S.L ut Hoja No. 4

FECHA	T I E M P O				N I V E L E S		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
27/11/94		300			131.97			
		360			131.97			
		420			131.97			
		480			131.97			

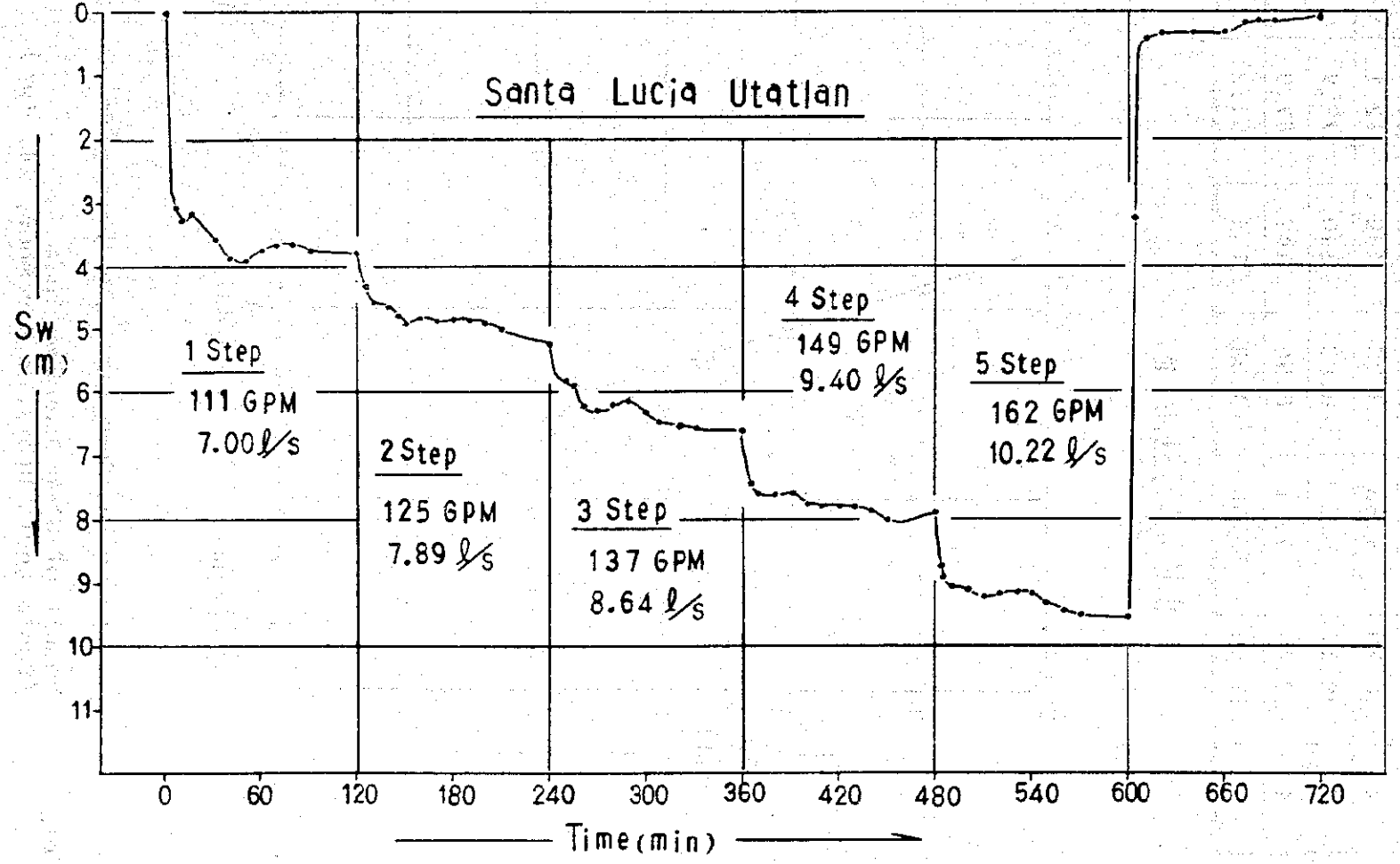


Fig. Result of Step Drawdown Test (S-T Curve)

Step	Water Level (m)	Sw Drawdown (m)	Pumping Rate		Sc	$\frac{Sw}{Q}$
			l/s	G/min	l/min/m	($m/m^3/min$)
1	135.80	4.26	8.63	136	121.5	8.23
2	136.20	4.66	8.73	138	112.1	8.92
3	138.17	6.63	8.83	140	79.9	12.51
4	139.45	7.91	8.96	142	67.9	14.71
5	141.60	10.06	9.08	144	54.2	18.45

