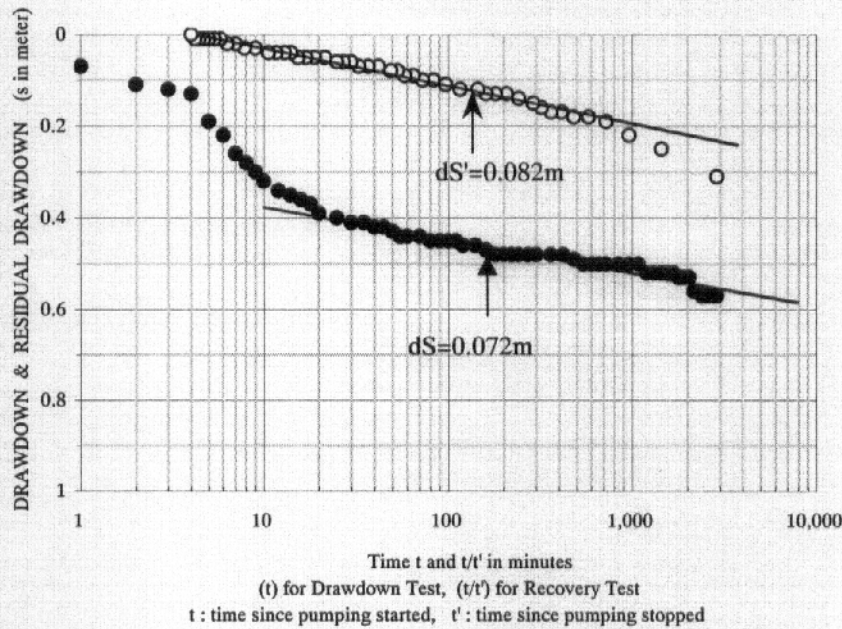


Pumping Test Summary

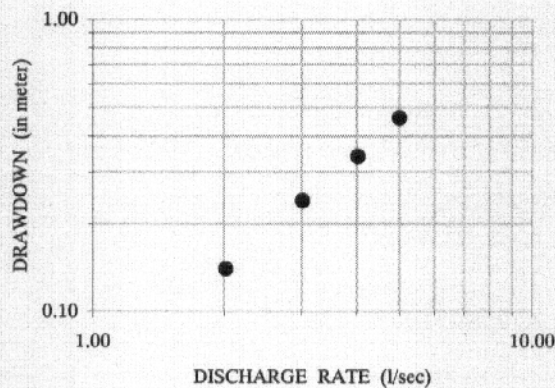
No.:
Location :

PT-9
Oebau

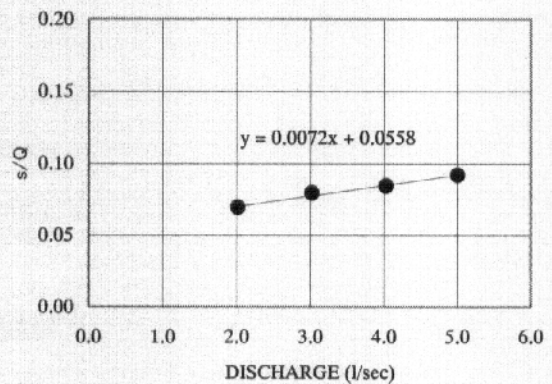
TIME DRAWDOWN GRAPH & RESIDUAL DRAWDOWN GRAPH



STEP DRAWDOWN TEST



WELL LOSS EVALUATION



Q (l/sec)	s (m)	Q/s(l/sec/m)	s/Q
2.02	0.14	14.39	0.07
3.02	0.24	12.59	0.08
4.03	0.34	11.85	0.08
5.00	0.46	10.88	0.09

B:	0.056
C:	0.0072

B: Aquifer Loss Coefficient
 C: Well Loss Coefficient

Q: Discharge, s: Drawdown, Q/s: Specific capacity, $s/Q=B+CQ$

$T=(2.3/4\pi) \times (q/ds') [m^2/d]=15.81 \times (Q/ds')$, $q=60 \times 60 \times 24 \times Q$, $q[m^3/d]$, $Q[l/sec]$

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Figure A7-15
 Pumping Test Summary (PT-9 for Oebau)

