
7	33.63	11.43	9.000	0.79	76.20
8	36.20	14.00	10.000	0.71	84.00
9	38.08	15.88	11.111	0.70	85.75
10	39.52	17.32	12.000	0.69	86.60
11	40.65	18.45	13.430	0.73	82.43
12	41.52	19.32	13.430	0.70	86.31



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

Pumping Test No. SD	Test conducted on: 19/AUG/1998
FBE-97	FBE-97 SD
Discharge 9.020 m³/h	Distance from the pumping well 0.100 m

Static water level: 26.500 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
1	0.00	26.500	0.000
2	2.00	27.000	0.500
3	4.00	29.250	2.750
4	6.00	29.350	2.850
5	8.00	29.550	3.050
6	10.00	29.600	3.100
7	12.00	29.600	3.100
8	14.00	29.600	3.100
9	16.00	29.650	3.150
10	20.00	29.730	3.230
11	25.00	29.840	3.340
12	30.00	29.920	3.420
13	35.00	30.000	3.500
14	40.00	30.080	3.580
15	50.00	30.200	3.700
16	60.00	30.300	3.800
17	70.00	30.450	3.950
18	80.00	30.540	4.040
19	90.00	30.600	4.100
20	120.00	30.860	4.360
21	150.00	31.000	4.500
22	152.00	32.340	5.840
23	154.00	32.700	6.200
24	156.00	33.280	6.780
25	158.00	33.440	6.940
26	160.00	33.580	7.080
27	162.00	33.700	7.200
28	164.00	33.800	7.300
29	166.00	33.860	7.360
30	170.00	34.000	7.500
31	175.00	34.140	7.640
32	180.00	34.240	7.740
33	185.00	34.550	8.050
34	190.00	34.420	7.920
35	200.00	34.600	8.100
36	210.00	34.720	8.220
37	220.00	34.870	8.370
38	230.00	35.000	8.500
39	240.00	35.110	8.610
40	270.00	35.430	8.930
41	300.00	35.750	9.250
42	302.00	36.500	10.000
43	304.00	36.950	10.450
44	306.00	37.180	10.680
45	308.00	37.320	10.820
46	310.00	37.450	10.950
47	312.00	37.530	11.030
48	314.00	37.600	11.100
49	316.00	37.670	11.170
50	320.00	37.800	11.300

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3 Project: JICA-INGRH Evaluated by: KI | Date: 06.11.1998

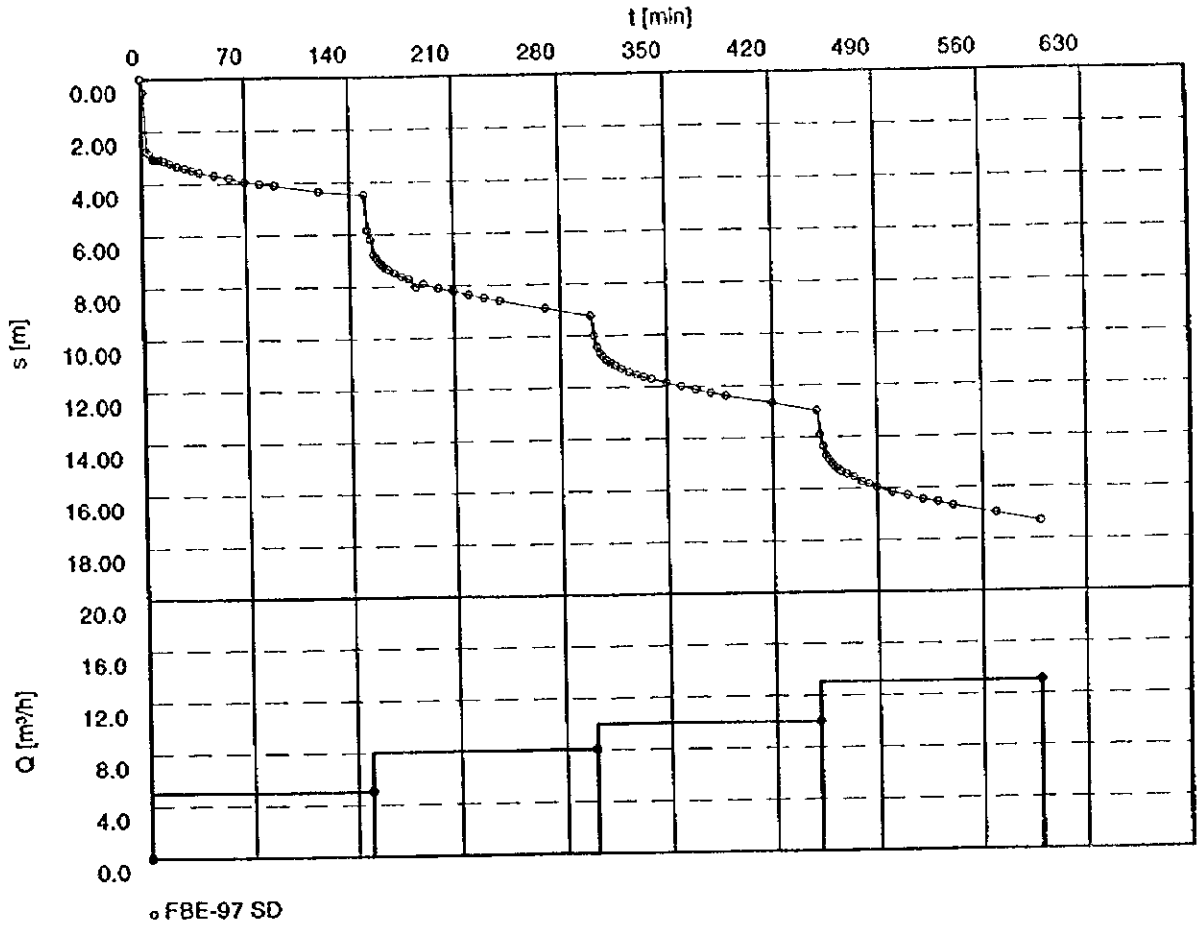
Pumping Test No. SD	Test conducted on: 19/AUG/1998
FBE-97	FBE-97 SD
Discharge 9.020 m³/h	Distance from the pumping well 0.100 m

Static water level: 26.500 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]
51	325.00	37.930	11.430
52	330.00	38.040	11.540
53	335.00	38.120	11.620
54	340.00	38.200	11.700
55	350.00	38.360	11.860
56	360.00	38.500	12.000
57	370.00	38.630	12.130
58	380.00	38.750	12.250
59	390.00	38.870	12.370
60	420.00	39.180	12.680
61	450.00	39.490	12.990
62	452.00	40.420	13.920
63	454.00	40.870	14.370
64	456.00	41.220	14.720
65	458.00	41.400	14.900
66	460.00	41.540	15.040
67	462.00	41.660	15.160
68	464.00	41.760	15.260
69	466.00	41.850	15.350
70	470.00	41.960	15.460
71	475.00	42.070	15.570
72	480.00	42.260	15.760
73	485.00	42.350	15.850
74	490.00	42.470	15.970
75	500.00	42.660	16.160
76	510.00	42.790	16.290
77	520.00	42.950	16.450
78	530.00	43.050	16.550
79	540.00	43.200	16.700
80	570.00	43.500	17.000
81	600.00	43.820	17.320

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

Pumping Test No. SD	Test conducted on: 19/AUG/1998
FBE-97	
Discharge 9.020 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 2	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

Pumping Test No. CR	Test conducted on: 20/AUG/1998
FBE-97	FBE-97 CR
Discharge 8.181 m³/h	Distance from the pumping well 0.100 m

Static water level: 29.870 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]	
1	0.00	29.870	0.000	
2	2.00	34.130	4.260	
3	4.00	34.820	4.950	
4	6.00	34.860	4.990	
5	8.00	35.020	5.150	
6	10.00	35.180	5.310	
7	15.00	35.460	5.590	
8	20.00	35.680	5.810	
9	22.80	35.040	5.170	
10	25.00	35.950	6.080	
11	30.00	36.080	6.210	
12	40.00	36.320	6.450	
13	50.00	36.490	6.620	
14	60.00	36.660	6.790	
15	70.00	36.840	6.970	
16	80.00	36.990	7.120	
17	90.00	37.100	7.230	
18	120.00	37.440	7.570	
19	150.00	37.740	7.870	
20	180.00	38.000	8.130	
21	210.00	38.260	8.390	
22	240.00	38.470	8.600	
23	300.00	38.920	9.050	
24	360.00	39.320	9.450	
25	420.00	39.670	9.800	
26	480.00	40.250	10.380	
27	540.00	40.530	10.660	
28	600.00	40.820	10.950	
29	660.00	40.890	11.020	
30	720.00	41.150	11.280	
31	780.00	41.360	11.490	
32	840.00	41.930	12.060	
33	900.00	42.300	12.430	
34	990.00	42.600	12.730	
35	1080.00	42.700	12.830	
36	1170.00	42.980	13.110	
37	1260.00	43.360	13.490	
38	1350.00	43.600	13.730	
39	1440.00	43.820	13.950	
40	1441.00	42.090	12.220	
41	1442.00	41.530	11.660	
42	1444.00	40.750	10.880	
43	1446.00	40.120	10.250	
44	1448.00	39.700	9.830	
45	1450.00	39.430	9.560	
46	1452.00	39.170	9.300	
47	1454.00	39.040	9.170	
48	1456.00	38.900	9.030	
49	1458.00	38.780	8.910	
50	1460.00	38.720	8.850	

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 3	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

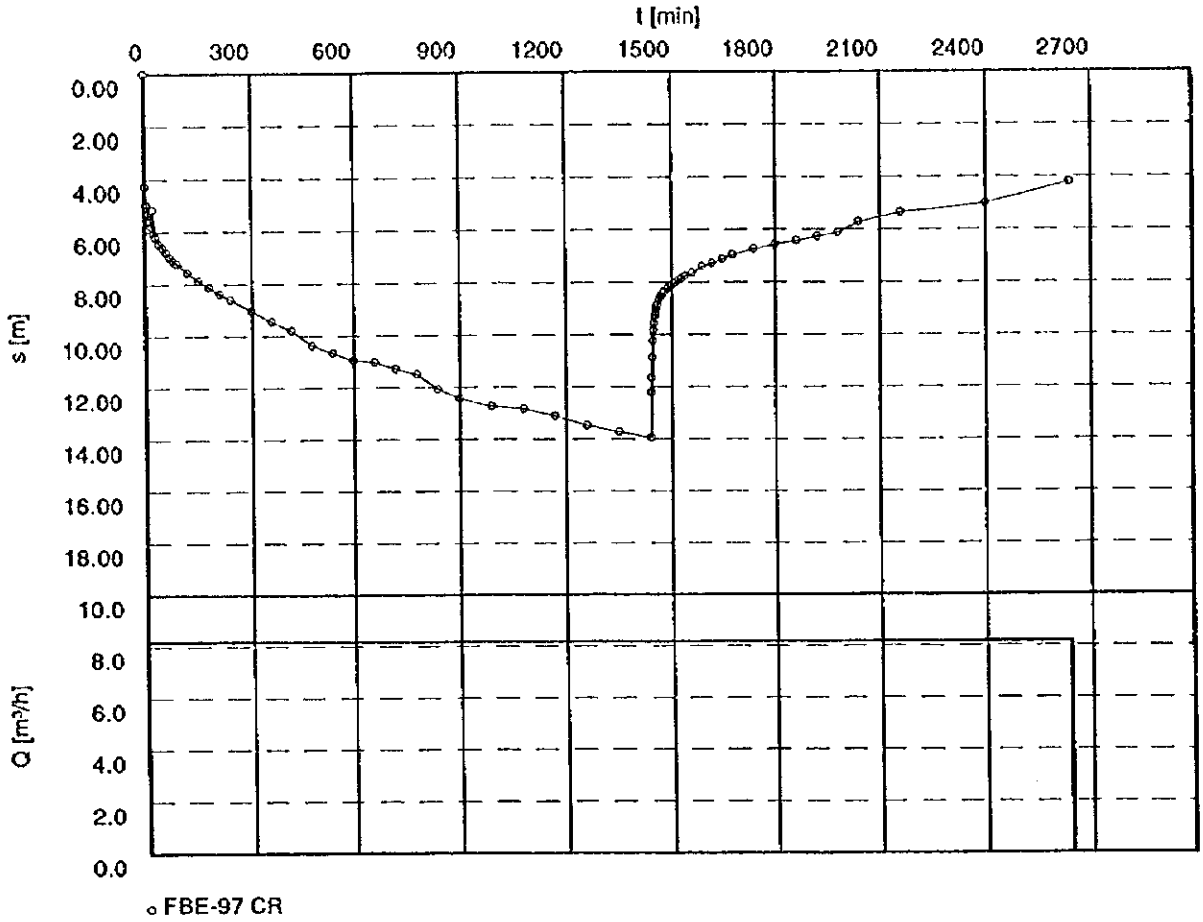
Pumping Test No. CR	Test conducted on: 20/AUG/1998
FBE-97	FBE-97 CR
Discharge 8.181 m³/h	Distance from the pumping well 0.100 m