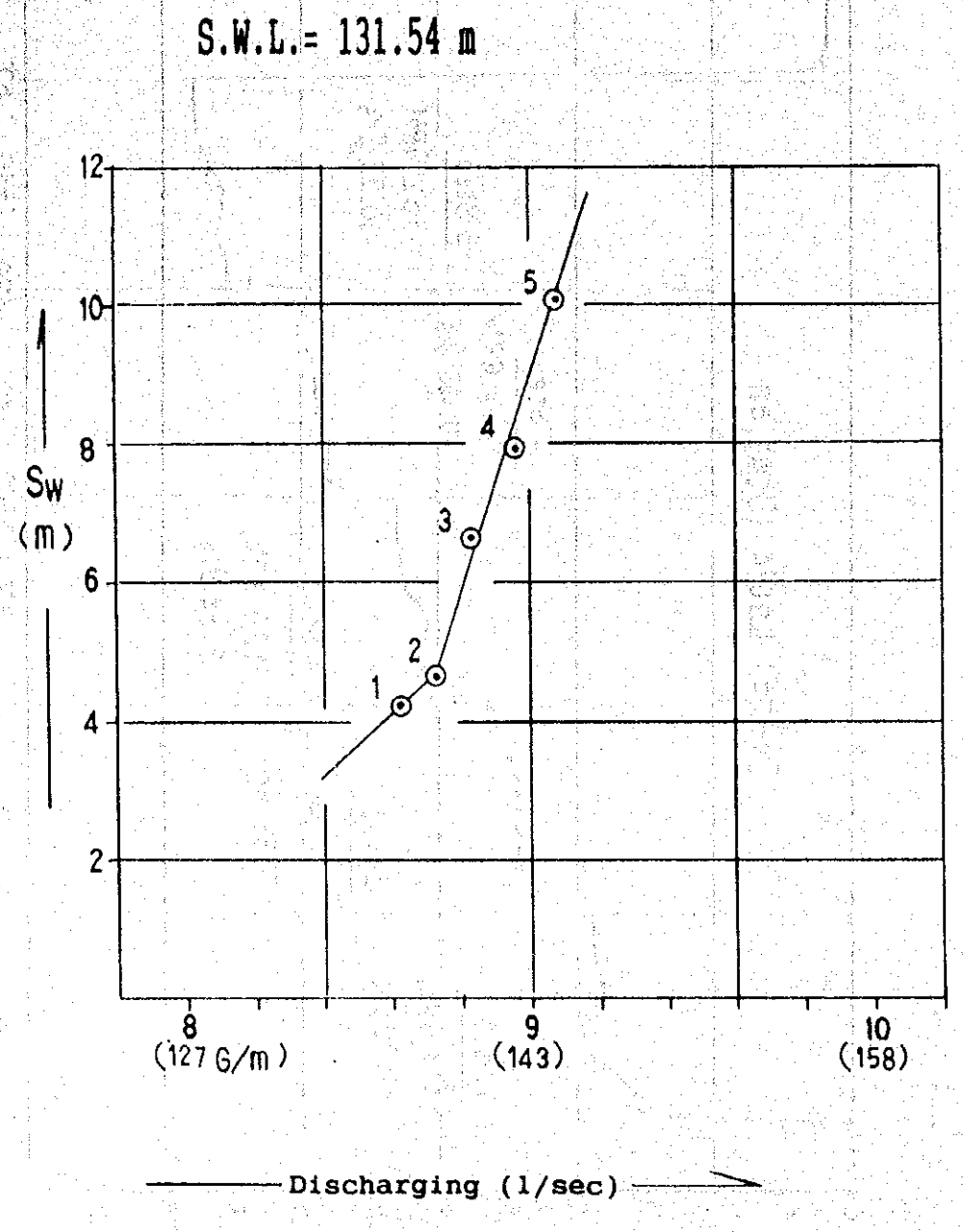
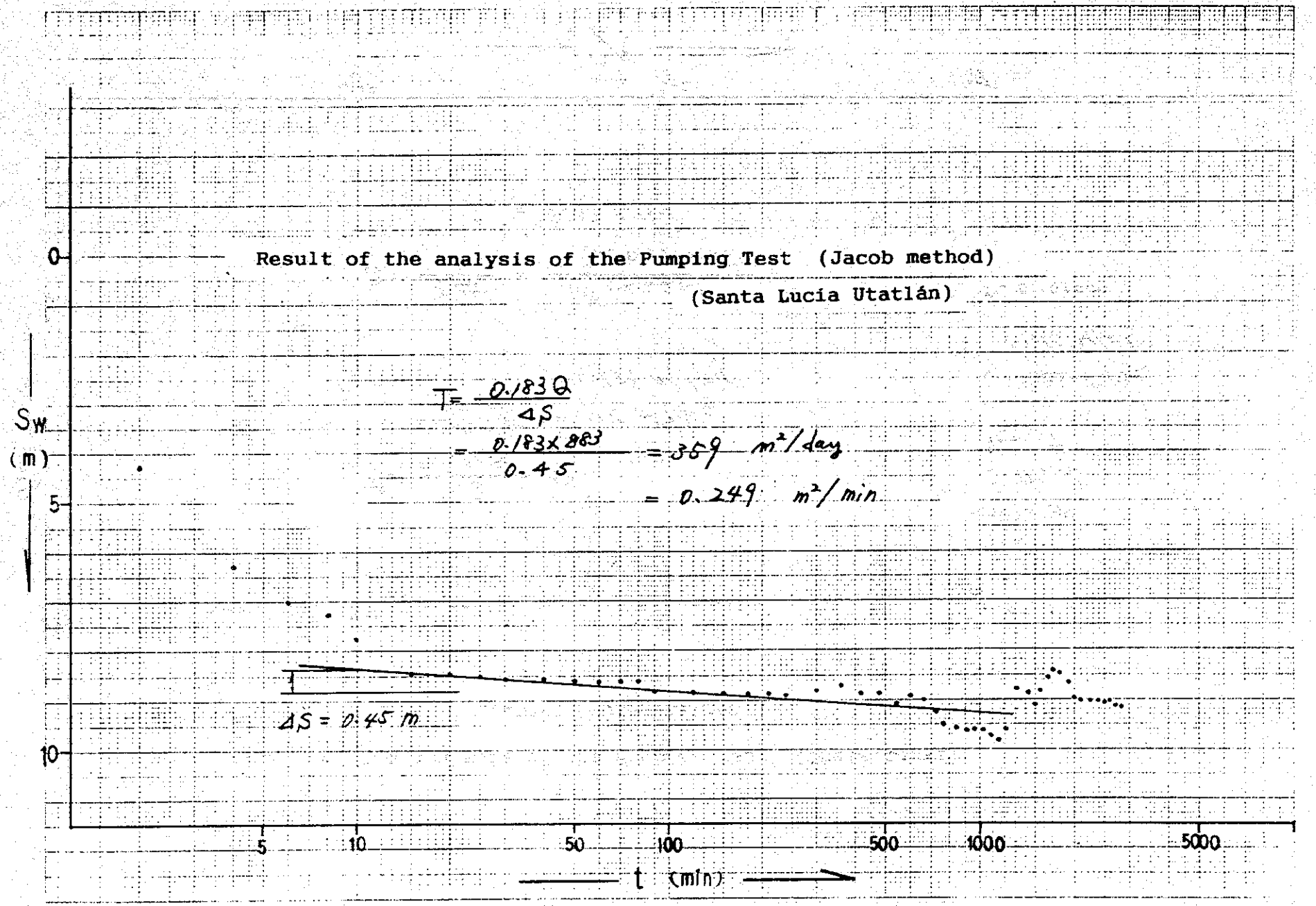
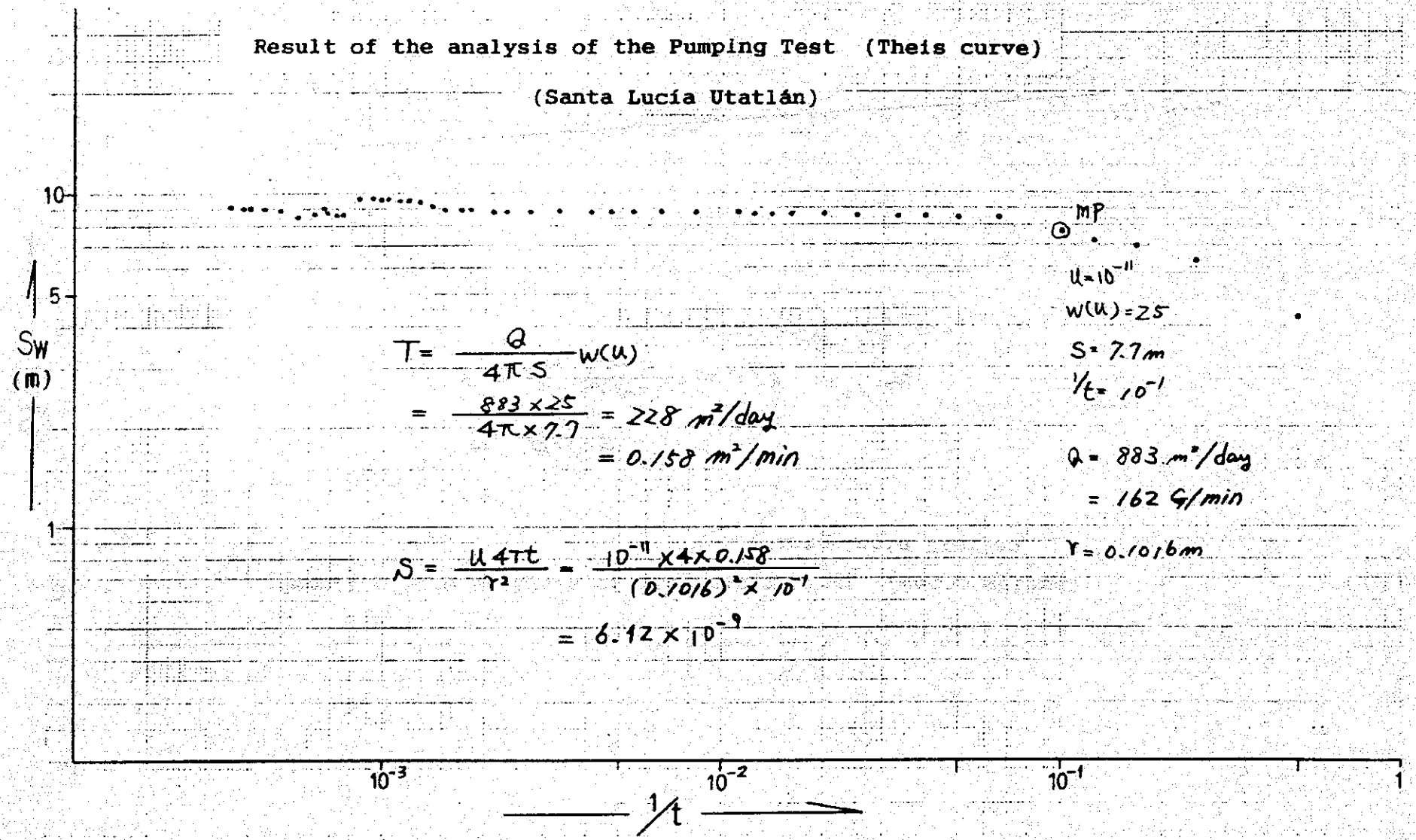