Pumping Test Summary

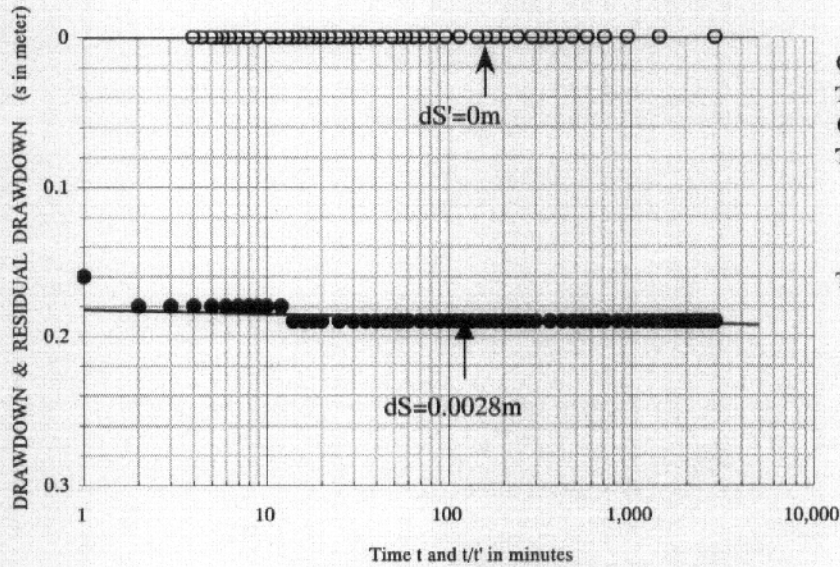
No.:

PT-10

Location :

Bolok

TIME DRAWDOWN GRAPH & RESIDUAL DRAWDOWN GRAPH



○ Data of Residual Drawdown

$T=15.81Q/ds' = \#DIV/0!$

● Data of Time Drawdown

$T=15.81Q/ds = 51508(m^2/d)$

SWL= 34.94(m)

Q= 9.00(l/sec)

$T=(2.3/4\pi) \times (q/ds') [m^2/d]$

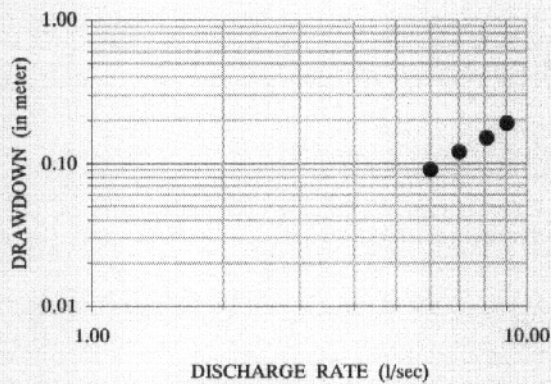
$=15.81 \times (Q/ds')$,

$q=60 \times 60 \times 24 \times Q,$

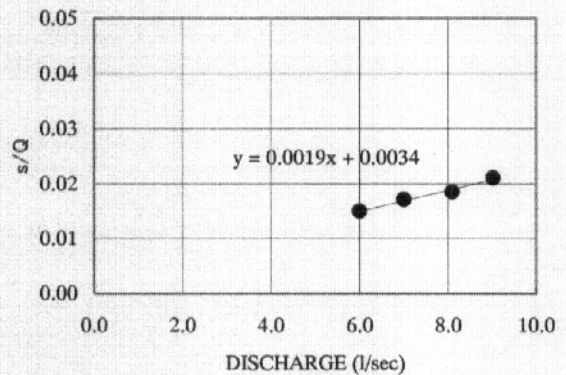
$q[m^3/d], Q[l/sec]$

(t) for Drawdown Test, (t/t') for Recovery Test
t : time since pumping started, t' : time since pumping stopped

STEP DRAWDOWN TEST



WELL LOSS EVALUATION



Q (l/sec)	s (m)	Q/s(l/sec/m)	s/Q
6.01	0.09	66.73	0.01
7.00	0.12	58.35	0.02
8.10	0.15	53.98	0.02
9.02	0.19	47.48	0.02

B:	0.0034
C:	0.0019

B: Aquifer Loss Coefficient

C: Well Loss Coefficient

Q: Discharge, s: Drawdown, Q/s: Specific capacity, $s/Q=B+CQ$

$T=(2.3/4\pi) \times (q/ds') [m^2/d]=15.81 \times (Q/ds'), q=60 \times 60 \times 24 \times Q, q[m^3/d], Q[l/sec]$

