C-2 RESULTS OF WATER QUALITY ANALYSIS - RAINY SEASON (1)

Sampling date		01/02/94										
Sample No.		STANDARD	1	2	3	4	5	6	7	8	9	10
Sample Name			R010	SP001	R011	R012	R013	R014	R015	GW497	GW008	GW009
Region			Penang river basin	Penang river basin	Penang river basin	Wailevu-Narewa	Yaqara river basin	Tavua basin	Tavua basin	Penang river basin	Penang river basin	Penang river basin
Source			River	Hot Spring	River	River	River	River	River	Borehole	Dug Well	Dug Well
Well Depth	GL-m											
Groundwater Level	GL-m											
Water Temperature	℃		27.5	37.5	27.0	26.2	27.6	27.2	27.5	30.1	28.0	27.2
pH		6.5 - 8.5	7.88	8.12	7.80	7.84	7.94	7.51	7.94	7.00	6.92	6.86
Electric Conductivity	MS/cm		280	310	290	360	150	2400	320	510	540	530
Colour	TCU	<15	7.5	0.0	7.0	2.5	2.5	10.0	30.0	0.0	0.0	0.0
Turbidity	NTU	<5	4.70	0.48	1.5	1.2	1.60	9.8	75.0	0.18	0.52	3.9
Alkalinity	mg/l		171	73	167	198	98	173	150	238	283	270
Ca. Hardness	mg/l		82	44	77	116	48	180	84	170	180	158
Total Hardness	mg/l	<500	128	48	134	164	74	380	142	240	242	241
Mg. Hardness	mg/l		46	4	57	48	26	200	58	70	62	83
Iron (Fe)	mg/l	<0.3	0.08	0.1	0.4	0.2	0.1	0.7	1.1	0.1	0.1	0.3
Manganese (Mn)	mg/l	<0.1	0.1	<0.001	<0.001	0.10	<0.001	0.3	0.1	<0.001	<0.001	0.40
Aluminium (Al)	mg/l	<0.2	0.40	0.10	0.20	0.20	0.20	0.40	0.60	<0.001	0.01	0.50
Lead (Pb)	mg/l	<0.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.007	0.13	<0.0002	0.008	<0.0002
Copper (Cu)	mg/l	<1.0	<0.001	<0.001	0.09	0.46	<0.001	<0.001	0.46	<0.001	0.14	0.14
Zinc (Zn)	mg/l	<5.0	<0.005	<0.005	<0.005	0.07	0.008	0.009	0.75	<0.005	0.017	0.08
Cadmium (Cd)	mg/l	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0003	<0.0002	<0.0002	<0.0002
Mercury (Hg)	mg/l	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	0.0003	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/l	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic (As)	mg/l	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	0.009	0.049	<0.001	<0.001	<0.001
Sodium (Na)	mg/l	<200	13.0	50.6	17.0	18.5	7.4	357.0	18.5	26.1	19.9	26.8
Potassium (K)	mg/l		12.0	0.6	2.0	1.2	2.3	22.0	3.2	0.5	0.6	0.7
Chlorine (Cl)	mg/l	<250	11.3	46.3	31.2	21.3	7.2	665.0	12.3	28.8	14.4	27.8
Nitrite (NO_2)	mg/l		<0.01	<0.01	0.01	<0.01	<0.01	0.01	0.02	<0.01	0.01	0.01
Nitrate (NO_3)	mg/l	<10	0.20	0.20	0.30	0.20	0.20	0.30	0.30	0.30	0.40	1.20
Ammonium (NH_4)	mg/l		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02
Cyanide (CN)	mg/l	<0.1	0.001	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
Sulfate (SO_4)	mg/l	<400	6	34	9	13	2	120	88	30	40	37
Fluorine (F)	mg/l	<1.5	<0.005	<0.005	<0.005	<0.005	<0.005	0.05	<0.005	<0.005	<0.005	<0.005
TDS	mg/l	<1000	190	210	200	250	100	1600	220	350	351	325
Silica (SiO_2)	mg/l		45.00	36.00	52.00	46.00	32.00	41.00	56.00	34.00	68.00	53.00
Items Exceeded the Standard			Mn,Al		Fe,Al	Mn,Al	Al	Turb.,Fe Mn,Al,Na Cl,TDS	Col.,Turb. Fe,Mn,Al Pb			Fe,Mn,Al

C-2 RESULTS OF WATER QUALITY ANALYSIS - RAINY SEASON (2)

Sampling date 01/02/94

Sample No.		STANDARD	11	12	13	14	15	16	17	18	19	20
Sample Name			GW510	GW012	GW014	SP002	GW016	GW443	GW018	GW448	GW022	GW023
Region			Wailevu-Narewa	Wailevu-Narewa	Yaqara river basin	Raburu coastal plain	Raburu coastal plain	Tavua basin	Tavua basin	Tavua basin	Tavua basin	Tavua basin
Source			Borehole	Dug Well	Borehole	Hot Spring	Dug Well	Borehole	Dug Well	Borehole	Dug Well	Dug Well
Well Depth	GL-m											
Groundwater Level	GL-m											
Water Temperature	℃		30.2	30.5	30.2	41.9	29.6	31.6	28.0	29.4	27.9	28.6
pH		6.5 - 8.5	7.38	7.40	7.49	7.56	7.62	7.02	7.53	7.17	8.09	7.45
Electric Conductivity	MS/cm		510	530	130	78	590	540	480	510	440	590
Colour	TCU	<15	0.0	35.0	45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turbidity	NTU	<5	0.46	0.71	9.90	0.20	0.16	0.52	0.31	0.2	0.5	0.21
Alkalinity	mg/l		204	199	95	24	175	225	237	248	180	284
Ca. Hardness	mg/l		140	150	30	134	150	145	150	150	118	190
Total Hardness	mg/l	<500	240	230	48	164	230	225	250	260	200	330
Mg. Hardness	mg/l		100	80	18	30	80	80	100	110	82	140
Iron (Fe)	mg/l	<0.3	<0.001	0.10	1.00	<0.001	0.10	0.10	<0.001	<0.001	<0.001	<0.001
Manganese (Mn)	mg/l	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aluminium (Al)	mg/l	<0.2	0.10	0.10	1.10	0.20	0.20	0.20	0.20	0.20	0.05	0.10
Lead (Pb)	mg/l	<0.05	<0.0002	<0.0002	<0.0002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper (Cu)	mg/l	<1.0	0.07	0.03	0.01	0.03	0.10	0.03	0.06	0.02	0.06	<0.001
Zinc (Zn)	mg/l	<5.0	<0.005	<0.005	<0.005	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Cd)	mg/l	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury (Hg)	mg/l	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/l	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic (As)	mg/l	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sodium (Na)	mg/l	<200	17.2	25.9	12.6	97.0	86.4	22.5	15.9	16.0	17.1	20.0
Potassium (K)	mg/l		0.5	4.5	2.0	1.4	3.2	0.7	1.2	2.8	1.2	0.7
Chlorine (Cl)	mg/l	<250	30.9	41.2	8.4	128.0	47.4	20.6	10.3	16.4	22.3	8.2
Nitrite (NO2)	mg/l		<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	0.01	0.01	0.01
Nitrate (NO3)	mg/l	<10	1.80	0.20	0.30	0.20	1.80	1.40	1.40	0.40	1.80	1.40
Ammonium (NH4)	mg/l		<0.02	<0.02	0.06	0.15	<0.02	<0.02	<0.02	0.09	<0.02	<0.02
Cyanide (CN)	mg/l	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulfate (SO4)	mg/l	<400	57	54	3	161	95	66	54	63	57	85
Fluorine (F)	mg/l	<1.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TDS	mg/l	<1000	370	360	365	85	540	426	400	375	335	440
Silica (SiO2)	mg/l		94.00	53.00	55.00	48.00	58.00	64.00	62.00	80.00	50.00	73.00
Items Exceeded the Standard				Col.	Col.,Turb. Fe	Al	Al	Al	Al	Al		

C-2 RESULTS OF WATER QUALITY ANALYSIS - RAINY SEASON (3)

Sampling date 01/02/94

Sample No.		STANDARD	21	22	23	24	25	26	27	28	29	30
Sample Name			R016	R017	R018	GW020	GW024	GW058	GWO26	R101	GW028	
Region			Tavua basin	Tavua basin	Tavua basin	Tavua basin	Matalevu uplands	Matalevu uplands	Matalevu uplands	Matalevu uplands	Matalevu uplands	
Source			River	River	River	Dug Well	Dug Well	Borehole	Borehole	River	Dug Well	
Well Depth	GL-m											
Groundwater Level	GL-m											
Water Temperature	℃		33.4	31.9	29.2	31.0	29.2	29.3	29.2	31.5	28.5	
pH		6.5 - 8.5	6.9	8.81	8.80	7.62	7.6	7.41	7.8	8.42	7.25	
Electric Conductivity	MS/cm		1400	740	140	480	360	460	230	220	390	
Colour	TCU	<15	20.0	10.0	30.0	10.0	15.0	0.0	0.0	15.0	0.0	
Turbidity	NTU	<5	2.80	5.5	11.0	2.3	2.3	0.22	0.2	7.10	1.5	
Alkalinity	mg/l		100	150	112	203	103	240	130	143	198	
Ca. Hardness	mg/l		480	200	42	150	128	130	50	60	112	
Total Hardness	mg/l	<500	820	276	70	180	150	200	84	96	160	
Mg. Hardness	mg/l		340	76	28	30	22	70	34	36	48	
Iron (Fe)	mg/l	<0.3	2.30	0.40	0.80	0.10	0.20	0.10	0.10	0.50	0.10	
Manganese (Mn)	mg/l	<0.1	0.80	0.30	<0.001	<0.001	<0.001	<0.001	<0.001	0.10	<0.001	
Aluminium (Al)	mg/l	<0.2	1.00	0.30	0.80	0.10	0.20	<0.001	0.10	0.08	0.10	
Lead (Pb)	mg/l	<0.05	0.009	<0.0002	0.008	<0.0002	<0.0002	<0.0002	<0.0002	0.006	<0.0002	
Copper (Cu)	mg/l	<1.0	0.088	0.03	0.004	0.03	<0.001	<0.001	0.10	0.14	0.06	
Zinc (Zn)	mg/l	<5.0	0.080	0.011	0.05	<0.005	<0.005	<0.005	<0.005	0.009	0.003	
Cadmium (Cd)	mg/l	<0.005	0.005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Mercury (Hg)	mg/l	<0.001	0.0002	0.0002	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium (Cr)	mg/l	<0.05	0.005	0.006	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Arsenic (As)	mg/l	<0.05	0.803	0.263	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Sodium (Na)	mg/l	<200	60.3	64.8	7.6	34.2	20.5	33.1	20.6	12.1	25.4	
Potassium (K)	mg/l		10.0	5.3	1.8	2.3	3.3	4.2	3.2	2.6	1.5	
Chlorine (Cl)	mg/l	<250	92.6	82.0	7.2	17.5	26.7	28.9	9.3	9.3	9.2	
Nitrite (NO2)	mg/l		0.05	0.09	<0.01	0.01	0.02	<0.01	<0.01	0.01	<0.01	
Nitrate (NO3)	mg/l	<10	2.00	1.80	0.30	0.20	1.60	1.40	1.00	0.20	1.80	
Ammonium (NH4)	mg/l		0.29	<0.02	0.82	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	
Cyanide (CN)	mg/l	<0.1	0.003	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	
Sulfate (SO4)	mg/l	<400	766	193	6	71	81	29	11	8	36	
Fluorine (F)	mg/l	<1.5	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
TDS	mg/l	<1000	1,050	500	95	330	275	321	160	150	275	
Silica (SiO2)	mg/l		37.00	38.00	28.00	29.00	53.00	61.00	94.00	49.00	43.00	
Items Exceeded the Standard			Col.,T.H. Fe,Mn,Al Cd,As,SO4 TDS	pH,Turb. Fe,Mn,Al As	pH,Col. Turb.,Fe Al		Col.,Al			Col.,Turb. Fe,Mn		

C-2 RESULTS OF WATER QUALITY ANALYSIS - RAINY SEASON (4)

Sampling date 01/02/94

Sample No.		STANDARD	31	32	33	34	35	36	37	38	39	40
Sample Name			R007	R102	GW671	R008	R006	GW033	GW031	GW032	GW029	GW474
Region			Ba river lower plain	Moto uplands	Moto uplands	Ba river lower plain	Ba uplands	Vatia-Lousa coastal plain	Vatia-Lousa coastal plain	Vatia-Lousa coastal plain	Matalevu uplands	Raburu coastal plain
Source			River	River	Borehole	River	River	Borehole	Borehole	Dug Well	Borehole	Borehole
Well Depth	GL-m											
Groundwater Level	GL-m											
Water Temperature	℃		29.8	28.9	27.4	27.2	28.8	27.9	28.7	27.9	28.5	28.0
pH		6.5 - 8.5	7.42	8.40	6.85	6.70	7.30	6.50	7.15	7.32	7.58	7.50
Electric Conductivity	MS/cm		130	39	28	100	110	920	455	260	200	280
Colour	TCU	<15	35.0	20.0	12.0	70.0	55.0	40.0	8.0	0.0	0.0	0.0
Turbidity	NTU	<5	21.00	12.50	20.00	70.00	34.00	41.00	0.75	0.30	0.23	10.1
Alkalinity	mg/l		162	70	7	95	78	85	180	219	127	163
Ca. Hardness	mg/l		75	28	16	30	24	36	106	100	56	64
Total Hardness	mg/l	<500	116	43	25	46	42	196	150	147	64	112
Mg. Hardness	mg/l		41	15	9	16	18	160	44	47	8	48
Iron (Fe)	mg/l	<0.3	1.60	0.50	7.00	5.00	2.60	19.00	0.50	<0.001	0.10	0.10
Manganese (Mn)	mg/l	<0.1	0.10	<0.001	0.10	0.10	0.10	0.20	0.10	<0.001	<0.001	<0.001
Aluminium (Al)	mg/l	<0.2	1.40	1.10	<0.001	5.50	3.15	<0.001	<0.001	<0.001	<0.001	0.10
Lead (Pb)	mg/l	<0.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.005	<0.0002	<0.0002	<0.0002	0.01
Copper (Cu)	mg/l	<1.0	0.06	0.06	<0.001	0.05	0.04	0.08	0.03	0.06	0.04	0.15
Zinc (Zn)	mg/l	<5.0	<0.005	0.005	<0.005	0.08	<0.005	0.007	<0.005	<0.005	<0.005	0.13
Cadmium (Cd)	mg/l	<0.005	0.0003	<0.0002	<0.0002	0.0007	0.0009	0.0002	<0.0002	0.0002	<0.0002	<0.0002
Mercury (Hg)	mg/l	<0.001	0.0001	<0.0001	0.0001	0.0002	0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/l	<0.05	0.009	<0.005	0.009	0.01	0.009	0.008	<0.005	0.008	<0.005	<0.005
Arsenic (As)	mg/l	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sodium (Na)	mg/l	<200	8.2	4.9	4.0	6.0	8.4	36.2	24.5	22.2	18.8	22.6
Potassium (K)	mg/l		2.2	1.1	0.4	2.5	2.7	2.7	21.0	2.3	3.8	1.4
Chlorine (Cl)	mg/l	<250	7.2	5.4	7.2	5.1	7.2	106.0	20.6	18.5	15.0	17.5
Nitrite (NO2)	mg/l		0.02	<0.01	0.36	0.14	0.01	0.54	0.63	<0.01	<0.01	<0.01
Nitrate (NO3)	mg/l	<10	0.40	0.15	2.10	0.30	0.30	4.00	0.50	0.20	0.30	0.80
Ammonium (NH4)	mg/l		0.41	<0.02	2.37	1.14	0.5	0.44	0.11	<0.02	<0.02	0.09
Cyanide (CN)	mg/l	<0.1	0.001	0.001	<0.001	0.007	0.003	0.003	<0.001	<0.001	<0.001	<0.001
Sulfate (SO4)	mg/l	<400	9	4	36	29	20	88	23	3	4	9
Fluorine (F)	mg/l	<1.5	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
TDS	mg/l	<1000	90	27	20	70	75	650	330	185	150	200
Silica (SiO2)	mg/l		17.00	29.00	6.00	40.00	30.00	81.00	87.00	116.00	89.00	101.00
Items Exceeded the Standard			Col.,Turb. Fe,Mn,Al	Col.,Turb. Fe,Al	Turb., Fe,Mn	Col.,Turb. Fe,Mn,Al	Col.,Turb. Fe,Mn,Al	Col.,Turb. Fe,Mn	Fe,Mn			Turb.

C-2 RESULTS OF WATER QUALITY ANALYSIS - RAINY SEASON (5)

Sampling date		01/02/94									
Sample No.		STANDARD	41	42	43	44	45	46	47	48	49	50
Sample Name			GW034	R001	R002	R003	R004	GW001	R005	GW002	GW006	GW222
Region			Ba uplands	Mountainous area	Mountainous area	Mountainous area	Koronubu uplands	Koronubu uplands	Koronubu uplands	Ba uplands	Ba uplands	Ba uplands
Source			Borehole	River	River	River	River	Dug Well	River	Dug Well	Dug Well	Borehole
Well Depth	GL-m											
Groundwater Level	GL-m											
Water Temperature	℃		27.9	26.1	25.0	25.1	25.9	27.6	28.2	28.2	27.7	29.0
pH		6.5 - 8.5	7.00	7.34	7.40	7.67	7.60	6.97	7.35	7.00	7.56	6.72
Electric Conductivity	MS/cm		178	198	100	100	81	430	104	74	120	590
Colour	TCU	<15	0.0	25.0	55.0	25.0	10.0	25.0	25.0	2.5	25.0	2.5
Turbidity	NTU	<5	0.22	18.0	33.0	7.4	2.8	3.5	18.0	2.7	24.0	0.24
Alkalinity	mg/l		131	134	69	67	50	124	90	30	76	236
Ca. Hardness	mg/l		48	66	32	28	22	164	38	12	16	102
Total Hardness	mg/l	<500	68	86	50	50	42	198	64	18	35	164
Mg. Hardness	mg/l		20	20	18	22	20	34	26	6	19	62
Iron (Fe)	mg/l	<0.3	<0.001	1.6	2.3	0.10	1.7	0.20	1.2	0.20	1.2	0.10
Manganese (Mn)	mg/l	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	0.20	<0.001	<0.001	<0.001	<0.001
Aluminium (Al)	mg/l	<0.2	<0.001	0.34	0.89	0.09	0.29	0.20	2.10	0.40	3.10	0.10
Lead (Pb)	mg/l	<0.05	0.009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper (Cu)	mg/l	<1.0	0.11	0.14	0.06	0.06	0.06	0.08	<0.001	0.08	0.06	0.04
Zinc (Zn)	mg/l	<5.0	0.05	0.07	0.05	0.008	<0.005	<0.005	<0.005	<0.005	0.013	<0.005
Cadmium (Cd)	mg/l	<0.005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury (Hg)	mg/l	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/l	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.0002	<0.005	<0.005
Arsenic (As)	mg/l	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sodium (Na)	mg/l	<200	16.1	13.3	5.1	4.1	3.8	13.4	5.0	6.8	9.5	31.9
Potassium (K)	mg/l		3.5	2.4	2.5	1.9	1.5	3.9	2.4	5.0	11.0	15.0
Chlorine (Cl)	mg/l	<250	5.2	4.1	5.2	4.1	4.1	14.4	5.2	3.1	6.2	22.7
Nitrite (NO2)	mg/l		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.01	0.06	0.01
Nitrate (NO3)	mg/l	<10	0.40	0.40	0.50	0.30	0.20	0.40	0.30	1.2	1.70	1.60
Ammonium (NH4)	mg/l		0.11	0.60	0.56	0.13	0.5	0.49	0.43	0.04	0.36	0.59
Cyanide (CN)	mg/l	<0.1	<0.001	0.001	0.002	<0.001	0.002	0.001	0.001	<0.001	0.001	<0.001
Sulfate (SO4)	mg/l	<400	3	13	12	3	9	103	12	11	17	3
Fluorine (F)	mg/l	<1.5	<0.005	0.05	0.05	0.033	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TDS	mg/l	<1000	130	140	80	70	60	300	95	52	90	420
Silica (SiO2)	mg/l		93.00	43.00	34.00	33.00	27.00	55.00	31.00	20.00	39.00	85.00
Items Exceeded the Standard				Col.,Turb. Fe,Al	Col.,Turb. Fe,Al	Col.,Turb.	Fe,Al	Col.,Mn,Al	Col.,Turb. Fe,Al	Al	Col.,Turb. Fe,Al	

C-2 RESULTS OF WATER QUALITY ANALYSIS - RAINY SEASON (6)

Sampling date 01/02/94

Sample No.		STANDARD	51	52	53	54	55	56	57	58	59	60
Sample Name			GW003	GW004	GW224	GW007	GW217	GW213	R009	GW044	GW043	GW038
Region			Ba uplands	Ba uplands	Ba uplands	Moto uplands	Moto uplands	Moto uplands	Moto uplands	Tavarau-Raviravi	Tavarau-Raviravi	Tavarau-Raviravi
Source			Dug Well	Borehole	Borehole	Dug Well	Borehole	Borehole	River	Borehole	Borehole	Dug Well
Well Depth	GL-m											
Groundwater Level	GL-m											
Water Temperature	℃		29.3	30.4	32.4	29.9	30.2	29.5	28.7	29.2	29.7	29.4
pH		6.5 - 8.5	6.03	6.10	6.57	6.40	8.45	7.51	8.03	7.25	7.00	6.85
Electric Conductivity	MS/cm		150	96	350	155	740	530	88	410	180	390
Colour	TCU	<15	2.5	7.5	10.0	5.0	5.0	6.0	35.0	5.0	25.0	0.0
Turbidity	NTU	<5	1.7	15.0	10.0	4.4	1.70	1.9	2.6	2.3	16.0	1.00
Alkalinity	mg/l		49	29	166	50	95	270	52	100	66	205
Ca. Hardness	mg/l		30	19	70	46	52	52	22	130	30	108
Total Hardness	mg/l	<500	56	21	106	54	54	74	32	182	40	162
Mg. Hardness	mg/l		26	3	36	8	2	22	10	52	10	54
Iron (Fe)	mg/l	<0.3	0.10	1.4	0.20	0.30	0.20	0.10	1.6	0.30	0.70	0.20
Manganese (Mn)	mg/l	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.20	0.10	<0.001
Aluminium (Al)	mg/l	<0.2	0.10	0.20	<0.001	0.60	0.30	0.10	2.40	0.30	2.00	0.10
Lead (Pb)	mg/l	<0.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper (Cu)	mg/l	<1.0	0.06	0.06	0.06	0.05	0.05	0.08	0.08	0.09	0.05	0.06
Zinc (Zn)	mg/l	<5.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005
Cadmium (Cd)	mg/l	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury (Hg)	mg/l	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/l	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic (As)	mg/l	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sodium (Na)	mg/l	<200	8.4	5.7	31.7	11.3	129.5	96.0	5.8	23.1	11.9	27.1
Potassium (K)	mg/l		0.9	0.8	10.0	2.3	1.8	2.7	1.5	2.1	1.5	0.9
Chlorine (Cl)	mg/l	<250	20.6	38.2	19.5	7.2	45.3	9.3	7.2	13.4	12.3	27.8
Nitrite (NO_2)	mg/l		0.01	0.06	0.55	0.05	0.36	0.06	0.06	0.09	0.03	0.01
Nitrate (NO_3)	mg/l	<10	1.80	1.80	1.20	0.30	0.50	0.50	0.20	0.30	0.30	0.20
Ammonium (NH_4)	mg/l		<0.02	0.14	<0.02	0.067	0.34	0.19	0.38	0.04	0.10	0.11
Cyanide (CN)	mg/l	<0.1	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.001	<0.001
Sulfate (SO_4)	mg/l	<400	7	3	17	36	198	52	12	142	9	14
Fluorine (F)	mg/l	<1.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TDS	mg/l	<1000	100	75	250	110	520	370	65	290	130	260
Silica (SiO_2)	mg/l		23.00	24.00	146.00	32.00	24.00	52.00	30.00	80.00	47.00	49.00
Items Exceeded the Standard			pH	pH,Turb. Fe,Al	Turb.	pH,Fe,Al	Al		Col.,Fe,Al	Fe,Mn,Al	Col.,Turb. Fe,Mn,Al	

C-2 RESULTS OF WATER QUALITY ANALYSIS - RAINY SEASON (7)

Sampling date		01/02/94						
Sample No.		STANDARD	61	62	63	64	65	66
Sample Name			GW531		GW036	TW004	TW010	TW005
Region			Tavarau-Raviravi		Ba uplands	Ba uplands	Raburu coastal plain	Ba uplands
Source			Borehole		Borehole	Borehole	Borehole	Borehole
Well Depth	GL-m							
Groundwater Level	GL-m							
Water Temperature	℃		30.3		28.0	27.8	30.4	28.4
pH		6.5 - 8.5	7.18		7.00	6.81	7.72	6.28
Electric Conductivity	MS/cm		660		100	265	330	50
Colour	TCU	<15	0.0		0.0	5.0	0.0	100.0
Turbidity	NTU	<5	0.57		2.5	17.0	34	8.4
Alkalinity	mg/l		237		54	103	124	16
Ca. Hardness	mg/l		160		28	49	69	15
Total Hardness	mg/l	<500	220		46	84	98	22
Mg. Hardness	mg/l		60		18	35	29	7
Iron (Fe)	mg/l	<0.3	<0.001		0.10	0.73	2.20	0.83
Manganese (Mn)	mg/l	<0.1	<0.001		<0.001	0.80	<0.001	0.60
Aluminium (Al)	mg/l	<0.2	<0.001		0.10	<0.001	0.06	<0.001
Lead (Pb)	mg/l	<0.05	<0.0002		<0.0002	<0.0002	0.08	<0.0002
Copper (Cu)	mg/l	<1.0	0.06		0.05	0.007	1.2	0.003
Zinc (Zn)	mg/l	<5.0	<0.005		<0.005	<0.005	0.05	0.005
Cadmium (Cd)	mg/l	<0.005	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002
Mercury (Hg)	mg/l	<0.001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/l	<0.05	<0.005		<0.005	<0.005	<0.005	<0.005
Arsenic (As)	mg/l	<0.05	<0.001		<0.001	<0.001	<0.001	<0.001
Sodium (Na)	mg/l	<200	67.2		10.5	7.3	20.0	6.5
Potassium (K)	mg/l		2.0		1.2	0.8	2.0	0.7
Chlorine (Cl)	mg/l	<250	83.4		8.0	8.0	17.0	5.0
Nitrite (NO2)	mg/l		0.01		<0.01	0.12	0.47	0.10
Nitrate (NO3)	mg/l	<10	0.15		<0.01	0.10	3.90	0.90
Ammonium (NH4)	mg/l		0.32		0.08	0.02	0.08	0.11
Cyanide (CN)	mg/l	<0.1	<0.001		<0.001	<0.001	0.005	<0.001
Sulfate (SO4)	mg/l	<400	44		19	6	22	20
Fluorine (F)	mg/l	<1.5	<0.005		<0.005	<0.005	<0.005	<0.005
TDS	mg/l	<1000	470		70	150	220	34
Silica (SiO2)	mg/l		88.00		70.00	53.00	55.00	32.00
Items Exceeded the Standard						Turb,Fe,Mn	Turb. Fe,Pb,Cu	pH,Col. Turb. Fe,Mn

C-3 RESULTS OF WATER QUALITY ANALYSIS - TEST WELLS (1)