Static water level: 29.870 m below datum

	Pumping test duration [min]	Water level [m]	Drawdown [m]	
51	1465.00	38.530	8.660	
52	1470.00	38.420	8.550	
53	1475.00	38.320	8.450	
54	1480.00	38.230	8.360	
55	1490.00	38.100	8.230	
56	1500.00	38.000	8.130	
57	1510.00	37.900	8.030	
58	1520.00	37.810	7.940	
59	1530.00	37.730	7.860	
60	1540.00	37.640	7.770	
61	1560.00	37.530	7.660	
62	1590.00	37.290	7.420	
63	1620.00	37.160	7.290	
64	1650.00	37.000	7.130	
65	1680.00	36.840	6.970	
66	1740.00	36.620	6.750	
67	1800.00	36.450	6.580	
68	1860.00	36.300	6.430	
69	1920.00	36.140	6.270	
70	1980.00	36.000	6.130	
71	2040.00	35.600	5.730	
72	2160.00	35.230	5.360	
73	2400.00	34.900	5.030	
74	2640.00	34.080	4.210	

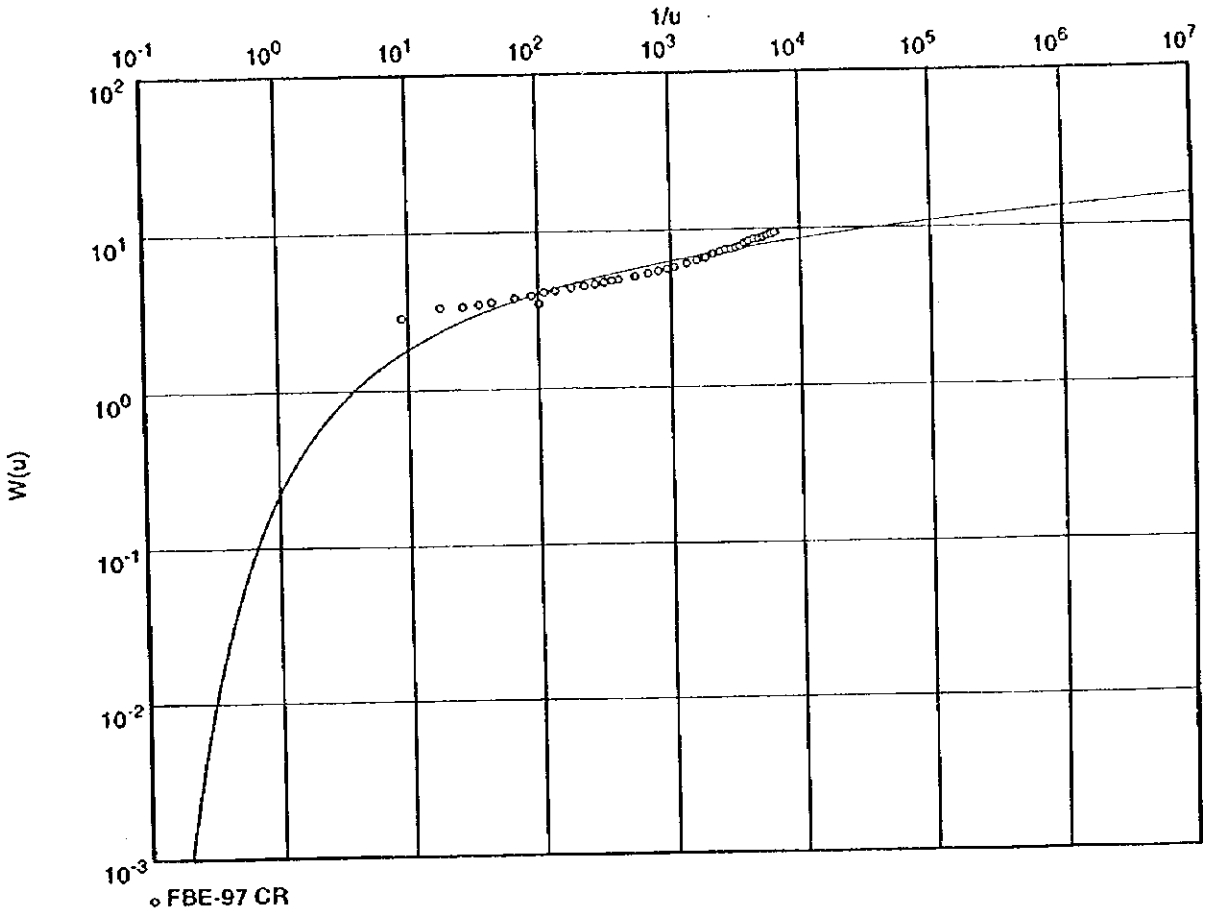
INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown plot with discharge	ANNEX, Page 1	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

Pumping Test No. CR	Test conducted on: 20/AUG/1998
FBE-97	
Discharge 8.181 m³/h	



INGRH-JICA Groundwater Dev. Project	Pumping test analysis Theis analysis method Confined aquifer	ANNEX, Page 1 Project: JICA-INGRH Evaluated by: KI | Date: 06.11.1998

Pumping Test No. CR	Test conducted on: 20/AUG/1998
FBE-97	
Discharge 8.181 m³/h	

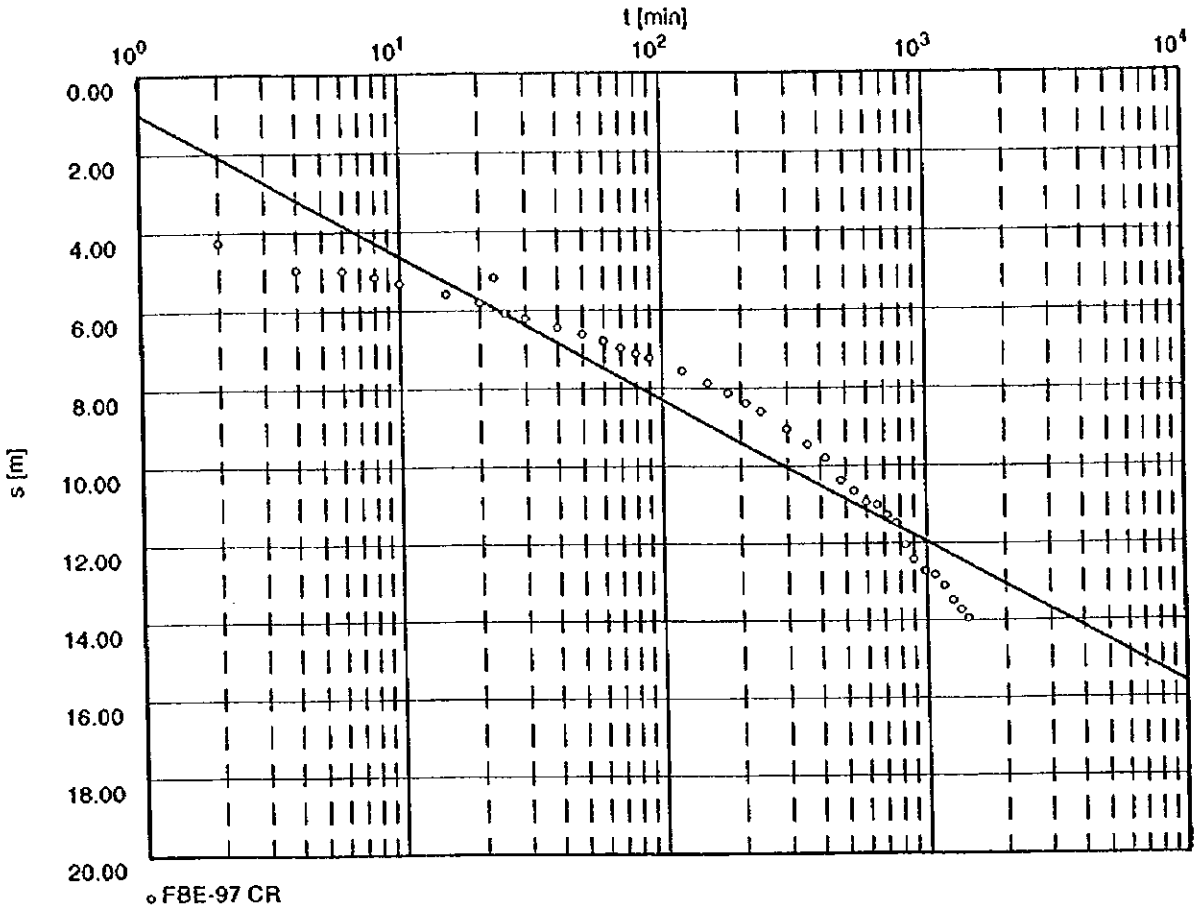


Transmissivity [m²/min]: 7.30×10^{-3}

Storativity: 6.49×10^{-1}

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Time-Drawdown-method after COOPER & JACOB Confined aquifer	ANNEX, Page 1	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998

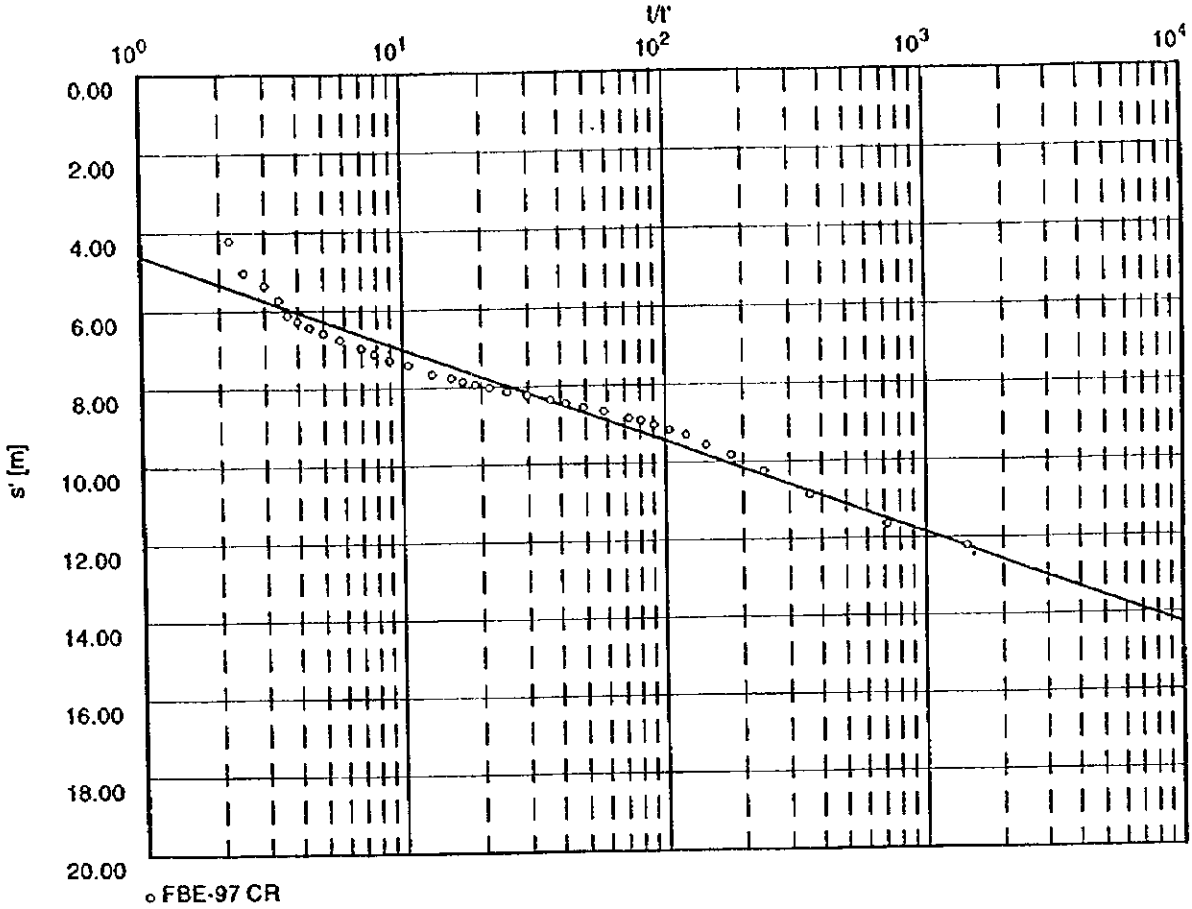
Pumping Test No. CR	Test conducted on: 20/AUG/1998
FBE-97	
Discharge 8.181 m³/h	