Fig. Result of Step Drawdown Test
(Santa Lucía Utatlán: November, 24, '94)


Result of the analysis of the Pumping Test (Jacob method)
(Santa Lucia Utatlán)
$T = \frac{0.183Q}{\Delta s}$
$= \frac{0.183 \times 883}{0.45} = 359 \ m^2/day$
$= 0.249 \ m^2/min$
$\Delta s = 0.45 \ m$
Sw (m)
0
5
10
5
10
50
100
500
1000
5000
t (min)

Result of the analysis of the Pumping Test (Theis curve)

(Santa Lucía Utatlán)



$$T = \frac{Q}{4\pi S} W(u)$$

$$= \frac{883 \times 25}{4\pi \times 7.7} = 228\ m^2/day$$

$$= 0.158\ m^2/min$$

$$S = \frac{u\,4Tt}{r^2} = \frac{10^{-11} \times 4 \times 0.158}{(0.1016)^2 \times 10^{-1}}$$

$$= 6.12 \times 10^{-9}$$

$u = 10^{-11}$

$W(u) = 25$

$S = 7.7\ m$

$1/t = 10^{-1}$

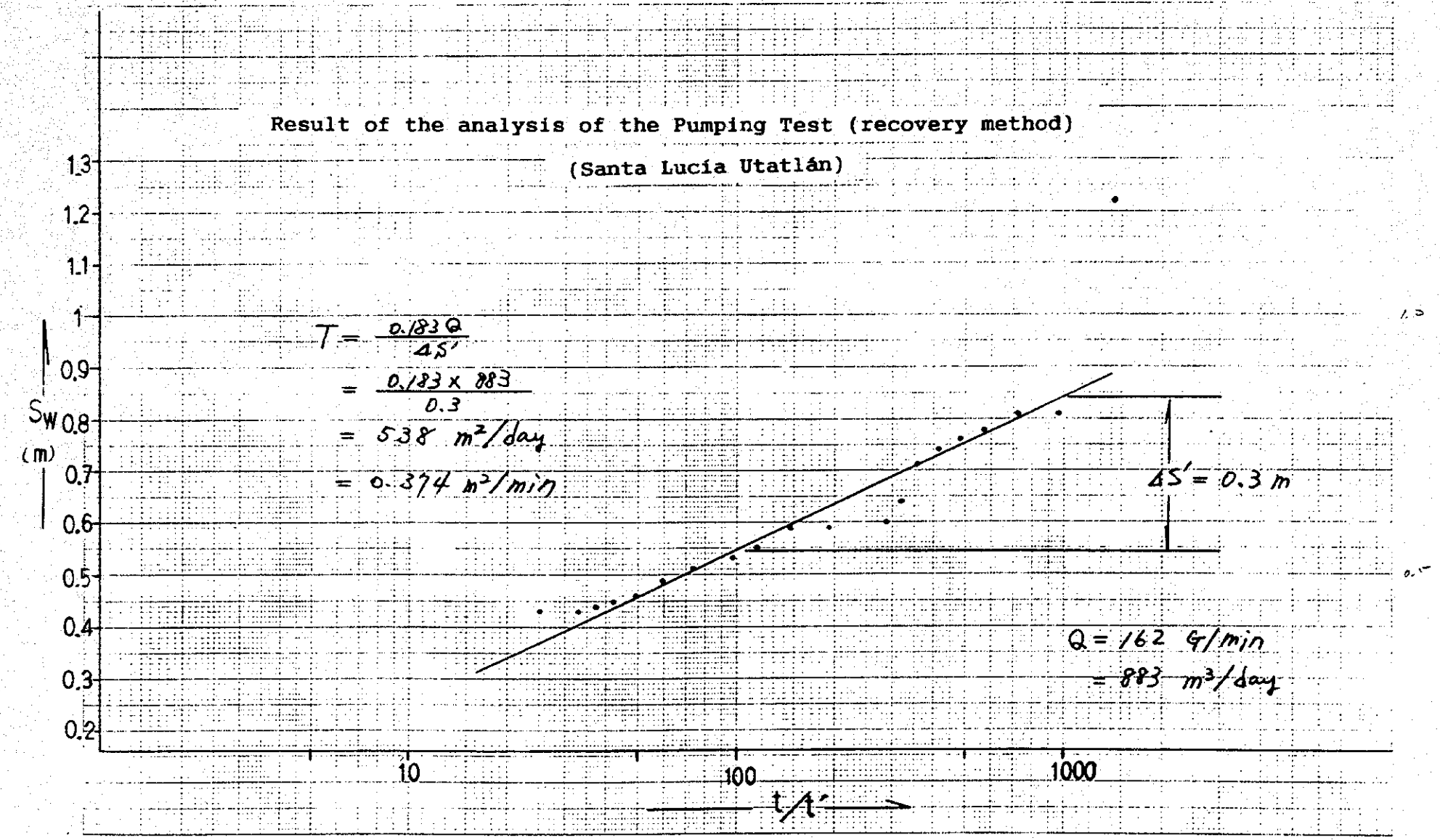
$Q = 883\ m^3/day$

$= 162\ G/min$

$r = 0.1016\ m$

Result of the analysis of the Pumping Test (recovery method)

(Santa Lucía Utatlán)



Result of pumping test

(Momostenango)

Mom

P R U E B A D E B O M B E O (ESCALONADA)