Sampling date											
Sample No.		STANDARD	1	2	3	4	5	6	7	8	9	10
Sample Name			TW001	TW002	TW003	TW004	TW005	TW006	TW006A	TW006S	TW008	TW009
area			Mountainous area	Ba river lower plain	Moto uplands	Ba uplands	Ba uplands	Koronubu uplands	Koronubu uplands	Koronubu uplands	Matalevu uplands	Tavua basin
Source			BoreHole	BoreHole	BoreHole	BoreHole	BoreHole	Borehole	Borehole	BoreHole	Borehole	Borehole
Well Depth	GL-m		76.00					76.00	21.35	18.18	74.45	70.00
Groundwater Level	GL-m		23.79					SelfFlowing	SelfFlowing	SelfFlowing	1.40	7.72
Water Temperature	℃		27.8	29.0	28.7	26.9	26.1	27.5	27.6	26.7	27.7	29.6
pH		6.5 - 8.5	8.00	7.11	9.08	6.68	5.88	8.10	7.87	7.80	7.03	7.12
Electric Conductivity	MS/cm		115	138	447	188	54	1400	784	590	320	548
Colour	TCU	<15	2.5	0.0	100	0.0	100	0.0	10.0	0.0	0.0	40.0
Turbidity	NTU	<5	0.2	3.5	15.0	2.3	63.0	9.8	5.5	10.0	1.6	37.0
Alkalinity	mg/l		13	25	68	35	5	250	91	92	167	101
Ca. Hardness	mg/l		19	24	68	40	6	215	141	115	165	136
Total Hardness	mg/l	<500	25	45	128	65	18	325	170	170	275	179
Mg. Hardness	mg/l		6	21	60	25	12	110	29	55	110	43
Iron (Fe)	mg/l	<0.3	0.03	0.42	1.4	0.2	0.5	0.18	0.02	0.03	0.29	0.35
Manganese (Mn)	mg/l	<0.1	<0.001	0.20	0.10	<0.001	0.25	<0.001	<0.001	<0.001	<0.001	0.11
Aluminium (Al)	mg/l	<0.2	0.01	0.05	0.27	0.06	0.26	<0.001	<0.001	0.01	0.13	0.15
Lead (Pb)	mg/l	<0.05	<0.0002	0.005	0.009	0.005	0.006	0.009	0.007	0.007	0.003	0.005
Copper (Cu)	mg/l	<1.0	0.007	0.01	0.008	0.06	0.007	0.02	0.008	0.007	0.01	0.07
Zinc (Zn)	mg/l	<5.0	<0.005	0.008	0.004	0.009	0.009	0.005	<0.005	<0.005	0.004	0.008
Cadmium (Cd)	mg/l	<0.005	<0.0002	0.0005	0.0003	0.001	0.004	0.0007	<0.0002	<0.0002	<0.0002	<0.0002
Mercury (Hg)	mg/l	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/l	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic (As)	mg/l	<0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sodium (Na)	mg/l	<200	3.0	8.0	14.0	10.0	4.0	116.0	74.0	35.5	4.6	43.0
Potassium (K)	mg/l		0.7	1.3	2.1	1.8	0.9	1.1	2.3	2.1	0.7	3.7
Chlorine (Cl)	mg/l	<250	5.0	6	65	6	6.0	170	110.0	53	7	70.0
Nitrite (NO2)	mg/l		0.31	0.02	2.09	0.06	0.51	<0.01	0.13	<0.01	<0.01	1.04
Nitrate (NO3)	mg/l	<10	1.00	1.00	1.00	2.00	3.00	3.00	2.46	<0.01	2.00	1.43
Ammonium (NH4)	mg/l		0.13	0.20	0.06	0.12	0.50	1.60	1.02	<0.02	<0.01	2.45
Cyanide (CN)	mg/l	<0.1	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sulfate (SO4)	mg/l	<400	16	23	15	49	17	123	90	91	97	100
Fluorine (F)	mg/l	<1.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TDS	mg/l	<1000	62	75	300	120	78	830	490	380	220	320
Silica (SiO2)	mg/l		4.9	28	10.6	46.0	4.9	21.6	42.8	49.4	77.6	33.4
Items Exceeded the Standard				Fe,Mn	Col.,Tur.,Fe Mn,Al		Col.,Tur.,Fe Mn,Al	Tur.	Tur.	Tur.		Col.,Tur.,Fe Mn

C-3 RESULTS OF WATER QUALITY ANALYSIS - TEST WELLS (2)

Sampling date												
Sample No.		STANDARD	11	12	13	14	15	16	17	18	19	20
Sample Name			TW010	TW011	TW012							
area			Rabulu coastal plain	Penang river basin	Penang river basin							
Source			Borehole	Borehole	Borehole							
Well Depth	GL-m		70.2	76.0	76.0							
Groundwater Level	GL-m		1.17	6.89	6.15							
Water Temperature	℃		30.0	28.4	28.5							
pH		6.5 - 8.5	8.41	7.09	8.03							
Electric Conductivity	MS/cm		320	148	230							
Colour	TCU	<15	2.5	40.0	0.0							
Turbidity	NTU	<5	1.50	1.40	4.60							
Alkalinity	mg/l		67	50	59							
Ca. Hardness	mg/l		77	70	54							
Total Hardness	mg/l	<500	119	140	77							
Mg. Hardness	mg/l		42	70	23							
Iron (Fe)	mg/l	<0.3	0.17	0.14	0.03							
Manganese (Mn)	mg/l	<0.1	<0.001	<0.001	<0.001							
Aluminium (Al)	mg/l	<0.2	0.10	0.30	0.03							
Lead (Pb)	mg/l	<0.05	<0.0002	0.008	<0.0002							
Copper (Cu)	mg/l	<1.0	0.003	0.05	0.003							
Zinc (Zn)	mg/l	<5.0	<0.005	0.006	<0.005							
Cadmium (Cd)	mg/l	<0.005	<0.0002	0.0008	<0.0002							
Mercury (Hg)	mg/l	<0.001	<0.0001	<0.0001	<0.0001							
Chromium (Cr)	mg/l	<0.05	<0.005	<0.005	<0.005							
Arsenic (As)	mg/l	<0.05	<0.001	<0.001	<0.001							
Sodium (Na)	mg/l	<200	7.0	7.0	8.5							
Potassium (K)	mg/l		0.8	0.2	0.3							
Chlorine (Cl)	mg/l	<250	9.5	10.0	11.0							
Nitrite (NO2)	mg/l		<0.01	0.02	<0.01							
Nitrate (NO3)	mg/l	<10	<0.01	1.50	<0.01							
Ammonium (NH4)	mg/l		0.80	2.80	<0.01							
Cyanide (CN)	mg/l	<0.1	<0.001	<0.001	<0.001							
Sulfate (SO4)	mg/l	<400	66	108	30							
Fluorine (F)	mg/l	<1.5	<0.005	<0.005	<0.005							
TDS	mg/l	<1000	200	160	160							
Silica (SiO2)	mg/l		52.10	68.60	21.60							
Items Exceeded the Standard				Col.,Al								

C-4 RESULTS OF AGROCHEMIALS ANALYSIS IN NATURAL WATER - DRY SEASON

Sampling date 20/08/93 UNIT : mg/l

Sample No.	1	2	3	4	5	6	7	8	9	10
Sample Name	GW008	R010	GW018	R018	GW024	GW027	GW007	R102	GW003	GW004
Area	RAKIRAKI	RAKIRAKI	TAVUA	TAVUA	TAVUA -BA	TAVUA -BA	BA	BA	BA	BA
Source	Dug Well	River	Dug Well	River	Dug Well	Tube Well	Dug Well	River	Dug Well	Tube Well
For Sugar Cane										
dicamba	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2,4-D	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
diuron	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
paraquat	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
glyphosate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
hexazinone	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
For Other Crops										
fluazip-butyl	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
oxadiazon	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
benthiocarb	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
propanil	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

C-5 RESULTS OF AGROCHEMICALS ANALYSIS IN NATURAL WATER - RAINY SEASON

Sampling date	31/01/94									UNIT : mg/l
Sample No.	1	2	3	4	5	6	7	8	9	10
Sample Name	GW008	R010	GW018	R018	GW024	GW058	GW007	R102	GW003	GW004
Area	RAKIRAKI	RAKIRAKI	TAVUA	TAVUA	TAVUA -BA	TAVUA -BA	BA	BA	BA	BA
Source	Dug Well	River	Dug Well	River	Dug Well	Tube Well	Dug Well	River	Dug Well	Tube Well
For Sugar Cane										
dicamba	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,4-D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
diuron	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
paraquat	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
glyphosate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
hexazinone	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
For Other Crops										
fluazip-butyl	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
oxadiazon	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
benthiocarb	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
propanil	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

C-6 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - DRY SEASON (1)

Sampling date		07-09/09/93,									
Sample No.		1	2	3	4	5	6	7	8	9	10
Sample Name		SP001	GW008	R010	R011	GW009	GW010	GW011	R012	GW012	R013
Water Temperature	℃	39.0	21.6	24.1	29.8	25.9	23.8	24.9	23.8	26.7	25.0
pH		8.16	6.9	7.71	7.46	6.97	7.47	7.22	7.64	7	8.31
Electric Conductivity	MS/cm	280	470	280	6800	530	430	320	470	630	240
Alkalinity	mg/l	51	233	187	175	255	131	147	198	276	220
Ca. Hardness	mg/l	36	70	90	260	130	80	150	150	150	100
Total Hardness	mg/l	88	370	180	1170	250	160	180	230	291	200
Mg. Hardness	mg/l	52	160	90	910	120	80	30	80	141	100
Sodium (Na)	mg/l	32.4	16.6	3.8	690.0	18.5	18.0	16.7	1.5	18.0	12.0
	meq/l	1.409	0.722	0.165	30.001	0.804	0.783	0.726	0.065	0.783	0.522
Potassium (K)	mg/l	0.6	0.4	0.2	10.2	0.4	0.9	2.8	0.4	0.4	3.2
	meq/l	0.015	0.011	0.004	0.261	0.009	0.023	0.072	0.010	0.011	0.081
Calcium (Ca)	mg/l	14.4	28.0	36.0	104.1	52.1	32.0	60.1	60.1	60.1	40.0
	meq/l	0.719	1.399	1.798	5.195	2.597	1.598	2.997	2.997	2.997	1.998
Magnesium (Mg)	mg/l	12.6	38.9	21.9	221.1	29.2	19.4	7.3	19.4	34.3	24.3
	meq/l	1.039	3.197	1.798	18.182	2.398	1.598	0.599	1.598	2.817	1.998
Chloride (Cl)	mg/l	44.0	17.3	11.0	1650.0	31.0	50.0	50.0	30.0	28.0	10.0
	meq/l	1.241	0.488	0.310	46.530	0.874	1.410	1.410	0.846	0.790	0.282
Bicarbonate (HCO3)	mg/l	50.0	284.1	228.0	213.4	310.9	159.7	179.2	241.4	336.5	232.9
	meq/l	0.819	4.655	3.736	3.497	5.095	2.617	2.937	3.956	5.514	3.816
Sulfate (SO4)	mg/l	57	54	20	150	25	19	27	28	68	11
	meq/l	1.185	1.124	0.408	3.123	0.521	0.396	0.562	0.583	1.416	0.229
Total Cations	meq/l	3.182	5.328	3.765	53.639	5.809	4.002	4.395	4.670	6.608	4.599
Total Anions	meq/l	3.245	6.267	4.455	53.150	6.490	4.423	4.909	5.385	7.720	4.327
Difference	meq/l	-0.062	-0.939	-0.689	0.489	-0.681	-0.420	-0.514	-0.715	-1.112	0.271
Ionic Balance	%	0.97	8.10	8.38	0.46	5.54	4.99	5.53	7.11	7.76	3.04
Silica (SiO2)	mg/l	2.33	4.44	2.17	2.14	2.60	4.04	4.51	2.80	3.59	2.31
TDS (Measured)	mg/l	165	258	190	4500	345	285	210	320	417	150
(Calculated)	mg/l	211	439	320	3,039	467	299	343	381	545	333
Difference	mg/l	-46	-181	-130	1,461	-122	-14	-133	-61	-128	-183
Na+K	%	44.8	13.8	4.5	56.4	14.0	20.1	18.2	1.6	12.0	13.1
Ca+Mg	%	55.2	86.2	95.5	43.6	86.0	79.9	81.8	98.4	88.0	86.9
Cl+SO4	%	74.8	25.7	16.1	93.4	21.5	40.8	40.2	26.5	28.6	11.8
Mg	%	32.6	60.0	47.8	33.9	41.3	39.9	13.6	34.2	42.6	43.4
Ca	%	22.6	26.2	47.8	9.7	44.7	39.9	68.2	64.2	45.4	43.4
pH4.8Bx	%	25.2	74.3	83.9	6.6	78.5	59.2	59.8	73.5	71.4	88.2
Cl	%	38.2	7.8	7.0	87.5	13.5	31.9	28.7	15.7	10.2	6.5
SO4	%	36.5	17.9	9.2	5.9	8.0	8.9	11.5	10.8	18.3	5.3

C-6 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - DRY SEASON (2)

Sampling date	07-09/09/93,									
Sample No.		11	12	13	14	15	16	17	18	19	20
Sample Name		GW014	GW015	SP002	GW016	GW017	GW018	GW019	R014	R015	GW022
Water Temperature	℃	28.3	25.0	46.0	24.0	24.6	24.2	24.4	27.8	27.8	24.9
pH		6.6	7.15	8.07	7.45	7.33	7.65	7.02	7.8	8.1	7.51
Electric Conductivity	MS/cm	330	860	510	760	1200	550	130	17000	690	770
Alkalinity	mg/l	146	168	27	138	270	280	43	1800	140	267
Ca. Hardness	mg/l	61	170	130	140	280	120	37	500	172	280
Total Hardness	mg/l	182	340	150	190	442	240	61	3500	272	350
Mg. Hardness	mg/l	121	170	20	50	162	120	24	3000	100	70
Sodium (Na)	mg/l	18.0	7.0	110.0	49.0	36.5	15.5	4.0	1865.0	15.0	10.5
	meq/l	0.783	0.304	4.783	2.131	1.587	0.674	0.174	81.090	0.652	0.457
Potassium (K)	mg/l	1.0	1.6	1.6	3.1	0.9	0.9	4.0	10.4	0.9	<0.01
	meq/l	0.026	0.040	0.041	0.080	0.023	0.024	0.102	0.265	0.023	
Calcium (Ca)	mg/l	24.4	68.1	52.1	56.1	112.1	48.0	14.8	200.2	68.9	112.1
	meq/l	1.219	3.397	2.597	2.797	5.594	2.398	0.739	9.990	3.437	5.594
Magnesium (Mg)	mg/l	29.4	41.3	4.9	12.1	39.4	29.2	5.8	728.9	24.3	17.0
	meq/l	2.418	3.397	0.400	0.999	3.237	2.398	0.480	59.940	1.998	1.399
Chloride (Cl)	mg/l	25.0	123.0	118.0	89.0	198.0	15.0	4.0	4141.0	43.0	69.0
	meq/l	0.705	3.469	3.328	2.510	5.584	0.423	0.113	116.776	1.213	1.946
Bicarbonate (HCO3)	mg/l	178.0	204.8	28.0	168.2	329.2	299.9	52.4	2194.5	170.7	325.5
	meq/l	2.917	3.357	0.460	2.757	5.395	4.915	0.859	35.964	2.797	5.335
Sulfate (SO4)	mg/l	65	43	164	65	22	50	28	245	125	48
	meq/l	1.353	0.895	3.414	1.353	0.458	1.041	0.583	5.101	2.603	0.999
Total Cations	meq/l	4.445	7.138	7.820	6.007	10.441	5.493	1.495	151.285	6.110	7.450
Total Anions	meq/l	4.975	7.721	7.202	6.620	11.436	6.379	1.555	157.841	6.612	8.280
Difference	meq/l	-0.531	-0.583	0.619	-0.614	-0.995	-0.886	-0.060	-6.556	-0.503	-0.830
Ionic Balance	%	5.63	3.92	4.12	4.86	4.55	7.47	1.98	2.12	3.95	5.28
Silica (SiO2)	mg/l	6.30	7.53	2.20	4.29	5.40	4.81	0.99	1.20	1.71	3.89
TDS (Measured)	mg/l	240	585	330	440	760	318	80	10880	410	515
(Calculated)	mg/l	341	489	479	443	738	459	113	9,385	448	582
Difference	mg/l	-101	96	-149	-3	22	-141	-33	1,495	-38	-67
Na+K	%	18.2	4.8	61.7	36.8	15.4	12.7	18.4	53.8	11.1	6.1
Ca+Mg	%	81.8	95.2	38.3	63.2	84.6	87.3	81.6	46.2	88.9	93.9
Cl+SO4	%	41.4	56.5	93.6	58.4	52.8	23.0	44.7	77.2	57.7	35.6
Mg	%	54.4	47.6	5.1	16.6	31.0	43.7	32.1	39.6	32.7	18.8
Ca	%	27.4	47.6	33.2	46.6	53.6	43.7	49.5	6.6	56.2	75.1
pH4.8Bx	%	58.6	43.5	6.4	41.6	47.2	77.0	55.3	22.8	42.3	64.4
Cl	%	14.2	44.9	46.2	37.9	48.8	6.6	7.3	74.0	18.3	23.5
SO4	%	27.2	11.6	47.4	20.4	4.0	16.3	37.5	3.2	39.4	12.1

C-6 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - DRY SEASON (3)

Sampling date		07-09/09/93,									
Sample No.		21	22	23	24	25	26	27	28	29	30
Sample Name		GW020	R018	R017	R016	GW023	GW024	GW027	GW026	R101	GW028
Water Temperature	℃	25.7	28.0	29.2	31.7	27.1	27.9	37.7	27.0	26.8	26.0
pH		7.29	8.8	8.4	7.2	7.42	7.05	7.39	8.12	8.51	6.8
Electric Conductivity	MS/cm	440	150	1900	1500	590	440	500	210	260	460
Alkalinity	mg/l	24.9	110	670	420	265	210	256	134	98	245
Ca. Hardness	mg/l	195	54	500	350	180	246	90	72	68	150
Total Hardness	mg/l	250	92	580	470	310	296	160	128	130	200
Mg. Hardness	mg/l	55	38	80	120	130	50	70	56	62	50
Sodium (Na)	mg/l	14.0	2.8	195.0	94.0	26.0	18.5	40.2	2.9	18.1	19.9
	meq/l	0.609	0.122	8.479	4.087	1.130	0.804	1.748	0.126	0.787	0.865
Potassium (K)	mg/l	1.6	1.9	10.8	9.9	0.8	0.8	5.4	0.7	1.2	1.7
	meq/l	0.042	0.048	0.276	0.252	0.020	0.020	0.139	0.018	0.031	0.043
Calcium (Ca)	mg/l	78.1	21.6	200.2	140.1	72.1	98.5	36.0	28.8	27.2	60.1
	meq/l	3.896	1.079	9.990	6.993	3.596	4.915	1.798	1.439	1.359	2.997
Magnesium (Mg)	mg/l	13.4	9.2	19.4	29.2	31.6	12.1	17.0	13.6	15.1	12.1
	meq/l	1.099	0.759	1.598	2.398	2.597	0.999	1.399	1.119	1.239	0.999
Chloride (Cl)	mg/l	14.0	7.0	145.0	89.0	8.0	28.0	9.0	7.0	11.0	6.0
	meq/l	0.395	0.197	4.089	2.510	0.226	0.790	0.254	0.197	0.310	0.169
Bicarbonate (HCO_3)	mg/l	30.4	102.4	816.9	512.1	323.1	256.0	312.1	156.1	119.5	298.7
	meq/l	0.498	1.678	13.387	8.392	5.295	4.196	5.115	2.557	1.958	4.895
Sulfate (SO_4)	mg/l	60	10	240	232	95	120	41	26	30	45
	meq/l	1.249	0.208	4.997	4.830	1.978	2.498	0.845	0.541	0.625	0.937
Total Cations	meq/l	5.646	2.007	20.343	13.730	7.344	6.738	5.084	2.702	3.415	4.904
Total Anions	meq/l	2.142	2.084	22.472	15.732	7.498	7.484	6.214	3.296	2.893	6.001
Difference	meq/l	3.504	-0.076	-2.130	-2.002	-0.154	-0.745	-1.130	-0.594	0.522	-1.097
Ionic Balance	%	45.00	1.87	4.97	6.80	1.04	5.24	10.00	9.91	8.28	10.06
Silica (SiO_2)	mg/l	1.73	1.64	3.06	3.20	4.60	3.73	3.41	7.13	3.99	2.77
TDS (Measured)	mg/l	269	95	1300	1000	365	280	350	141	200	281
(Calculated)	mg/l	211	155	1,627	1,106	557	534	460	235	222	443
Difference	mg/l	58	-60	-327	-106	-192	-254	-110	-94	-22	-162
Na+K	%	11.5	8.4	43.0	31.6	15.7	12.2	37.1	5.3	23.9	18.5
Ca+Mg	%	88.5	91.6	57.0	68.4	84.3	87.8	62.9	94.7	76.1	81.5
Cl+SO4	%	76.8	19.5	40.4	46.7	29.4	43.9	17.7	22.4	32.3	18.4
Mg	%	19.5	37.8	7.9	17.5	35.4	14.8	27.5	41.4	36.3	20.4
Ca	%	69.0	53.7	49.1	50.9	49.0	72.9	35.4	53.2	39.8	61.1
pH4.8Bx	%	23.2	80.5	59.6	53.3	70.6	56.1	82.3	77.6	67.7	81.6
Cl	%	18.4	9.5	18.2	16.0	3.0	10.6	4.1	6.0	10.7	2.8
SO4	%	58.3	10.0	22.2	30.7	26.4	33.4	13.6	16.4	21.6	15.6

C-6 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - DRY SEASON (4)

Sampling date 07-09/09/93,

Sample No.		31	32	33	34	35	36	37	38	39	40
Sample Name		GW029	GW032	GW031	GW042	GW033	R001	R002	R003	R004	GW001
Water Temperature	℃	29.6	31.2	29.0	27.0	29.0	24.0	24.2	23.0	23.6	23.2
pH		7.6	7.31	7.5	6.69	6.9	8.15	8.35	8.08	8	7.64
Electric Conductivity	MS/cm	200	320	240	240	770	280	170	140	120	370
Alkalinity	mg/l	101	160	114	105	158	104	101	80	71	177
Ca. Hardness	mg/l	49	87	68	55	220	60	52	37	43	120
Total Hardness	mg/l	82	150	104	200	300	88	88	89	71	200
Mg. Hardness	mg/l	33	63	36	145	80	28	36	52	28	80
Sodium (Na)	mg/l	6.9	4.0	9.2	8.0	17.0	5.0	3.5	2.3	3.5	14.7
	meq/l	0.300	0.174	0.400	0.348	0.739	0.217	0.152	0.100	0.152	0.639
Potassium (K)	mg/l	4.6	0.7	2.8	0.5	3.2	0.9	0.8	0.6	0.2	0.8
	meq/l	0.117	0.018	0.071	0.013	0.083	0.024	0.019	0.015	0.006	0.020
Calcium (Ca)	mg/l	19.6	34.8	27.2	22.0	88.1	24.0	20.8	14.8	17.2	48.0
	meq/l	0.979	1.738	1.359	1.099	4.396	1.199	1.039	0.739	0.859	2.398
Magnesium (Mg)	mg/l	8.0	15.3	8.7	35.2	19.4	6.8	8.7	12.6	6.8	19.4
	meq/l	0.659	1.259	0.719	2.897	1.598	0.559	0.719	1.039	0.559	1.598
Chloride (Cl)	mg/l	5.0	17.0	18.0	15.0	81.0	8.0	8.0	3.0	4.9	9.0
	meq/l	0.141	0.479	0.508	0.423	2.284	0.226	0.226	0.085	0.138	0.254
Bicarbonate (HCO3)	mg/l	123.1	195.1	139.0	128.0	192.6	121.9	106.1	97.5	86.6	215.8
	meq/l	2.018	3.197	2.278	2.098	3.157	1.998	1.738	1.598	1.419	3.536
Sulfate (SO4)	mg/l	9	8	8	100	79	9	9	24	14	64
	meq/l	0.181	0.171	0.175	2.082	1.634	0.187	0.196	0.500	0.291	1.332
Total Cations	meq/l	2.056	3.189	2.549	4.357	6.816	2.000	1.930	1.894	1.577	4.656
Total Anions	meq/l	2.340	3.847	2.960	4.603	7.075	2.411	2.160	2.183	1.848	5.123
Difference	meq/l	-0.285	-0.658	-0.411	-0.246	-0.259	-0.411	-0.230	-0.289	-0.272	-0.467
Ionic Balance	%	6.47	9.36	7.46	2.75	1.87	9.33	5.62	7.09	7.93	4.78
Silica (SiO2)	mg/l	6.39	6.71	6.71	4.41	6.17	8.50	11.80	17.80	16.60	23.50
TDS (Measured)	mg/l	125	200	147	138	478	158	130	93	71	245
(Calculated)	mg/l	176	275	213	309	480	176	157	155	133	372
Difference	mg/l	-51	-75	-66	-171	-2	-18	-27	-62	-62	-127
Na+K	%	20.3	6.0	18.5	8.3	12.1	12.1	8.9	6.1	10.0	14.2
Ca+Mg	%	79.7	94.0	81.5	91.7	87.9	87.9	91.1	93.9	90.0	85.8
Cl+SO4	%	13.8	16.9	23.1	54.4	55.4	17.1	19.5	26.8	23.2	31.0
Mg	%	32.1	39.5	28.2	66.5	23.5	28.0	37.3	54.9	35.5	34.3
Ca	%	47.6	54.5	53.3	25.2	64.5	59.9	53.8	39.0	54.5	51.5
pH4.8Bx	%	86.2	83.1	76.9	45.6	44.6	82.9	80.5	73.2	76.8	69.0
Cl	%	6.0	12.5	17.1	9.2	32.3	9.4	10.4	3.9	7.5	5.0
SO4	%	7.7	4.4	5.9	45.2	23.1	7.8	9.1	22.9	15.8	26.0

C-6 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - DRY SEASON (5)

Sampling date		07-09/09/93,									
Sample No.		41	42	43	44	45	46	47	48	49	50
Sample Name		R005	GW002	GW003	GW004	GW006	GW005	GW036	GW035	GW034	R008
Water Temperature	℃	25.6	26.2	25.8	26.4	26.3	25.0	28.1	26.6	27.0	26.1
pH		7.93	6.31	7.09	6.8	6.62	6.32	7.06	6.81	6.88	7.75
Electric Conductivity	MS/cm	160	62	230	140	120	120	130	340	200	170
Alkalinity	mg/l	82	23	123	70	40	76	72	165	80	88
Ca. Hardness	mg/l	50	7	55	35	15	30	31	90	50	48
Total Hardness	mg/l	72	27	137	74	41	57	77	250	135	82
Mg. Hardness	mg/l	22	20	82	39	26	27	46	160	85	34
Sodium (Na)	mg/l	10.5	2.1	5.4	8.8	4.4	3.9	5.5	10.0	18.0	3.0
	meq/l	0.457	0.091	0.235	0.383	0.189	0.169	0.239	0.435	0.783	0.130
Potassium (K)	mg/l	0.6	8.3	4.1	1.0	8.3	3.6	3.6	0.2	0.7	3.6
	meq/l	0.016	0.212	0.104	0.025	0.212	0.093	0.093	0.005	0.018	0.091
Calcium (Ca)	mg/l	20.0	2.8	22.0	14.0	6.0	12.0	12.4	36.0	20.0	19.2
	meq/l	0.999	0.140	1.099	0.699	0.300	0.599	0.619	1.798	0.999	0.959
Magnesium (Mg)	mg/l	5.3	4.9	19.9	9.5	6.3	6.6	11.2	38.9	20.7	8.3
	meq/l	0.440	0.400	1.638	0.779	0.519	0.539	0.919	3.197	1.698	0.679
Chloride (Cl)	mg/l	6.0	4.0	13.0	4.0	7.5	4.0	6.0	18.0	50.0	7.0
	meq/l	0.169	0.113	0.367	0.113	0.212	0.113	0.169	0.508	1.410	0.197
Bicarbonate (HCO3)	mg/l	100.0	28.0	150.0	85.3	48.8	92.7	87.8	201.2	97.5	107.3
	meq/l	1.638	0.460	2.458	1.399	0.799	1.518	1.439	3.297	1.598	1.758
Sulfate (SO4)	mg/l	20	10	31	30	19	6	25	105	37	11
	meq/l	0.416	0.208	0.635	0.625	0.385	0.117	0.521	2.186	0.770	0.221
Total Cations	meq/l	1.911	0.842	3.076	1.886	1.220	1.400	1.870	5.435	3.498	1.860
Total Anions	meq/l	2.224	0.781	3.459	2.136	1.396	1.748	2.128	5.990	3.779	2.176
Difference	meq/l	-0.313	0.062	-0.383	-0.250	-0.176	-0.348	-0.258	-0.555	-0.281	-0.316
Ionic Balance	%	7.58	3.81	5.86	6.22	6.73	11.05	6.45	4.86	3.86	7.84
Silica (SiO2)	mg/l	15.90	9.10	10.00	23.10	13.40	16.40	53.70	22.60	29.90	13.20
TDS (Measured)	mg/l	110	35	141	88	77	70	79	200	135	101
(Calculated)	mg/l	162	60	245	153	100	128	151	409	244	159
Difference	mg/l	-52	-25	-104	-65	-23	-58	-72	-209	-109	-58
Na+K	%	24.7	36.0	11.0	21.6	32.8	18.7	17.7	8.1	22.9	11.9
Ca+Mg	%	75.3	64.0	89.0	78.4	67.2	81.3	82.3	91.9	77.1	88.1
Cl+SO4	%	26.3	41.1	29.0	34.5	42.7	13.1	32.4	45.0	57.7	19.2
Mg	%	23.0	47.4	53.3	41.3	42.6	38.5	49.1	58.8	48.6	36.5
Ca	%	52.3	16.6	35.7	37.1	24.6	42.8	33.1	33.1	28.6	51.6
pH4.8Bx	%	73.7	58.9	71.0	65.5	57.3	86.9	67.6	55.0	42.3	80.8
Cl	%	7.6	14.5	10.6	5.3	15.2	6.5	8.0	8.5	37.3	9.1
SO4	%	18.7	26.7	18.4	29.2	27.6	6.7	24.5	36.5	20.4	10.1