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Japan International Cooperation Agency

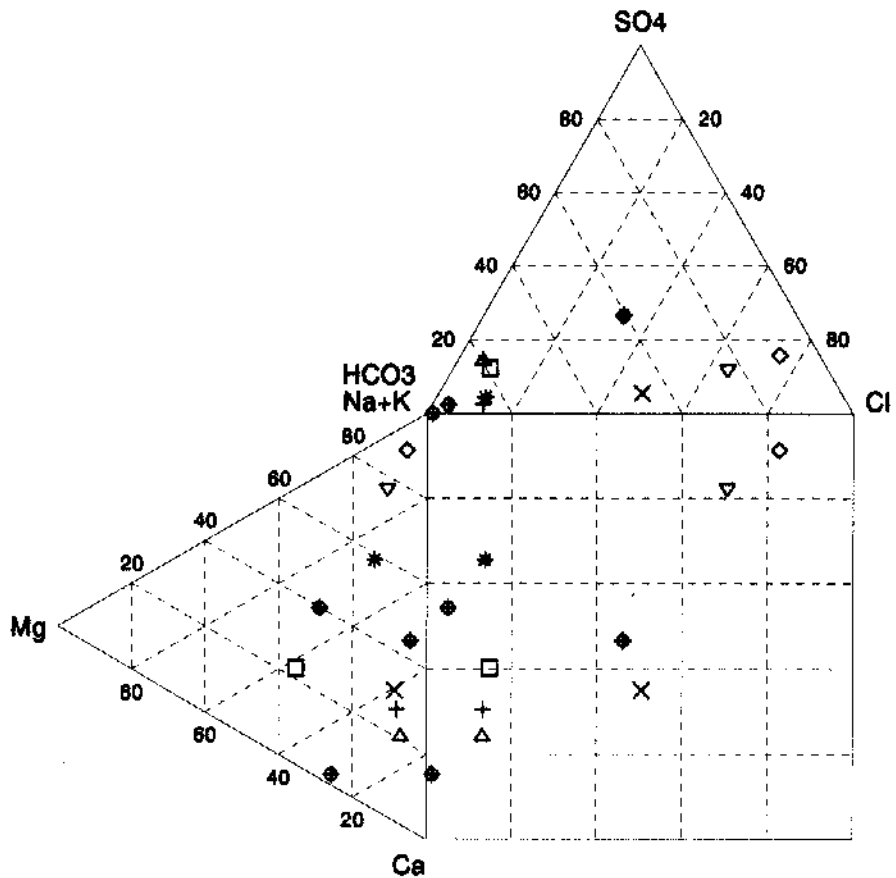
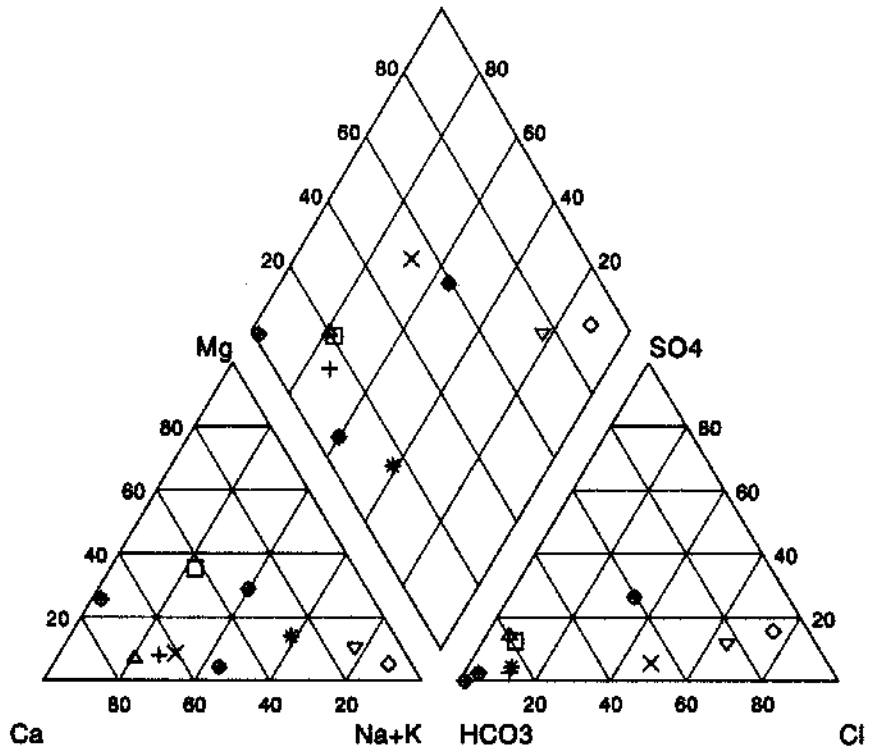
Figure A7-16
Pumping Test Summary (PT-10 for P2AT PBM22)