Transmissivity [m²/min]: 6.82×10^{-3}

Storativity: 8.31×10^{-1}

INGRH-JICA Groundwater Dev. Project	Pumping test analysis Recovery method after THEIS & JACOB Confined aquifer	ANNEX, Page 1	
		Project: JICA-INGRH	
		Evaluated by: KI	Date: 06.11.1998
Pumping Test No. CR		Test conducted on: 20/AUG/1998	
FBE-97			
Discharge 8.181 m³/h			
		Pumping test duration: 1440.00 min	



Transmissivity [m²/min]: 1.02×10^{-2}

METEOROLOGICAL DATA

(1) Annual Rainfall Record (1988 –1997)
(2) Temperature (1997)
(3) Calculation Base of Sornthwate Method
(4) Pennman Method
(5) Calculation Base of Infiltration

PLUVIOMETRIE (mm) POUR ACHADA ALEM

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	26.5	0.0	0.0	0.0	0.0	0.1	189.0	77.6	9.5	29.5	0.0	332.2
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	204.4	60.4	53.5	0.0	0.0	318.3
1990	0.0	0.0	0.0	0.0	0.0	0.0	44.3	18.5	140.7	131.0	0.0	0.0	334.5
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.0	139.0	0.0	0.0	0.0	223.0
1992	0.0	0.0	0.0	0.0	4.5	0.0	121.5	17.5	78.9	48.3	6.4	0.0	277.1
1993	68.0	0.0	0.0	0.0	0.0	0.0	18.0	153.6	97.8	0.0	0.0	0.0	337.4
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5	146.6	0.0	0.0	0.0	203.1
1995	0.0	0.0	0.0	0.0	0.0	0.0	41.0	107.4	209.5	28.0	0.0	0.0	585.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	10.2	72.6	17.0	8.5	6.0	0.0	114.3
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.0	152.9	2.5	0.0	0.0	280.4

PLUVIOMETRIE (mm) POUR ACHADA LONGUEIRA

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	34.5	0.0	0.0	0.0	0.0	0.0	177.5	119.0	0.0	68.8	0.0	399.8
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	313.7	21.2	0.0	0.0	0.0	334.9
1990	0.0	0.0	0.0	0.0	0.0	0.0	81.0	49.1	204.2	132.3	0.0	0.0	466.6*
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	227.0	66.0	0.0	0.0	0.0	293.0
1992	0.0	0.0	0.0	0.0	7.5	0.0	306.0	11.5	88.0	54.0	5.1	0.0	472.1
1993	28.5	0.0	0.0	0.0	0.0	0.0	12.0	324.0	0.0	0.0	0.0	0.0	364.5*
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.2	77.0	0.0	0.0	0.0	159.2
1995	0.0	0.0	0.0	0.0	0.0	0.0	55.0	92.6	149.2	14.0	0.0	0.0	310.8*
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.8	0.0	0.0	8.5	0.0	105.3
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	191.4	139.5	0.0	0.0	0.0	330.9

PLUVIOMETRIE (mm) POUR ACHADA MOSQUITO

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	365.4	0.0	0.0	0.0	365.4
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	186.2	55.1	0.0	0.0	0.0	241.3
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	0.0	0.0	0.0	0.0	0.0	0.0	6.0	178.0	**	0.0	0.0	0.0	184.0*
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PLUVIOMETRIE (mm) POUR ALTO FIGUEIRINHA

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	0.0	0.0	0.0	0.0	0.0	9.5	171.6	51.8	0.0	105.4	0.0	338.3
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.2	0.0	28.5	0.0	0.0	153.7
1990	0.0	0.0	0.0	0.0	0.0	0.0	9.5	5.0	**	20.0	0.0	0.0	34.5*
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4	0.0	0.0	0.0	0.0	16.4
1992	0.0	0.0	0.0	0.0	4.0	0.0	27.0	8.5	56.1	135.0	0.0	0.0	230.6
1993	28.0	0.0	0.0	0.0	0.0	0.0	13.1	175.5	127.1	0.0	0.0	0.0	343.7
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.0	42.9	26.0	0.0	0.0	102.9
1995	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.0	123.0	10.0	0.0	22.6	236.6
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.0	0.0	23.0	0.0	0.0	114.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	253.3	19.0	0.0	0.0	0.0	272.3

PLUVIOMETRIE (mm) POUR ASSOMADA PORTAOZINHO

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	0.0	0.0	0.0	0.0	0.0	8.3	238.5	84.6	8.1	50.7	0.0	390.2
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	237.8	56.1	7.8	23.6	0.0	325.3
1990	31.8	0.0	0.0	0.0	0.0	0.0	32.0	43.4	221.5	81.8	0.0	0.0	410.5
1991	0.0	3.1	0.0	0.0	0.0	0.0	1.0	25.3	237.9	11.6	0.0	0.0	278.9
1992	0.0	0.0	0.0	4.1	4.1	0.0	66.3	34.4	130.6	115.7	3.9	0.0	359.1
1993	48.6	0.0	0.0	0.0	0.0	0.0	31.1	201.5	138.4	0.0	0.0	0.0	419.6
1994	0.0	0.0	0.0	0.0	0.0	0.0	2.4	76.0	106.4	1.6	0.0	0.0	186.4
1995	0.0	0.0	0.0	0.0	0.0	0.0	36.7	135.1	142.6	17.0	0.0	57.1	388.5
1996	0.0	0.0	0.0	0.0	0.0	0.0	6.4	69.9	33.9	13.7	7.9	0.0	131.8
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	135.2	102.7	7.8	0.0	0.0	245.7

PLUVIOMETRIE (mm) POUR BABOSA(PICOS)

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	0.0	0.0	0.0	0.0	0.0	13.9	257.0	72.7	15.0	57.3	0.0	415.9
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	215.4	71.9	39.6	0.0	0.0	326.9
1990	0.0	0.0	0.0	0.0	0.0	0.0	45.0	43.4	174.6	93.1	0.0	0.0	356.1
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.6	238.2	32.5	0.0	0.0	350.3
1992	0.0	0.0	0.0	0.0	0.0	0.0	72.3	40.2	83.5	149.0	16.1	0.0	361.1
1993	65.8	0.0	0.0	0.0	0.0	0.0	20.2	180.4	132.9	0.0	0.0	0.0	399.3
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.0	81.1	4.2	0.0	0.0	142.3
1995	0.0	0.0	0.0	0.0	0.0	0.0	27.3	141.4	166.6	75.5	0.0	112.9	523.7
1996	0.0	0.0	0.0	0.0	0.0	0.0	3.5	135.9	78.3	0.0	11.2	0.0	228.9
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	222.1	82.5	0.0	0.0	0.0	304.6

PLUVIOMETRIE (mm) POUR CHAO BOM

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	2.3	40.7	0.0	0.0	0.0	0.0	1.2	103.6	91.3	0.0	47.6	1.0	287.7
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	187.6	21.4	6.0	0.0	0.0	215.0
1990	15.5	0.0	0.0	0.0	0.0	0.0	12.8	50.4	147.4	62.2	0.0	0.0	288.3
1991	0.0	0.0	0.0	0.0	0.0	0.0	1.8	126.4	11.1	40.4	0.0	1.0	180.7
1992	5.0	0.6	0.0	0.0	14.6	0.0	84.8	6.3	41.7	44.9	6.9	0.0	204.8
1993	24.7	0.0	0.0	0.0	0.0	0.0	1.4	230.0	96.7	0.0	0.0	0.0	352.8
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4	44.2	0.0	0.0	0.0	65.6
1995	0.0	0.0	0.0	0.0	0.0	0.0	14.8	33.2	7.0	19.6	0.0	0.0	74.6
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.6	10.8	0.0	3.9	0.0	51.3
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.9	10.2	0.0	0.0	0.0	80.1

PLUVIOMETRIE (mm) POUR CURRALINHO

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	4.5	40.0	0.0	0.0	0.0	0.0	5.5	316.0	158.2	25.0	78.5	0.0	627.7
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	221.1	97.5	76.4	9.0	37.0	441.0
1990	28.0	0.0	0.0	0.0	0.0	0.0	94.0	58.0	190.2	170.0	0.0	0.0	540.2
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.5	57.0	15.0	7.0	0.0	177.5
1992	0.0	0.0	0.0	0.0	0.0	0.0	8.2	15.5	90.5	167.5	7.0	0.0	288.7
1993	47.5	0.0	0.0	0.0	0.0	0.0	13.4	314.0	131.3	0.0	0.0	0.0	506.2
1994	0.0	0.0	0.0	0.0	0.0	0.0	16.0	112.7	84.6	0.0	0.0	0.0	213.3
1995	0.0	0.0	0.0	0.0	0.0	0.0	29.0	139.0	256.5	55.0	0.0	80.2	559.7
1996	0.0	0.0	0.0	0.0	0.0	0.0	2.8	170.9	67.2	0.0	0.0	0.0	240.9
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	404.8	83.2	19.1	0.0	0.0	507.1

PLUVIOMETRIE (mm) POUR CUTELO COVOADA

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	42.4	2.8	0.0	0.0	0.0	15.6	285.2	85.2	9.6	84.0	0.0	524.8
1989	0.0	0.0	0.0	0.0	0.0	0.0	5.0	212.1	59.7	44.8	1.5	11.0	334.1
1990	25.7	0.0	0.0	0.0	0.0	6.2	41.7	37.4	143.2	100.5	0.0	0.0	354.7
1991	0.0	3.0	0.0	0.0	0.0	0.0	0.0	75.7	106.8	17.7	0.0	0.0	203.2
1992	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.8	90.2	162.5	12.9	0.0	312.4
1993	46.2	0.0	0.0	0.0	0.0	0.0	0.0	105.9	89.0	0.0	0.0	0.0	241.1
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.5	53.7	0.0	0.0	0.0	91.2
1995	0.0	0.0	0.0	0.0	0.0	0.0	24.7	110.9	168.2	46.9	0.0	54.9	405.6
1996	0.0	0.0	0.0	0.0	0.0	0.0	10.5	117.5	50.7	9.0	11.0	0.0	198.7
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	202.9	58.4	1.5	0.0	0.0	262.8

PLUVIOMETRIE (mm) POUR ESCOLA AGRO PECUARIA

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	47.1	2.9	0.0	0.0	0.0	0.0	268.4	**	11.9	84.0	0.0	414.3*
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	234.3	54.6	51.2	4.5	11.2	355.8
1990	32.0	0.0	0.0	0.0	0.0	0.0	50.0	54.2	159.2	96.6	0.0	0.0	392.0
1991	0.0	3.2	0.0	0.0	0.0	0.0	0.0	80.2	94.0	15.3	0.0	5.2	197.9
1992	0.0	0.0	0.0	0.0	0.0	0.0	44.9	47.5	92.1	157.3	0.0	0.0	341.8
1993	**	0.0	0.0	0.0	0.0	0.0	16.3	242.7	176.5	0.0	0.0	0.0	435.5
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.6	97.5	0.0	0.0	0.0	181.1
1995	0.0	0.0	0.0	0.0	0.0	0.0	48.5	115.1	285.7	39.4	0.0	82.4	571.1
1996	0.0	0.0	0.0	0.0	0.0	0.0	3.4	140.9	34.5	22.0	0.0	0.0	200.8
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	285.2	82.0	0.0	0.0	0.0	367.2