C-6 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - DRY SEASON (6)

Sampling date		07-09/09/93,										
Sample No.		51	52	53	54	55	56	57	58	59	60	61
Sample Name		R006	R007	R009	GW007	GW040	GW044	GW039	GW043	GW037	GW038	R102
Water Temperature	℃	25.1	25.6	25.0	24.1	26.7	26.5	27.7	27.4	24.8	26.7	23.2
pH		7.41	7.33	8.31	7.15	7.33	6.83	7.22	7	6.58	6.75	7.2
Electric Conductivity	MS/cm	100	140	170	190	390	580	260	340	270	360	59
Alkalinity	mg/l	63	76	83	56	198	215	141	220	124	181	32
Ca. Hardness	mg/l	20	36	50	46	90	170	45	110	53	95	13
Total Hardness	mg/l	47	71	70	69	225	365	71	285	98	170	33
Mg. Hardness	mg/l	27	35	20	23	135	195	36	175	45	55	20
Sodium (Na)	mg/l	8.0	12.0	14.3	33.5	5.0	12.0	27.0	2.0	25.0	25.0	4.2
	meq/l	0.348	0.522	0.622	1.457	0.217	0.522	1.174	0.087	1.087	1.087	0.183
Potassium (K)	mg/l	0.6	3.4	0.3	0.8	2.3	<0.1	4.3	0.1	1.2	0.5	1.5
	meq/l	0.015	0.086	0.008	0.020	0.059		0.111	0.001	0.032	0.014	0.037
Calcium (Ca)	mg/l	8.0	14.4	20.0	18.4	36.0	68.1	18.0	44.0	21.2	38.0	5.2
	meq/l	0.400	0.719	0.999	0.919	1.798	3.397	0.899	2.198	1.059	1.898	0.260
Magnesium (Mg)	mg/l	6.6	8.5	4.9	5.6	32.8	47.4	8.7	42.5	10.9	13.4	4.9
	meq/l	0.539	0.699	0.400	0.460	2.697	3.896	0.719	3.497	0.899	1.099	0.400
Chloride (Cl)	mg/l	5.0	10.0	23.0	4.0	25.0	120.0	8.0	10.0	5.0	6.0	6.0
	meq/l	0.141	0.282	0.649	0.113	0.705	3.384	0.226	0.282	0.141	0.169	0.169
Bicarbonate (HCO3)	mg/l	76.8	92.7	84.1	68.3	241.4	262.1	171.9	268.2	151.2	220.7	39.0
	meq/l	1.259	1.518	1.379	1.119	3.956	4.296	2.817	4.396	2.478	3.616	0.639
Sulfate (SO4)	mg/l	8	25	12	88	36	46	20	95	44	58	11
	meq/l	0.167	0.521	0.250	1.832	0.750	0.958	0.414	1.978	0.916	1.208	0.229
Total Cations	meq/l	1.302	2.027	2.029	2.855	4.772	7.814	2.903	5.783	3.077	4.098	0.879
Total Anions	meq/l	1.566	2.321	2.277	3.064	5.411	8.637	3.457	6.656	3.535	4.993	1.038
Difference	meq/l	-0.264	-0.294	-0.249	-0.209	-0.639	-0.823	-0.554	-0.873	-0.458	-0.895	-0.158
Ionic Balance	%	9.21	6.77	5.77	3.53	6.27	5.00	8.71	7.02	6.93	9.85	8.26
Silica (SiO2)	mg/l	13.30	13.20	14.40	8.70	4.70	3.96	2.34	6.20	17.60	16.50	23.20
TDS (Measured)	mg/l	76	80	110	115	256	348	158	220	185	230	43
(Calculated)	mg/l	113	166	159	219	379	556	258	462	259	362	72
Difference	mg/l	-37	-86	-49	-104	-123	-208	-100	-242	-74	-132	-29
Na+K	%	27.9	30.0	31.1	51.7	5.8	6.7	44.3	1.5	36.4	26.9	25.0
Ca+Mg	%	72.1	70.0	68.9	48.3	94.2	93.3	55.7	98.5	63.6	73.1	75.0
Cl+SO4	%	19.6	34.6	39.5	63.5	26.9	50.3	18.5	34.0	29.9	27.6	38.4
Mg	%	41.4	34.5	19.7	16.1	56.5	49.9	24.8	60.5	29.2	26.8	45.4
Ca	%	30.7	35.5	49.2	32.2	37.7	43.5	31.0	38.0	34.4	46.3	29.5
pH4.8Bx	%	80.4	65.4	60.5	36.5	73.1	49.7	81.5	66.0	70.1	72.4	61.6
Cl	%	9.0	12.2	28.5	3.7	13.0	39.2	6.5	4.2	4.0	3.4	16.3
SO4	%	10.6	22.4	11.0	59.8	13.9	11.1	12.0	29.7	25.9	24.2	22.1

C-7 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - RAINY SEASON (1)

Sampling date		01/02/94									
Sample No.		1	2	3	4	5	6	7	8	9	10
Sample Name		R010	SP001	R011	R012	R013	R014	R015	GW497	GW008	GW009
Water Temperature	℃	27.5	37.5	27.0	26.2	27.6	27.2	27.5	30.1	28.0	27.2
pH		7.88	8.12	7.8	7.84	7.94	7.51	7.94	7	6.92	6.86
Electric Conductivity	MS/cm	280	310	290	360	150	2400	320	510	540	530
Alkalinity	mg/l	171	73	167	198	98	173	150	238	283	270
Ca. Hardness	mg/l	82	44	77	116	48	180	84	170	180	158
Total Hardness	mg/l	128	48	134	164	74	380	142	240	242	241
Mg. Hardness	mg/l	46	4	57	48	26	200	58	70	62	83
Sodium (Na)	mg/l	13.0	50.6	17.0	18.5	7.4	357.0	18.5	26.1	19.9	26.8
	meq/l	0.565	2.200	0.739	0.804	0.322	15.522	0.804	1.135	0.865	1.165
Potassium (K)	mg/l	12.0	0.6	2.0	1.2	2.3	22.0	3.2	0.5	0.6	0.7
	meq/l	0.307	0.015	0.051	0.031	0.059	0.563	0.082	0.013	0.015	0.018
Calcium (Ca)	mg/l	32.8	17.6	30.8	46.4	19.2	72.1	33.6	68.1	72.1	63.3
	meq/l	1.638	0.879	1.538	2.318	0.959	3.596	1.678	3.397	3.596	3.157
Magnesium (Mg)	mg/l	11.2	1.0	13.8	11.7	6.3	48.6	14.1	17.0	15.1	20.2
	meq/l	0.919	0.080	1.139	0.959	0.519	3.996	1.159	1.399	1.239	1.658
Chloride (Cl)	mg/l	11.3	46.3	31.2	21.3	7.2	665.0	12.3	28.8	14.4	27.8
	meq/l	0.319	1.306	0.880	0.601	0.203	18.753	0.347	0.812	0.406	0.784
Bicarbonate (HCO3)	mg/l	204.8	89.0	203.6	241.4	119.5	210.9	182.9	290.2	345.0	329.2
	meq/l	3.357	1.459	3.337	3.956	1.958	3.457	2.997	4.755	5.654	5.395
Sulfate (SO4)	mg/l	6	34	9	13	2	120	88	30	40	37
	meq/l	0.125	0.708	0.187	0.271	0.042	2.498	1.832	0.625	0.833	0.770
Total Cations	meq/l	3.430	3.174	3.468	4.112	1.859	23.678	3.723	5.943	5.716	5.998
Total Anions	meq/l	3.800	3.472	4.404	4.827	2.203	24.708	5.176	6.192	6.893	6.949
Difference	meq/l	-0.371	-0.298	-0.936	-0.716	-0.344	-1.030	-1.453	-0.249	-1.177	-0.951
Ionic Balance	%	5.13	4.48	11.89	8.00	8.46	2.13	16.32	2.05	9.34	7.34
Silica (SiO2)	mg/l	45.00	36.00	52.00	46.00	32.00	41.00	56.00	34.00	68.00	53.00
TDS (Measured)	mg/l	190	210	200	250	100	1600	220	350	351	325
(Calculated)	mg/l	291	239	307	354	164	1,496	353	461	507	505
Difference	mg/l	-101	-29	-107	-104	-64	104	-133	-111	-156	-180
Na+K	%	25.4	69.8	22.8	20.3	20.5	67.9	23.8	19.3	15.4	19.7
Ca+Mg	%	74.6	30.2	77.2	79.7	79.5	32.1	76.2	80.7	84.6	80.3
Cl+SO4	%	11.7	58.0	24.2	18.0	11.1	86.0	42.1	23.2	18.0	22.4
Mg	%	26.8	2.5	32.8	23.3	27.9	16.9	31.1	23.5	21.7	27.6
Ca	%	47.8	27.7	44.4	56.4	51.6	15.2	45.1	57.2	62.9	52.6
pH4.8Bx	%	88.3	42.0	75.8	82.0	88.9	14.0	57.9	76.8	82.0	77.6
Cl	%	8.4	37.6	20.0	12.4	9.2	75.9	6.7	13.1	5.9	11.3
SO4	%	3.3	20.4	4.3	5.6	1.9	10.1	35.4	10.1	12.1	11.1

C-7 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - RAINY SEASON (2)

Sampling date		01/02/94									
Sample No.		11	12	13	14	15	16	17	18	19	20
Sample Name		GW510	GW012	GW014	SP002	GW016	GW443	GW018	GW448	GW022	GW023
Water Temperature	℃	30.2	30.5	30.2	41.9	29.6	31.6	28.0	29.4	27.9	28.6
pH		7.38	7.4	7.49	7.56	7.62	7.02	7.53	7.17	8.09	7.45
Electric Conductivity	MS/cm	510	530	130	78	590	540	480	510	440	590
Alkalinity	mg/l	204	199	95	24	175	225	237	248	180	284
Ca. Hardness	mg/l	140	150	30	134	150	145	150	150	118	190
Total Hardness	mg/l	240	230	48	164	230	225	250	260	200	330
Mg. Hardness	mg/l	100	80	18	30	80	80	100	110	82	140
Sodium (Na)	mg/l	17.2	25.9	12.6	97.0	86.4	22.5	15.9	16.0	17.1	20.0
	meq/l	0.748	1.126	0.548	4.218	3.757	0.978	0.691	0.696	0.744	0.870
Potassium (K)	mg/l	0.5	4.5	2.0	1.4	3.2	0.7	1.2	2.8	1.2	0.7
	meq/l	0.013	0.115	0.051	0.036	0.082	0.018	0.031	0.072	0.031	0.018
Calcium (Ca)	mg/l	56.1	60.1	12.0	53.7	60.1	58.1	60.1	60.1	47.2	76.1
	meq/l	2.797	2.997	0.599	2.677	2.997	2.897	2.997	2.997	2.358	3.796
Magnesium (Mg)	mg/l	24.3	19.4	4.4	7.3	19.4	19.4	24.3	26.7	19.9	34.0
	meq/l	1.998	1.598	0.360	0.599	1.598	1.598	1.998	2.198	1.638	2.797
Chloride (Cl)	mg/l	30.9	41.2	8.4	128.0	47.4	20.6	10.3	16.4	22.3	8.2
	meq/l	0.871	1.162	0.237	3.610	1.337	0.581	0.290	0.462	0.629	0.231
Bicarbonate (HCO3)	mg/l	248.7	242.6	115.8	29.3	213.4	274.3	278.0	292.6	208.5	346.2
	meq/l	4.076	3.976	1.898	0.480	3.497	4.496	4.555	4.795	3.417	5.674
Sulfate (SO4)	mg/l	57	54	3	161	95	66	54	63	57	85
	meq/l	1.187	1.124	0.062	3.352	1.978	1.374	1.124	1.312	1.187	1.770
Total Cations	meq/l	5.556	5.837	1.558	7.530	8.434	5.492	5.717	5.962	4.770	7.481
Total Anions	meq/l	6.134	6.262	2.197	7.441	6.811	6.451	5.970	6.569	5.232	7.675
Difference	meq/l	-0.578	-0.425	-0.639	0.089	1.623	-0.959	-0.253	-0.607	-0.462	-0.194
Ionic Balance	%	4.95	3.52	17.03	0.59	10.65	8.03	2.17	4.85	4.62	1.28
Silica (SiO2)	mg/l	94.00	53.00	55.00	48.00	58.00	64.00	62.00	80.00	50.00	73.00
TDS (Measured)	mg/l	370	360	365	85	540	426	400	375	335	440
(Calculated)	mg/l	435	448	158	478	525	462	444	478	373	570
Difference	mg/l	-65	-88	207	-393	15	-36	-44	-103	-38	-130
Na+K	%	13.7	21.3	38.4	56.5	45.5	18.1	12.6	12.9	16.2	11.9
Ca+Mg	%	86.3	78.7	61.6	43.5	54.5	81.9	87.4	87.1	83.8	88.1
Cl+SO4	%	33.6	36.5	13.6	93.6	48.7	30.3	23.7	27.0	34.7	26.1
Mg	%	36.0	27.4	23.1	8.0	19.0	29.1	34.9	36.9	34.3	37.4
Ca	%	50.3	51.3	38.5	35.6	35.5	52.8	52.4	50.3	49.4	50.7
pH4.8Bx	%	66.4	63:5	86.4	6.4	51.3	69.7	76.3	73.0	65.3	73.9
Cl	%	14.2	18.6	10.8	48.5	19.6	9.0	4.9	7.0	12.0	3.0
SO4	%	19.3	18.0	2.8	45.0	29.0	21.3	18.8	20.0	22.7	23.1

C-7 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - RAINY SEASON (3)

Sampling date		01/02/94								
Sample No.		21	22	23	24	25	26	27	28	29	30
Sample Name		R016	R017	R018	GW020	GW024	GW058	GWO26	R101	GW028	
Water Temperature	℃	33.4	31.9	29.2	31.0	29.2	29.3	29.2	31.5	28.5	
pH		6.9	8.81	8.8	7.62	7.6	7.41	7.8	8.42	7.25	
Electric Conductivity	MS/cm	1400	740	140	480	360	460	230	220	390	
Alkalinity	mg/l	100	150	112	203	103	240	130	143	198	
Ca. Hardness	mg/l	480	200	42	150	128	130	50	60	112	
Total Hardness	mg/l	820	276	70	180	150	200	84	96	160	
Mg. Hardness	mg/l	340	76	28	30	22	70	34	36	48	
Sodium (Na)	mg/l	60.3	64.8	7.6	34.2	20.5	33.1	20.6	12.1	25.4	
	meq/l	2.622	2.818	0.330	1.487	0.891	1.439	0.896	0.526	1.104	
Potassium (K)	mg/l	10.0	5.3	1.8	2.3	3.3	4.2	3.2	2.6	1.5	
	meq/l	0.256	0.136	0.046	0.059	0.084	0.107	0.082	0.067	0.038	
Calcium (Ca)	mg/l	192.2	80.1	16.8	60.1	51.3	52.1	20.0	24.0	44.8	
	meq/l	9.590	3.996	0.839	2.997	2.557	2.597	0.999	1.199	2.238	
Magnesium (Mg)	mg/l	82.6	18.5	6.8	7.3	5.3	17.0	8.3	8.7	11.7	
	meq/l	6.793	1.518	0.559	0.599	0.440	1.399	0.679	0.719	0.959	
Chloride (Cl)	mg/l	92.6	82.0	7.2	17.5	26.7	28.9	9.3	9.3	9.2	
	meq/l	2.611	2.312	0.203	0.494	0.753	0.815	0.262	0.262	0.259	
Bicarbonate (HCO3)	mg/l	121.9	182.9	121.9	247.5	125.6	292.6	158.5	168.2	241.4	
	meq/l	1.998	2.997	1.998	4.056	2.058	4.795	2.597	2.757	3.956	
Sulfate (SO4)	mg/l	766	193	6	71	81	29	11	8	36	
	meq/l	15.948	4.018	0.125	1.478	1.686	0.604	0.229	0.167	0.750	
Total Cations	meq/l	19.261	8.468	1.775	5.142	3.973	5.543	2.656	2.511	4.340	
Total Anions	meq/l	20.557	9.328	2.326	6.028	4.497	6.214	3.089	3.186	4.965	
Difference	meq/l	-1.296	-0.860	-0.551	-0.885	-0.525	-0.671	-0.433	-0.675	-0.625	
Ionic Balance	%	3.26	4.83	13.43	7.93	6.19	5.71	7.53	11.86	6.72	
Silica (SiO2)	mg/l	37.00	38.00	28.00	29.00	53.00	61.00	94.00	49.00	43.00	
TDS (Measured)	mg/l	1050	500	95	330	275	321	160	150	275	
(Calculated)	mg/l	1,326	627	168	440	314	457	231	233	370	
Difference	mg/l	-276	-127	-73	-110	-39	-136	-71	-83	-95	
Na+K	%	14.9	34.9	21.2	30.1	24.6	27.9	36.8	23.6	26.3	
Ca+Mg	%	85.1	65.1	78.8	69.9	75.4	72.1	63.2	76.4	73.7	
Cl+SO4	%	90.3	67.9	14.1	32.7	54.2	22.8	15.9	13.5	20.3	
Mg	%	35.3	17.9	31.5	11.7	11.1	25.2	25.6	28.6	22.1	
Ca	%	49.8	47.2	47.3	58.3	64.4	46.9	37.6	47.7	51.6	
pH4.8Bx	%	9.7	32.1	85.9	67.3	45.8	77.2	84.1	86.5	79.7	
Cl	%	12.7	24.8	8.7	8.2	16.7	13.1	8.5	8.2	5.2	
SO4	%	77.6	43.1	5.4	24.5	37.5	9.7	7.4	5.2	15.1	

C-7 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - RAINY SEASON (4)

Sampling date		01/02/94									
Sample No.		31	32	33	34	35	36	37	38	39	40
Sample Name		R007	R102	GW671	R008	R006	GW033	GW031	GW032	GW029	GW474
Water Temperature	℃	29.8	28.9	27.4	27.2	28.8	27.9	28.7	27.9	28.5	28.0
pH		7.42	8.4	6.85	6.7	7.3	6.5	7.15	7.32	7.58	7.5
Electric Conductivity	MS/cm	130	39	28	100	110	920	455	260	200	280
Alkalinity	mg/l	162	70	7	95	78	85	180	219	127	163
Ca. Hardness	mg/l	75	28	16	30	24	36	106	100	56	64
Total Hardness	mg/l	116	43	25	46	42	196	150	147	64	112
Mg. Hardness	mg/l	41	15	9	16	18	160	44	47	8	48
Sodium (Na)	mg/l	8.2	4.9	4.0	6.0	8.4	36.2	24.5	22.2	18.8	22.6
	meq/l	0.357	0.213	0.174	0.261	0.365	1.574	1.065	0.965	0.817	0.983
Potassium (K)	mg/l	2.2	1.1	0.4	2.5	2.7	2.7	21.0	2.3	3.8	1.4
	meq/l	0.056	0.028	0.010	0.064	0.069	0.069	0.537	0.059	0.097	0.036
Calcium (Ca)	mg/l	30.0	11.2	6.4	12.0	9.6	14.4	42.4	40.0	22.4	25.6
	meq/l	1.499	0.559	0.320	0.599	0.480	0.719	2.118	1.998	1.119	1.279
Magnesium (Mg)	mg/l	10.0	3.6	2.2	3.9	4.4	38.9	10.7	11.4	1.9	11.7
	meq/l	0.819	0.300	0.180	0.320	0.360	3.197	0.879	0.939	0.160	0.959
Chloride (Cl)	mg/l	7.2	5.4	7.2	5.1	7.2	106.0	20.6	18.5	15.0	17.5
	meq/l	0.203	0.152	0.203	0.144	0.203	2.989	0.581	0.522	0.423	0.494
Bicarbonate (HCO3)	mg/l	197.5	85.3	8.5	115.8	95.1	103.6	219.5	267.0	151.2	198.7
	meq/l	3.237	1.399	0.140	1.898	1.558	1.698	3.596	4.376	2.478	3.257
Sulfate (SO4)	mg/l	9	4	36	29	20	88	23	3	4	9
	meq/l	0.187	0.083	0.750	0.604	0.416	1.832	0.479	0.062	0.083	0.187
Total Cations	meq/l	2.730	1.100	0.684	1.244	1.273	5.559	4.599	3.961	2.193	3.256
Total Anions	meq/l	3.627	1.634	1.092	2.646	2.178	6.520	4.656	4.960	2.984	3.938
Difference	meq/l	-0.897	-0.534	-0.409	-1.402	-0.904	-0.961	-0.057	-0.999	-0.790	-0.681
Ionic Balance	%	14.10	19.52	23.02	36.04	26.20	7.95	0.61	11.19	15.27	9.47
Silica (SiO2)	mg/l	17.00	29.00	6.00	40.00	30.00	81.00	87.00	116.00	89.00	101.00
TDS (Measured)	mg/l	90	27	20	70	75	650	330	185	150	200
(Calculated)	mg/l	264	116	65	174	147	390	362	364	217	287
Difference	mg/l	-174	-89	-45	-104	-72	260	-32	-179	-67	-87
Na+K	%	15.1	21.9	26.9	26.1	34.1	29.6	34.8	25.9	41.7	31.3
Ca+Mg	%	84.9	78.1	73.1	73.9	65.9	70.4	65.2	74.1	58.3	68.7
Cl+SO4	%	10.8	14.4	87.2	28.3	28.4	74.0	22.8	11.8	17.0	17.3
Mg	%	30.0	27.2	26.3	25.7	28.2	57.5	19.1	23.7	7.3	29.5
Ca	%	54.9	50.8	46.8	48.2	37.7	12.9	46.0	50.4	51.0	39.3
pH4.8Bx	%	89.2	85.6	12.8	71.7	71.6	26.0	77.2	88.2	83.0	82.7
Cl	%	5.6	9.3	18.6	5.4	9.3	45.8	12.5	10.5	14.2	12.5
SO4	%	5.2	5.1	68.6	22.8	19.1	28.1	10.3	1.3	2.8	4.8

C-7 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - RAINY SEASON (5)

Sampling date		01/02/94									
Sample No.		41	42	43	44	45	46	47	48	49	50
Sample Name		GW034	R001	R002	R003	R004	GW001	R005	GW002	GW006	GW222
Water Temperature	℃	27.9	26.1	25.0	25.1	25.9	27.6	28.2	28.2	27.7	29.0
pH		7	7.34	7.4	7.67	7.6	6.97	7.35	7	7.56	6.72
Electric Conductivity	MS/cm	178	198	100	100	81	430	104	74	120	590
Alkalinity	mg/l	131	134	69	67	50	124	90	30	76	236
Ca. Hardness	mg/l	48	66	32	28	22	164	38	12	16	102
Total Hardness	mg/l	68	86	50	50	42	198	64	18	35	164
Mg. Hardness	mg/l	20	20	18	22	20	34	26	6	19	62
Sodium (Na)	mg/l	16.1	13.3	5.1	4.1	3.8	13.4	5.0	6.8	9.5	31.9
	meq/l	0.700	0.578	0.222	0.178	0.165	0.583	0.217	0.296	0.413	1.387
Potassium (K)	mg/l	3.5	2.4	2.5	1.9	1.5	3.9	2.4	5.0	11.0	15.0
	meq/l	0.090	0.061	0.064	0.049	0.038	0.100	0.061	0.128	0.281	0.384
Calcium (Ca)	mg/l	19.2	26.4	12.8	11.2	8.8	65.7	15.2	4.8	6.4	40.8
	meq/l	0.959	1.319	0.639	0.559	0.440	3.277	0.759	0.240	0.320	2.038
Magnesium (Mg)	mg/l	4.9	4.9	4.4	5.3	4.9	8.3	6.3	1.5	4.6	15.1
	meq/l	0.400	0.400	0.360	0.440	0.400	0.679	0.519	0.120	0.380	1.239
Chloride (Cl)	mg/l	5.2	4.1	5.2	4.1	4.1	14.4	5.2	3.1	6.2	22.7
	meq/l	0.147	0.116	0.147	0.116	0.116	0.406	0.147	0.087	0.175	0.640
Bicarbonate (HCO3)	mg/l	159.7	156.1	84.1	81.7	61.0	151.2	109.7	36.6	92.7	287.7
	meq/l	2.617	2.557	1.379	1.339	0.999	2.478	1.798	0.599	1.518	4.715
Sulfate (SO4)	mg/l	3	13	12	3	9	103	12	11	17	3
	meq/l	0.062	0.271	0.250	0.062	0.187	2.144	0.250	0.229	0.354	0.062
Total Cations	meq/l	2.148	2.358	1.285	1.226	1.043	4.638	1.558	0.783	1.394	5.047
Total Anions	meq/l	2.826	2.944	1.775	1.517	1.302	5.028	2.195	0.916	2.047	5.418
Difference	meq/l	-0.678	-0.586	-0.490	-0.291	-0.259	-0.390	-0.637	-0.133	-0.654	-0.370
Ionic Balance	%	13.63	11.05	16.03	10.61	11.06	4.03	16.98	7.81	18.99	3.54
Silica (SiO2)	mg/l	93.00	43.00	34.00	33.00	27.00	55.00	31.00	20.00	39.00	85.00
TDS (Measured)	mg/l	130	140	80	70	60	300	95	52	90	420
(Calculated)	mg/l	212	220	126	111	93	360	156	69	147	416
Difference	mg/l	-82	-80	-46	-41	-33	-60	-61	-17	-57	4
Na+K	%	36.8	27.1	22.2	18.5	19.5	14.7	17.9	54.1	49.8	35.1
Ca+Mg	%	63.2	72.9	77.8	81.5	80.5	85.3	82.1	45.9	50.2	64.9
Cl+SO4	%	7.4	13.1	22.3	11.7	23.3	50.7	18.1	34.6	25.8	13.0
Mg	%	18.6	16.9	28.0	35.9	38.3	14.6	33.4	15.3	27.2	24.5
Ca	%	44.6	55.9	49.8	45.6	42.2	70.6	48.7	30.6	22.9	40.4
pH4.8Bx	%	92.6	86.9	77.7	88.3	76.7	49.3	81.9	65.4	74.2	87.0
Cl	%	5.2	3.9	8.3	7.6	8.9	8.1	6.7	9.5	8.5	11.8
SO4	%	2.2	9.2	14.1	4.1	14.4	42.6	11.4	25.0	17.3	1.2

C-7 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - RAINY SEASON (6)