ORIFICIO 4" en tubo de 6"
NIVEL DE BOMBEO 145.34 Metros
NIVEL ESTATICO 63.50 Metros
EQUIPO: F-3

J I C A - I N F O M

MOMOSTENANGO DEPARTAMENTO DE TOTONICAPAN

BOMBA INSTALADA A 581 PIES
PRODUCCION 295 G.P.M.
BOMBA DE 14 ETAPAS, DE: 60 H.P.
OPERADOR : ANTONIO DE PAZ

	T I E M P O				N I V E L E S		PRODUCCION	OBSERVACIONES
FECHA	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	PRUEBA DE BOMBEO ESCALONADA
07/12/94	6.00	0				63.50		PRIMER ESCALON CON 179 GPM.
		2		7.5	64.30		179	NIVEL DE BOMBEO MEDIDO CON
		4		7.5	65.35		179	SONDA ELECTRICA.
		6		7.5	66.45		179	
		8		7.5	67.50		179	
		10		7.5	68.20		179	
		15		7.5	70.00		179	
		20		7.5	72.50		179	
		25		7.5	72.80		179	
		30		7.5	73.70		179	
		40		7.5	74.30		179	
		50		7.5	75.20		179	
		60		7.5	76.10		179	
		70		7.5	77.35		179	
		80		7.5	78.20		179	
		90		7.5	78.25		179	
		120		7.5	80.00		179	
	8.00	0		12.5	80.00		230	SEGUNDO ESCALON CON 230 GPM.
		2		12.5	85.00		230	
		4		12.5	87.50		230	
		6		12.5	88.50		230	
		8		12.5	89.50		230	
		10		12.5	90.30		230	
		15		12.5	97.20		230	
		20		12.5	92.00		230	

Mam

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
07/12/94	8.00	25		12.5	92.80		230	
		30		12.5	93.00		230	
		40		12.5	94.50		230	
		50		12.5	97.30		230	
		60		12.5	98.30		230	
		70		12.5	99.00		230	
		80		12.5	99.66		230	
		90		12.5	100.45		230	
		120		12.5	102.00		230	
	10.00	0		19	102.00		278	TERCER ESCALON CON 278 GPM.
		2		19	105.40		278	
		4		19	108.06		278	
		6		19	108.79		278	
		8		19	109.13		278	
		10		19	109.49		278	
		15		19	110.33		278	
		20		19	111.50		278	
		25		19	112.40		278	
		30		19	114.94		278	
		40		19	115.30		278	
		50		19	116.51		278	
		60		19	117.16		278	
		70		19	118.08		278	
		80		19	119.36		278	
		90		19	120.00		278	
		120		19	121.77		278	
	12.00	0		27	121.77		329	CUARTO ESCALON CON 329 GPM.
		2		27	128.77		329	

Mom

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
07/12/94	12.00	4		27	128.79		329	
		6		27	129.26		329	
		8		27	130.09		329	
		10		26.5	130.86		326	
		15		26	132.50		323	
		20		26	133.17		323	
		25		25.5	133.51		320	
		30		25	134.69		317	
		40		24.5	136.45		314	
		50		24	137.00		310	
		60		24	138.49		310	
		70		23	140.58		305	
		80		23	141.10		305	
		90		23	141.70		305	
		120		21.5	145.34		295	SE PARO PRUEBA DE BOMBEO
		0			145.34			RECUPERACION DEL POZO
		2			124.00			
		4			95.34			
		6			93.70			
		8			93.00			
		10			92.21			
		15			89.36			
		20			87.87			
		25			86.00			
		30			85.00			
		40			83.22			
		50			81.92			
		60			80.88			

Mom

	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
FECHA	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
07/12/94		70			79.92			
		80			79.24			
		90			78.56			
		120			76.75			
		150			75.58			
		180			75.60			
		240			75.92			

Mom

P R U E B A D E B O M B E O (LARGA DURACION)

ORIFICIO 4" en tubo de 6"
NIVEL DE BOMBEO 133.80 Metros
NIVEL ESTATICO 65.00 Metros
EQUIPO: FAILING - 3

J I C A - I N F O M

MOMOSTENANGO, DEPTO. TOTONICAPAN

BOMBA INSTALADA A 581 PIES
PRODUCCION 200 G.P.M.
BOMBA DE 14 ETAPAS, DE: 60 H.P.
OPERADOR : ANTONIO DE PAZ

	T I E M P O				N I V E L E S		PRODUCCION	OBSERVACIONES
FECHA	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
08/12/94	6:00	0				65.00		
		2		9.5	65.00		200	NIVEL DE BOMBEO MEDIDO CON
		4		9.5	77.70		200	SONDA ELECTRICA.
		6		9.5	73.13		200	
		8		9.5	83.83		200	
		10		9.5	86.65		200	
		15		9.5	86.81		200	
		20		9.5	87.64		200	
		25		9.5	88.21		200	
		30		9.5	88.58		200	
		40		9.5	90.40		200	
		50		9.5	92.00		200	
		60		9.5	92.59		200	
		70		9.5	93.20		200	
		80		9.5	93.69		200	
		90		9.5	94.79		200	
		120		9.5	96.00		200	
		150		9.5	97.00		200	
		180		9.5	98.00		200	
		210		9.5	99.00		200	
		240		9.5	99.68		200	
		300		9.5	101.00		200	
		360		9.5	103.12		200	
		420		9.5	104.00		200	
		480		9.5	108.06		200	

Mom

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
		540		9.5	109.53		200	
		600		9.5	110.83		200	
		660		9.5	111.00		200	
		720		9.5	113.05		200	
		780		9.5	114.10		200	
		840		9.5	115.00		200	
		900		9.5	115.10		200	
12/12/94	1.00	960		9.5	116.00		200	
		1020		9.5	116.30		200	
		1080		9.5	116.94		200	
		1140		9.5	117.60		200	
		1200		9.5	118.10		200	
		1260		9.5	118.85		200	
		1320		9.5	119.00		200	
		1380		9.5	119.92		200	
		1440		9.5	120.30		200	
		1500		9.5	121.51		200	
		1560		9.5	121.54		200	
		1620		9.5	122.21		200	
		1680		9.5	123.69		200	
		1740		9.5	124.42		200	
		1800		9.5	125.33		200	
		1920		9.5	126.53		200	
		2040		9.5	127.40		200	
		2160		9.5	127.80		200	
		2280		9.5	128.70		200	
		2400		9.5	129.80		200	
		2520		9.5	130.80		200	

Mom

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
		2640		9.5	131.80		200	
		2760		9.5	132.80		200	
		2880		9.5	133.80		200	SE PARO PRUEBA DE BOMBEO.
		1			130.90			RECUPERACION DEL POZO.
		2			128.63			
		3			126.24			
		4			124.33			
		5			122.44			
		6			120.10			
		7			118.08			
		8			116.11			
		9			114.45			
		10			112.77			
		15			110.78			
		20			108.19			
		25			104.25			
		30			100.33			
		40			98.48			
		50			96.60			
		60			95.04			
		70			95.98			
		80			94.60			
		90			92.48			
		120			90.04			
		150			89.13			
		180			87.15			
		210			85.34			
		240			83.50			