PLUVIOMETRIE (mm) POUR FLAMENGOS

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	3.9	27.8	0.0	0.0	0.0	0.0	24.2	213.5	83.9	0.0	41.6	0.0	394.9
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	109.7	33.5	12.9	0.0	9.2	165.3
1990	20.8	0.0	0.0	0.0	0.0	0.0	29.5	39.5	83.9	186.4	0.0	0.0	360.1
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.6	8.2	0.0	0.0	0.0	96.8
1992	0.0	0.0	0.0	0.0	5.2	0.0	119.5	3.6	40.4	52.5	0.0	0.0	221.2
1993	0.0	0.0	0.0	0.0	0.0	0.0	0.0	204.0	44.0	0.0	0.0	0.0	248.0
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.6	25.5	0.0	0.0	0.0	57.1
1995	0.0	0.0	0.0	0.0	0.0	0.0	23.8	76.1	93.7	31.8	0.0	0.0	225.4
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	155.3	48.6	0.0	0.0	0.0	203.9

PLUVIOMETRIE (mm) POUR FUNCO BANDEIRA

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	50.0	0.0	0.0	0.0	0.0	19.1	123.4	25.3	0.0	125.9	0.0	343.7
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	191.6	19.6	32.3	0.0	0.0	243.5
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	15.4	0.0	0.0	0.0	43.4
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.9	0.0	0.0	0.0	60.9
1992	0.0	0.0	0.0	0.0	0.0	0.0	103.1	10.0	0.0	102.7	0.0	0.0	215.8
1993	0.0	0.0	0.0	0.0	0.0	0.0	0.0	133.4	29.5	0.0	0.0	0.0	162.9
1996	0.0	0.0	0.0	0.0	0.0	0.0	10.0	76.6	14.3	0.0	6.6	0.0	107.5
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	223.6	53.0	0.0	0.0	0.0	276.6

PLUVIOMETRIE (mm) POUR GUINDAO

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0..0	19.1	0.0	0.0	0.0	0.0	0.0	115.0	126.3	9.1	30.4	0.0	299.9
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	305.4	20.4	26.9	0.0	0.0	352.7
1990	0.0	0.0	0.0	0.0	0.0	0.0	63.4	31.3	94.4	90.1	0.0	0.0	279.2
1991	0.0	0.0	0.0	0.0	0.0	0.0	2.2	209.4	35.5	0.0	0.0	0.0	247.1
1992	0.0	0.0	0.0	0.0	5.4	0.0	176.6	13.0	25.0	53.4	6.5	0.0	279.9
1993	38.8	0.0	0.0	0.0	0.0	0.0	6.0	193.5	156.7	0.0	0.0	0.0	395.0
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	129.3	18.9	0.0	0.0	0.0	148.2
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	240.6	162.8	0.0	0.0	0.0	403.4

PLUVIOMETRIE (mm) POUR MATO BRASIL

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	9.8	0.0	0.0	0.0	0.0	22.3	601.1	430.3	20.8	221.2	0.0	*****
1989	0.0	0.0	0.0	0.0	0.0	0.0	5.2	300.7	125.1	0.0	0.0	0.0	431.0
1990	42.8	0.0	0.0	0.0	0.0	0.0	63.1	103.3	240.0	153.6	0.0	0.0	
991	0.0	0.0	0.0	0.0	0.0	5.0	25.8	200.9	81.9	15.3	0.0	0.0	328.9
1992	0.0	0.0	0.0	0.0	12.1	0.0	206.9	0.0	286.6	153.0	0.0	0.0	658.6
1993	**	0.0	0.0	0.0	0.0	0.0	10.7	245.5	82.8	0.0	0.0	0.0	339.0*
1996	0.0	0.0	0.0	0.0	0.0	0.0	25.8	16.1	0.0	0.0	0.0	0.0	41.9
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	127.1	18.0	0.0	0.0	0.0	145.1
MOY	6.1*	1.4*	0.0*	0.0*	1.7*	0.7*	45.0	199.3	158.1	42.8	31.6*	0.0*	485.2*

PLUVIOMETRIE (mm) POUR MILHO BRANCO

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	51.4	0.0	0.0	0.0	0.0	4.4	162.5	48.8	0.0	220.0	0.0	487.1
1989	**	**	**	**	**	**	**	38.2	**	16.2	**	**	54.4*
1990	29.6	**	**	**	**	**	42.5	8.9	131.1	115.1	**	**	327.2*
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.9	7.3	0.0	0.0	0.0	53.2
1992	0.0	0.0	0.0	0.0	31.1	0.0	10.7	0.0	93.5	85.5	23.4	0.0	244.2
1993	13.0	0.0	0.0	0.0	0.0	0.0	3.2	19.8	32.8	0.0	0.0	0.0	68.8
1994	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	32.6	0.0	0.0	0.0	64.6
1995	0.0	0.0	0.0	0.0	0.0	0.0	25.0	89.3	109.6	0.0	0.0	0.0	223.9
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.7	22.5	0.0	0.0	0.0	116.2
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.8	56.4	0.0	0.0	0.0	127.2*

PLUVIOMETRIE (mm) POUR MONTANHA BANANA

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	0.0	0.0	0.0	0.0	0.0	10.5	181.7	55.0	0.0	130.0	0.0	377.2
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	109.0	31.0	0.0	0.0	0.0	140.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	15.0	209.2	95.0	32.0	0.0	0.0	351.2
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	2.2	0.0	0.0	0.0	18.2
1993	73.0	0.0	0.0	0.0	0.0	0.0	0.0	184.5	18.8	0.0	0.0	0.0	276.3
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	1.5	0.0	0.0	0.0	34.5
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.0	49.0	0.0	0.0	0.0	145.0

PLUVIOMETRIE (mm) POUR MONTANHA NHAGAR

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	TOTAL
1988	0.0	0.0	0.0	0.0	0.0	0.0	11.5	228.5	73.0	0.0	126.5	0.0	439.5
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	172.5	47.0	51.0	0.0	0.0	270.5
1990	50.0	0.0	0.0	0.0	0.0	0.0	38.0	21.0	179.5	140.5	0.0	0.0	429.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.0	13.0	0.0	0.0	0.0	47.0
1992	0.0	0.0	0.0	0.0	0.0	0.0	72.5	0.0	64.0	0.0	0.0	0.0	136.5
1993	75.0	0.0	0.0	0.0	0.0	0.0	0.0	125.7	**	0.0	0.0	0.0	200.7*
1996	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.0	29.0	0.0	0.0	0.0	154.0
1997	0.0	0.0	0.0	0.0	0.0	0.0	0.0	111.0	109.5	0.0	0.0	0.0	220.5

TEMPERATURA MÉDIA DAS ESTAÇÕES AGROCLIMATOLOGICAS DA ILHA DE SANTIAGO
PERÍODO 1987-1996

TEMPERATURE, MOYENNE (°C) POUR ASSOMADA PORTAOZINHO

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	18.4*	18.4*	18.9*	19.5*	20.6*	21.4*	22.1*	22.9*	23.2*	22.7*	21.6*	19.8	20.6*

TEMPERATURE, MOYENNE (°C) POUR CHAO BOM

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	23.2*	22.7*	22.9*	23.6	24.3*	25.1*	25.8*	26.8*	27.4*	27.0*	25.9*	24.7*	25.1*

TEMPERATURE, MOYENNE (°C) POUR SANTA CRUZ

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	21.7*	21.7*	21.8*	22.7*	23.6*	24.5*	25.8*	27.0*	27.3*	26.4*	24.8*	23.4*	**

TEMPERATURE, MOYENNE (°C) POUR SAO DOMINGOS

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	20.6*	21.0*	21.6*	22.1*	23.3*	24.0*	24.7*	25.3*	25.7*	25.4*	24.0*	22.3*	23.1*

TEMPERATURE, MOYENNE (°C) POUR SAO FRANSCISCO

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	22.0*	22.0*	22.6	23.0*	24.0	24.8*	25.7*	26.4	26.9*	26.4*	25.3*	23.5*	24.3*

TEMPERATURE, MOYENNE (°C) POUR SAO JORGE DOS ORGAOS

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	19.4	19.8	20.5	21.[illegible]	22.7	23.6	24.0	24.7	24.7	23.8	22.5	20.8	22.3

TEMPERATURE, MOYENNE (°C) POUR TELHAL

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	20.7*	21.0*	21.6*	21.9*	23.1*	23.4*	24.0*	24.9*	24.9*	24.6*	24.4*	22.0*	23.1*

TEMPERATURE, MOYENNE (°C) POUR TRINDADE

Année	Jan	Fév	Mar	Avr	Mai	Jui	Jui	Aoû	Sep	Oct	Nov	Déc	MOY
MOY	21.9*	22.1*	22.2*	23.2*	24.4*	24.9*	25.2*	25.7	26.2*	26.1*	25.0*	23.5	24.2*

Nota : * = com algum dado faltoso

Fonte : INIDA/AGRHYMET

CALCULATION BASE OF SORNTHWAITE

ASSOMADA (Santa Catarina) 550 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
18.4	18.4	18.9	19.5	20.6	21.4	22.1	22.9	23.2	22.7	21.6	19.8	21.6
7.1894	7.1894	7.4873	7.85	8.5301	9.0366	9.4879	10.013	10.212	9.8806	9.1648	8.0335	104.0743
57.007	53.481	64.354	69.785	84.424	89.608	100.01	104.6	101.77	95.879	80.514	67.397	80.7357
				a =	2.2832							

CHAO BOM (Tarrafal) 7 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
23.2	22.7	22.9	23.6	24.3	25.1	25.8	26.8	27.4	27	25.9	24.7	26.5
10.212	9.8806	10.013	10.48	10.954	11.504	11.994	12.704	13.138	12.849	12.064	11.228	137.0192
85.337	74.608	86.878	96.701	113.45	122.59	138.96	151.55	153.77	145.18	119.36	104.52	116.0749
				a =	3.2367							

PRAIA (Praia) 67 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
23.5	25.2	23.7	24.1	25.1	26.2	26	26.5	26.5	26	26	25.5	25.1
10.413	11.574	10.547	10.818	11.504	12.276	12.135	12.49	12.49	12.135	12.135	11.783	140.2986
87.501	103.75	95.592	102.09	124.88	140.29	141.8	145.75	137.66	127.87	120.28	115.07	120.2108
				a =	3.353							

Santa Cruz 6 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
21.7	21.7	21.8	22.7	23.6	24.5	25.8	27	27.3	26.4	24.8	23.4	21.6
9.2291	9.2291	9.2936	9.8806	10.48	11.091	11.994	12.848	13.065	12.418	11.297	10.346	131.1705
71.691	67.256	77.197	88.146	105.89	115.43	140.08	155.1	151.48	135.47	105.37	90.165	108.6056
				a =	3.0398							

Sao Domingos 247 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
20.6	21	21.6	22.1	23.3	24	24.7	25.3	25.7	25.4	24	22.3	21.6
8.5301	8.7821	9.1648	9.4879	10.279	10.75	11.228	11.644	11.923	11.713	10.75	9.6182	123.8694
64.876	64.245	78.711	84.758	104.97	110.99	124.8	128.74	127.07	121.74	97.633	81.081	99.13431
				a =	2.812							

Sao Franscisco 104 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
22	22	22.6	23	24	24.8	25.7	26.4	26.9	26.4	25.3	23.5	21.6
9.423	9.423	9.8148	10.079	10.75	11.297	11.923	12.418	12.776	12.418	11.644	10.413	132.3789
74.168	69.58	85.559	91.186	110.95	119.42	138.21	144.78	144.87	135.39	111.71	90.871	109.725
				a =	3.0794							

Sao Jorge Dos Orgas 350 m

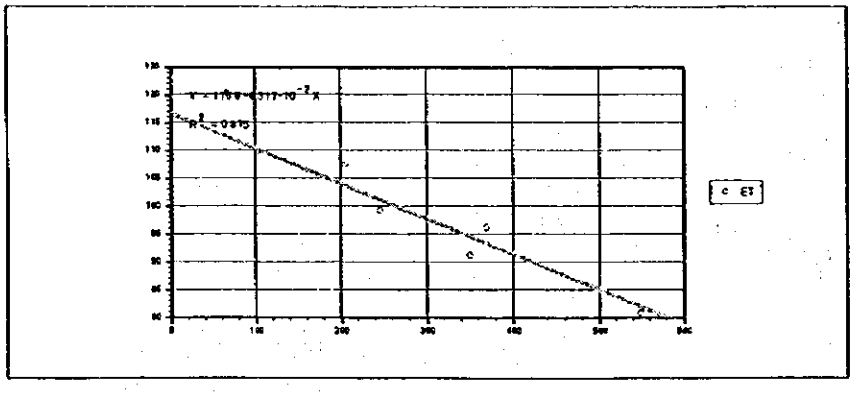
Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
19.4	19.8	20.5	21.4	22.7	23.6	24	24.7	24.7	23.8	22.5	20.8	21.6
7.7892	8.0336	8.4675	9.0366	9.8806	10.48	10.75	11.228	11.228	10.614	9.7491	8.6558	115.9123
58.756	58.108	71.95	81.183	100.92	108.57	117.59	122.14	115.35	103.77	84.415	70.352	91.03139
				a =	2.5849							