Sampling date	01/02/94									
Sample No.		51	52	53	54	55	56	57	58	59	60
Sample Name		GW003	GW004	GW224	GW007	GW217	GW213	R009	GW044	GW043	GW038
Water Temperature	℃	29.3	30.4	32.4	29.9	30.2	29.5	28.7	29.2	29.7	29.4
pH		6.03	6.1	6.57	6.4	8.45	7.51	8.03	7.25	7	6.85
Electric Conductivity	MS/cm	150	96	350	155	740	530	88	410	180	390
Alkalinity	mg/l	49	29	166	50	95	270	52	100	66	205
Ca. Hardness	mg/l	30	19	70	46	52	52	22	130	30	108
Total Hardness	mg/l	56	21	106	54	54	74	32	182	40	162
Mg. Hardness	mg/l	26	3	36	8	2	22	10	52	10	54
Sodium (Na)	mg/l	8.4	5.7	31.7	11.3	129.5	96.0	5.8	23.1	11.9	27.1
	meq/l	0.365	0.248	1.378	0.491	5.631	4.174	0.252	1.004	0.517	1.178
Potassium (K)	mg/l	0.9	0.8	10.0	2.3	1.8	2.7	1.5	2.1	1.5	0.9
	meq/l	0.023	0.020	0.256	0.059	0.046		0.038	0.054	0.038	0.023
Calcium (Ca)	mg/l	12.0	7.6	28.0	18.4	20.8	20.8	8.8	52.1	12.0	43.2
	meq/l	0.599	0.380	1.399	0.919	1.039	1.039	0.440	2.597	0.599	2.158
Magnesium (Mg)	mg/l	6.3	0.7	8.7	1.9	0.5	5.3	2.4	12.6	2.4	13.1
	meq/l	0.519	0.060	0.719	0.160	0.040	0.440	0.200	1.039	0.200	1.079
Chloride (Cl)	mg/l	20.6	38.2	19.5	7.2	45.3	9.3	7.2	13.4	12.3	27.8
	meq/l	0.581	1.077	0.550	0.203	1.277	0.262	0.203	0.378	0.347	0.784
Bicarbonate (HCO3)	mg/l	59.7	35.4	202.4	61.0	104.8	329.2	63.4	121.9	80.5	249.9
	meq/l	0.979	0.579	3.317	0.999	1.718	5.395	1.039	1.998	1.319	4.096
Sulfate (SO4)	mg/l	7	3	17	36	198	52	12	142	9	14
	meq/l	0.146	0.062	0.354	0.750	4.122	1.083	0.250	2.956	0.187	0.291
Total Cations	meq/l	1.507	0.708	3.752	1.629	6.756	5.653	0.930	4.694	1.355	4.438
Total Anions	meq/l	1.706	1.719	4.221	1.952	7.118	6.740	1.492	5.332	1.853	5.171
Difference	meq/l	-0.199	-1.011	-0.469	-0.322	-0.362	-1.087	-0.562	-0.638	-0.498	-0.734
Ionic Balance	%	6.18	41.67	5.88	9.01	2.61	8.77	23.20	6.36	15.52	7.64
Silica (SiO2)	mg/l	23.00	24.00	146.00	32.00	24.00	52.00	30.00	80.00	47.00	49.00
TDS (Measured)	mg/l	100	75	250	110	520	370	65	290	130	260
(Calculated)	mg/l	115	91	317	138	501	513	101	367	130	376
Difference	mg/l	-15	-16	-67	-28	19	-143	-36	-77	0	-116
Na+K	%	25.8	37.9	43.6	33.8	84.0	73.8	31.2	22.5	41.0	27.1
Ca+Mg	%	74.2	62.1	56.4	66.2	16.0	26.2	68.8	77.5	59.0	72.9
Cl+SO4	%	42.6	66.3	21.4	48.8	75.9	20.0	30.4	62.5	28.8	20.8
Mg	%	34.5	8.5	19.2	9.8	0.6	7.8	21.5	22.1	14.7	24.3
Ca	%	39.8	53.6	37.3	56.4	15.4	18.4	47.3	55.3	44.2	48.6
pH4.8Bx	%	57.4	33.7	78.6	51.2	24.1	80.0	69.6	37.5	71.2	79.2
Cl	%	34.1	62.7	13.0	10.4	17.9	3.9	13.6	7.1	18.7	15.2
SO4	%	8.5	3.6	8.4	38.4	57.9	16.1	16.7	55.4	10.1	5.6

C-7 RESULTS OF GEOCHEMICAL ANALYSIS IN NATURAL WATER - RAINY SEASON (7)

Sampling date		01/02/94				
Sample No.		61	62	63	64	65	66
Sample Name		GW531		GW036	TW004	TW010	TW005
Water Temperature	℃	30.3		28.0	27.8	30.4	28.4
pH		7.18		7	6.81	7.72	6.28
Electric Conductivity	MS/cm	660		100	265	330	50
Alkalinity	mg/l	237		54	103	124	16
Ca. Hardness	mg/l	160		28	49	69	15
Total Hardness	mg/l	220		46	84	98	22
Mg. Hardness	mg/l	60		18	35	29	7
Sodium (Na)	mg/l	67.2		10.5	7.3	20.0	6.5
	meq/l	2.922		0.457	0.317	0.870	0.283
Potassium (K)	mg/l	2.0		1.2	0.8	2.0	0.7
	meq/l	0.051		0.031	0.020	0.051	
Calcium (Ca)	mg/l	64.1		11.2	19.6	27.6	6.0
	meq/l	3.197		0.559	0.979	1.379	0.300
Magnesium (Mg)	mg/l	14.6		4.4	8.5	7.0	1.7
	meq/l	1.199		0.360	0.699	0.579	0.140
Chloride (Cl)	mg/l	83.4		8.0	8.0	17.0	5.0
	meq/l	2.352		0.226	0.226	0.479	0.141
Bicarbonate (HCO3)	mg/l	288.9		65.8	125.6	151.2	19.5
	meq/l	4.735		1.079	2.058	2.478	0.320
Sulfate (SO4)	mg/l	44		19	6	22	20
	meq/l	0.916		0.396	0.125	0.458	0.416
Total Cations	meq/l	7.369		1.406	2.016	2.879	0.722
Total Anions	meq/l	8.003		1.700	2.408	3.415	0.877
Difference	meq/l	-0.635		-0.294	-0.392	-0.536	-0.155
Ionic Balance	%	4.13		9.46	8.87	8.52	9.69
Silica (SiO2)	mg/l	88.00		70.00	53.00	55.00	32.00
TDS (Measured)	mg/l	470		70	150	220	34
(Calculated)	mg/l	564		120	176	247	59
Difference	mg/l	-94		-50	-26	-27	-25
Na+K	%	40.3		34.6	16.8	32.0	39.1
Ca+Mg	%	59.7		65.4	83.2	68.0	60.9
Cl+SO4	%	40.8		36.5	14.6	27.5	63.6
Mg	%	16.3		25.6	34.7	20.1	19.4
Ca	%	43.4		39.8	48.6	47.9	41.5
pH4.8Bx	%	59.2		63.5	85.4	72.5	36.4
Cl	%	29.4		13.3	9.4	14.0	16.1
SO4	%	11.4		23.3	5.2	13.4	47.5

C-8 RESULTS OF GEOCHEMICAL ANALYSIS OF THE TEST WELLS (1)

Sampling date										
Sample No.		1	2	3	4	5	6	7	8	9	10
Sample Name		TW001	TW002	TW003	TW004	TW005	TW006	TW006A	TW006S	TW008	TW009
Water Temperature	℃	27.8	29.0	28.7	26.9	26.1	27.5	27.6	26.7	27.7	29.6
pH		8	7.11	9.08	6.68	5.88	8.1	7.87	7.8	7.03	7.12
Electric Conductivity	MS/cm	115	138	447	188	54	1400	784	590	320	548
Alkalinity	mg/l	13	25	68	35	5	250	91	92	167	101
Ca. Hardness	mg/l	19	24	68	40	6	215	141	115	165	136
Total Hardness	mg/l	25	45	128	65	18	325	170	170	275	179
Mg. Hardness	mg/l	6	21	60	25	12	110	29	55	110	43
Sodium (Na)	mg/l	3.0	8.0	14.0	10.0	4.0	116.0	74.0	35.5	4.6	43.0
	meq/l	0.130	0.348	0.609	0.435	0.174	5.044	3.218	1.544	0.200	1.870
Potassium (K)	mg/l	0.7	1.3	2.1	1.8	0.9	1.1	2.3	2.1	0.7	3.7
	meq/l	0.018	0.033	0.054	0.046	0.022	0.027	0.059	0.054	0.018	0.095
Calcium (Ca)	mg/l	7.6	9.6	27.2	16.0	2.4	86.1	56.5	46.0	66.1	54.5
	meq/l	0.380	0.480	1.359	0.799	0.120	4.296	2.817	2.298	3.297	2.717
Magnesium (Mg)	mg/l	1.5	5.1	14.6	6.1	2.9	26.7	7.0	13.4	26.7	10.4
	meq/l	0.120	0.420	1.199	0.500	0.240	2.198	0.579	1.099	2.198	0.859
Chloride (Cl)	mg/l	5.0	6.0	65.0	6.0	6.0	170.0	110.0	53.0	7.0	70.0
	meq/l	0.141	0.169	1.833	0.169	0.169	4.794	3.102	1.495	0.197	1.974
Bicarbonate (HCO3)	mg/l	15.8	30.5	82.9	42.7	6.1	304.8	110.9	112.2	203.6	123.1
	meq/l	0.260	0.500	1.359	0.699	0.100	4.995	1.818	1.838	3.337	2.018
Sulfate (SO4)	mg/l	16	23	15	49	17	123	90	91	97	100
	meq/l	0.333	0.479	0.312	1.020	0.354	2.561	1.874	1.895	2.020	2.082
Total Cations	meq/l	0.648	1.280	3.220	1.780	0.555	11.564	6.673	4.994	5.712	5.541
Total Anions	meq/l	0.734	1.148	3.504	1.889	0.623	12.350	6.794	5.227	5.554	6.074
Difference	meq/l	-0.086	0.133	-0.284	-0.109	-0.068	-0.786	-0.121	-0.234	0.159	-0.533
Ionic Balance	%	6.23	5.46	4.22	2.98	5.75	3.29	0.90	2.28	1.41	4.59
Silica (SiO2)	mg/l	4.90	28.00	10.60	46.00	4.90	21.60	42.80	49.40	77.60	33.40
TDS (Measured)	mg/l	62	75	300	120	78	830	490	380	220	320
(Calculated)	mg/l	50	83	221	132	39	828	451	353	406	405
Difference	mg/l	12	-8	79	-12	39	2	39	27	-186	-85
Na+K	%	22.9	29.8	20.6	27.0	35.2	43.8	49.1	32.0	3.8	35.5
Ca+Mg	%	77.1	70.2	79.4	73.0	64.8	56.2	50.9	68.0	96.2	64.5
Cl+SO4	%	64.6	56.5	61.2	63.0	84.0	59.6	73.2	64.8	39.9	66.8
Mg	%	18.5	32.8	37.2	28.1	43.2	19.0	8.7	22.0	38.5	15.5
Ca	%	58.6	37.5	42.2	44.9	21.6	37.1	42.2	46.0	57.7	49.0
pH4.8Bx	%	35.4	43.5	38.8	37.0	16.0	40.4	26.8	35.2	60.1	33.2
Cl	%	19.2	14.7	52.3	9.0	27.2	38.8	45.7	28.6	3.6	32.5
SO4	%	45.4	41.7	8.9	54.0	56.8	20.7	27.6	36.2	36.4	34.3

C-8 RESULTS OF GEOCHEMICAL ANALYSIS OF THE TEST WELLS (2)

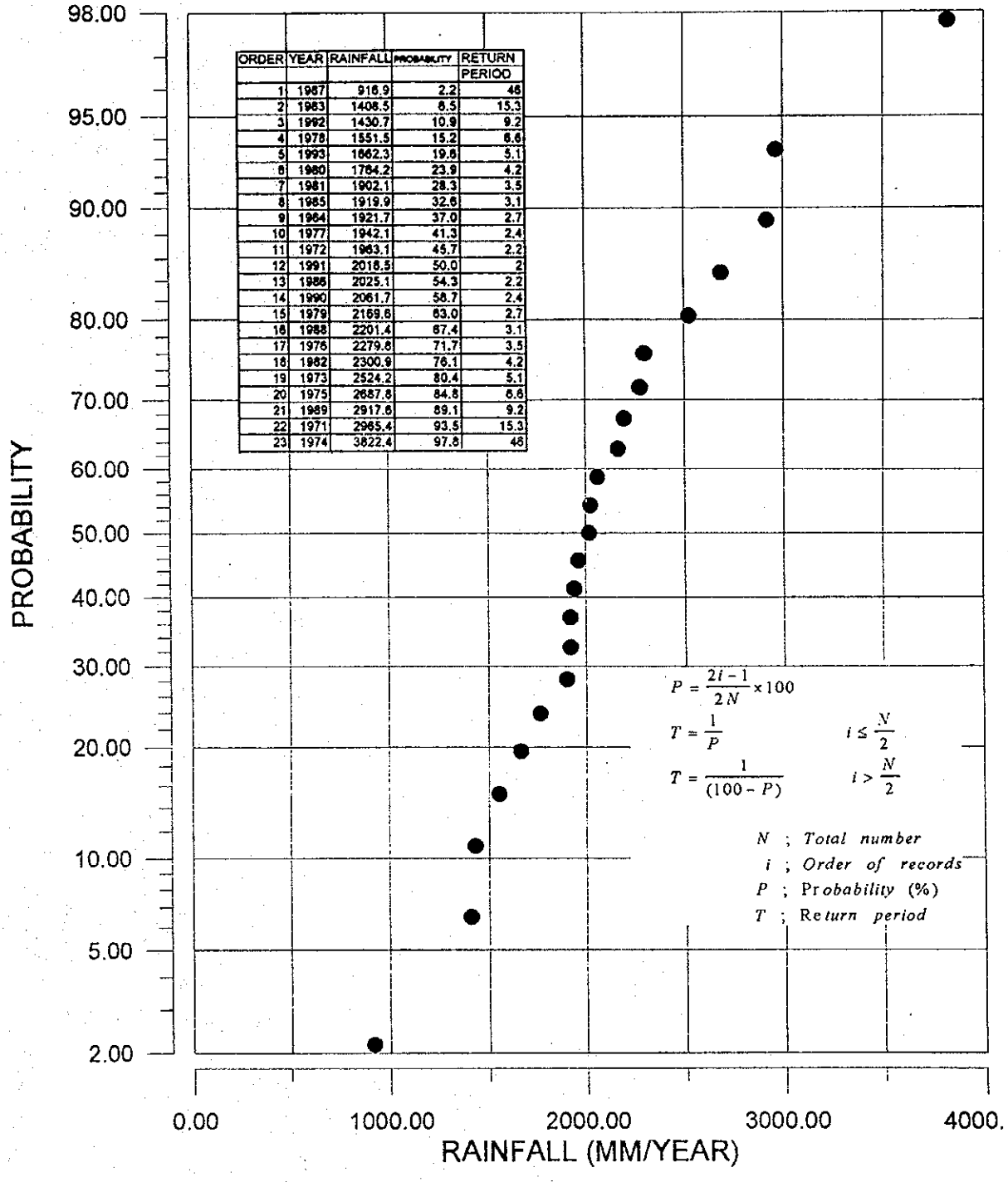
Sampling date											
Sample No.		11	12	13	14	15	16	17	18	19	20
Sample Name		TW010	TW011	TW012							
Water Temperature	℃	30.0	28.4	28.5							
pH		8.41	7.09	8.03							
Electric Conductivity	MS/cm	320	148	230							
Alkalinity	mg/l	67	50	59							
Ca. Hardness	mg/l	77	70	54							
Total Hardness	mg/l	119	140	77							
Mg. Hardness	mg/l	42	70	23							
Sodium (Na)	mg/l	7.0	7.0	8.5							
	meq/l	0.304	0.304	0.370							
Potassium (K)	mg/l	0.8	0.2	0.3							
	meq/l	0.020	0.005	0.008							
Calcium (Ca)	mg/l	30.8	28.0	21.6							
	meq/l	1.538	1.399	1.079							
Magnesium (Mg)	mg/l	10.2	17.0	5.6							
	meq/l	0.839	1.399	0.460							
Chloride (Cl)	mg/l	9.5	10.0	11.0							
	meq/l	0.268	0.282	0.310							
Bicarbonate (HCO3)	mg/l	81.7	61.0	71.9							
	meq/l	1.339	0.999	1.179							
Sulfate (SO4)	mg/l	66	108	30							
	meq/l	1.374	2.249	0.625							
Total Cations	meq/l	2.702	3.107	1.916							
Total Anions	meq/l	2.981	3.530	2.114							
Difference	meq/l	-0.278	-0.423	-0.198							
Ionic Balance	%	4.90	6.37	4.91							
Silica (SiO2)	mg/l	52.10	68.60	21.60							
TDS (Measured)	mg/l	200	160	160							
(Calculated)	mg/l	206	231	149							
Difference	mg/l	-6	-71	11							
Na+K	%	12.0	10.0	19.7							
Ca+Mg	%	88.0	90.0	80.3							
Cl+SO4	%	55.1	71.7	44.2							
Mg	%	31.1	45.0	24.0							
Ca	%	56.9	45.0	56.3							
pH4.8Bx	%	44.9	28.3	55.8							
Cl	%	9.0	8.0	14.7							
SO4	%	46.1	63.7	29.6							

DATA BOOK - D

DATA BOOK - D

GROUNDWATER SIMULATION

TABLE OF CONTENTS



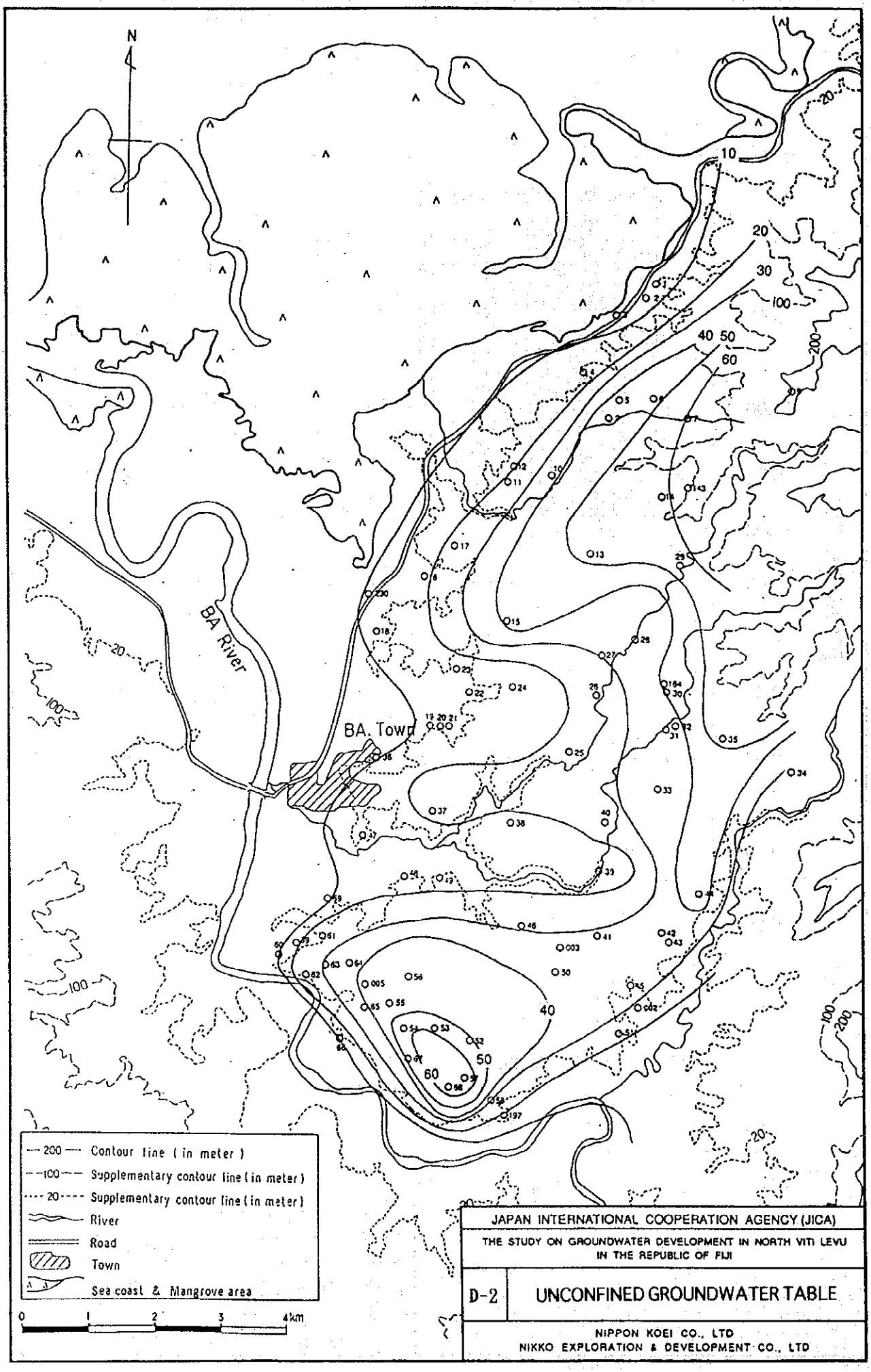
ORDER	YEAR	RAINFALL	PROBABILITY	RETURN PERIOD
1	1987	916.9	2.2	46
2	1983	1408.5	6.5	15.3
3	1992	1430.7	10.9	9.2
4	1978	1551.5	15.2	6.6
5	1993	1662.3	19.6	5.1
6	1980	1764.2	23.9	4.2
7	1981	1902.1	28.3	3.5
8	1985	1919.9	32.6	3.1
9	1964	1921.7	37.0	2.7
10	1977	1942.1	41.3	2.4
11	1972	1963.1	45.7	2.2
12	1991	2018.5	50.0	2
13	1986	2025.1	54.3	2.2
14	1990	2061.7	58.7	2.4
15	1979	2169.6	63.0	2.7
16	1988	2201.4	67.4	3.1
17	1976	2279.8	71.7	3.5
18	1982	2300.9	76.1	4.2
19	1973	2524.2	80.4	5.1
20	1975	2687.8	84.8	6.6
21	1989	2917.6	89.1	9.2
22	1971	2965.4	93.5	15.3
23	1974	3822.4	97.8	46

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-1 PROBABILITY OF YEARLY RAINFALL

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD

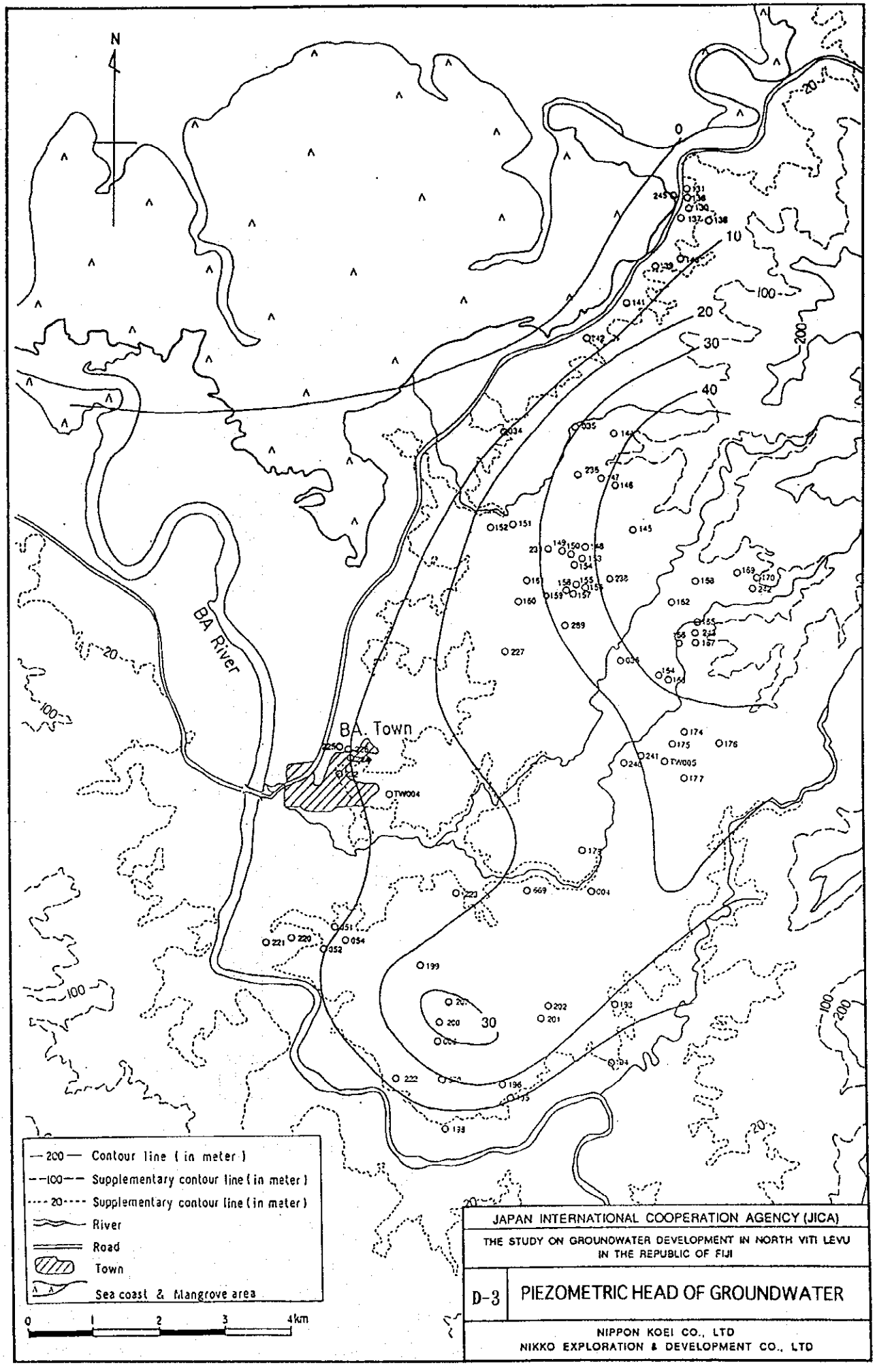


JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-2 UNCONFINED GROUNDWATER TABLE

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD



JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-3 PIEZOMETRIC HEAD OF GROUNDWATER

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD

D-4 GROUNDWTER BALANCE BY TANK MODEL(1993.1-1994.5)

(UNIT:mm)

YEAR	MONTH	RAIN	EVAPO	DIRECT RUNOFF	CHANGE SOILMOS	G-WTR RECHAGE	G-WTR DISCHARGE	G-WTR RUNOFF	CHANGE G-WTR-STG
1993	1	249.1	71.3	109.4	-5	73.4	31.9	0.1	41.4
	2	510.7	63	204.9	114.8	128	28.9	1.8	97.3
	3	188.7	124.8	72	-74.9	66.9	34.3	27.5	5
	4	93.4	72.5	32.7	-39.9	28.2	32.8	20.4	-25.1
	5	167.3	68.4	56.4	4.1	38.5	33.4	14.1	-9
	6	0.3	4.4	0	-4.1	0	31.7	6	-37.7
	7	2.1	2.1	0	0	0	32	0.3	-32.3
	8	141	66	45.3	0	29.7	31.6	0	-1.9
	9	10.5	10.5	0	0	0	30.2	0	-30.2
	10	1	1	0	0	0	30.5	0	-30.5
	11	39.8	21.9	1.7	16.2	0	28.9	0	-28.9
	12	258.4	74.1	88.4	38.9	57	29.5	0	27.5
1994	1	294	112.8	122.3	-34.6	93.4	30.9	0	62.5
	2	349	81.6	148.7	8.2	110.5	29.6	6.9	73.9
	3	272.6	103.4	104.6	-12.5	77	33.4	15.1	28.5
	4	114.7	82	29.1	-16.3	19.8	32.5	16	-28.6
	5	57.8	28	15.5	4.7	9.7	32.9	7.1	-30.3
SUBTOTA 93.1-12		1662.3	580	610.8	50.1	421.7	375.7	70.2	-24.4
TOTAL 93.1-94.5		2750.4	987.8	1031	-0.4	732.1	535	115.3	81.6

D-5 GROUNDWTER BALANCE BY TANK MODEL(1991.1-1991.12)

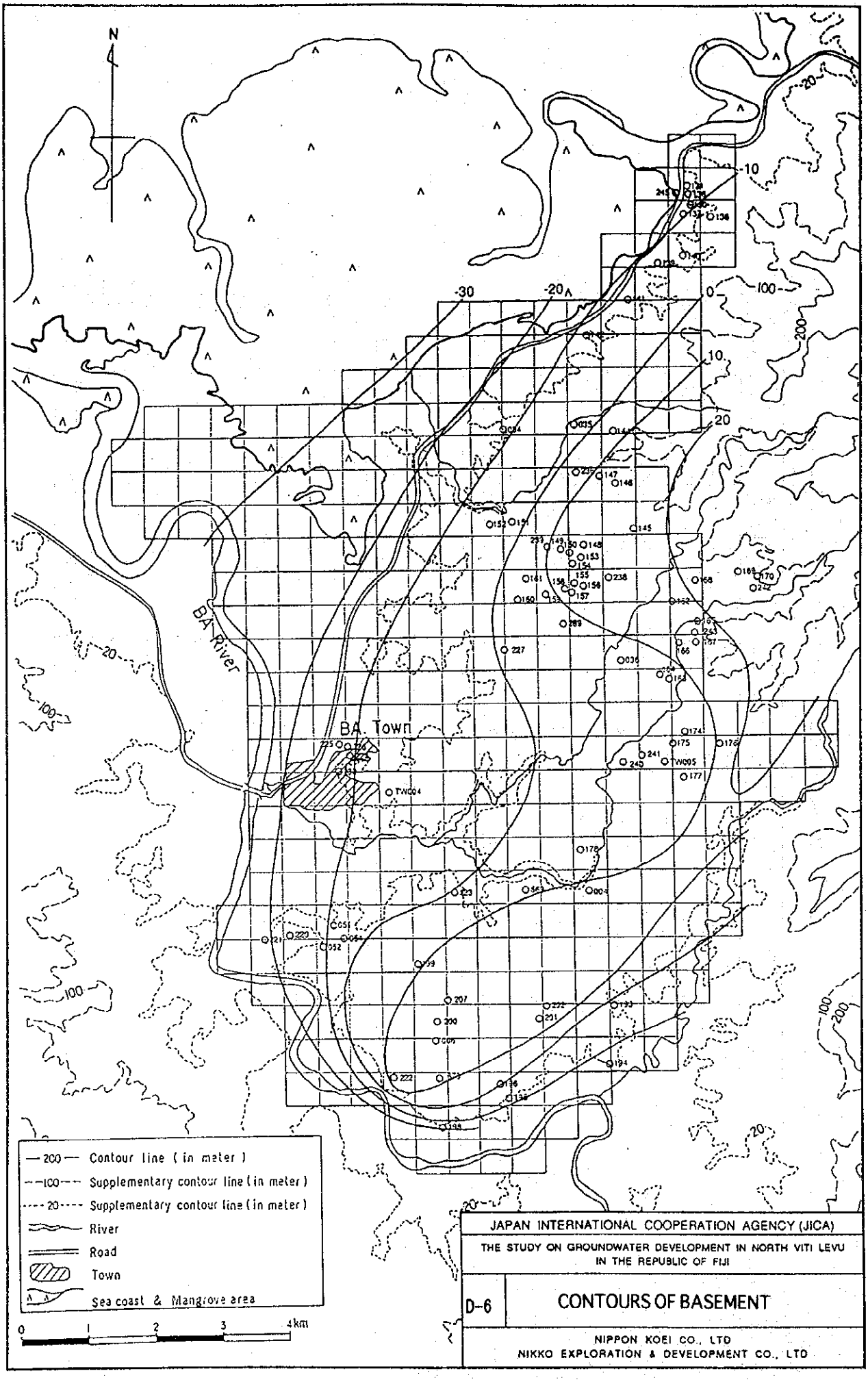
1/2 AVERAGE YEAR (UNIT:mm)