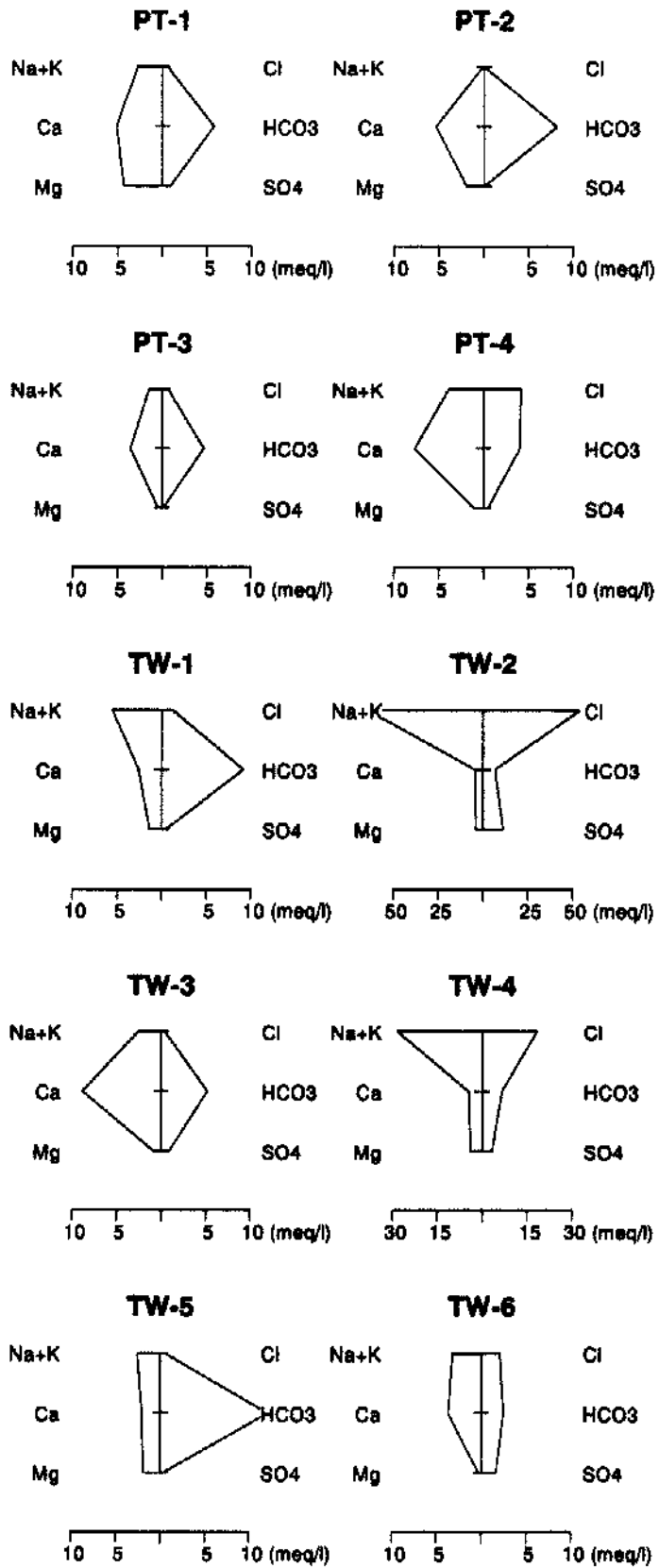
Summary of Pumping Test Results

Province	Village	Water Source		Static Water Level (m.bgl)	Type of Test	Discharge (L/sec)	Drawdown (m)	Specific Capacity (L/sec/m)	Well Loss Coefficient	Aquifer Loss	Well Efficiency (%)	Transmissivity (m ² /day)		
												Pumping	Recovery	Average
Pumping Test for Test Wells														
NTB	Labuhan Lalar	JICA	TW-01	0.46	Step-1	2.03	5.3	0.38	0.19	2.26	86.2			
					Step-2	3.04	8.8	0.35		78.4				
					Step-3	4.02	12.2	0.33		74.3				
					Step-4	5.01	16.0	0.31		70.6				
					Constant	4.02	13.6	0.30		67.0	26.1	29.7	27.9	
NTB	Poto	JICA	TW-02	5.32	Step Drawdown Test, not performed									
					Constant	0.78	26.1	0.03		-	1.36	0.82	1.09	
NTB	Ranggo	JICA	TW-03	-1.54	Step-1	1.00	2.8	0.36	1.63	1.33	48.4			
					Step-2	2.03	10.2	0.20		26.6				
					Step-3	2.81	16.5	0.17		22.6				
					Step-4	3.52	24.4	0.14		19.2				
					Constant	2.81	18.0	0.16		20.8	50	199	124.5	
NTB	Jambu	JICA	TW-04	1.66	Step-1	2.03	10.5	0.19	1.62	1.80	34.9			
					Step-2	2.75	17.3	0.16		28.5				
					Step-3	3.52	24.9	0.14		25.4				
					Step-4	4.02	34.6	0.12		20.9				