Telhal 370 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
20.7	21	21.6	21.9	23.1	23.4	24	24.9	24.9	24.6	24.4	22	21.6
8.5929	8.7821	9.1648	9.3582	10.145	10.346	10.75	11.366	11.366	11.159	11.022	9.423	121.4749
66.911	65.297	79.842	83.724	103.43	104.26	115.89	123.62	116.75	111.83	102.86	79.07	96.12428
				a =	2.7415							

Trinidade 205 m

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
21.9	22.1	22.2	23.2	24.4	24.9	25.2	25.7	26.2	26.1	25	23.5	21.6
9.3582	9.4879	9.553	10.212	11.022	11.366	11.574	11.923	12.276	12.205	11.435	10.413	130.8257
73.883	71.248	81.753	94.331	117.29	121.35	130.5	133.55	133.71	130.88	108.05	91.473	107.3357
				a =	3.0286							



PENMAN METHOD

ASSOMADA (Santa Catarina)

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
29.8	31.7	37.6	41.5	43.5	41.3	35	36.4	36.8	36.9	28.8	29.9	429.2
14.918	16.382	21.213	24.631	26.45	24.452	19.032	20.196	20.533	20.618	14.167	14.994	237.5858
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

CHAO BOM (Tarrafal)

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
40.3	39.3	51	54	54.6	54.3	48.8	47.6	45.7	46.1	41	38	560.7
23.561	22.681	33.653	36.695	37.314	37.004	31.479	30.315	28.502	28.88	24.183	21.555	355.8222
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

PRAIA (Praia)

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
23.5	25.2	23.7	24.1	25.1	26.2	26	26.5	26.5	26	26	25.5	25.1
10.413	11.574	10.547	10.818	11.504	12.276	12.135	12.49	12.49	12.135	12.135	11.783	140.2986
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

Santa Cruz

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
30.1	30.5	39.4	40.2	42.7	41.3	40.7	40.2	41.5	40.3	33.3	29.7	449.9
15.146	15.452	22.769	23.472	25.717	24.452	23.916	23.472	24.631	23.561	17.65	14.843	255.0816
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

Sao Domingos

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
34.3	34	45.3	53	52.1	48	45.6	43.2	42.2	36.6	35.7	38	508
18.458	18.215	28.125	35.671	34.758	30.701	28.407	26.175	25.263	20.364	19.611	21.555	307.3034
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

Sao Franscisco

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
40.3	39.3	48	53.4	57.7	51.8	46.2	48.5	46	46.7	40	39	556.9
23.561	22.681	30.701	36.079	40.568	34.455	28.975	31.187	28.786	29.451	23.296	22.42	352.1604
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

Sao Jorge Dos Orgas

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
26.6	30.6	39.3	40.7	44.7	43.8	39.7	39	36	36.7	30	27.3	434.4
12.561	15.529	22.681	23.916	27.563	26.727	23.032	22.42	19.861	20.449	15.07	13.065	242.8738
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

Telhal

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
37.1	37.3	48	51	52.5	43.4	44	42.3	38	39	40	36	508.6
20.787	20.957	30.701	33.653	35.163	26.358	26.912	25.354	21.555	22.42	23.296	19.861	307.0164
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

Trinidade

Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Annual
44	43.3	53.6	56.8	61.8	56.4	50.1	49	48.5	49.3	45.6	43	601.4
26.912	26.266	36.284	39.613	45.011	39.192	32.758	31.675	31.187	31.969	28.407	25.991	395.2661
15.52	14.56	16.48	16.64	17.76	17.28	17.92	17.28	16.32	16.16	15.2	15.52	16.38667

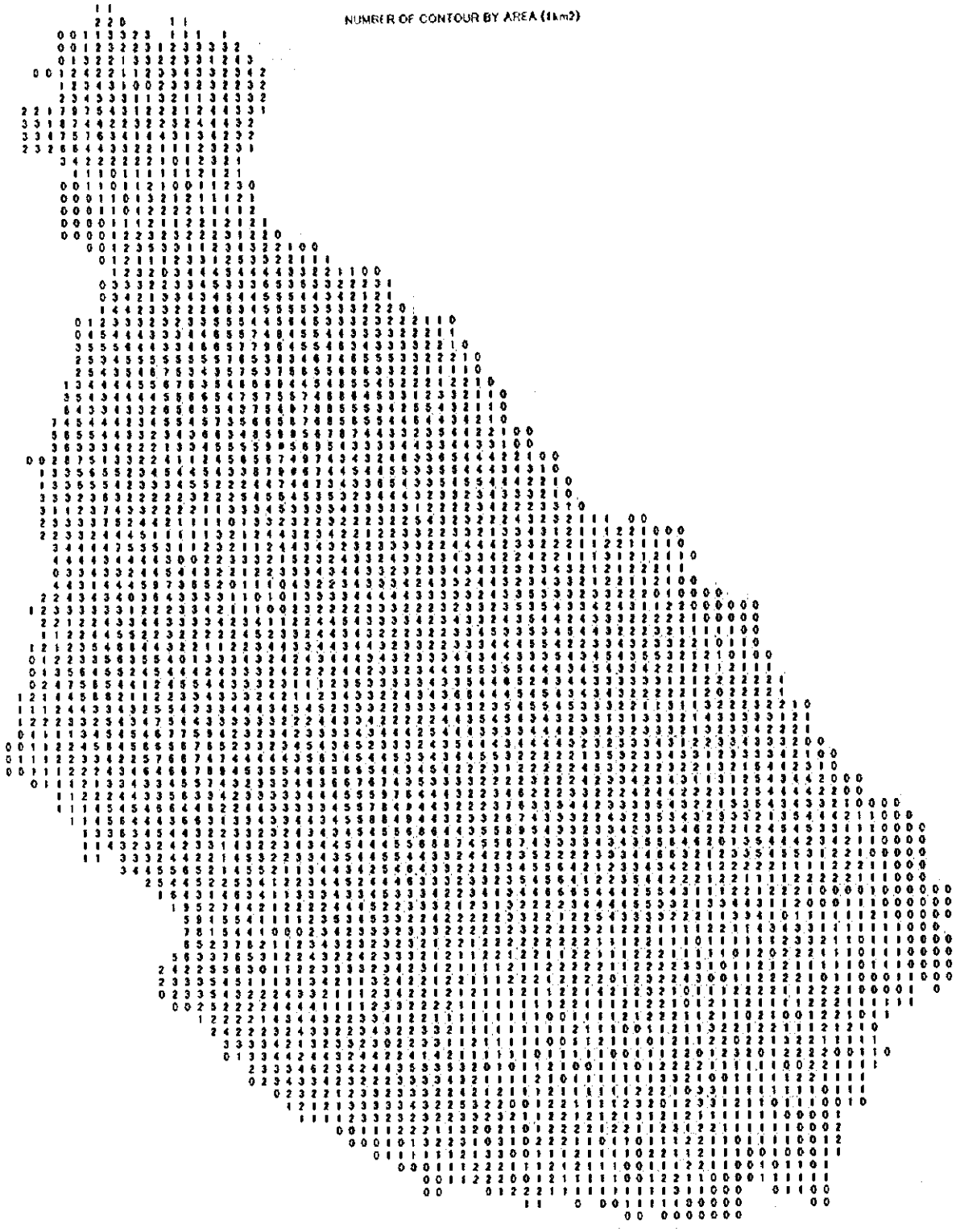
Infiltration			*Basement*	*0.05*	*PA*	*(X<5)=*	*0.2*	*(5=<X<20)=*	*0.15*	*(20<=X)=*	*0.1*	*Others =*	*0*			
Basin \ Precipitation		***100***	***150***	***200***	***250***	***300***	***350***	***400***	***450***	***500***	***550***	***600***	***650***	***700***		
PRAIA	Area (km2)	*0.000*	*68.271*	*48.146*	*27.196*	*23.933*	*7.516*	*2.721*	*1.411*	-	-	-	-	-	*179.194*	
	Annual Rain Volume (million m3)	*0.000*	*10.241*	*9.629*	*6.799*	*7.180*	*2.631*	*1.088*	*0.635*	-	-	-	-	-	*38.203*	
	BRC	*0*	*17.776*	*9.377*	*3.109*	*0.826*	*0.172*	*0.000*	*0.000*						*31.260*	
		0	*0.889*	*0.469*	*0.155*	*0.041*	*0.009*	*0.000*	*0.000*						*1.563*	
	PA	*0*	*50.495*	*38.769*	*24.087*	*23.107*	*7.344*	*2.721*	*1.411*						*147.934*	
		0.000	*10.099*	*5.815*	*3.613*	*3.466*	*1.102*	*0.408*	*0.212*						*24.715*	*26.278*
S.J. BAPTISTA	Area (km2)	*38.776*	*46.882*	*29.061*	*18.577*	*10.931*	*7.807*	*2.608*	*0.139*	-	-	-	-	-	*154.782*	
	Annual Rain Volume (million m3)	*3.878*	*7.032*	*5.812*	*4.644*	*3.279*	*2.733*	*1.043*	*0.063*	-	-	-	-	-	*28.484*	
	BRC	*3.199*	*14.064*	*4.201*	*0.045*	*0.000*	*0.000*	*0.000*	*0.000*						*21.509*	
		0.160	*0.703*	*0.210*	*0.002*	*0.000*	*0.000*	*0.000*	*0.000*						*1.075*	
	PA	*35.577*	*32.818*	*24.860*	*18.532*	*10.931*	*7.807*	*2.608*	*0.139*						*133.273*	
		5.337	*4.923*	*3.729*	*2.780*	*1.640*	*1.171*	*0.261*	*0.014*						*19.854*	*20.929*
SANTA CRUZ(C)	Area (km2)	*0.000*	*2.406*	*10.735*	*17.332*	*28.712*	*37.360*	*10.360*	*6.004*	-	-	-	-	-	*112.909*	
	Annual Rain Volume (million m3)	*0.000*	*0.361*	*2.147*	*4.333*	*8.614*	*13.076*	*4.144*	*2.702*	-	-	-	-	-	*35.376*	
	BRC	*0.000*		*10.735*	*13.309*	*8.411*	*5.719*	*10.360*	*5.620*						*54.154*	
		0.000		*0.537*	*0.665*	*0.421*	*0.286*	*0.518*	*0.281*						*2.708*	
	PA	*0.000*	*2.406*	*(0.000)*	*4.023*	*20.301*	*31.641*	*0.000*	*0.384*						*58.755*	

Infiltration			Basement	0.05	PA	(X<5)=	0.2	(5=<X<20)=	0.15	(20<=X)=	0.1	Others =	0			
Basin \ Precipitation		100	150	200	250	300	350	400	450	500	550	600	650	700		
		0.000	0.481	(0.000)	0.805	3.045	4.746	0.000	0.077						9.154	11.862
SANTA CRUZ(B)	Area (km2)	-	-	-	7.360	23.060	14.879	15.454	10.338	0.023	-	-	-	-	71.114	
	Annual Rain Volume (million m3)	-	-	-	1.840	6.918	5.208	6.182	4.652	0.011	-	-	-	-	24.811	
	BRC	0.000			2.602	10.482	8.060	3.491	2.507	0.000					27.142	
		0.000			0.130	0.524	0.403	0.175	0.125	0.000					1.357	
	PA	0.000			4.758	12.578	6.819	11.963	7.831	0.023					43.972	
		0.000			0.714	1.887	1.023	1.794	1.175	0.002					6.595	7.952
SANTA CRUZ(A)	Area (km2)	-	-	36.957	30.293	27.068	20.423	30.097	15.653	7.251	2.614	0.651	0.015	-	171.023	
	Annual Rain Volume (million m3)	-	-	7.391	7.573	8.120	7.148	12.039	7.044	3.625	1.438	0.391	0.010	-	54.780	
	BRC	0.000		0.990	2.619	3.846	11.518	1.181	0.895	0.000	0.000	0.000	0.000		21.049	
		0.000		0.050	0.131	0.192	0.576	0.059	0.045	0.000	0.000	0.000	0.000		1.052	
	PA	0.000		35.967	27.674	23.222	8.905	28.916	14.758	7.251	2.614	0.651	0.015		149.974	
		0.000		5.395	4.151	3.483	1.336	4.337	2.214	1.088	0.261	0.065	0.002		22.332	23.385
SANTA CATATINA	Area (km2)	-	27.408	25.990	21.066	20.265	18.912	13.071	1.505	0.043	-	-	-	-	128.259	
	Annual Rain Volume (million m3)	-	4.111	5.198	5.266	6.079	6.619	5.228	0.677	0.022	-	-	-	-	33.202	
	BRC	0.000	0.721	4.372	5.994	8.577	3.884	0.944	0.000	0.000					24.492	
		0.000	0.036	0.219	0.300	0.429	0.194	0.047	0.000	0.000					1.225	
	PA	0.000	26.687	21.618	15.072	11.688	15.028	12.127	1.505	0.043					103.767	