MONTH	RAIN	EVAPO	DIRECT RUNOFF	CHANGE SOILMOS	G-WTR RECHAGE	G-WTR DISCHARGE	G-WTR RUNOFF	CHANGE G-WTR-STG
1	542.8	100.7	245.5	21	175.6	31.6	1.8	142.1
2	302.8	72	130.4	-0.3	100.7	30.7	20.1	50
3	418.9	78.4	216.6	-34.4	158.3	36.2	52.9	69.3
4	195.2	64.5	60.3	29.8	40.6	34.6	44.9	-38.9
5	33.9	44.7	10.7	-30	8.5	34.6	31	-57.1
6	39.1	31.9	4.8	0	2.4	32.3	13.7	-43.6
7	34	30.5	2.7	0	0.9	32.5	2.9	-34.5
8	68.1	35.3	20.1	0	12.7	31.8	0	-19.1
9	147.7	59.7	52	0	36	30.7	0	5.3
10	29.2	29.2	0	0	0	31.4	0	-31.4
11	126.5	83.7	17.2	16.5	9.1	29.8	0	-20.6
12	80.3	60.1	13.9	-2.6	8.8	30.3	0	-21.5
TOTAL	2018.5	690.7	774.2	1.33E-15	553.6	386.5	167.3	-1.4E-14

GROUNDWTER BALANCE BY TANK MODEL(1992.1-1992.12)

1/10 DROUGHT YEAR (UNIT:mm)

MONTH	RAIN	EVAPO	DIRECT RUNOFF	CHANGE SOILMOS	G-WTR RECHAGE	G-WTR DISCHARGE	G-WTR RUNOFF	CHANGE G-WTR-STG
1	188	74.1	71.7	-8.4	50.7	30.5	0	20.2
2	276.7	82.8	66.2	87.1	40.7	28.4	0	12.3
3	108.4	77.5	67.3	-92.5	56.1	31.6	0	24.5
4	117.2	85.3	11	14.3	6.6	30.1	0	-23.6
5	84.5	38.9	22.4	8.7	14.4	30.8	0	-16.3
6	91.7	73	24.2	-22.4	17	29.5	0	-12.5
7	7.3	7.9	0	-0.6	0	29.8	0	-29.8
8	64.4	19.2	20	12.3	12.9	29.2	0	-16.3
9	20.6	32.9	0	-12.3	0	27.8	0	-27.8
10	33	33	0	0	0	28.1	0	-28.1
11	99	55.5	14.3	19.1	10.1	26.6	0	-16.5
12	339.9	141.9	124.1	-13.5	87.4	28.4	0	58.9
TOTAL	1430.7	722	421.2	-8.2	295.9	350.8	0	-55



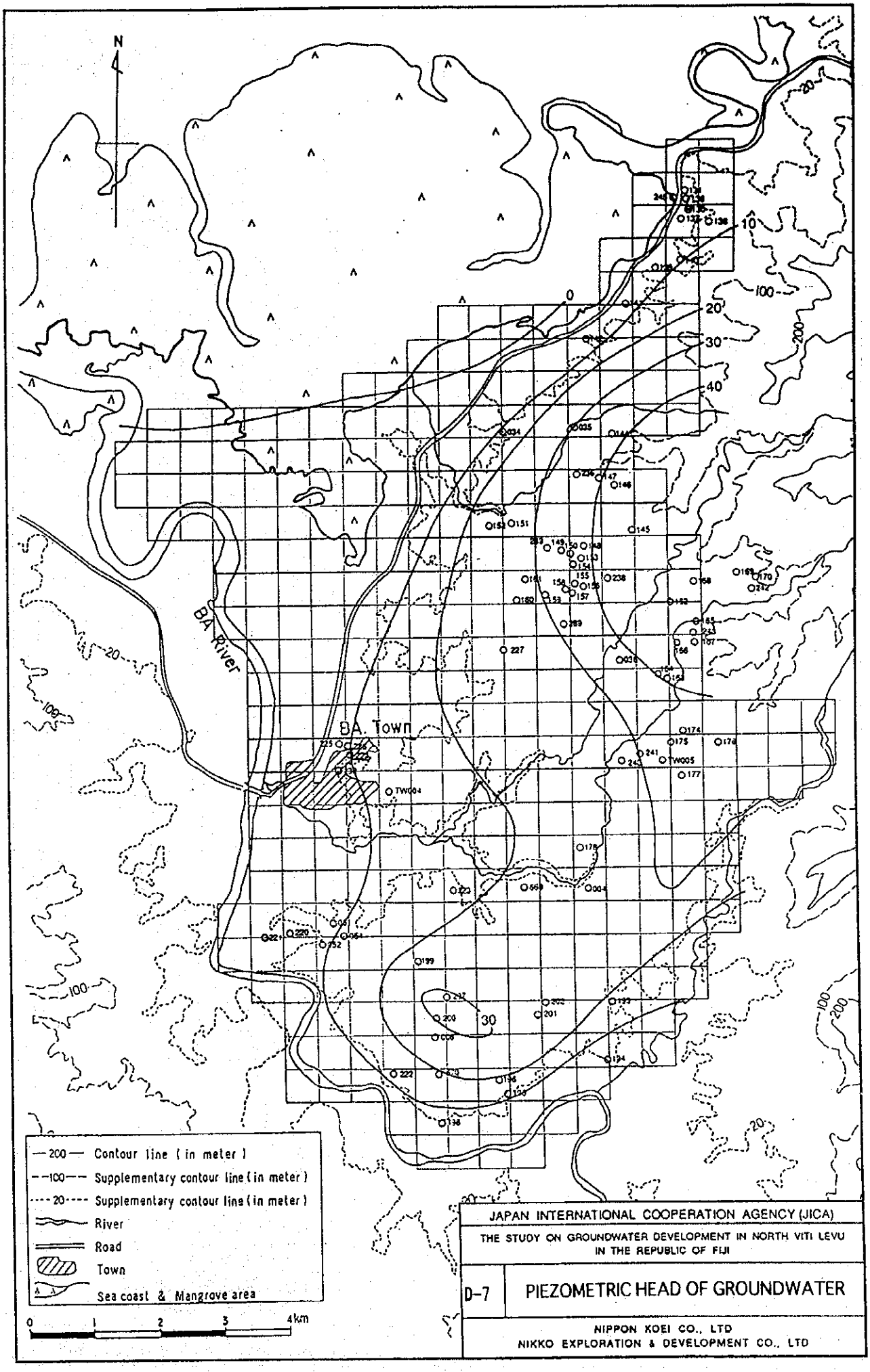
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

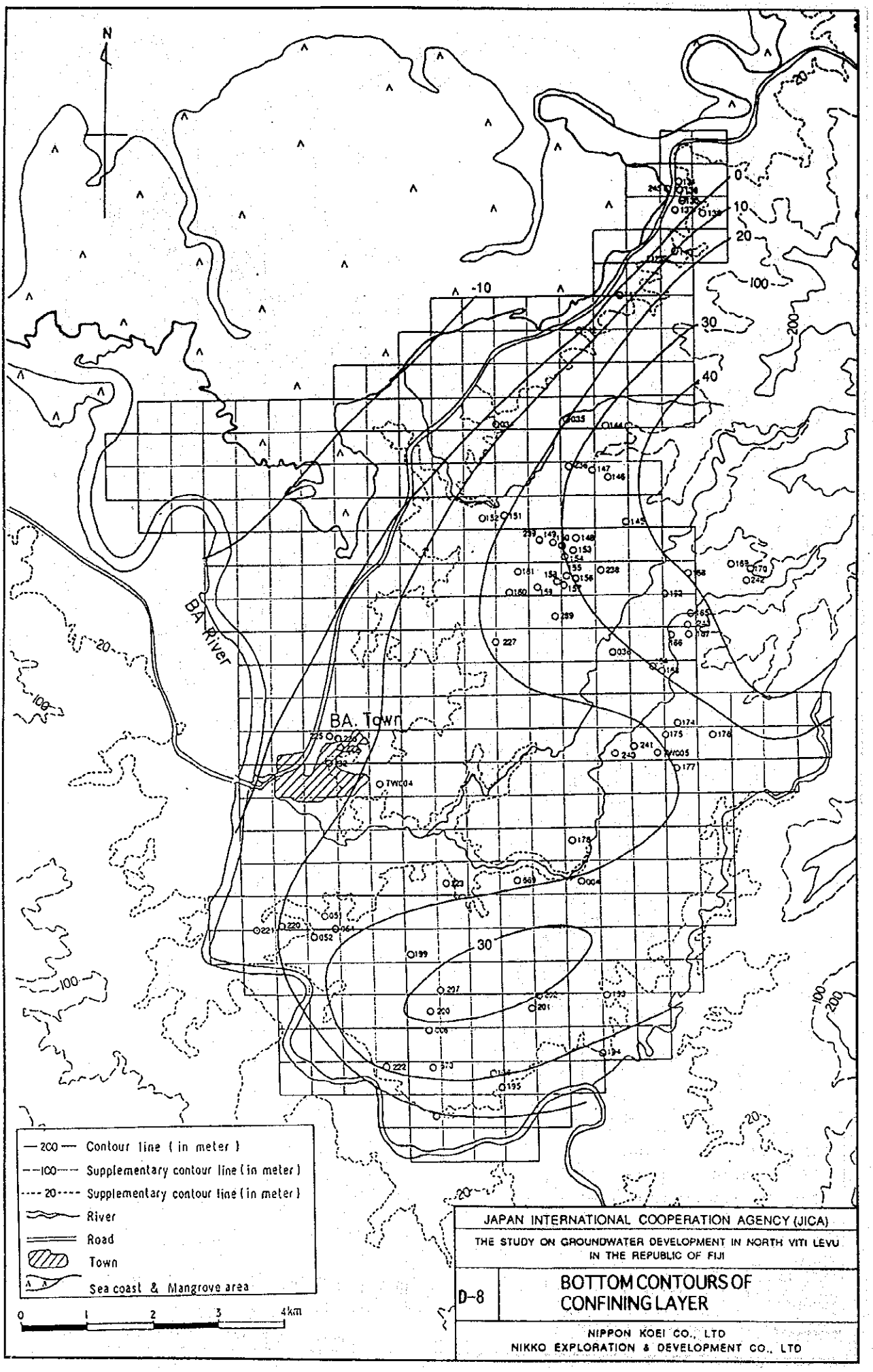
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-6

CONTOURS OF BASEMENT

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD


N
BA River
BA Town
0
10
20
30
40
100
200
TW004
TW005
—200— Contour line (in meter)
--100-- Supplementary contour line (in meter)
····20···· Supplementary contour line (in meter)
River
Road
Town
Sea coast & Mangrove area
0 1 2 3 4km
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI
D-7
PIEZOMETRIC HEAD OF GROUNDWATER
NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD



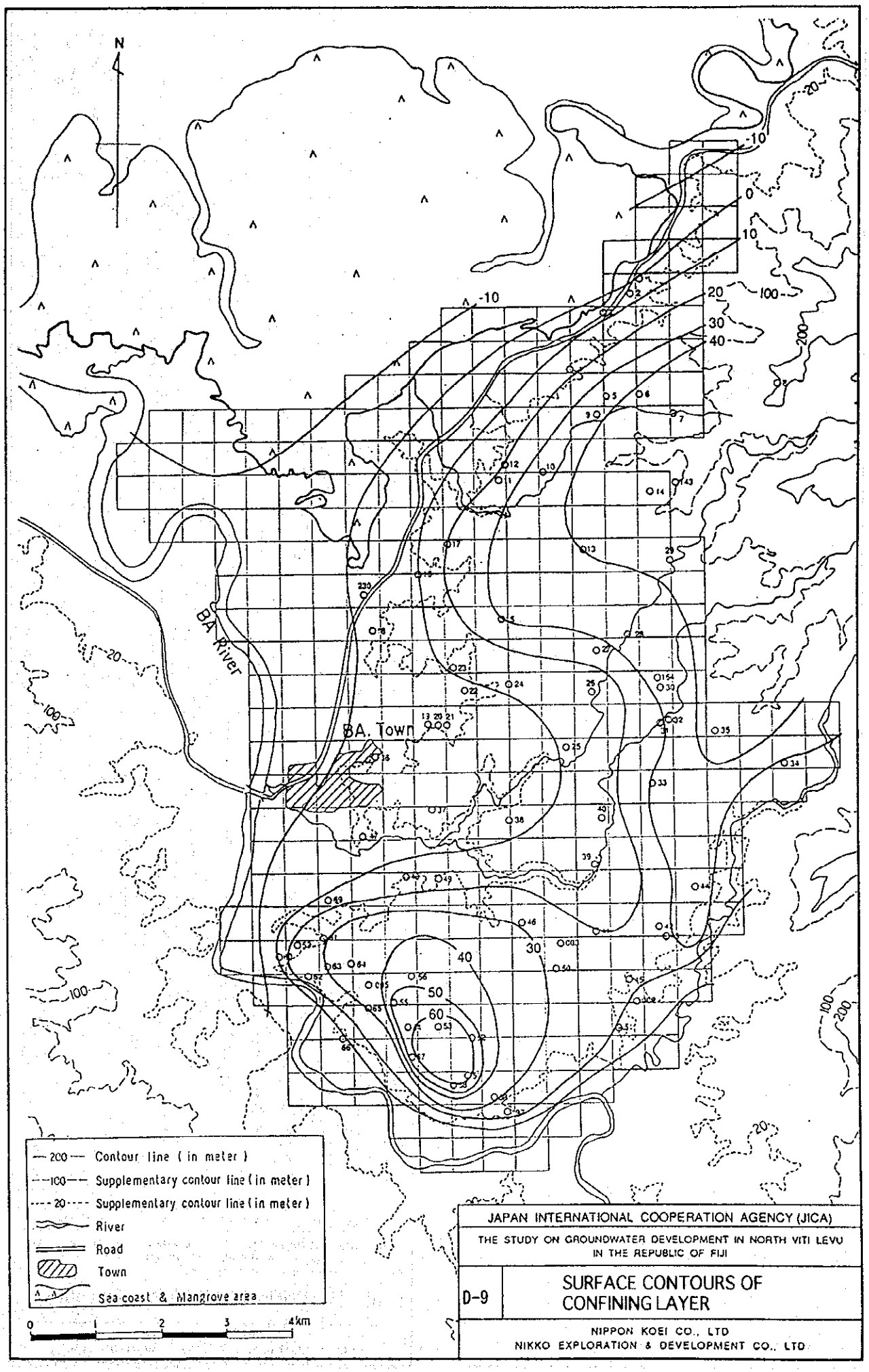
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-8

BOTTOM CONTOURS OF CONFINING LAYER

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD



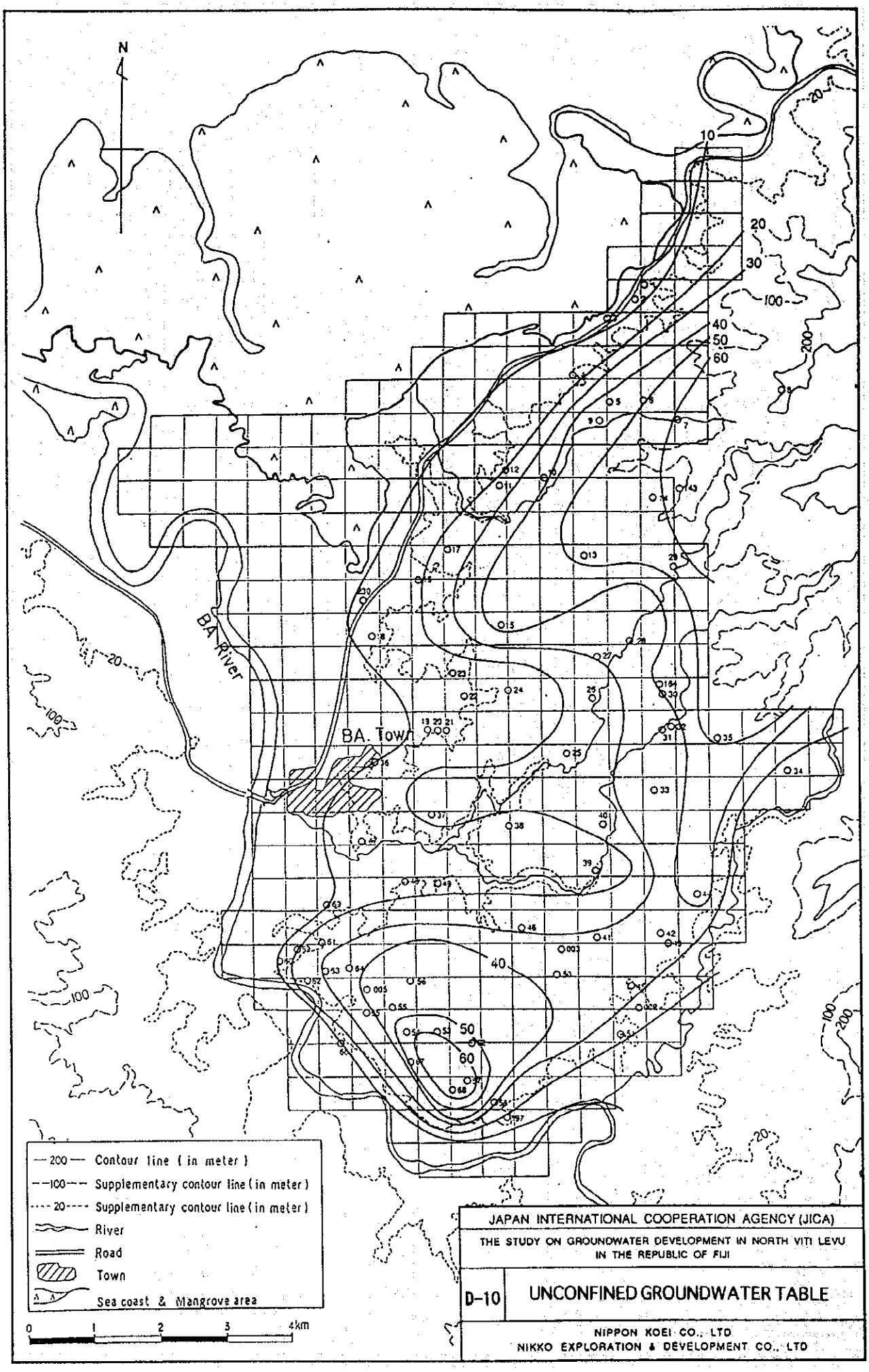
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

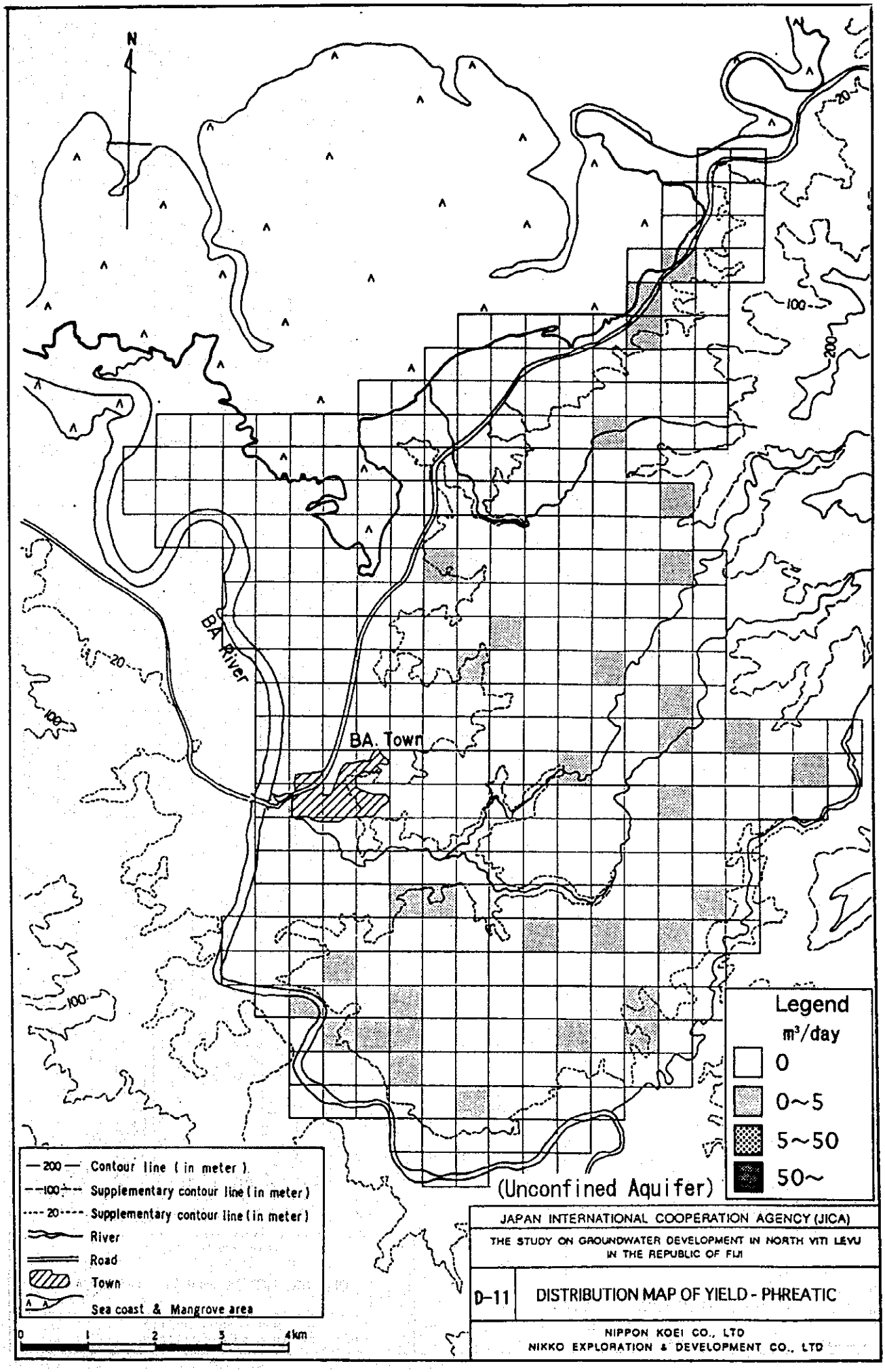
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-9

SURFACE CONTOURS OF CONFINING LAYER

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD


N
BA River
BA. Town
10
20
30
40
50
60
100
200
— 200 — Contour line (in meter)
--100-- Supplementary contour line (in meter)
---- 20 ---- Supplementary contour line (in meter)
River
Road
Town
Sea coast & Mangrove area
0 1 2 3 4km
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI
D-10
UNCONFINED GROUNDWATER TABLE
NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD

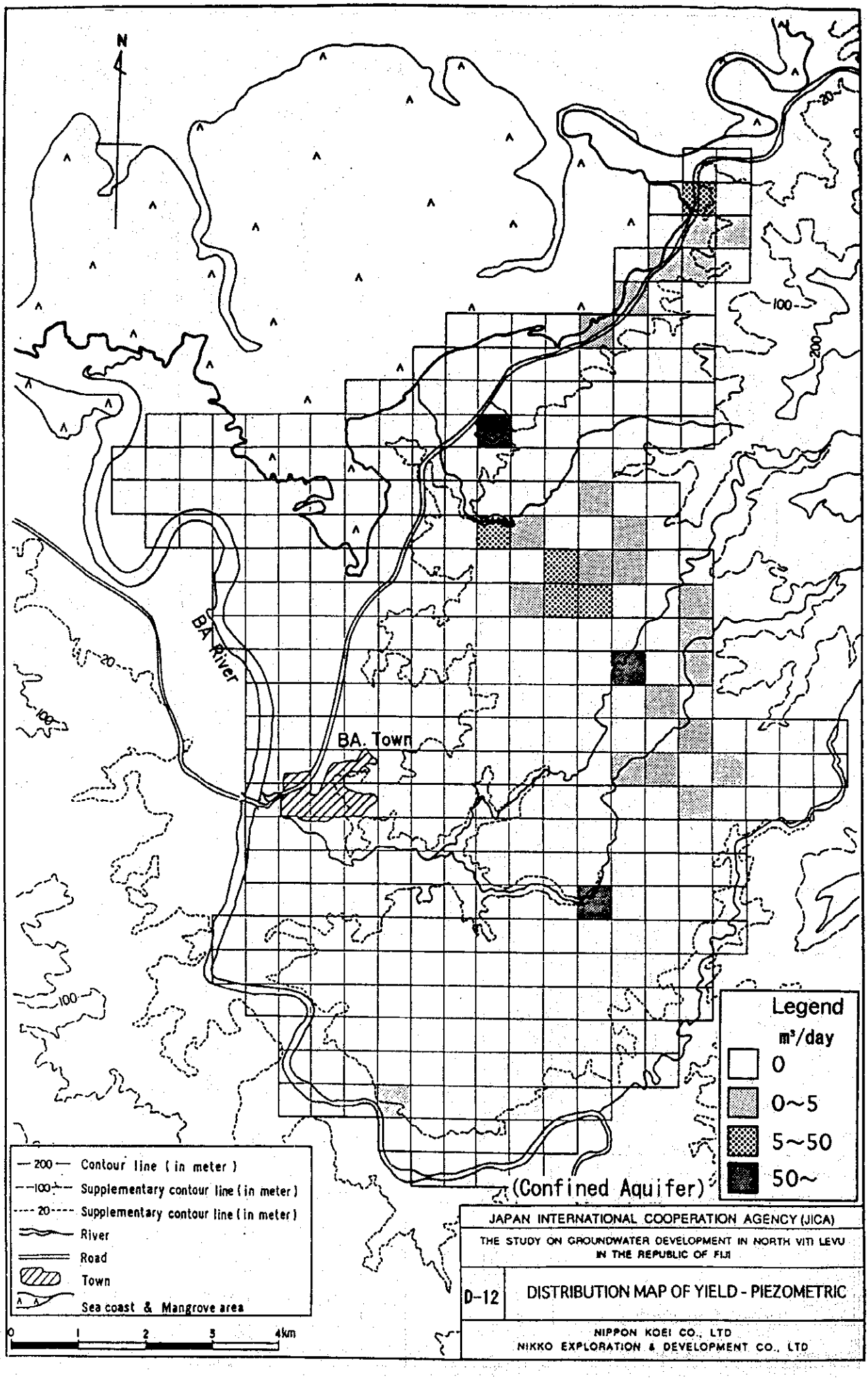


JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-11 DISTRIBUTION MAP OF YIELD - PHREATIC