					Constant	1.50	12.7	0.12		21.3	10.6	10.1	10.4	
NTT	Hepang	JICA	TW-05	70	Pumping Test, not performed									
NTT	Watuliwung	JICA	TW-06	52	Pumping Test, not performed									
Pumping Test for Existing Water Sources														
CA	PT-	Kokowahor	P2AT	IKI05	49.53	Step-1	1.49	0.5	2.92	0.021	0.30	87.6		
						Step-2	2.53	0.9	2.81		84.3			
						Step-3	3.84	1.4	2.78		83.5			
						Step-4	4.61	1.9	2.38		71.3			
						Constant	4.62	2.0	2.28		68.3	1448	1823	1636
NTT	Weerame	Cave	6.30	Step-1	4.95	0.01	495	-	-	-				
				Step-2	6.23	0.02	312		-					
				Step-3	6.93	0.03	231		-					
				Step-4	8.47	0.05	169		-					
				Constant	7.68	0.19	40		-	3494	2500	2997		
NTT	Oebau	Cave	2.79	Step-1	2.02	0.14	14.4	-	-	-				
				Step-2	3.02	0.24	12.6		-					
				Step-3	4.03	0.34	11.9		-					
				Step-4	5.00	0.46	10.9		-					
				Constant	5.00	0.57	8.8		-	1101	965	1033		
NTT	Bolok	P2AT	PBM-22	34.34	Step-1	6.00	0.09	66.7	0.0019	0.0034	22.7			
					Step-2	7.00	0.12	58.3		19.8				
					Step-3	8.10	0.15	54.0		18.4				
					Step-4	9.02	0.19	47.5		16.1				
					Constant	9.00	0.19	47.4		16.1	51508	-	-	

Legend:

- PT-1
- ⊕ PT-2
- + PT-3
- × PT-4
- * TW-1
- ◇ TW-2
- △ TW-3
- ▽ TW-4
- ◆ TW-5
- + TW-6





Results of Water Quality Analysis of Proposed Water Sources

Village No.	Name of Village	Name of Water Source	Sample No.	Measurement on Site								Analysis in Laboratory																				
												Suitability for Drinking Water (mg/L)									Hydrogeological Parameters (mg/L)											
				WT (°C)	pH	EC (mS/m)	NH ₄ (mg/l)	NO ₃ (mg/l)	NO ₂ (mg/l)	Bacteria (col/ml)	T. Coli	Cr ⁶⁺	F	As	Pb	Se	Hg	CN	Fe	Cd	Mn	Cu	Na	K	Ca	Mg	Cl	HCO ₃	SO ₄	SO ₂	Hardness	
NTB #1	KURANJI	PDAM	BP 1-1	28.8	7.07	11.6	2.5	2.5	0.05	0	ND	<0.006	0.14	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	8.9	4.3	5.5	3.4	0.0	84.6	<0.94	54.8	27.9	
NTB #2	BAJUR	PDAM	BP 1-1	28.8	7.07	11.6	2.5	2.5	0.05	0	ND	<0.006	0.14	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	8.9	4.3	5.5	3.4	0.0	84.6	<0.94	54.8	27.9	
NTB #3	SEMBUNG	PDAM	BP 3-1	28.3	6.96	11.8	<0.1	2.5	<0.02	0	ND	<0.006	0.14	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	8.4	4.0	5.6	3.5	0.0	74.6	2.3	55.5	28.5	
NTB #4	DUMAN (N)	Trawasan	BS 4-1	29.2	7.63	5.5	<0.1	<1	<0.02	>100	D	<0.006	<0.02	<0.001	<0.01	<0.007	<0.001	<0.01	0.70	<0.005	<0.02	<0.03	5.7	3.5	3.0	1.5	<0.1	30.7	4.0	26.2	13.8	
	DUMAN (S)	PDAM	BP 4-1	25.3	6.67	14.1	<0.1	2.5	<0.02	0	ND	<0.006	0.23	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	9.8	5.6	7.1	4.7	0.0	97.1	2.3	58.7	37.2	
NTB #5	PERESAK(W)	Pura Petong	BS 5-1	22.5	7.52	15.4	<0.1	1	0.02	>100	D	<0.006	0.36	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	12.5	4.3	5.4	4.6	6.4	47.2	5.6	28.1	32.5	
	PERESAK(E)	PDAM	BP 5-1	28.4	7.30	14.9	<0.1	1	<0.02	0	ND	<0.006	0.16	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	11.3	5.1	6.6	5.3	6.2	87.7	4.8	49.9	38.1	
NTB #10	BAGIK PAPAN	Balas I	BS 10-1	25.4	7.12	15.5	<0.1	5	0.02	60	D	<0.006	0.37	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	19.0	4.9	15.0	11.8	6.9	111.8	5.0	42.4	86.0	
NTB #11	SELAPARANG	Lemor	BS 11-1	22.1	6.62	16.0	<0.1	2	<0.02	25	ND	<0.006	0.15	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	8.7	3.4	9.7	4.9	4.8	56.4	2.8	29.0	44.5	
NTB #13	LB. MAPIN	Rimas	BS 13-1	30.2	7.50	39.1	0.15	1	0.02	23	D	<0.006	0.23	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	11.6	3.0	47.5	12.8	4.1	134.8	4.2	36.4	171.4	
NTB #14	LB. LALAR	JICA TW-1	TW-1 ⁽ⁿ⁾	29.0	6.99	102.8	0.1	1	<0.02	0	ND	<0.006	0.28	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	122.4	6.3	51.5	16.0	44.8	559.9	23.2	4.7	194.4	
NTB #15	POTO	JICA TW-2	TW-2 ⁽ⁿ⁾	31.6	6.85	814.0	0.4	<1	<0.02	68	D	<0.006	0.56	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	1,458.3	19.0	87.9	46.3	1,906.0	408.0	541.6	27.0	409.6	
NTB #16	PIONG	New Well	BB 16-1 * ³	32.4	7.22	229	<0.1	1	<0.02	>100	D	<0.006	0.57	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	321.8	19.9	65.0	46.7	471.7	199.2	47.2	46.8	353.7	
NTB #18	KAWUWU(S)	New Well	BD 18-1 * ³	29.2	6.94	33.6	<0.1	2	<0.02	>100	D	<0.006	0.34	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	27.3	4.8	65.9	24.1	18.8	340.0	18.2	10.7	263.8	