Infiltration			Basemen	0.05	PA	(X<5)=	0.2	(5=<X<20)=	0.15	(20<=X)=	0.1	Others =	0			
Basin \ Precipitation		100	150	200	250	300	350	400	450	500	550	600	650	700		
		0.000	4.003	2.162	1.507	1.753	2.254	1.819	0.226	0.004					13.728	14.953
TARRAFAL(A)	Area (km2)	-	6.398	46.530	21.380	12.787	9.729	8.784	8.726	7.714	7.667	8.615	3.898	0.348	142.576	
	Annual Rain Volume (million m3)	-	0.960	9.306	5.345	3.836	3.405	3.513	3.927	3.857	4.217	5.169	2.534	0.244	46.313	
	BRC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.135	0.126	0.000	0.000	0.000	0.000	0.261	
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.006	0.000	0.000	0.000	0.000	0.013	
	PA	0.000	6.398	46.530	21.380	12.787	9.729	8.784	8.591	7.588	7.667	8.615	3.898	0.348	142.315	
		0.000	1.280	6.980	3.207	1.918	1.459	0.878	1.289	0.759	0.767	0.861	0.390	0.035	19.822	19.835
TARRAFAL(B)	Area (km2)	-	4.041	25.346	15.919	-	-	-	-	-	-	-	-	-	45.306	
	Annual Rain Volume (million m3)	-	0.606	5.069	3.980	-	-	-	-	-	-	-	-	-	9.655	
	BRC	0.000	0.229	4.476	5.664										10.369	
		0.000	0.011	0.224	0.283										0.518	
	PA	0.000	3.812	20.870	10.255										34.937	
		0.000	0.572	3.130	1.538										5.241	5.759
SANTIAGO ISLAN	Area (km2)	38.776	155.406	222.764	159.122	146.756	116.627	83.095	43.776	15.031	10.281	9.266	3.914	0.348	1005.163	
	Annual Rain Volume (million m3)	3.878	23.311	44.553	39.780	44.027	40.819	33.238	19.699	7.516	5.655	5.560	2.544	0.244	270.823	
	BRC	3.199	32.069	29.779	27.348	23.565	25.469	15.032	9.157	0.126	0.000	0.000	0.000	0.000	165.744	
		0.160	1.603	1.489	1.367	1.178	1.273	0.752	0.458	0.006	0.000	0.000	0.000	0.000	8.287	
	PA	35.577	123.337	192.985	131.774	123.191	91.158	68.063	34.619	14.905	10.281	9.266	3.914	0.348	839.419	
		5.337	17.354	25.049	16.807	15.439	10.837	7.679	4.979	1.849	1.028	0.927	0.391	0.035	107.712	115.999

Table of Surface dip and gradient by Basin

		100	150	200	250	300	350	400	450	500	550	600	650	700
PRAIA	mean gradiant		0.863	1.027	1.298	1.549	2.467	3.000	2.714					
	degree		4.9	5.9	7.4	8.8	13.9	16.7	15.2					
SJ BAPTISTA	mean gradiant	2.755	2.511	2.887	2.944	3.455	4.625	4.091						
	degree	15.4	14.1	16.1	16.4	19.1	24.8	22.2						
SANTA CRUZ(C)	mean gradiant		0.75	0.325	0.5	2.0377	2.7172	2.7143	0.6818					
	degree		4.3	1.9	2.9	11.5	15.2	15.2	3.9					
SANTA CRUZ(B)	mean gradiant				2.941	2.975	2.680	3.489	4.321					
	degree				16.4	16.6	15.0	19.2	23.4					
SANTA CRUZ(A)	mean gradiant			2.455	2.696	2.826	3.169	3.463	3.200	4.381	5.750	7.500		
	degree			13.8	15.1	15.8	17.6	19.1	17.7	23.7	29.9	36.9		
SANTA CATATINA	mean gradiant		2.187	3.941	3.967	3.068	2.909	1.920	2.800	5.000				
	degree		12.3	21.5	21.6	17.1	16.2	10.9	15.6	26.6				
TARRAFAL(A)	mean gradiant		0.310	2.872	2.989	3.569	3.575	3.641	3.447	4.500	5.133	5.595	7.286	5.000
	degree		1.8	16.0	16.6	19.6	19.7	20.0	19.0	24.2	27.2	29.2	36.1	26.6
TARRAFAL(B)	mean gradiant		3.0588	2.4045	2.48									
	degree		17.0	13.5	13.9									


NUMBER OF CONTOUR BY AREA (1km2)

AREA OF EACH GEOLODY BY ISOHYET BY BASIN (figures in 1/200000, mm)

PRAIA

	Basement	Orgas	Flamengos	Alluvium
150	277.349	3.297	163.755	95.567
200	229.279	3.117	2.039	18.421
250	77.735	–	–	–
300	4.809	–	15.842	–
350	4.300	–	–	–
400	–	–	–	–
450	–	–	–	–

SJ BAPTISTA

	Basement	Orgas	Flamengos	Alluvium
100	23.548	–	56.419	36.789
150	52.529	1.131	297.946	37.326
200	21.836	–	83.178	9.433
250	–	–	1.130	3.275
300	–	–	–	0.769
350	–	–	–	–
400	–	–	–	–
450	–	–	–	–

SANTA CRUZ(C)

	Basement	Orgas	Flamengos	Alluvium
200	–	–	286.634	77.923
250	–	–	332.714	57.584
300	–	–	210.275	24.560
350	2.441	–	140.523	3.229
400	221.891	14.190	127.786	8.191
450	123.288	1.099	16.109	–
500	50.834	–	–	–
550	–	–	–	–
600	–	–	–	–
650	–	–	–	–

SANTA CRUZ(B)

	Basement	Orgas	Flamengos	Alluvium
250	–	65.039	–	5.843
300	–	262.046	–	13.062
350	–	201.502	–	16.248
400	–	87.274	–	37.002
450	–	62.686	–	2.002
500	–	–	–	–

SANTA CRUZ(A)

	Basement	Orgas	Flamengos	Alluvium
150	–	–	1.772	–
200	24.742	–	–	–
250	–	8.087	57.386	6.605
300	9.250	8.101	78.789	46.026
350	84.812	81.942	121.198	74.014
400	11.302	18.230	–	34.216
450	15.457	6.922	–	9.324

SANTA CATATINA

	Basement	Orgas	Flamengos	Alluvium
150	0.443	–	17.573	28.424
200	64.151	22.897	22.252	42.863
250	146.951	2.892	–	18.474
300	214.424	–	–	22.199
350	97.095	–	–	21.231
400	17.755	–	5.843	0.255
450	–	–	–	–
500	–	–	–	–

TARRAFAL(A)

	Basement	Orgas	Flamengos	Alluvium
150	–	–	–	0.827
200	–	–	–	18.736
250	–	–	–	0.958
300	–	–	–	2.205
350	–	–	–	1.896
400	–	–	–	4.807
450	–	–	3.371	13.019
500	–	–	3.152	10.269
550	–	–	–	4.507
600	–	–	–	5.688
650	–	–	–	3.356
700	–	–	–	–

TARRAFAL(B)

	Basement	Orgas	Flamengos	Alluvium
150	5.723	–	–	2.930
200	34.585	77.322	–	3.541
250	17.933	123.676	–	6.023

WATER SOURCE INVENTORY

(1) Inventory of Well
(2) Inventory of Spring

Hydrogeological	Well	Well Type	Location			Axis			Construction	Depth	Static Water Level		Aquifer Information			Discharge	Water Quality		
Basin	Number		Concelho	Zona	Rugar	Longitude	Latitude	Altitude	Date		Latest Data								
											Date	SWL	Aquifer	Depth		Qm3/h	Date	Cond	Temp
										GL-m		GL-m		from	to				
Praia	FBE001a	Production	PRA	Lapa Cachoro		2.18600	16.56688	330.00								21.00			
	FBE053	Production	S.DOM	Rib. Chiqueiro		2.26540	16.59940	314.00	25/11/83	113.70		99.96				21.00			
	FBE058	Production	PRA	Joao Varela		2.21800	16.55300	249.00	01/11/84			55.94				23.00			
	FT075	Production	PRA	Font. Almeida		2.23910	16.60500	430.00	11/07/73	53.00		11.27				2.00		638	26.8
	FT077	Production	S.DOM	Fontes		2.23335	16.60345	438.00	19/07/73	57.00						6.00		442	26.1
	FT171	Production	PRA	Monte Vaca		2.26870	16.57500	212.00	19/01/76	79.00						13.00			
	FT202	Production	PRA	Joao Varela		2.21350	16.56630	309.51	16/11/78	96.00		79.36				21.00		612	
	FBE001	Monitoring		Bota Rama					10/11/87		28/10/94	77.63							
	FBE016	Monitoring		S. Martinho		2.23330	16.53490	142.90	28/11/80	64.00	28/11/80	8.74	PA						
	FBE022	Monitoring		Figueira Portugal		2.22260	16.58210	377.00	07/04/81	81.00	07/04/81	50.20	PA,CA					377	27.4
	FBE031	Monitoring		J. Varela		2.21670	16.55380	255.23	05/11/81	126.00	05/11/81	58.00	PA					2732	27.3
	FBE039	Monitoring		Caiada		2.23480	16.51670	110.46	30/06/82	109.00	30/06/82	25.30	PA,CA					1266	28.5
	FBE044	Monitoring		Ach. S. Antonio		2.28395	16.49275		27/09/82	80.00	27/09/82	31.40	PA					1526	28.1
	FBE164	Monitoring		Monte Vaca					18/03/96	64.40	19/03/96	48.30	PA						
	FT201	Monitoring	PRA	Joao Varela		2.21780	16.55270	247.43	30/09/78	99.00		77.06				9.00		350	
	FT244	Monitoring		Bota Rama		2.20205	16.53760	245.99	07/10/83	89.00	28/10/94	81.58	PA						
	FT259	Monitoring		Salineiro		2.18900	16.53215	206.65	02/04/84	108.00	02/04/84	41.72	PA,CA						
	FT262	Monitoring		Salineiro		2.18440	16.52210	174.78	28/05/84	111.00	28/05/84	61.60	PA,FL						
	FT263	Monitoring		Salineiro		2.18390	16.51625	149.11	03/07/84	106.30	03/07/84	73.60	PA,FL						
	FT301	Monitoring		Bota Rama		2.20285	16.53990	231.66	17/08/85		28/10/94	68.43	PA						
	FT303	Monitoring		Bota Rama		2.19710	16.53480	217.83	19/08/85	79.00	28/10/94	64.50	PA						
	FT304	Monitoring		Bota Rama		2.20635	16.53290	223.31	17/09/87	80.10	28/10/94	77.52	PA					500	27.6
	PT061	Monitoring		Ceris		2.29300	16.50010	5.00	24/07/86	18.50	24/07/86	4.00	AL						
	FBE156	Pump Test	S.DOM	Rib. Chiquero															
	FT117	Pump Test	PRA	Ach. Palmarejo		2.23940	16.51330	105.00	30/11/73	73.30	28/03/88	28.37	PA			2.03		1547	29.8
Santa Catarina	FBE067	Production	S.CAT	Vivenda		2.10800	16.73480	481.00	01/02/86	121.00	01/02/86		PA,CA			4.00			
	FBE069	Production	S.CAT	Ach. Pelado		2.09200	16.73825	432.00	01/02/86	73.00			PA,CA			3.00			
	FBE083	Production	S.CAT	Ach. Gomes		2.10900	16.70900	480.00		103.00		63.45	PA/CA			2.00			
	FBE089	Production	S.CAT	Pinha Engenhos		2.12500	16.68650	410.00		78.00	15/05/81	2.78				3.00			
	FBE092	Production	S.CAT	Torre		2.11585	16.70300	535.00	02/05/87	100.00						16.00			
	FBE099	Production	S.CAT	Ach. Porta		2.06300	16.77150	435.00	05/08/87	173.50						4.00			
	FBE100	Production	S.CAT	Ach. Galego		2.10450	16.70150	500.00	03/11/87	166.00						9.00			
	FBE110	Production	S.CAT	Rib. Da Brava												3.00			
	FT127	Production	S.CAT	Fundura		2.09700	16.79000		18/02/74	57.00						3.00			
	FT186	Production	S.CAT	Torre		2.11360	16.70555	495.00	30/06/77	100.00						8.00		456	27
	FT198	Production	S.CRUZ	S. Jorge		2.22940	16.75640	20.00	02/05/78	36.00						4.00		985	26.5
	FT212	Production	S.CAT	Cutelao		2.07675	16.76400	445.00								4.00		1512	27.2
	FT185	Monitoring		Torre Assomada		2.11580	16.70300	535.00	12/05/77	80.00	12/05/77	58.00	PA						
	FBE073	Pump Test	S.CAT	Ach. For a		2.08225	16.77125	510.00	03/08/86	249.00			PA(FL)			1.00			
	FBE116	Pump Test	S.CAT	Ach. Galego					26/08/88				AL,CA						
	FBE120	Pump Test	S.CAT	Ach. Carapati					16/11/88	151.00			PA						