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD



JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

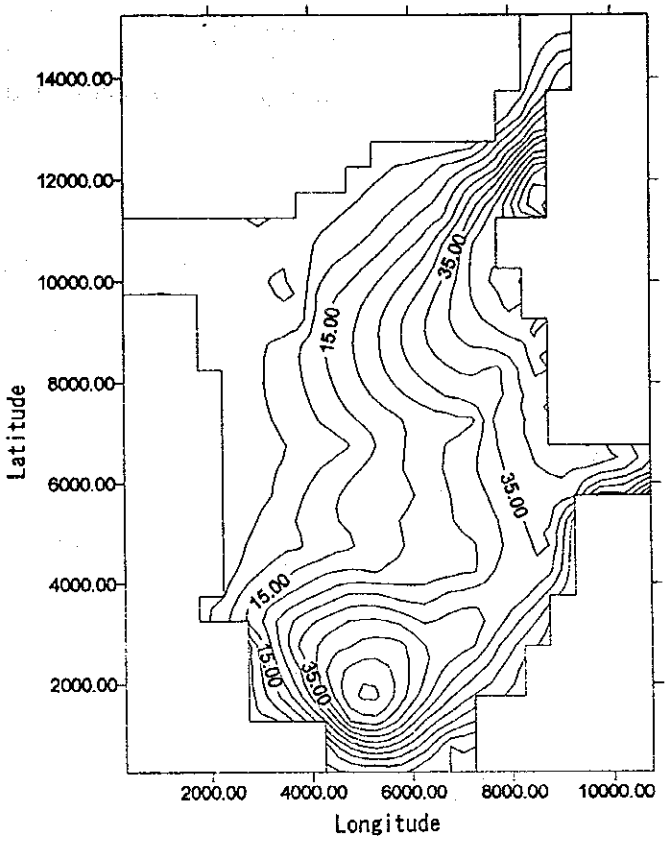
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI

D-12 DISTRIBUTION MAP OF YIELD - PIEZOMETRIC

NIPPON KOEI CO., LTD
NIKKO EXPLORATION & DEVELOPMENT CO., LTD

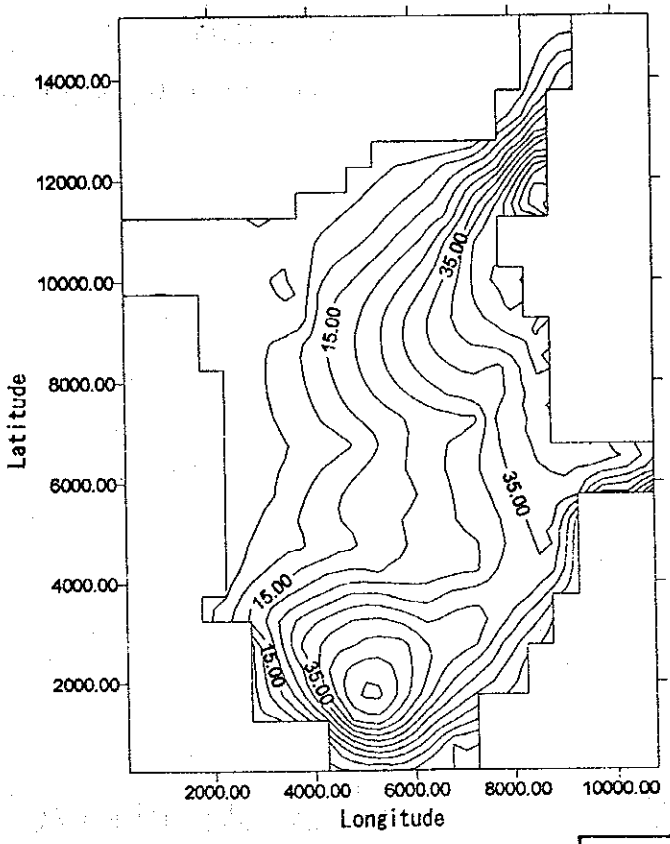
(CASE0)

Draught in a 10-year period

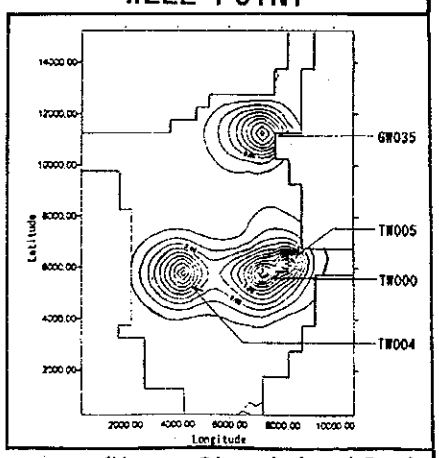


(CASE1)

Draught in a 10-year period

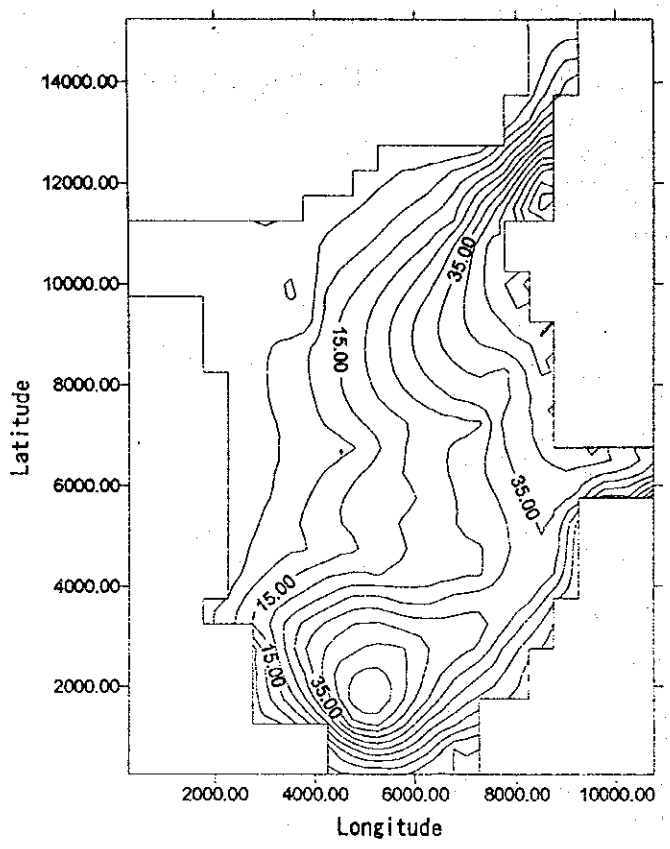


WELL POINT



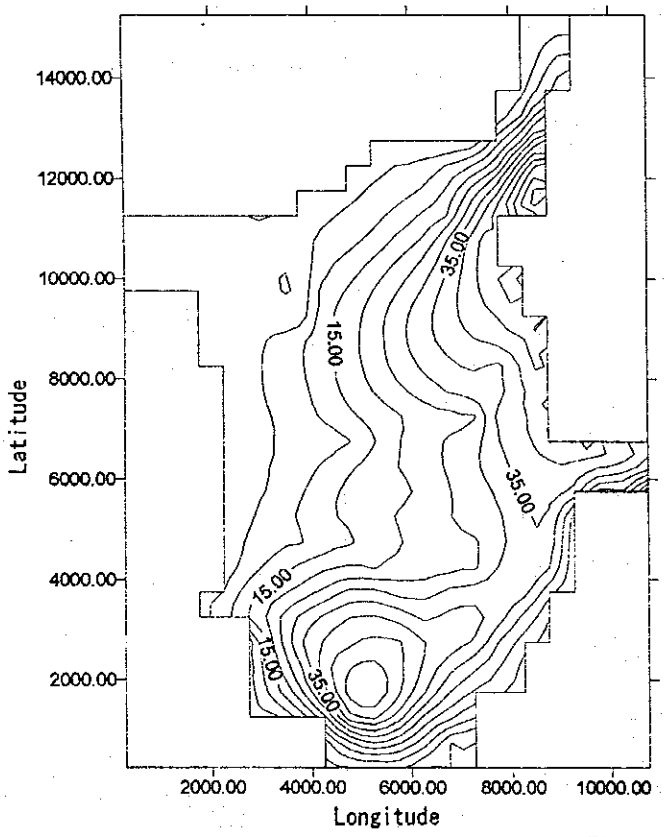
(Unconfined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-13	PREDICTION OF GROUNDWATER CONTOURS AT DECEMBER- UNCONFINED AQUIFER (1)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(CASE2)

Draught in a 10-year period

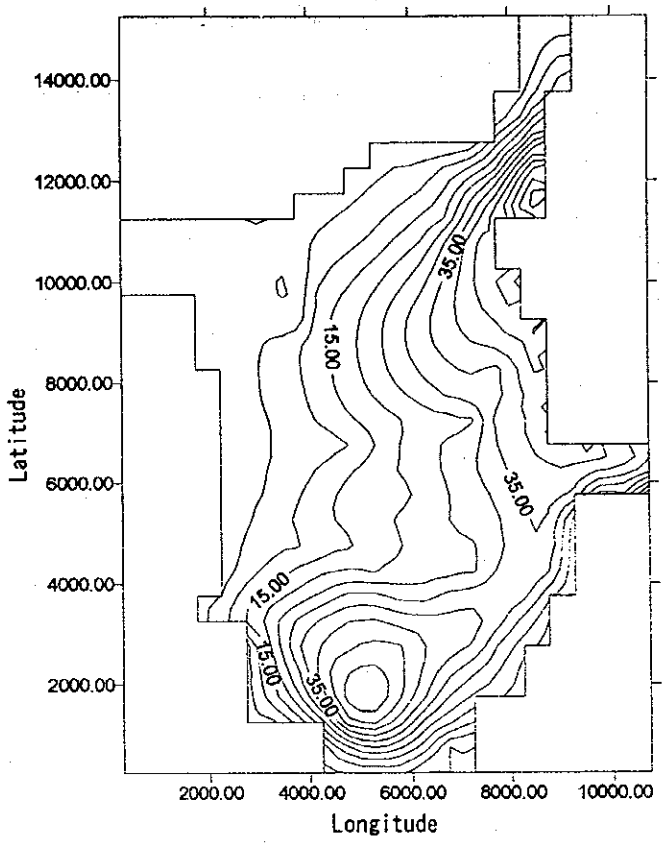


(CASE3)

Draught in a 10-year period

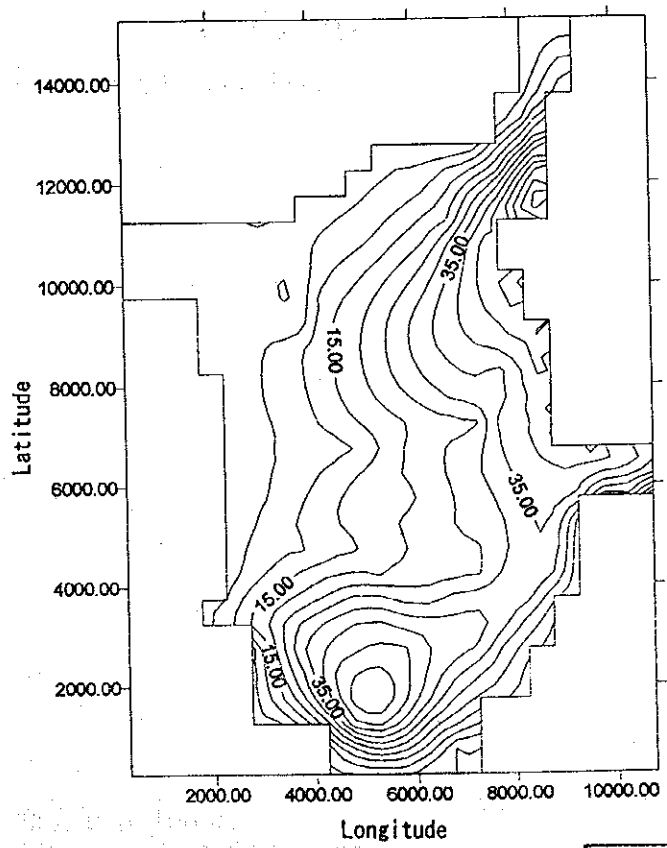
(Unconfined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-13	PREDICTION OF GROUNDWATER CONTOURS AT DECEMBER- UNCONFINED AQUIFER (2)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(CASE4)

Draught in a 10-year period

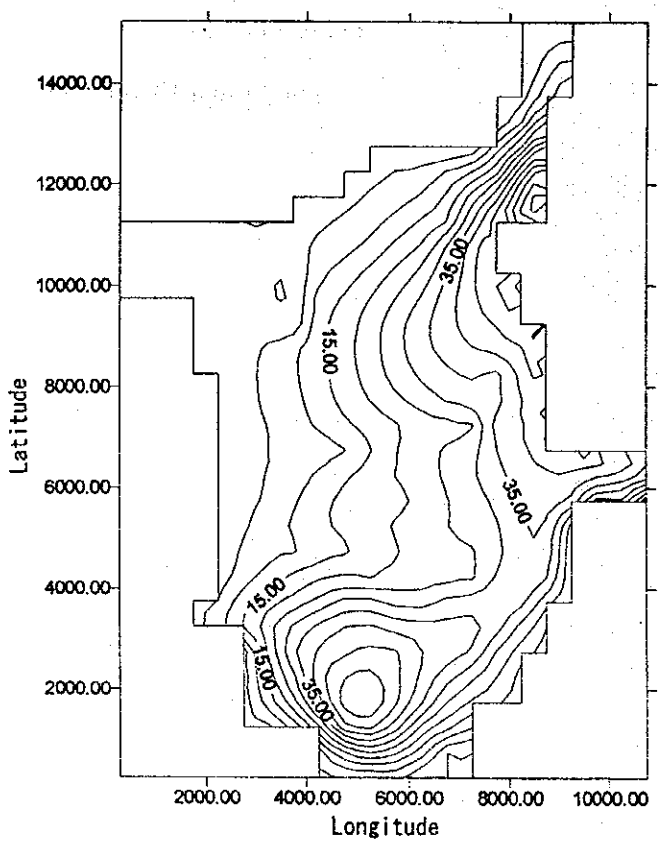


(CASE5)

Draught in a 10-year period

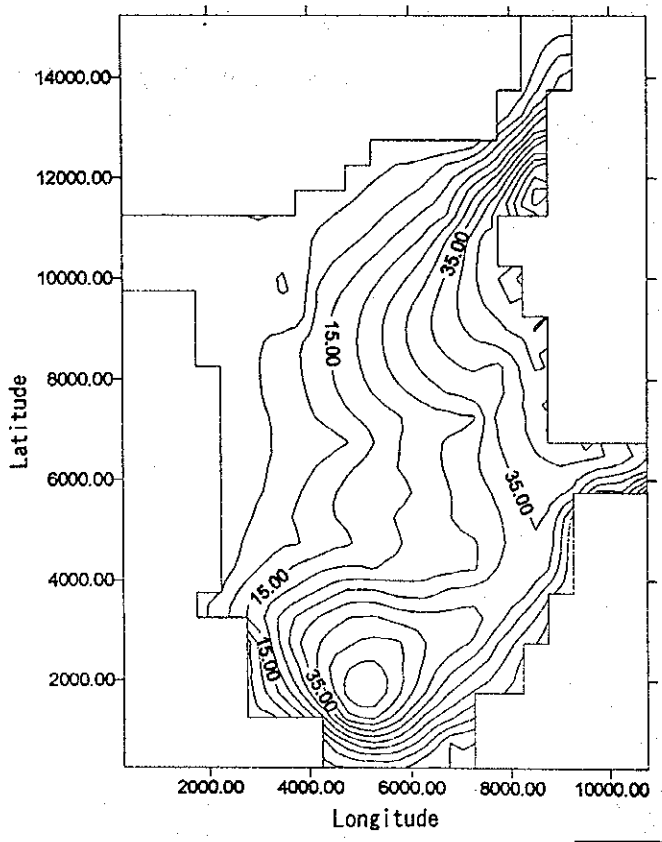
(Unconfined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-13	PREDICTION OF GROUNDWATER CONTOURS AT DECEMBER- UNCONFINED AQUIFER (3)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(CASE6)

Draught in a 10-year period

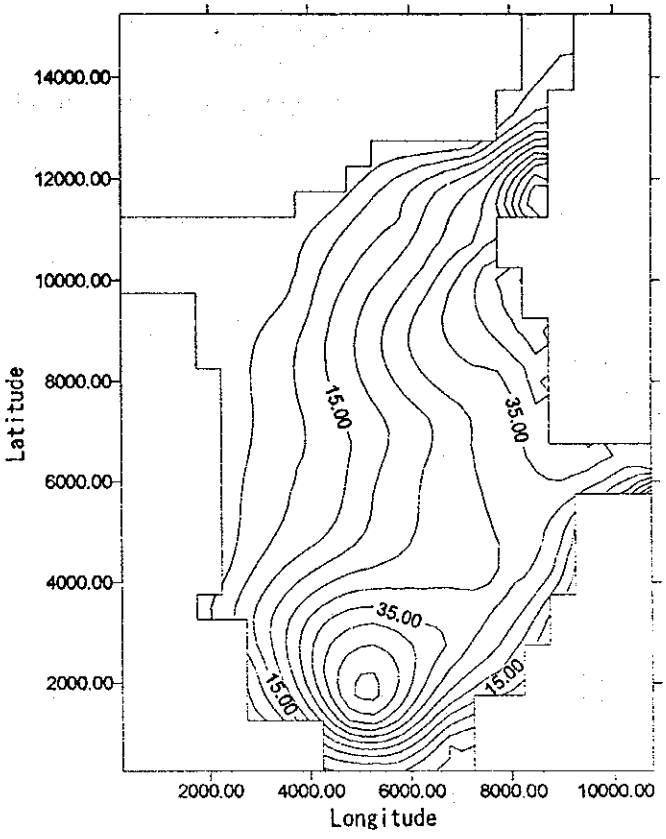


(CASE7)

Draught in a 10-year period

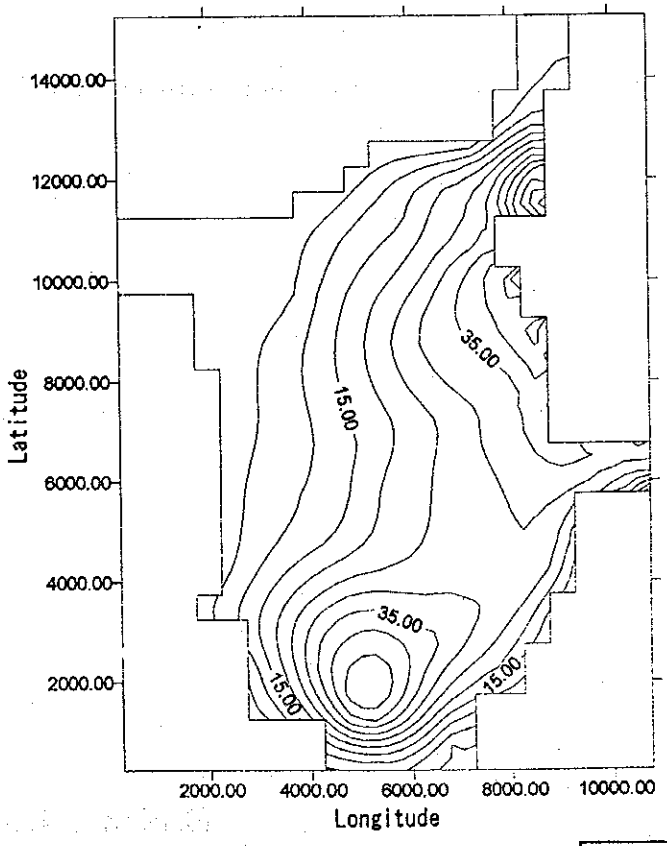
(Unconfined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-13	PREDICTION OF GROUNDWATER CONTOURS AT DECEMBER- UNCONFINED AQUIFER (4)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(CASE0)

Draught in a 10-year period

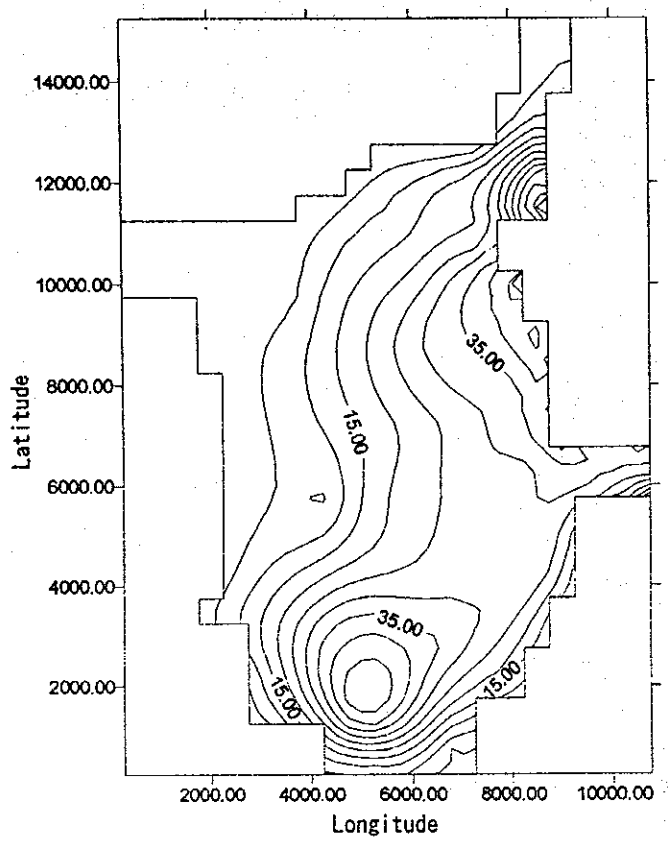


(CASE1)

Draught in a 10-year period

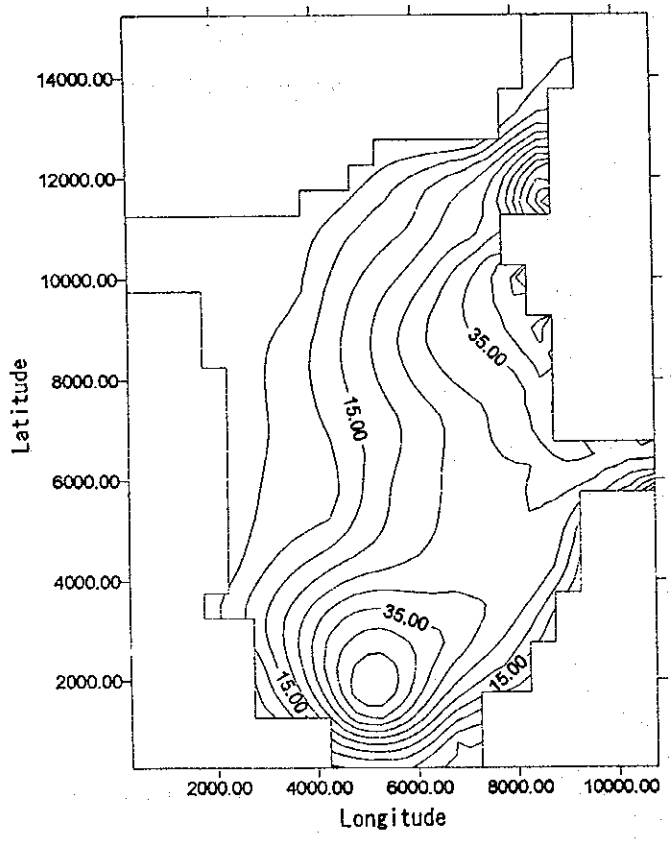
(Confined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-14	PREDICTION OF GROUNDWATER LEVEL CONTOURS AT DECEMBER- CONFIED AQUIFER (1)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(CASE2)

Draught in a 10-year period

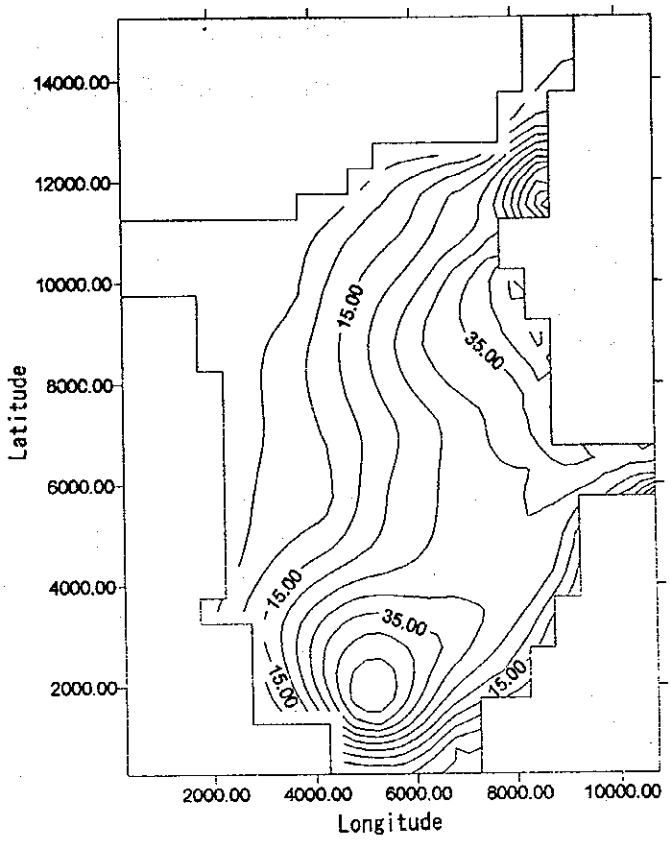


(CASE3)

Draught in a 10-year period

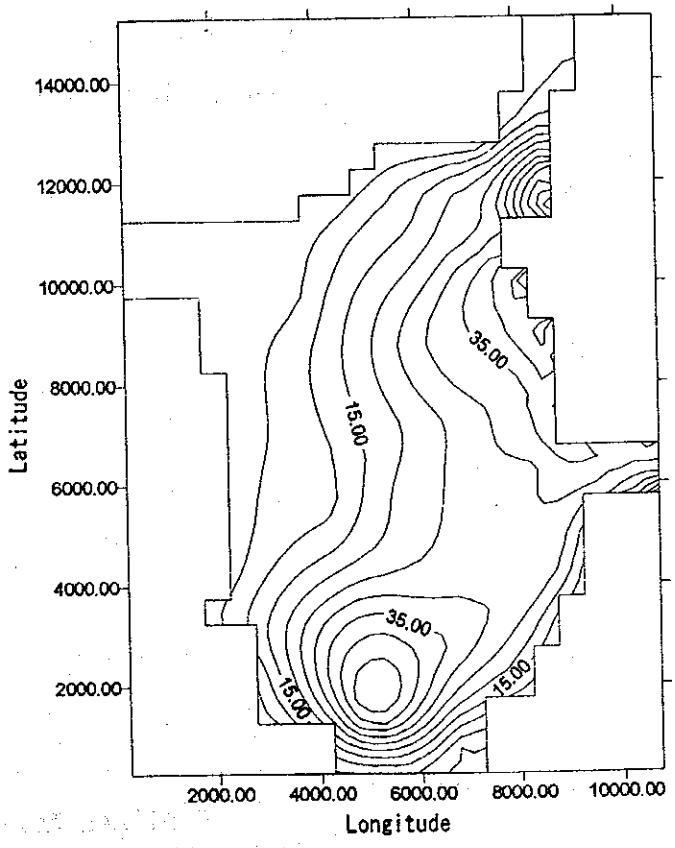
(Confined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-14	PREDICTION OF GROUNDWATER LEVEL CONTOURS AT DECEMBER- CONFIED AQUIFER (2)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(CASE 4)

Draught in a 10-year period

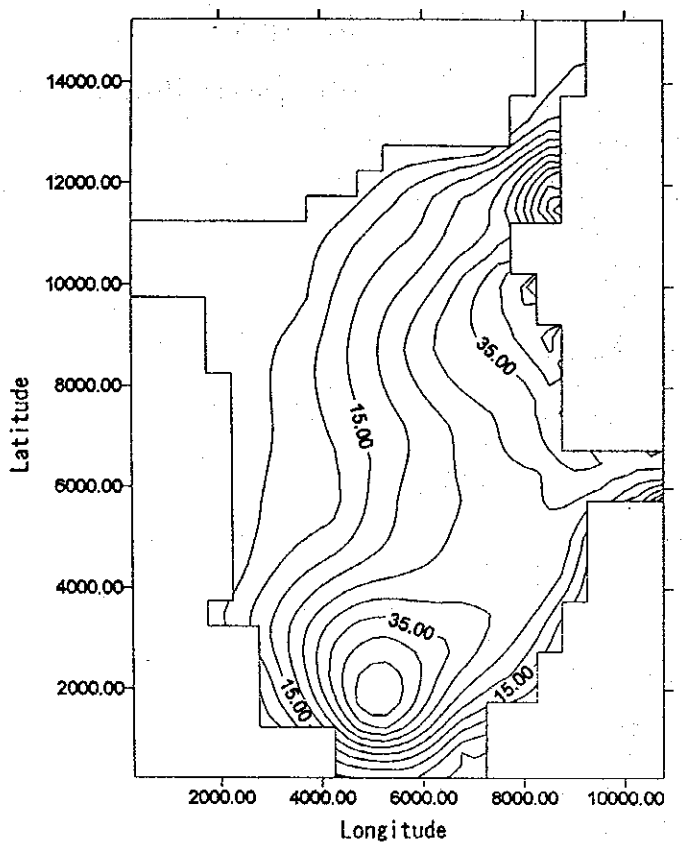


(CASE 5)