	KAWUWU(N)	Mpubeda	BS 18-2	28.1	7.51	22.5	0.2	<1	<0.02	>100	D	<0.006	0.23	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	17.9	0.2	44.2	10.1	4.4	219.8	2.4	11.0	152.1	
NTB #19	RANGGO	JICA TW-3	TW-3 ⁽ⁿ⁾	29.8	7.30	65.2	<0.1	<1	<0.02	0	ND	<0.006	0.09	<0.001	<0.01	<0.007	<0.001	<0.01	0.04	<0.005	0.05	<0.03	56.1	3.0	176.4	10.3	14.1	317.2	44.5	28.9	483.4	
NTB #20	JAMBU	JICA TW-4	TW-4 ⁽ⁿ⁾	27.8	7.41	341.0	0.5	<1	<0.02	0	ND	<0.006	0.52	<0.001	<0.01	<0.007	<0.001	<0.01	0.07	<0.005	0.24	<0.03	641.5	19.8	90.9	47.4	645.6	401.4	162.3	24.8	421.5	
NTT #5	KOKOWAHOR	IKI-05	PT-1 ⁽ⁿ⁾	30.1	7.45	73.5	<0.1	4	<0.02	<10	ND	<0.006	0.31	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	61.6	2.9	103.1	52.3	22.6	353.8	43.2	37.5	471.9	
NTT #6	SINAR HADING	Wai Laun	TS 7-1	31.3	6.60	74.2	<0.1	1	<0.02	50	ND	<0.006	0.37	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	118.1	14.1	13.5	7.3	138.2	128.1	23.0	24.9	63.5	
JICA PT-7	ILE PADUNG	Wai Laun	TS 7-1	31.3	6.60	74.2	<0.1	1	<0.02	50	ND	<0.006	0.37	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	118.1	14.1	13.5	7.3	138.2	128.1	23.0	24.9	63.5	
NTT #13	HEPANG	JICA TW-5	TW-5 ⁽ⁿ⁾	29.3	9.27	132.1	<0.1	<1	<0.02	>100	ND	<0.006	0.30	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	54.6	8.3	40.8	22.9	17.9	737.3	14.8	10.8	195.9	
NTT #15	WATULIWUNG	JICA TW-6	TW-6 ⁽ⁿ⁾	30.4	10.3	43.4	0.4	45	1.5	>100	ND	<0.006	<0.02	<0.001	<0.01	<0.007	<0.001	<0.01	3.45	<0.005	<0.02	<0.03	72.0	3.2	74.3	3.8	72.0	151.7	78.0	21.1	201.3	
JICA PT-8	WEE RAME	Wee Paneru	PT-2(TS18-5) ⁽ⁿ⁾	24.7	7.4	40.5	<0.1	3	<0.02	>100	ND	<0.006	0.26	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	3.5	1.3	107.1	23.2	4.1	497.2	<0.94	23.3	362.9	
NTT #19	KONDAMARA	Lailama	TS 19-3	28.8	7.18	40.5	0.1	2	<0.02	2	D	<0.006	0.12	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	2.7	0.5	76.8	2.2	1.0	231.5	2.0	6.8	200.9	
NTT #21	OEBAU	Oekopi - 1	PT-3(TD21-1) ⁽ⁿ⁾	29.1	6.89	8.41	<0.1	0.5	<0.02	>100	ND	<0.006	0.12	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	29.6	6.3	71.2	5.3	23.4	286.3	6.6	23.1	199.6	
JICA PT-9	SONIMANU	Oekopi - 1	PT-3(TD21-1) ⁽ⁿ⁾	29.1	6.89	8.41	<0.1	0.5	<0.02	>100	ND	<0.006	0.12	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	29.6	6.3	71.2	5.3	23.4	286.3	6.6	23.1	199.6	
NTT #23	NASAK DALE	Meakuin -1	TS 23-2	28.5	6.92	101.0	0.1	<1	<0.02	>100	D	<0.006	1.23	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	71.2	9.4	77.5	19.0	106.6	335.5	20.1	24.5	271.7	
NTT #24	TARUS	PDAM	TS 24-5	27.9	6.86	53.1	<0.1	5	<0.02	>100	D	<0.006	0.09	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	20.5	1.3	79.9	2.8	7.2	335.4	4.3	9.0	211.1	
JICA PT-10	BOLOK	PBM-22	PT-4 ⁽ⁿ⁾	29.2	7.05	49.0	<0.1	7	<0.02	6	ND	<0.006	<0.02	<0.001	<0.01	<0.007	<0.001	<0.01	<0.04	<0.005	<0.02	<0.03	87.7	3.0	133.8	3.2	147.4	246.7	23.2	4.4	438.6	
Water Quality Standard					6.5-8.5			10 ³	1 ¹		ND	0.05	1.5	0.05	0.05	0.01	0.001	0.1	0.3	0.005	0.1	1	200					250		400		500

Note:

: Value exceeds standard

D : Detected

ND : Not Detected

(n) : Test after the Progress Report

*1 : Value means concentration of NO₃-N and NO₂-N

*2 : Value means concentration of NO₃ and NO₂

*3 : Analysis value is a reference.