Hydrogeological	Well	Well Type	Location			Axis			Construction	Depth	Static Water Level		Aquifer Information			Discharge	Water Quality		
Basin	Number		Concelho	Zona	Rugar	Longitude	Latitude	Altitude	Date		Latest Data								
											Date	SWL	Aquifer	Depth		Qm3/h	Date	Cond	Temp
										GL -m		GL-m		from	to				
Santa Catarina	FBE170	Pump Test	S.CAT	Charco						56.00	04/02/97	25.34	AL/CA						
	FBE172	Pump Test	S.CAT	Mato Sancho									AL/CA						
	FBE180	Pump Test	S.CAT	Assomada					01/07/98	182.00			PA						
Santa Cruz A	FBE074	Production	S.CAT	Boa Entrada		2.12000	16.72750	350.00		68.00	09/07/86	16.91	CA			5.00			
	FBE076	Production	S.CAT	Chao Gomes		2.13875	16.73575	268.00		102.50	04/07/86	9.19	CA			4.00			
	FBE077	Production	S.CAT	Banana Semedo		2.12075	16.73650	340.00		114.00	17/07/86	11.14				3.00			
	FBE090	Production	S.CAT	Goiaba		2.15430	16.69700	330.00	20/04/87	76.00						6.00			
	FBE104	Production	S.CAT	Leitao Grande		2.15520	16.67230	640.00	13/01/88	66.00						2.00			
	FBE117	Production	PRA	Caiada		2.12625	16.70300	545.00	07/08/88	116.00	07/08/88	64.50	PA			15.00			
	FBE134	Production	S.MIG	Pilao Cao		2.16200	16.80580	90.00		36.00		27.00				8.00		1049	
	FBE144	Production	S.MIG	Ribeireta					13/05/92	30.00		17.95				19.00			
	FBE169	Production	S.CRUZ	Rib. Seca							24/01/97	21.10				25.00			
	FT005	Production	S.MIG	Flamengos		2.17550	16.77725	650.00	29/04/72	70.00									
	FT035	Production	S.MIG	S. Miguel		2.16750	16.80700	70.00	26/02/73	50.00						18.00		842	26.6
	FT039	Production	S.MIG	Ribeireta		2.19110	16.80400	20.00	13/03/73	43.50						29.00		922	26.1
	FT053	Production	S.MIG	Calheta		2.19725	16.79750	33.00	24/04/73	42.00						13.00		1187	28.2
	FT059	Production	S.CRUZ	Rib. Dos Picos		2.25250	16.73205	23.00		50.00	03/08/71	18.92				45.00		1406	26.7
	PT033	Production	S.CRUZ	Rib. Picos		2.24650	16.72890	60.00	18/11/82	50.50						28.00			
	PT047	Production	S.DOM	Rib. Praia Formos		2.30800	16.85070	30.00	26/08/83	17.00		8.34						918	27.4
	SP034	Production	S.CRUZ	Rib. Dos Picos		2.25285	16.73435	21.00	13/09/73	7.00						36.00		755	27.7
	PT038	Monitoring		St. Cruz					20/08/83	17.00	20/08/83	6.50	PA					1700	28
	FBE097	Pump Test	S.CAT	Picos		2.16450	16.69150	330.00	30/06/87	78.00	10/02/86	0.00	AL/CA			3.00			
	FBE143	Pump Test	S.MIG	Calhetona					25/03/92	19.50	12/05/92	7.70							
	SP010	Pump Test	S.CRUZ	Rib. Dos Picos		2.26170	16.73855	9.00	08/11/72	10.80			AL/PA-Lri			26.00			
	SP039	Pump Test	S.CRUZ	Rib. Dos Picos		2.26440	16.73850	10.50	31/01/74	19.10			AL/PA-Lri			36.00			
Santa Cruz B	FBE056	Production	S.DOM	Caiumbra		2.25500	16.65100	133.00	25/07/85	107.00						8.00		918	29
	FBE146	Production	S.CRUZ	Librao					03/08/92	77.00		22.60				10.00			
	FT009	Production	S.CRUZ	Macati		2.27136	16.71241	24.00	19/08/72	41.80						31.00		758	26.3
	FT021	Production	S.CRUZ	Pico Antonia		2.17175	16.66610	440.00	22/12/72	50.00						8.00		780	26.6
	FT023	Production	S.CRUZ	S. Jorge		2.19225	16.65895	282.00	13/01/73	50.00						9.00		804	26.4
	FT063	Production	S.CRUZ	Rib. Dos Picos		2.26730	16.70760	29.00	26/05/73	63.00	22/05/73	17.50	PA			31.00		837	26.7
	FT064	Production	S.CRUZ	Leui Gorge		2.25690	16.96750	49.00	01/08/73	18.00									
	FT080	Production	S.CRUZ	Buguende		2.19095	16.66820	270.00	01/04/74	70.00		5.23				11.00		851	26.9
	FT109	Production	S.DOM	Praia Baixo		2.32390	16.66180	20.00	16/11/73	66.00		16.57				4.00		3679	29.3
	FT371	Production	S.CRUZ	Orgas Peq.												10.00			
	FT373	Production	S.CRUZ	Rib. Bilim												20.00			
	PT052	Production	S.DOM	Caiumbra		2.25620	16.66700	114.00	07/08/84	38.40						3.00		791	26.9
	SP021	Pump Test	S.CRUZ	Rib. Seca		2.27095	16.72620	13.50	24/04/73	18.10		1.19	AL/PA-Lri			11.00			
Santa Cruz C	FBE078	Production	S.DOM	Covao Santana		2.33850	16.63900				02/06/86					19.00		1941	29.1
	FT013	Production	S.DOM	S. Domingos		2.24250	16.62195	252.00	03/10/72	50.00						8.00		1164	24.7
	FT014	Production	S.DOM	Vacaria		2.26785	16.61340	187.00	09/09/72	50.00						6.00		916	26.4

Hydrogeological	Well	Well Type	Location			Axis			Construction	Depth	Static Water Level		Aquifer Information			Discharge	Water Quality		
Basin	Number		Concelho	Zona	Rugar	Longitude	Latitude	Altitude	Date		Latest Data								
											Date	SWL	Aquifer	Depth		Qm3/h	Date	Cond	Temp
										GL -m		GL-m		from	to				
Santa Cruz C	FT025	Production	S.DOM	Ach. Baleia		2.33093	16.63928	25.66	25/01/73	52.00		10.22				3.00		1270	27
	FT026	Production	S.DOM	Ach. Baleia		2.33229	16.64156	20.37	01/02/73	49.00		5.64				4.00		1157	27.3
	FT040	Production	S.DOM	Ach. Baleia		2.33375	16.64596	14.95	11/04/73	60.00		12.70				15.00		1268	27.5
	FT042	Production	S.DOM	Ach. Baleia		2.32667	16.63477	37.71	16/04/73	51.00		20.30				4.00		1195	28.1
	FT044	Production	S.DOM	Baia		2.34250	16.62870	17.00	20/03/73	52.00		13.82				21.00		1570	26
	FT046	Production	S.DOM	Baia		2.34030	16.62550	27.00	07/05/73	60.00		1.50				6.00		1179	27.2
	FT081	Production	S.DOM	Telha		2.29111	16.62551	119.97	17/08/73	51.00						4.00		927	28
	FT208	Production	S.DOM	Dobe		2.33440	16.62280	50.00	03/07/80	37.00		2.84				6.00		1058	28
	FT211	Production	S.DOM	Baia		2.34500	16.63270	11.48	04/06/85	36.50		10.22				18.00		1255	28.4
	PT006	Production	S.DOM	Ach. Baleia		2.32568	16.63664	42.88	05/11/78	34.00		44.87				4.00		1167	26
	PT029	Production	S.DOM	S. Domingos		2.22840	16.62930	318.00	17/05/82	91.00						3.00		1382	26.6
	PT051	Production	S.DOM	Telha		2.28850	16.62800	123.00	13/04/83							3.00		1174	27.7
	FBE047	Monitoring		Ach. Baleia		2.32957	16.63708	338.40	13/06/83	34.00	13/06/83	13.38	PA,FL					1145	
	FBE061B	Monitoring		Covao Dentro		2.31875	16.63830	83.71	22/06/85	110.00	22/06/85	22.20	PA,FL					786	28.4
	FT038	Monitoring	S.DOM	Ach. Baleia		2.33808	16.64936	9.08	30/03/73	60.00	30/03/73	9.04	PA,FL			9.00		2371	27.5
	FT079	Monitoring		Portal		2.31569	16.62754	64.93	23/07/73	52.00			PA,FL					1059	27.2
	FT235	Monitoring		Rui Vaz		2.19700	16.63750		14/02/83	188.00	14/02/83	117.60	PA,CA						
	PT008	Monitoring		Ach. Baleia		2.33938	16.65398	5.24	29/12/79	16.00	29/12/79	3.00	AL					9354	27.9
	FBE177	Pump Test	S.DOM	Rui Vaz					30/06/97	180.00	30/06/97	120.50	PA,CA						
S. J. Baptista	FBE094	Production	S.CAT	Aldia		2.10850	16.66020	710.00	26/06/87	116.00						5.00			
	FBE095	Production	S.CAT	Joao Bernardo		2.10700	16.65630	710.00	05/06/87	112.00						5.00			
	FBE138	Production	PRA	Santa Clara					27/06/90	30.00		7.80				22.00			
	FBE148	Production	PRA	Santa Clara					19/04/93	30.00		8.90				17.00			
	FBE149	Production	PRA	Santa Clara					18/03/94	52.00						13.00			
	FT354	Production		Alfarroba					10/01/90	60.00	10/01/90	5.40	FL						
	FT233	Monitoring		Alfarroba		2.11750	16.56800	121.50	31/01/83	49.50	31/01/83	8.16	PA,FL						
	FT260	Monitoring		Salineiro		2.17255	16.51490	35.00	09/05/84	48.80	09/05/84	19.80	AL,FL						
	FT353	Monitoring	PRA	Alfaroba												11.00			
	FBE178	Pump Test	PRA	Canico					06/11/97	24.00	17/02/98	10.70	PA						
	FT231	Pump Test	PRA	Mosquito Horta		2.10350	16.61485	455.00	02/02/82	162.83		113.55	PA						
Tarrafal A	FBE113	Production	TA	Milho Branco		2.05870	16.86120	186.00	09/07/88	207.00	09/07/88	163.00							
	FBE121	Production	TA	Ach. Longue		2.07250	16.85340	270.00		266.00		226.38						437	24.8
	FBE126	Production	S.MIG	Cutelo Gomes		2.15550	16.79830	135.00		31.00		10.20				1.00		1024	26.8
	FBE129	Production	TA	Chao Bom		2.04880	16.88800	30.00		58.00		27.00						552	
	FBE131	Production	TA	Mato Mendes		2.08530	16.85080	250.00	12/01/89	270.00		210.00						400	24.8
	FBE136	Production	TA	Tarrafal		2.12050	16.87130	10.00		15.00		7.80						2290	25.7
	FBE150	Production	TA	Rib. Da Cuba						40.00									
	FBE151	Production	TA	Rib. Da Prata						30.00									
	FT029	Production																	
	SP019	Production	TA	Rib. Da Prata		2.04522	16.85347	14.45	01/03/73	15.00									
	SST021	Production	TA	Ach. Boi		2.05568	16.89525	91.39	23/09/81	114.00		87.50						522	