Draught in a 10-year period

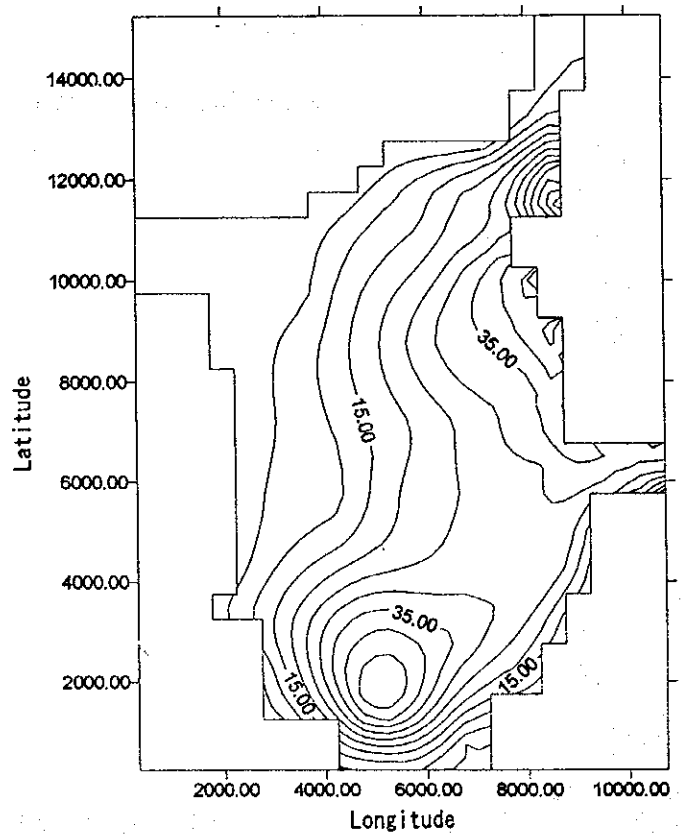
(Confined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-14	PREDICTION OF GROUNDWATER LEVEL CONTOURS AT DECEMBER- CONFIED AQUIFER (3)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(CASE6)

Draught in a 10-year period

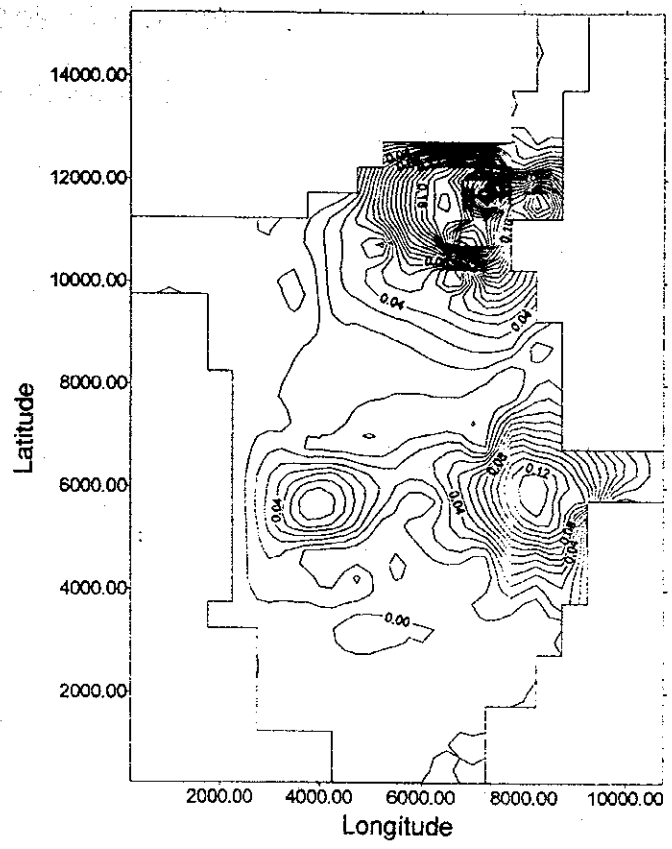


(CASE7)

Draught in a 10-year period

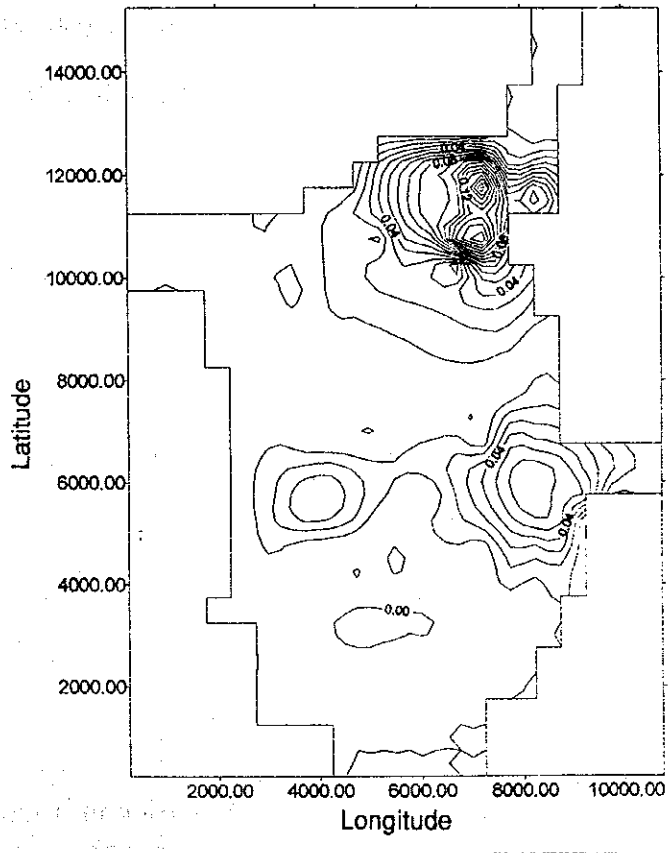
(Confined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-14	PREDICTION OF GROUNDWATER LEVEL CONTOURS AT DECEMBER- CONFIED AQUIFER (4)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(case1)-(case2)

Draught in a 10-year period

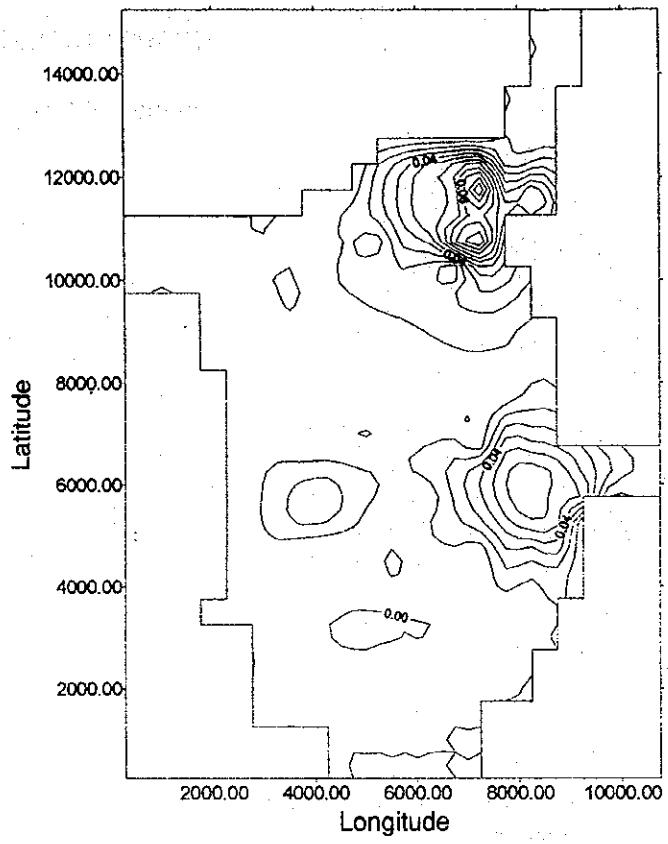


(case1)-(case3)

Draught in a 10-year period

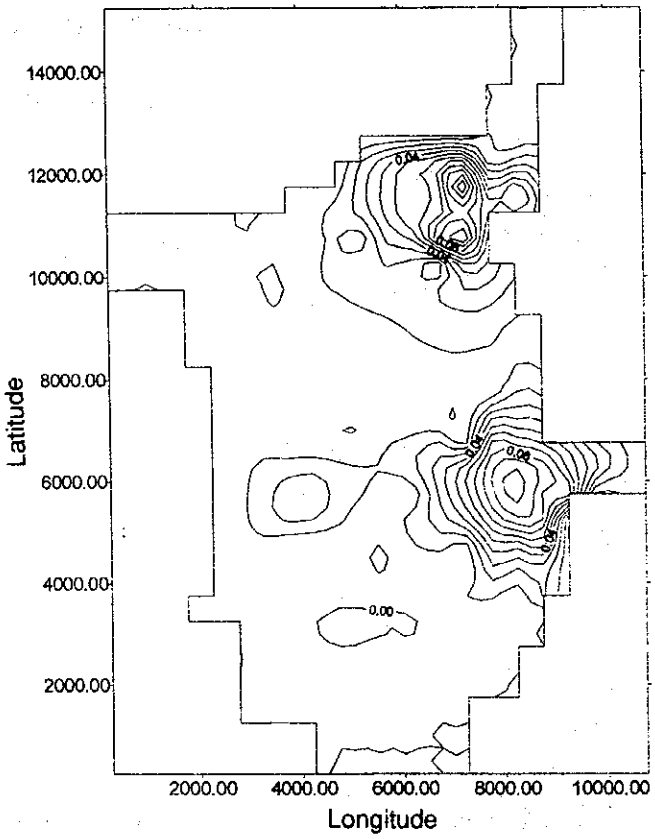
(Unconfined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-15	PREDICTION OF DRAWDOWN AT DECEMBER - UNCONFINED AQUIFER (1)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(case1)-(case4)

Draught in a 10-year period

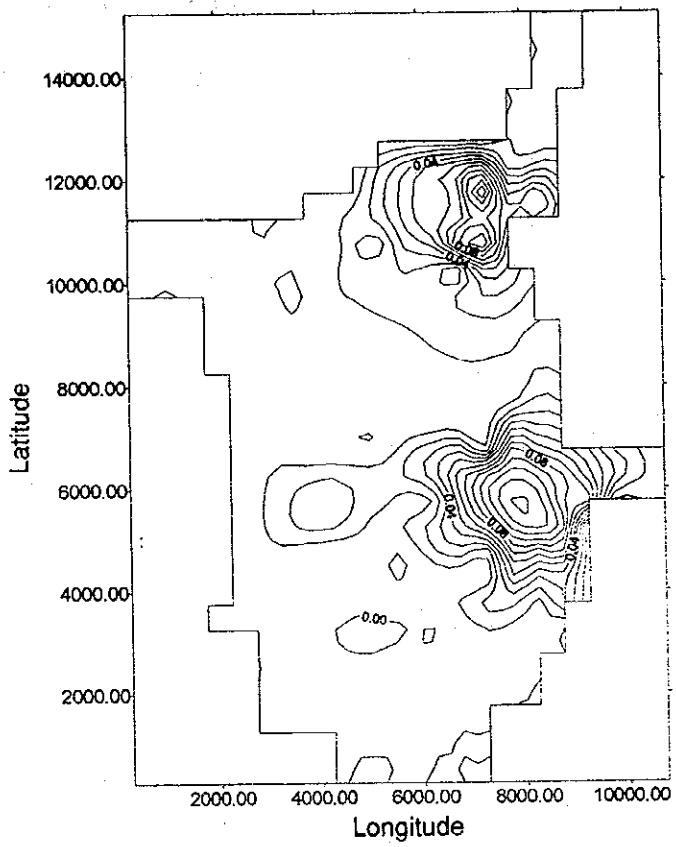


(case1)-(case5)

Draught in a 10-year period

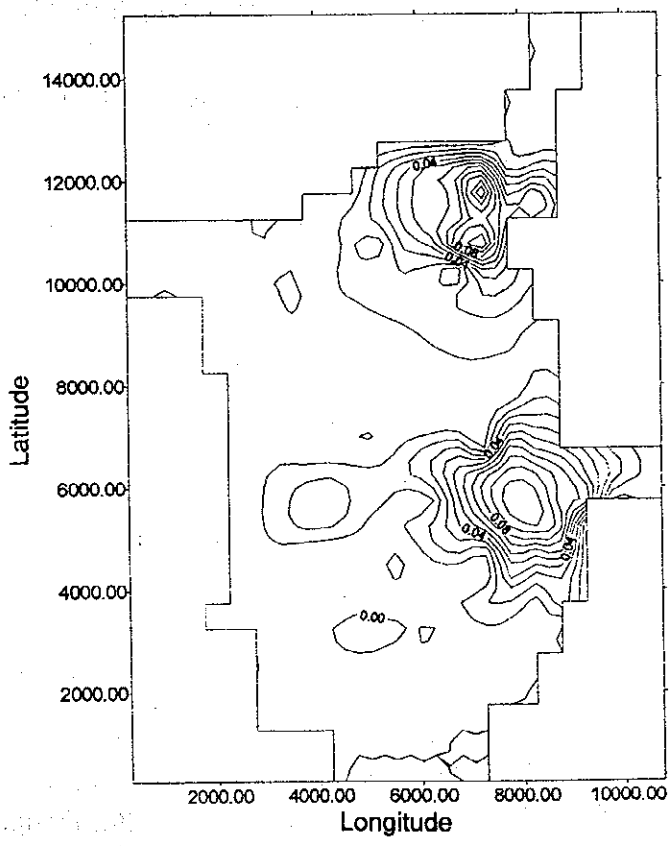
(Unconfined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-15	PREDICTION OF DRAWDOWN AT DECEMBER - UNCONFINED AQUIFER (2)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(case1)-(case6)

Draught in a 10-year period

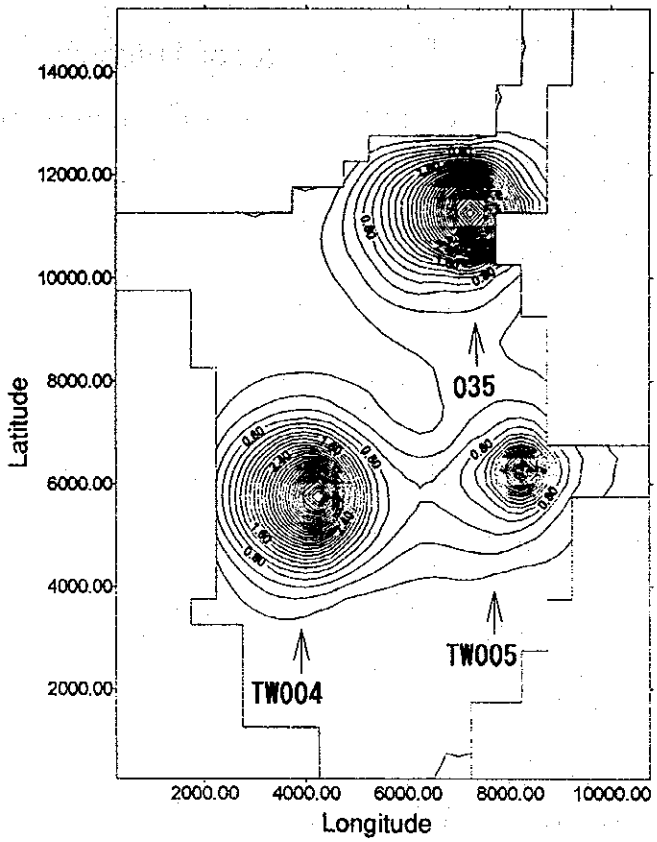


(case1)-(case7)

Draught in a 10-year period

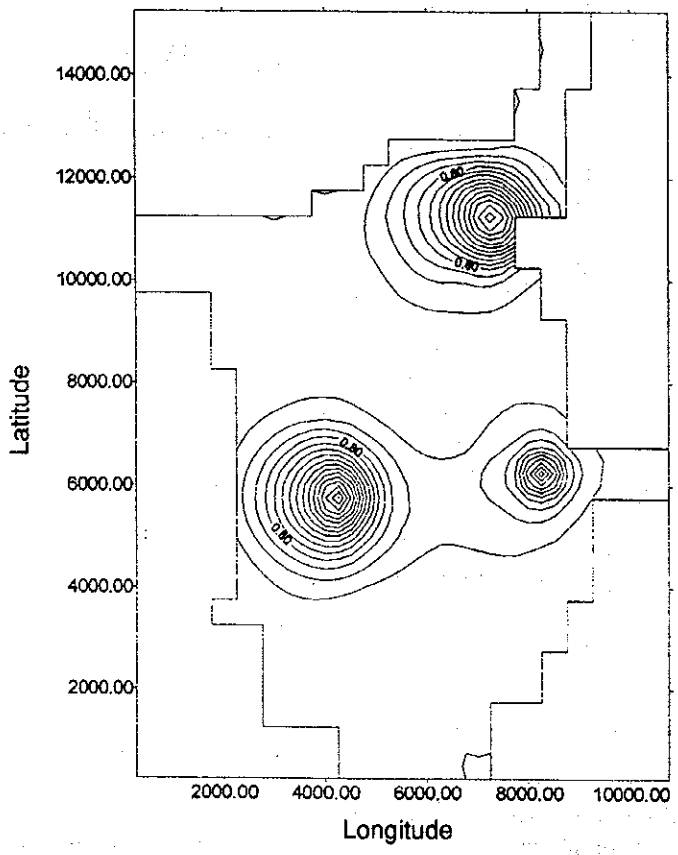
(Unconfined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-15	PREDICTION OF DRAWDOWN AT DECEMBER - UNCONFINED AQUIFER (3)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(case1)-(case2)

Draught in a 10-year period

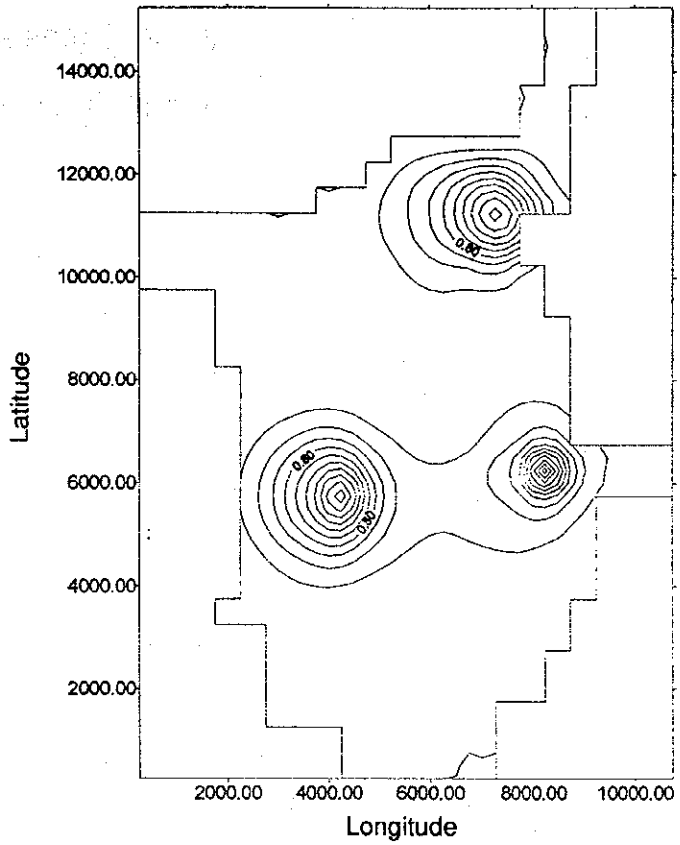


(case1)-(case3)

Draught in a 10-year period

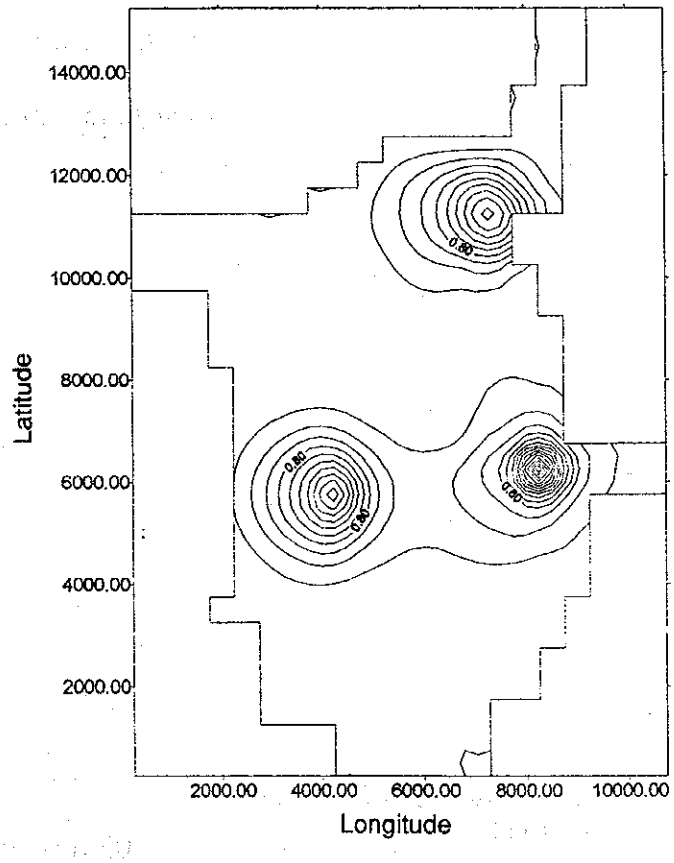
(Confined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
Fig. D-16	PREDICTION OF DRAWDOWN AT DECEMBER - CONFINED AQUIFER (1)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(case1)-(case4)

Draught in a 10-year period

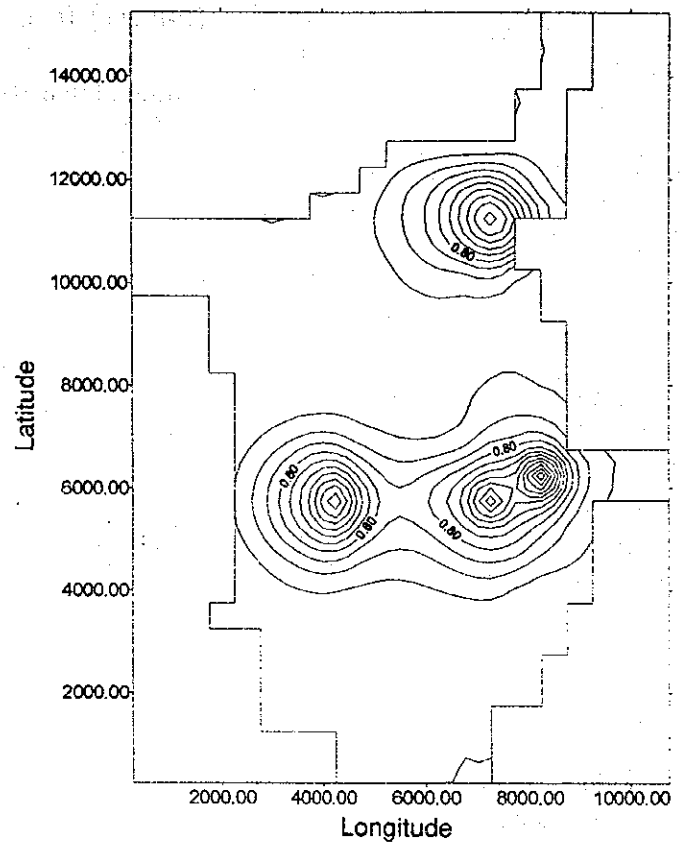


(case1)-(case5)

Draught in a 10-year period

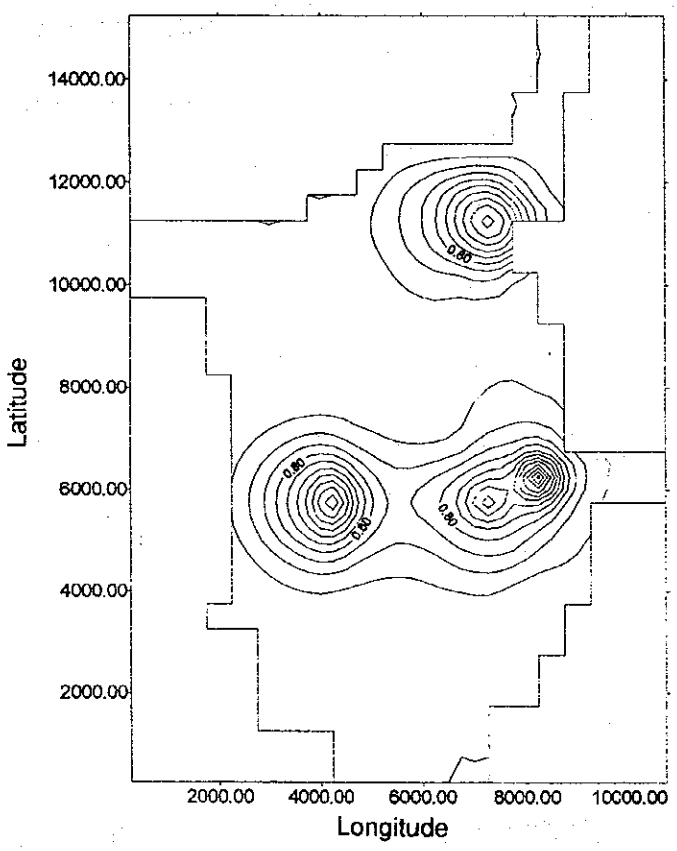
(Confined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-16	PREDICTION OF DRAWDOWN AT DECEMBER - CONFINED AQUIFER (2)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



(case1)-(case6)

Draught in a 10-year period

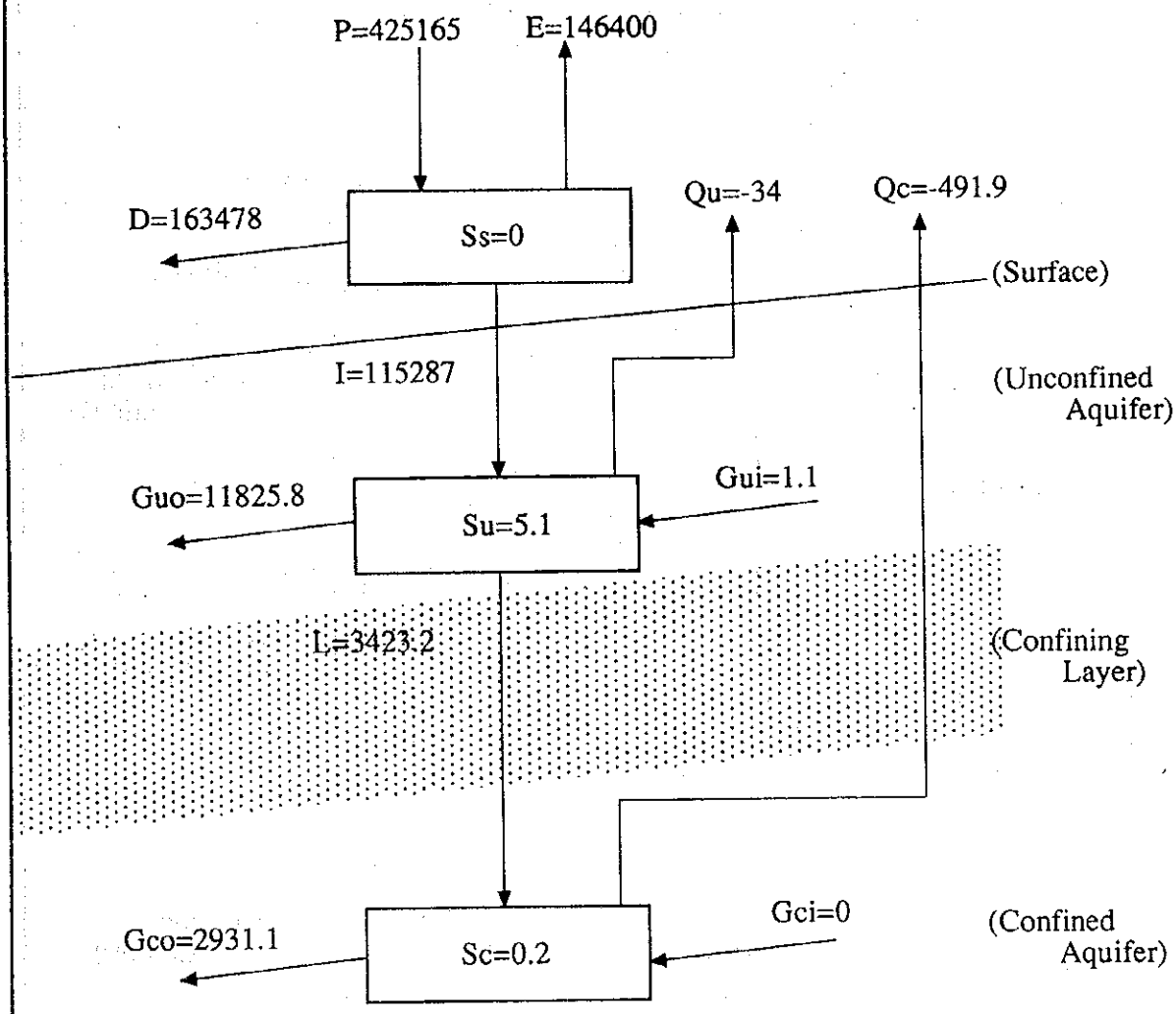


(case1)-(case7)