Mo,m

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
		300			81.60			
		360			77.53			
		420			74.85			
		480			72.93			

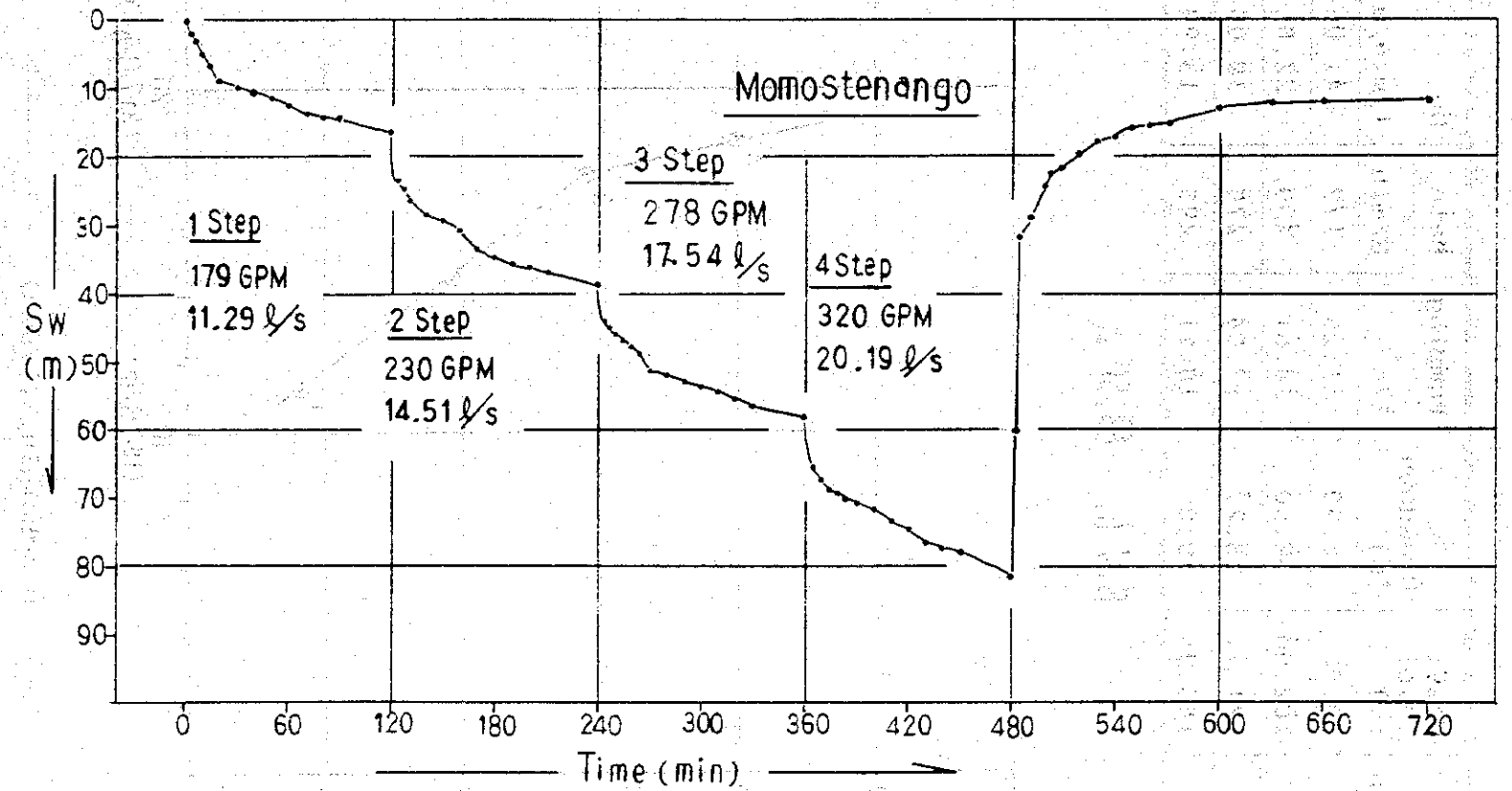


Fig. Result of Step Drawdown Test (S-T Curve)

Step	Water Level (m)	Sw Drawdown (m)	Pumping Rate		Sc	Sw/Q
			l/s	G/min	l/min/m	(m/m³/min)
1	80.00	16.50	11.29	179	41.06	24.35
2	102.00	38.50	14.51	230	22.61	44.22
3	121.77	58.27	17.54	278	18.06	55.37
4	145.34	79.84	18.61	295	13.99	71.49