Hydrogeological	Well	Well Type	Location			Axis			Construction	Depth	Static Water Level		Aquifer Information			Discharge	Water Quality		
Basin	Number		Concelho	Zona	Rugar	Longitude	Latitude	Altitude	Date		Latest Data								
											Date	SWL	Aquifer	Depth		Qm3/h	Date	Cond	Temp
										GL -m		GL-m		from	to				
Tarrafal A	SST024	Production																	
	SST030	Production	TA	Ach. Gomes		2.05874	16.90376	109.73	11/12/82	131.00		106.92							
	FT027	Monitoring		Tarrafal		2.04625	16.88750	17.13	27/03/73	34.00	22/11/82	12.80	PA					771	27
	SST031	Monitoring		Tarrafal		2.04963	16.89731	71.93	27/08/82	116.00	27/08/82	67.00	PA-LR					856	
	SST034	Monitoring		Tarrafal		2.03719	16.89977	22.52	16/08/82	49.38	16/08/82	19.10	PA					3980	
	FBE176	Pump Test	TA	Monte Covada									PA						
	FT271	Pump Test	TA	Principal		2.13650	16.83675	87.00	12/11/85	45.00			PA						
	SST025	Pump Test	TA	Ach. Tomas		2.06029	16.90798	94.66	16/02/82	120.00	20/02/86	93.36	PA-Lri					1500	
	ST004	Pump Test	TA	Rib. Grande		2.06403	16.88437	60.45	19/04/80	75.00	01/04/87	51.14	PA-Lri						
Tarrafal B	SST012	Production	TA	Tras os Montes		2.08251	16.94605	200.01	30/12/80	111.00									
	SST010	Pump Test	S.CRUZ	Cabeca de Alguen		2.05625	16.91425	97.68	29/10/78	129.00		93.43	PA						
	SST015	Pump Test	TA	Ponta Pereira		2.05423	16.95767	196.12	05/03/81	140.88	20/02/86	56.59	PA					2633	

NO	TIPO	FO	GRI	BAC	RIB	LOC	LONGITUD	LATITUDE	X	Y	Z	MM3H	MM3D	MNE	MCOND	MTEMP	UTIL	INFOR
51 006	N?	51	AX	039	PELADO	ESCADAS	-23.7181	15.1338	2.07850	16.74195		14.1	367.7		683	26.2	DIV	DIVERSOS
51 007	N?	51	AX	039	MARIANA	ESCADAS	-23.7181	15.1343	2.07860	16.75010		19.2	460.7				DIV	DIVERSOS
51 008	NN	51	AX	039	MARIANA	SAGUINHO	-23.7171	15.1343	2.07955	16.75015		28.2	495.8		598		DOM	DIVERSOS
51 079	NC	51	AX	039	SANSAO	A.CUBA	-23.7449	15.1321	2.04965	16.74800		4.3	102.8	1.50	536	28.0	DIV	DIVERSOS
51 080	NC	51	AX	039	TABUGAL	R.DIOGO	-23.7288	15.1343	2.06710	16.75025		11.3	115.4		512	26.3	DIV	DIVERSOS
51 123	NC	51	AO	078	XAXA	COBINHA	-23.6683	15.2004	2.13280	16.82275		2.2	45.6		391	26.2	DIV	DIVERSOS
54 006	NC	54	AY	037	SEDEGUM		-23.7187	15.1000	2.07750	16.71200	185.00	21.1	286.6	5.00	711	27.2	DIV	DIVERSOS
54 048	NC	54	AY	037	ENGENHO	PINHA EN	-23.6726	15.0660	2.12650	16.67350	680.00	7.2	49.2		384	22.9	DIV	DIVERSOS
54 118	NN	54	AZ	035	PICOS	R.GRANDE	-23.7466	15.0675	2.05720	16.67655		8.4	154.7		580		DIV	DIVERSOS
54 127	NC	54	AK	100	BOA ENTR	CANICO	-23.6762	15.1018	2.12325	16.71350	400.00	4.6	118.4		384	24.5	DIV	DIVERSOS
54 128	NN	54	AK	100	BOA ENTR	CANICO	-23.6770	15.1029	2.12245	16.71485	392.00	7.1	170.1		442	25.3	NON	ENTUPIDO
54 121	NN	54	AZ	035	SELADA	LEM DE R	-23.7363	15.0705	2.06830	16.67965		0.2	5.0				DIV	DIVERSOS
54 033	NN	54	AY	037	ENGENHO	LEM DE A	-23.6772	15.0808	2.12200	16.69050	380.00	0.2	62.5				REG	DIVERSOS
54 345	NN	54	BD	019	CHUVA CI	RIBEIRINH	-23.6473	15.0230	2.15335	16.62450	520.00	5.8	138.7		338	24.8	AAP	A. A. P.
54 363	NN	54	BD	019	CHUVA CI	R.GR	-23.6493	15.0215	2.15040	16.62440	495.00	7.7	161.5		437	25.4	REG	DIVERSOS
54 364	NC	54	BD	019	CHUVA CI	R.GR	-23.6507	15.0206	2.14925	16.62310	485.00	4.3	103.0		397	25.2	DIV	DIVERSOS
54 391	NC	54	AY	105	MATO GE	OLHO A.	-23.6332	15.0572	2.11640	16.66685		4.8	116.1		381	26.0	REG	DIVERSOS
54 430	NC	54	AY	037	SEDEGUM	ESCURO	-23.6992	15.0965	2.09580	16.70795		0.4	9.1				REG	DIVERSOS
54 495	NC	54	BD	019	CHUVA CI	CABEC.RI	-23.6466	15.0307	2.15385	16.63620	600.00	8.9	218.3		252	24.3	REG	DIVERSOS
54 504	NN	54	BD	019	PICO LEA	PICO LEA	-23.6559	15.0323	2.14340	16.63750	560.00	5.3	116.6		350	26.1	DIV	DIVERSOS
54 565	NN	54	BB	023	STA CLAR	A.SACO	-23.7043	15.0319	2.09150	16.63620	330.00	6.1	134.1		566	23.3	NON	POUCOAC
54 566	NN	54	BB	023	STA CLAR	A.LAGOA	-23.7082	15.0225	2.98750	16.62605	395.00	2.3	58.2		552	27.9	DIV	DIVERSOS
54 575	NC	54	BB	023	STA CLAR	MTE CAS	-23.6818	15.0414	2.11710	16.64625	645.00	0.8	18.5		387	25.0	REG	DIVERSOS
54 576	NN	54	BB	023	STA CLAR	MTE GAR	-23.6787	15.0439	2.11995	16.64965	640.00	2.6	63.3		444	24.7	REG	DIVERSOS
54 577	NN	54	BB	023	HORTAGC	SERRA	-23.6763	15.0487	2.12215	16.65230	685.00	1.8	42.4		445	23.4	REG	DIVERSOS
54 581	NN	54	BB		LIBERAO	ALDIA	0.0000	0.0000	2.10300	16.66000	560.00	1.8	42.8		640	23.7	DIV	DIVERSOS
54 582	NC	54	BB	023	LIBERAO	ALDIA	-23.6925	15.0533	2.10450	16.66005	590.00	1.0	17.4		517	24.0	AAP	DIVERSOS
54 511	NE	54	BD	019	PICO LEA	CUR.VELH	-23.6549	15.0397	2.14450	16.65465	645.00	0.2	14.5				REG	DIVERSOS
54 512	NC	54	BD	019	PICO LEA	A.CHORA	-23.6554	15.0403	2.14430	16.64550	650.00	0.2	5.0				REG	DIVERSOS
54 517	NG	54	BD	019	BELEM	OLHO AG	-23.6582	15.0104	2.14110	16.20700	345.00	12.9	327.4		568	25.6	ARP	DIVERSOS
54 520	NN	54	BD	019	FUNDAO		-23.6568	15.0249	2.14210	16.62880	480.00	9.6	236.9		435	24.5	DIV	DIVERSOS
55 555	NG	55	AE	115	J.GARRID	PEDRA GA	-23.5944	15.0213	2.21045	16.62325		6.0	145.6		412	22.2	RAP	DIVERSOS
55 472	NG	55	AE	115	A.GATO	A.GATO	-23.5931	15.0291	2.21350	16.63530	440.00	3.4	89.5		418	23.8	AAP	DIVERSOS
55 473	P?	55	AE	115			-23.5879	15.0311	2.21750	16.63410		2.0	55.0		479	24.6	AAP	999
55 473B	NC	55	AE	115	A.GATO	LEM PERE	0.0000	0.0000	2.21220	16.63275	450.00		44.1				DIV	999

NO	TIPO	FO	GRE	BAC	RIB	LOC	LONGITUD	LATITUDE	X	Y	Z	MM3H	MM3D	MNE	MCOND	MTEMP	UTIL	INFOR
57 018	NG	57	BD	019	STA ANA	STA ANA	-23.6461	14.9871	2.15440	16.58620	311.00	0.8	15.9		391	26.5	RAP	DIVERSOS
57 019	NG	57	BD	019	STA ANA	STA ANA	-23.6463	14.9860	2.15380	16.58480	150.00	10.9	269.4		360	27.0	DIV	DIVERSOS
58 001	NG	58	BF	012	GR CV	CONVENT	-23.6135	14.9181	2.18840	16.50950	105.00	25.6	617.7		390	27.8	RAP	DIVERSOS
58 003	NG	58	BF	012			-23.6114	14.9179	2.18925	16.50780		0.7	15.2		350	26.4	NON	DESAPAR
58 009	NC	58	BF	012	GR	A.VERDE	-23.6090	14.9419	2.19300	16.53550	137.00	8.4	452.1		358	27.0	DIV	DIVERSOS
58 010	NN	58	BF	012	GR	A.VERDE	-23.6106	14.9401	2.19230	16.53450	125.00	15.7	403.5		360	27.5	DIV	999
58 011	NN	58	BF	012	GR	A.VERDE	-23.6103	14.9395	2.19150	16.53400	120.00	13.9	225.3		354	27.9	DIV	DIVERSOS
58 022	NG	58	BG	008	MARTINHO	J.VARELA	-23.5915	14.9522	2.21275	16.60350	187.38	1.7	49.3		420	27.4	DIV	DIVERSOS
58 023	NC	58	BG	008	MARTINHO	J.VARELA	-23.5910	14.9519	2.21325	16.54660	187.48	6.9	168.0		383	26.4	DIV	DIVERSOS
58 024	NC	58	BG	001	MARTINHO	MARTINHO	-23.5907	14.9526	2.21320	16.54930	190.00	2.8	166.4		401	26.9	DIV	999
58 026	NC	58	BG		MARTINHO	BOMBREI	0.0000	0.0000	2.22820	16.54170	188.00	6.5	186.8		427	27.0	DIV	DIVERSOS
58 053	NG	58	AA	007	TRINDADE	MACAXINI	-23.5719	14.9521	2.23375	16.54625	161.62	3.7	86.7		397	27.0	AAP	DIVERSOS
58 107	NG	58	AC	124	S.FRANCIS	VALCACH	-23.5130	14.9913	2.29730	16.58910	164.00	5.8	134.9		712	26.2	REG	5% AAP
58 134	NC	58	AA	001	FURNO		-23.5788	14.9930	2.22480	16.59200	380.00	3.2	11.6		539	24.9	DIV	DIVERSOS
58 257	NG	58	BG				0.0000	0.0000	2.22220	16.52850	130.00	1.3	22.8	22.33	400	28.6	AAP	999