Draught in a 10-year period

(Confined Aquifer)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-16	PREDICTION OF DRAWDOWN AT DECEMBER - CONFINED AQUIFER (3)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

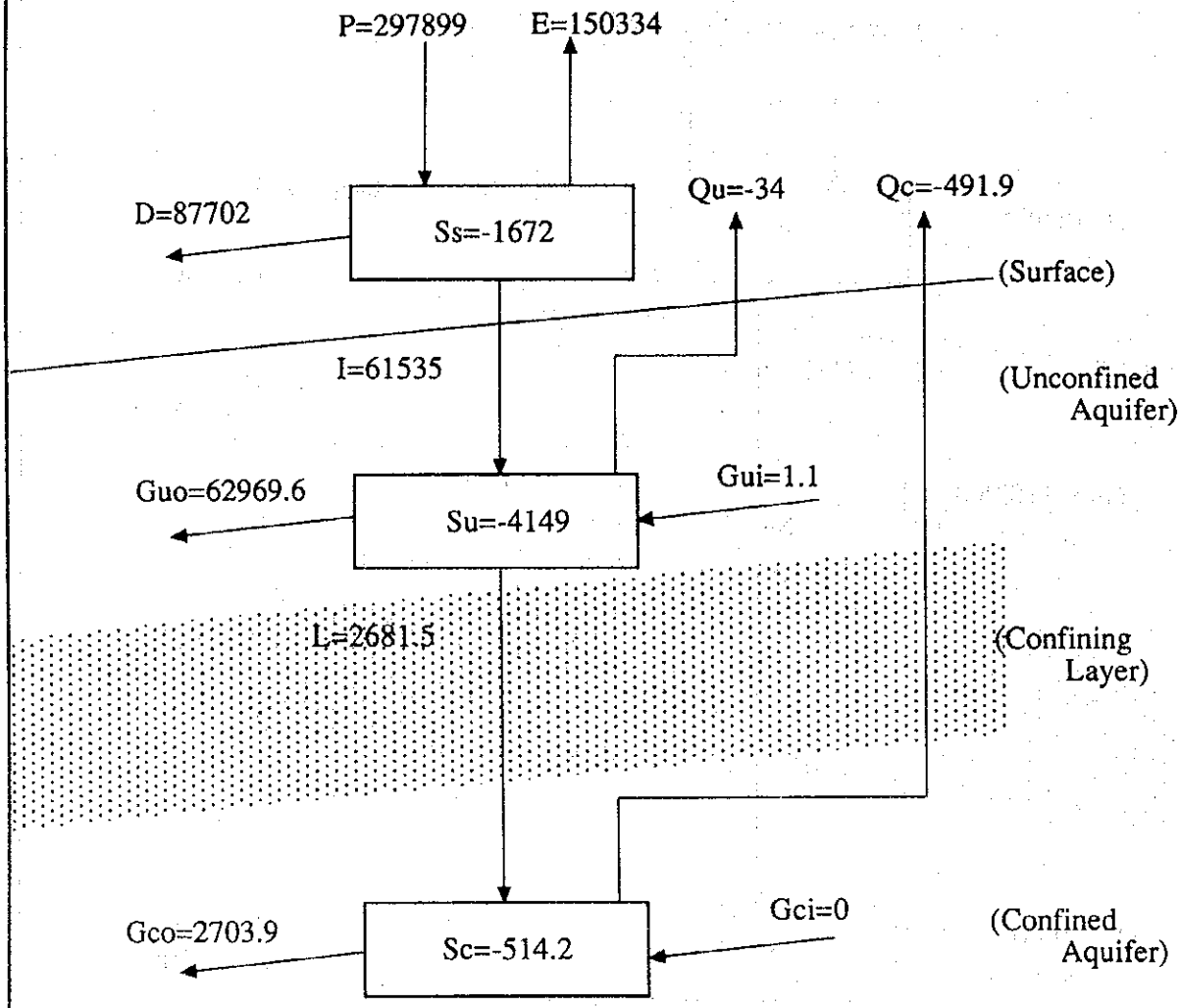
P : Precipitation
E : Evapotranspiration
D : Surface Runoff
I : Groundwater Recharge
L : Leakage
Ss : Change of Surface Storage
Su : Change of Unconfined Water Storage
Sc : Change of Confined Water Storage

Gui : Unconfined Water Inflow
Guo : Unconfined Water Outflow
Qu : Unconfined Water Pumpage
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case0

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (1)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

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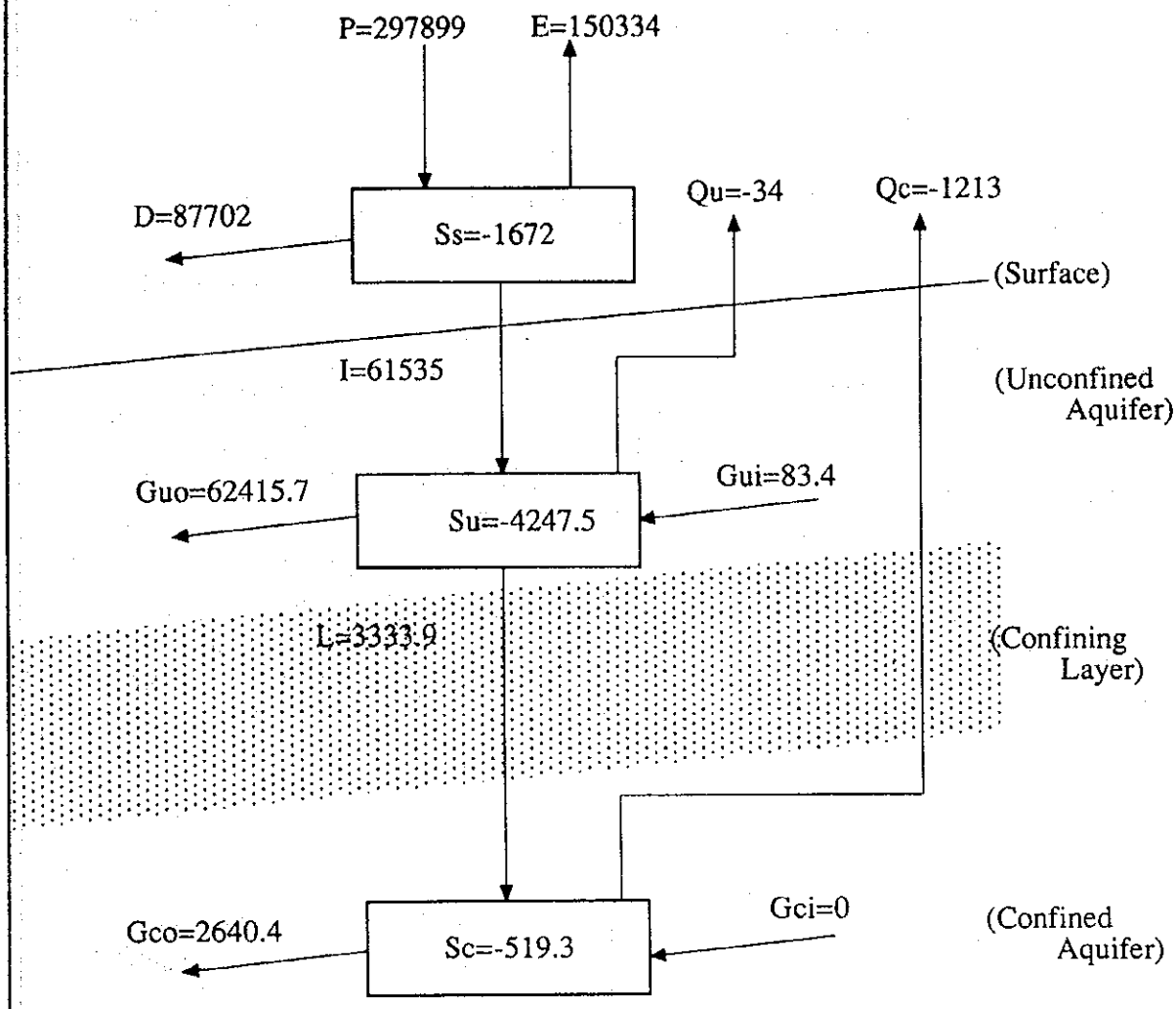
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case1

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (2)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

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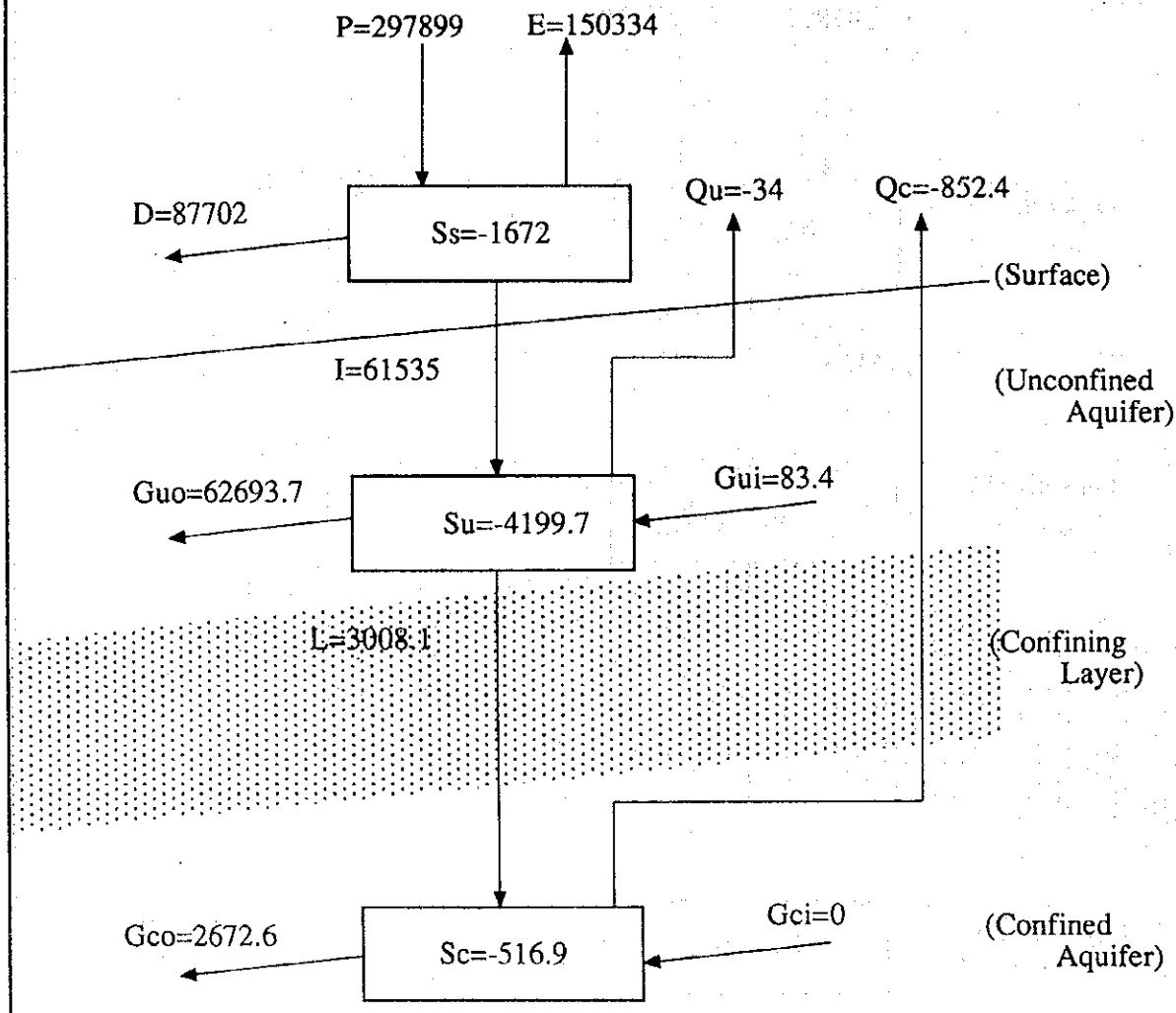
Guo : Unconfined Water Outflow
Qu : Unconfined Water Pumpage
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case2

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (3)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

P : Precipitation
E : Evapotranspiration
D : Surface Runoff
I : Groundwater Recharge
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Guo : Unconfined Water Outflow
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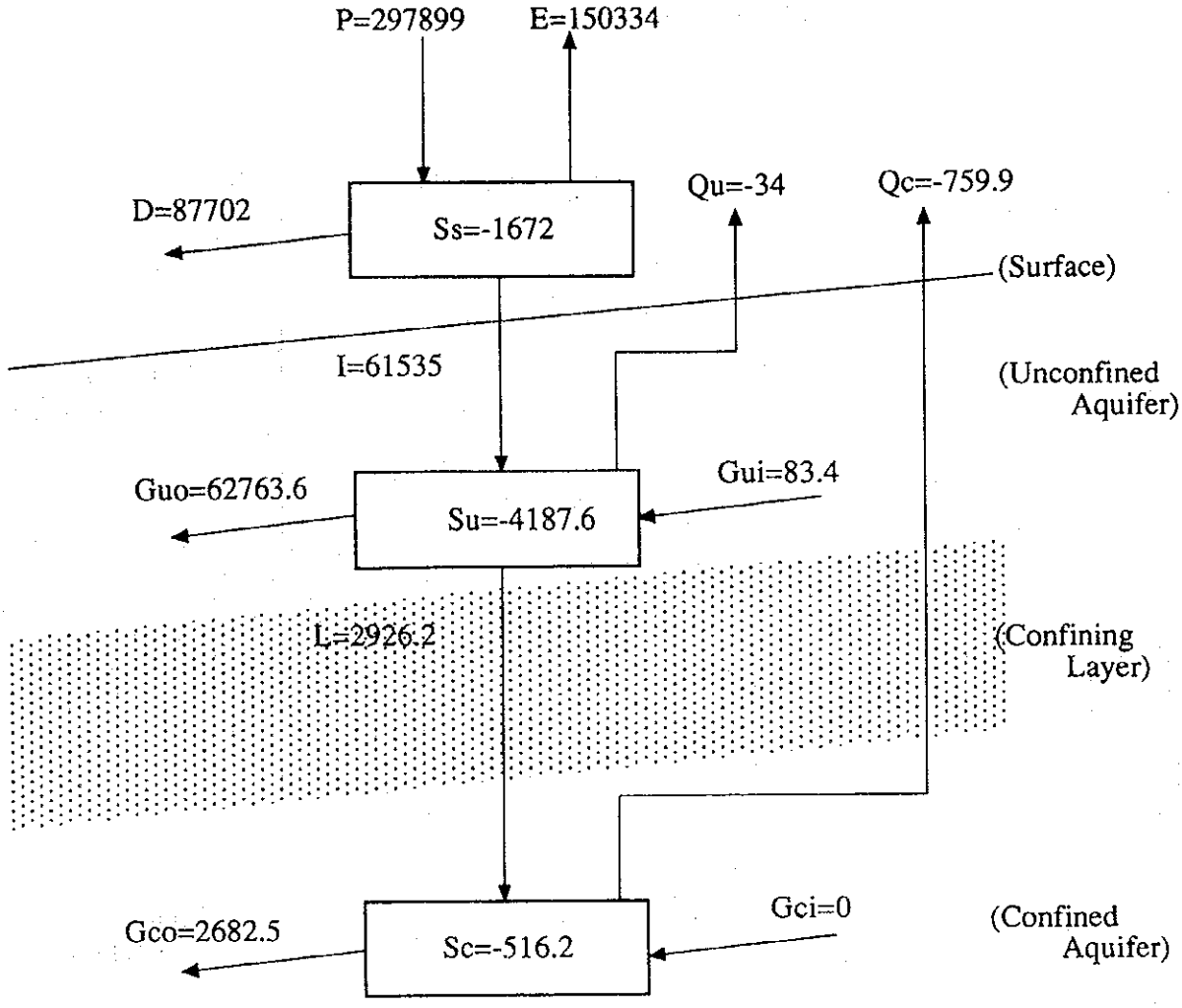
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case3

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (4)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

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I : Groundwater Recharge
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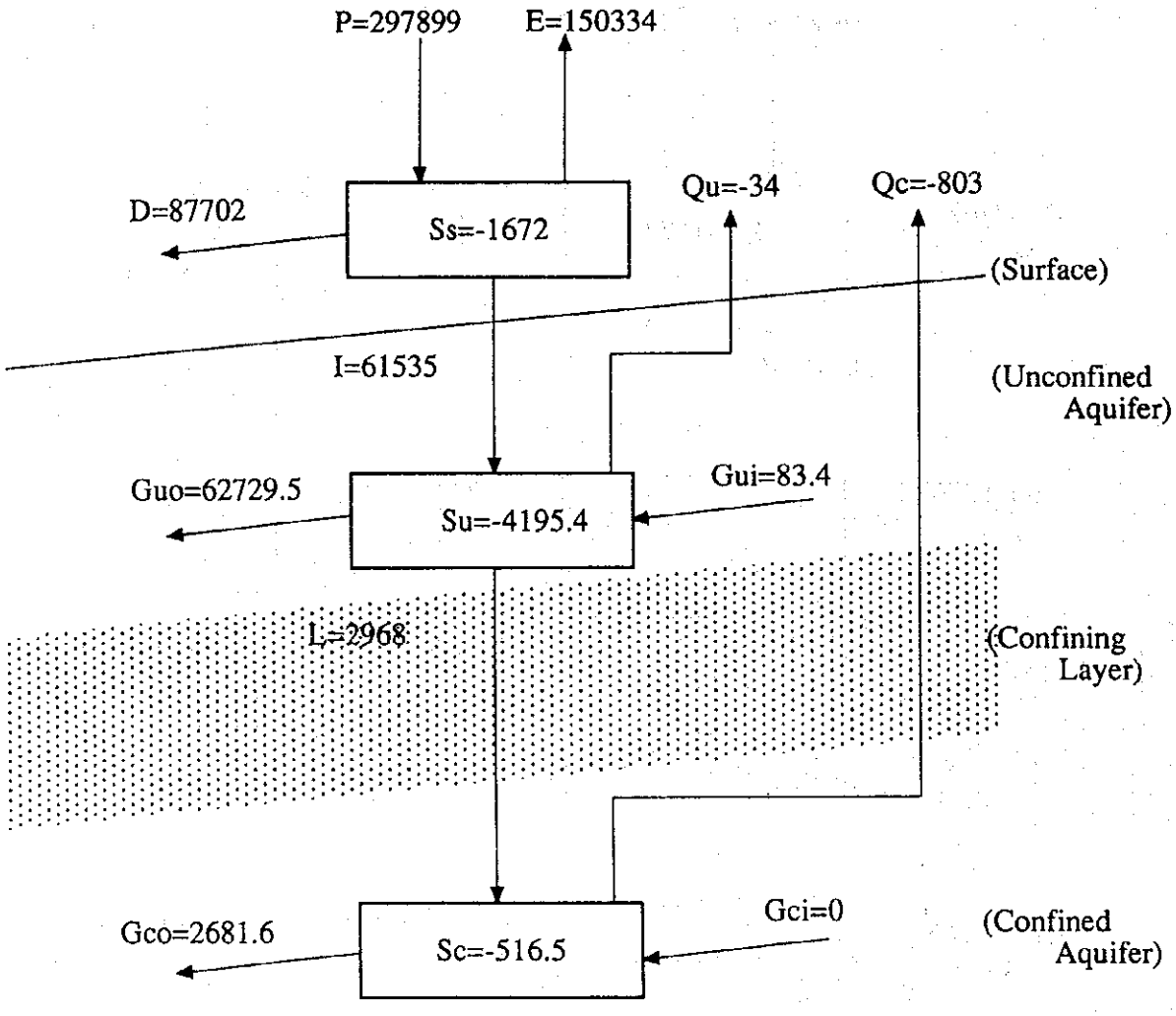
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case4

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (5)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

P : Precipitation
E : Evapotranspiration
D : Surface Runoff
I : Groundwater Recharge
L : Leakage
Ss : Change of Surface Storage
Su : Change of Unconfined Water Storage
Sc : Change of Confined Water Storage

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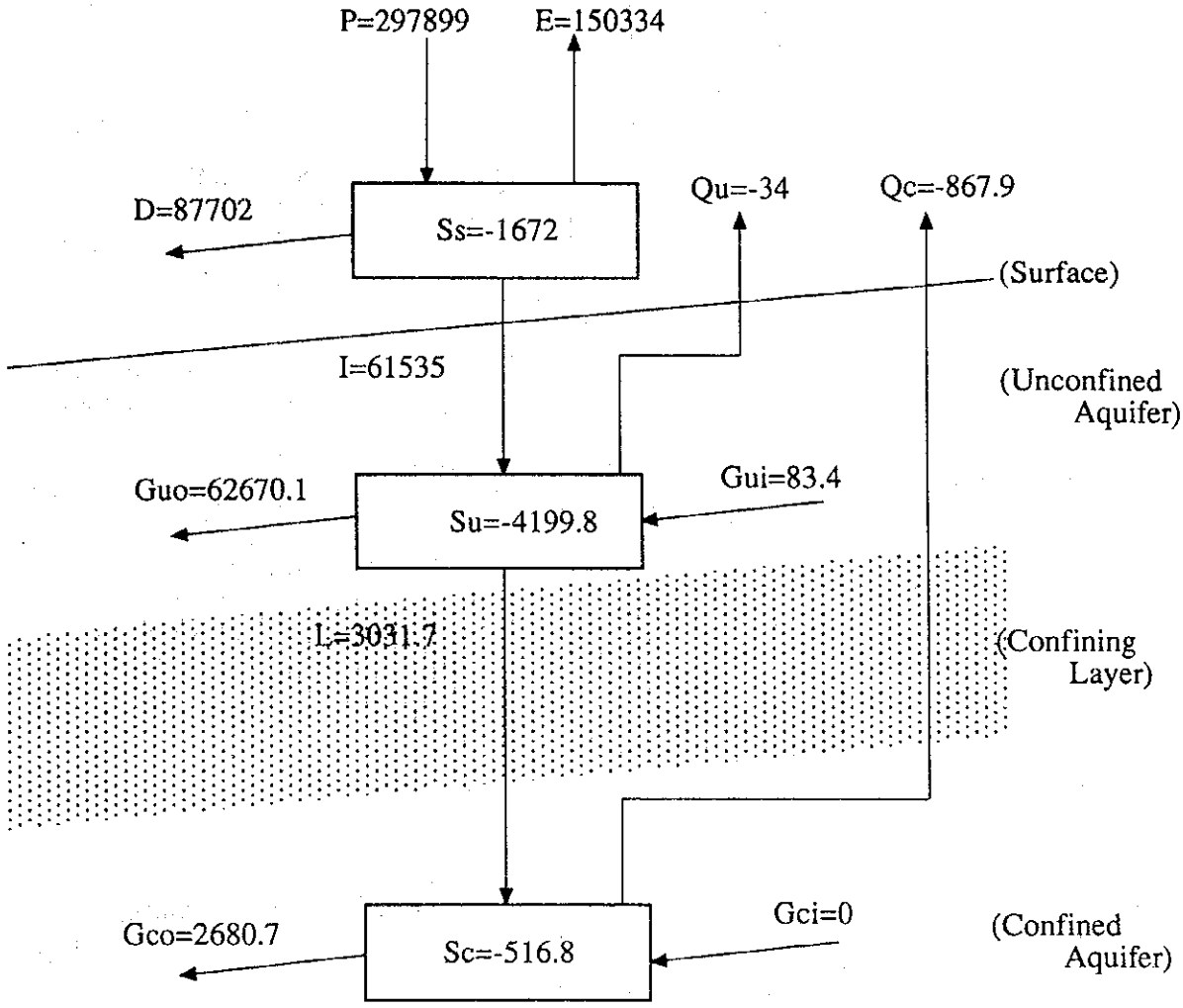
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case5

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (6)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

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Ss : Change of Surface Storage
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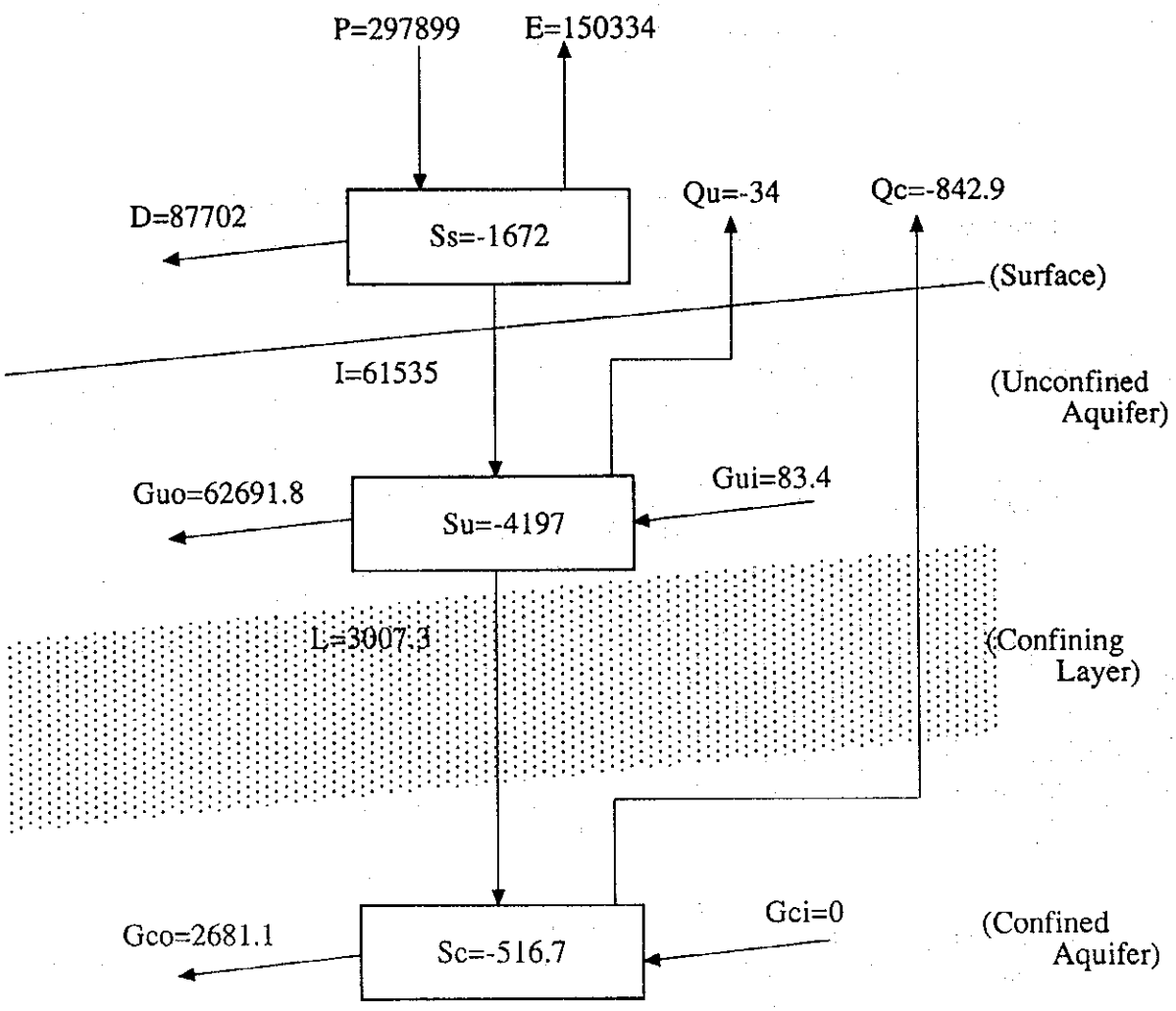
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case6

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (7)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	



Legend

P : Precipitation
E : Evapotranspiration
D : Surface Runoff
I : Groundwater Recharge
L : Leakage
Ss : Change of Surface Storage
Su : Change of Unconfined Water Storage
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Guo : Unconfined Water Outflow
Qu : Unconfined Water Pumpage
Gci : Confined Water Inflow
Gco : Confined Water Outflow
Qc : Confined Water Pumpage

(Unit : m3/day)

Case7

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
THE STUDY ON GROUNDWATER DEVELOPMENT IN NORTH VITI LEVU IN THE REPUBLIC OF FIJI	
D-17	ANNUAL WATER BALANCE FOR THE TRANSIENT SIMULATION (8)
NIPPON KOEI CO., LTD NIKKO EXPLORATION & DEVELOPMENT CO., LTD	