S.W.L. = 63.50 m

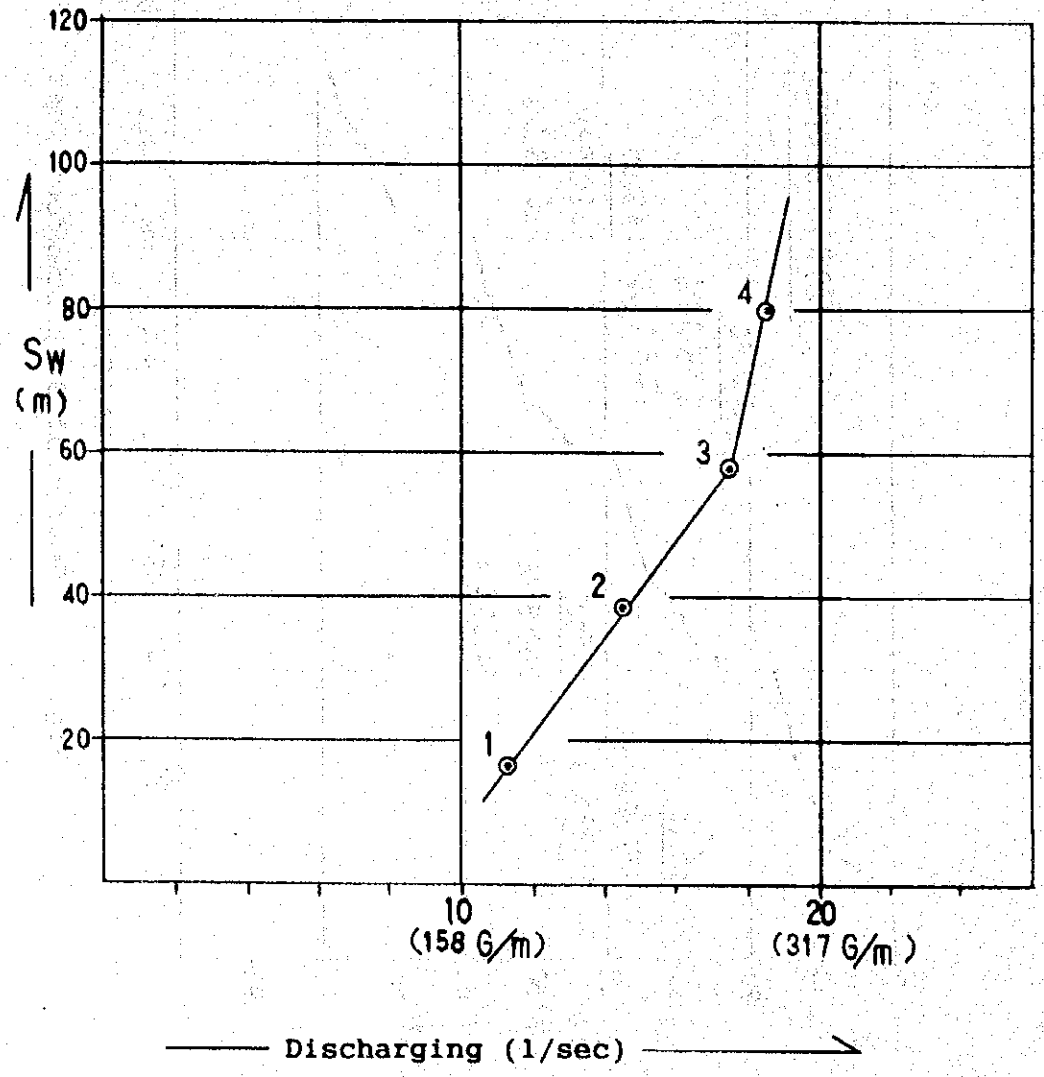
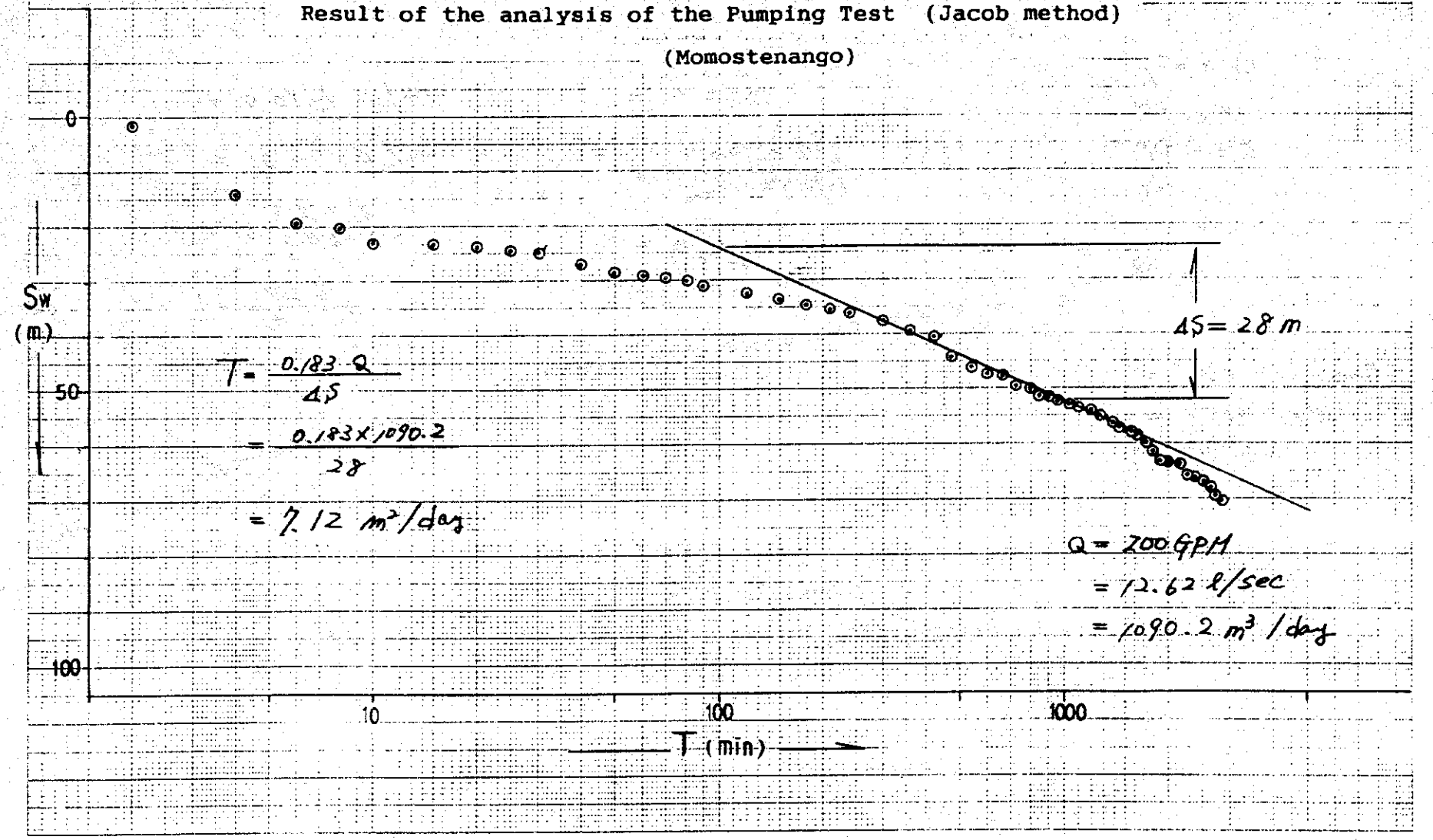


Fig. Result of the Step Drawdown Test
(Momostenango: 6 de Diciembre de 1994)

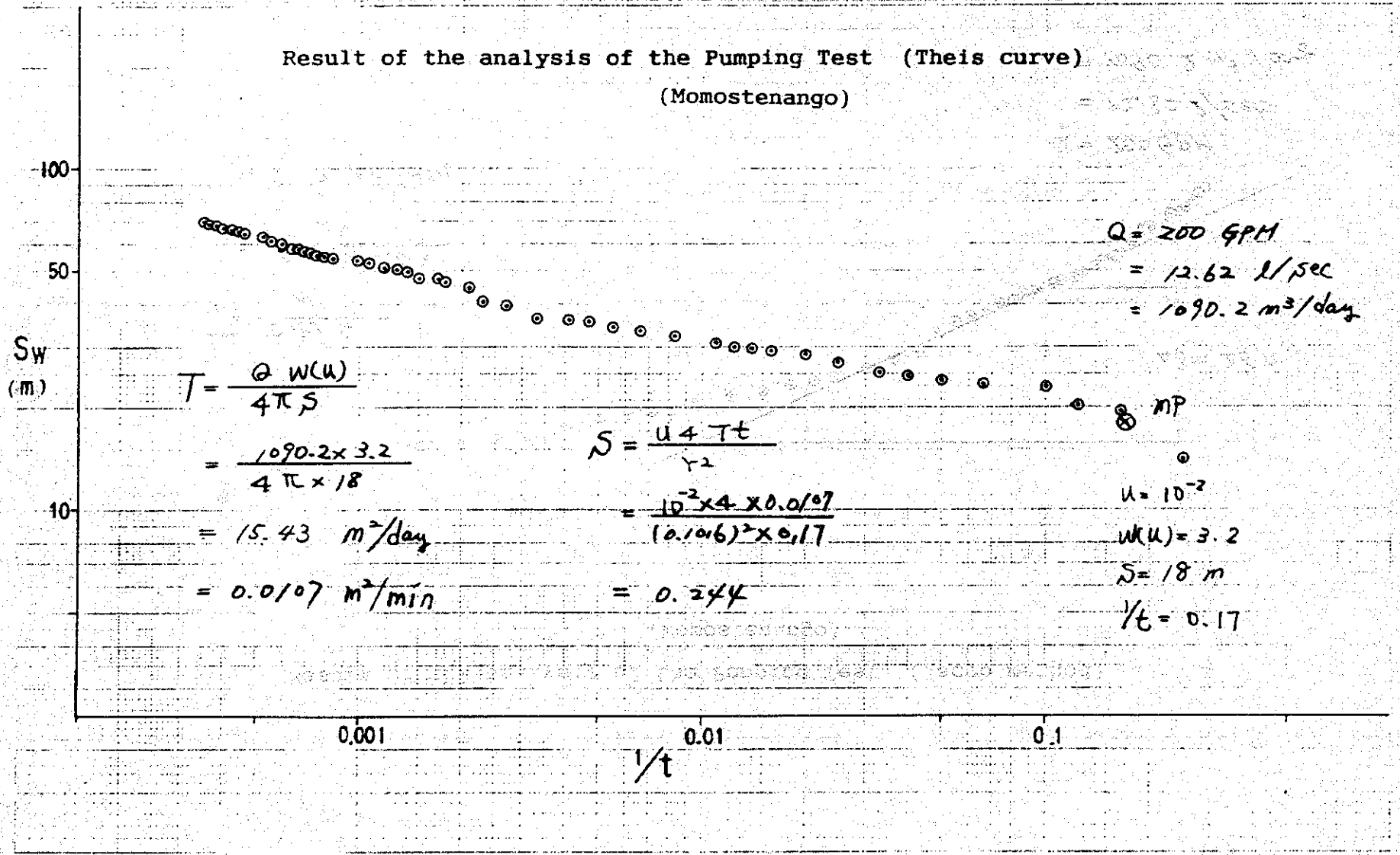
Result of the analysis of the Pumping Test (Jacob method)

(Momostenango)



Result of the analysis of the Pumping Test (Theis curve)

(Momostenango)



$Q = 200$ GPM
$= 12.62$ l/sec
$= 1090.2$ m³/day

$$T = \frac{Q\,W(u)}{4\pi S}$$

$$= \frac{1090.2 \times 3.2}{4\pi \times 18}$$

$= 15.43$ m²/day

$= 0.0107$ m²/min

$$S = \frac{u\,4\,Tt}{r^2}$$

$$= \frac{10^{-2} \times 4 \times 0.0107}{(0.1016)^2 \times 0.17}$$

$= 0.244$

$u = 10^{-2}$

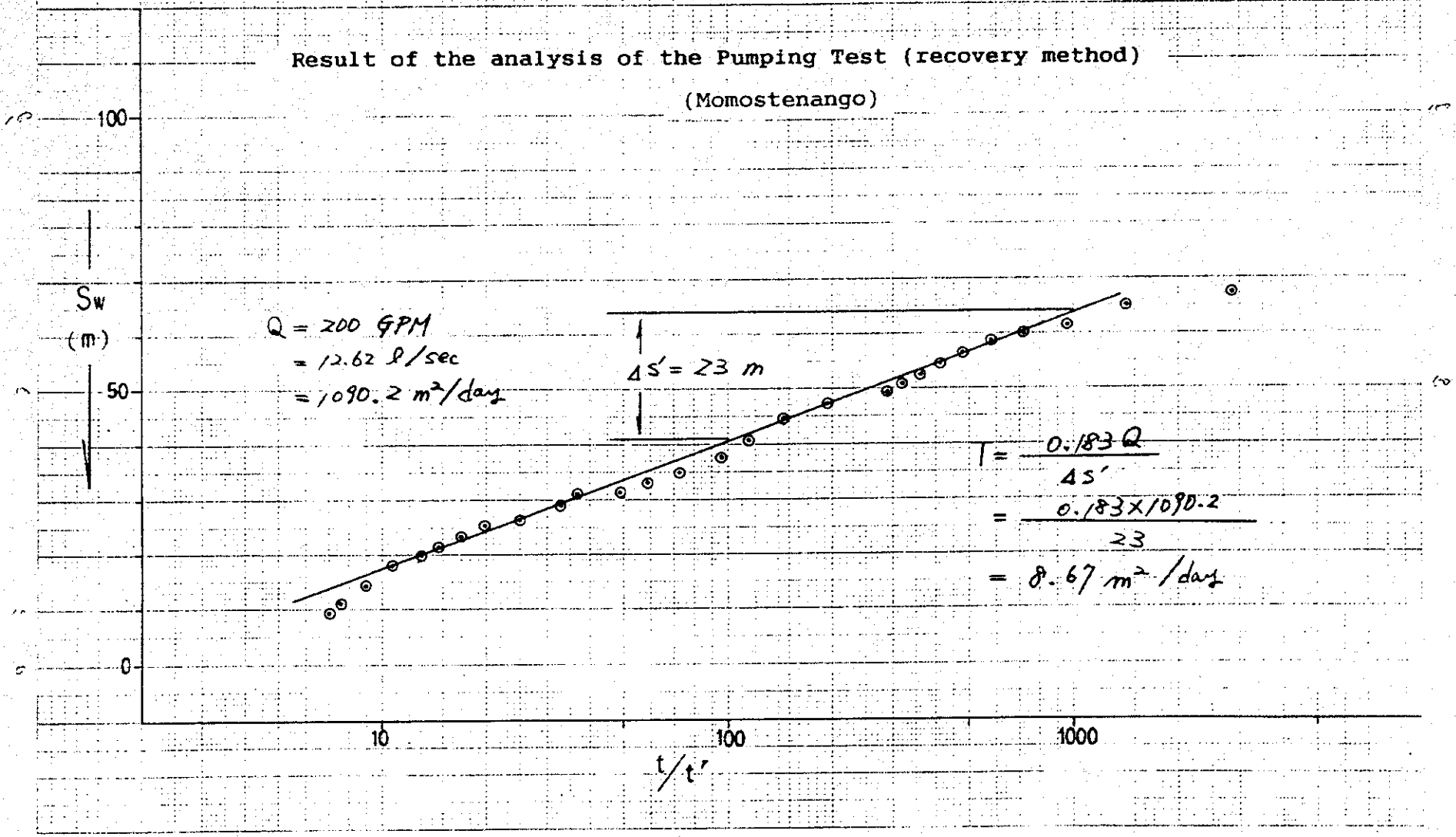
$W(u) = 3.2$

$S = 18$ m

$1/t = 0.17$

Result of the analysis of the Pumping Test (recovery method)

(Momostenango)



Result of pumping test

(Génova)

Ge

PRUEBA DE BOMBEO (ESCALONADA)

ORIFICIO 3" en tubo de 4"
NIVEL DE BOMBEO 155.38 Metros
NIVEL ESTATICO 27.85 Metros
EQUIPO: TH-60

J I C A - I N F O M

GENOVA COATEPEQUE

BOMBA INSTALADA A 486 PIES
PRODUCCION 207 G.P.M.
BOMBA DE 5 ETAPAS, DE: 40 H.P.
OPERADOR : AUGUSTO BLANCO

	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
FECHA	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	PRUEBA DE BOMBEO ESCALONADA
10/12/94	9.00	0				27.85		PRIMER ESCALON CON 151 GPM.
		2		13	45.77		151	NIVEL DE BOMBEO MEDIDO CON
		4		13	43.53		151	SONDA ELECTRICA.
		6		13	43.84		151	
		8		13	44.22		151	
		10		13	44.68		151	
		15		13	48.23		151	
		20		13	50.75		151	
		25		13	52.38		151	
		30		13	54.58		151	
		40		13	55.59		151	
		50		13	56.51		151	
		60		13	57.69		151	
		70		13	58.55		151	
		80		13	59.12		151	
		90		13	59.75		151	
		120		13	61.32		151	
	11.00	0		16.5	61.32		170	SEGUNDO ESCALON CON 170 GPM.
		2		16.5	64.08		170	
		4		16.5	64.54		170	
		6		16.5	64.88		170	
		8		16.5	64.99		170	
		10		16.5	65.18		170	
		15		16.5	65.86		170	
		20		16.5	66.37		170	

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
10/12/94	11.00	25		16.5	66.71		170	
		30		16.5	66.95		170	
		40		16.5	67.59		170	
		50		16.5	68.28		170	
		60		16.5	68.89		170	
		70		16.5	69.28		170	
		80		16.5	70.03		170	
		90		16.5	70.39		170	
		120		16.5	71.54		170	
	13.00	0		18.5	71.54		180	TERCER ESCALON CON 180 GPM.
		2		18.5	73.10		180	
		4		18.5	73.37		180	
		6		18.5	73.53		180	
		8		18.5	73.59		180	
		10		18.5	73.70		180	
		15		18.5	74.00		180	
		20		18.5	74.42		180	
		25		18.5	74.68		180	
		30		18.5	74.85		180	
		40		18.5	75.53		180	
		50		18.5	75.96		180	
		60		18.5	76.33		180	
		70		18.5	76.84		180	
		80		18.5	77.12		180	
		90		18.5	77.42		180	
		120		18.5	78.39		180	
	15.00	0		23	78.39		201	CUARTO ESCALON CON 201 GPM.
		2		23	81.24		201	

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
10/12/94	15.00	4		23	82.06		201	
		6		23	82.35		201	
		8		23	82.49		201	
		10		23	82.66		201	
		15		23	83.22		201	
		20		23	83.79		201	
		25		23	84.18		201	
		30		23	84.53		201	
		40		23	85.26		201	
		50		23	85.60		201	
		60		23	86.10		201	
		70		23	86.66		201	
		80		23	87.00		201	
		90		23	87.25		201	
		120		23	88.66		201	
	17.00	0		43	88.66		275	QUINTO ESCALON
		2		42	94.59		272	
		4		35	105.17		250	
		6		33	107.40		242	
		8		30	108.47		230	
		10		30	109.09		230	
		15		28	110.13		222	
		20		27	111.14		219	
		25		26.5	112.24		216	
		30		25.5	112.35		212	
		40		25.5	112.99		212	
		50		25	113.29		210	
		60		24.5	113.64		207	

Ge

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
10/12/94	18.00	70		24.5	113.80		207	
		80		24.5	114.22		207	
		90		24.5	114.72		207	
		120		24.5	115.38		207	SE PARO PRUEBA DE BOMBEO.
	19.00	2			81.93			RECUPERACION DEL POZO.
		4			64.05			
		6			61.20			
		8			59.67			
		10			58.41			
		15			56.17			
		20			54.20			
		25			52.74			
		30			51.80			
		40			50.26			
		50			49.06			
		60			48.23			
		70			47.62			
		80			46.37			
		90			45.60			
	21.00	120			44.64			

PRUEBA DE BOMBEO (LARGA DURACION)

ORIFICIO 3" en tubo de 4"
NIVEL DE BOMBEO 122.00 Metros
NIVEL ESTATICO 33.64 Metros
EQUIPO: TH-60

J I C A - I N F O M

GENOVA COATEPEQUE

BOMBA INSTALADA A 486 PIES
PRODUCCION 201 G.P.M.
BOMBA DE 5 ETAPAS, DE: 40 H.P.
OPERADOR : AUGUSTO BLANCO

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
11/12/94	9.00	0				33.64		
		2		23	51.77		201	NIVEL DE BOMBEO MEDIDO CON
		4		23	56.23		201	SONDA ELECTRICA.
		6		23	59.36		201	
		8		23	61.13		201	
		10		23	62.74		201	
		15		23	65.13		201	
		20		23	67.24		201	
		25		23	68.92		201	
		30		23	70.42		201	
		40		23	71.95		201	
		50		23	73.73		201	
		60		23	75.09		201	
		70		23	76.23		201	
		80		23	77.22		201	
		90		23	78.07		201	
		120		23	80.56		201	
		150		23	82.23		201	
		180		23	83.98		201	
		210		23	85.49		201	
		240		23	86.75		201	
		300		23	89.52		201	
		360		23	91.33		201	
		420		23	93.49		201	
		480		23	96.43		201	

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
11/12/94	18.00	540		23	100.98		201	
		600		23	102.11		201	
		660		23	102.43		201	
		720		23	102.80		201	
		780		23	103.44		201	
		840		23	103.93		201	
		900		23	103.97		201	
12/12/94	1.00	960		23	104.50		201	
		1020		23	104.00		201	
		1080		23	104.12		201	
		1140		23	104.57		201	
		1200		23	106.52		201	
		1260		23	107.22		201	
		1320		23	107.54		201	
		1380		23	107.57		201	
		1440		23	107.59		201	
		1500		23	117.06		201	
		1560		23	121.32		201	
		1620		23	121.55		201	
		1680		23	121.42		201	
		1740		23	121.34		201	
		1800		23	121.62		201	
		1920		23	121.62		201	
		2040		23	121.98		201	
		2160		23	122.00		201	
		2280		23	122.00		201	
13/12/94	1.00	2400		23	122.00		201	
		2520		23	122.00		201	

FECHA	TIEMPO				NIVELES		PRODUCCION	OBSERVACIONES
	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
13/12/94	5.00	2640		23	122.00		201	
		2760		23	122.00		201	
	9.00	2880		23	122.00		201	SE PARO PRUEBA DE BOMBEO.
		1			101.69			RECUPERACION DEL POZO.
		2			90.38			
		3			77.46			
		4			71.51			
		5			70.15			
		6			69.98			
		7			69.77			
		8			69.65			
		9			69.51			
		10			69.45			
		15			68.91			
		20			68.44			
		25			68.05			
		30			67.69			
		40			66.96			
		50			66.30			
		60			65.64			
		70			65.64			
		80			64.98			
		90			64.20			
		120			63.06			
		150			61.23			
		180			59.71			
		210			58.96			
		240			58.40			

Ge Hoja No. 4

	TIEMPO		[illegible]		NIVELES		PRODUCCION	OBSERVACIONES
FECHA	Hora	Minutos	Presión	Pulgadas	Dinámico	Estático	G.P.M.	
13/12/94	14.00	300			57.67			
		360			57.02			
		420			56.41			
		480			56.41			

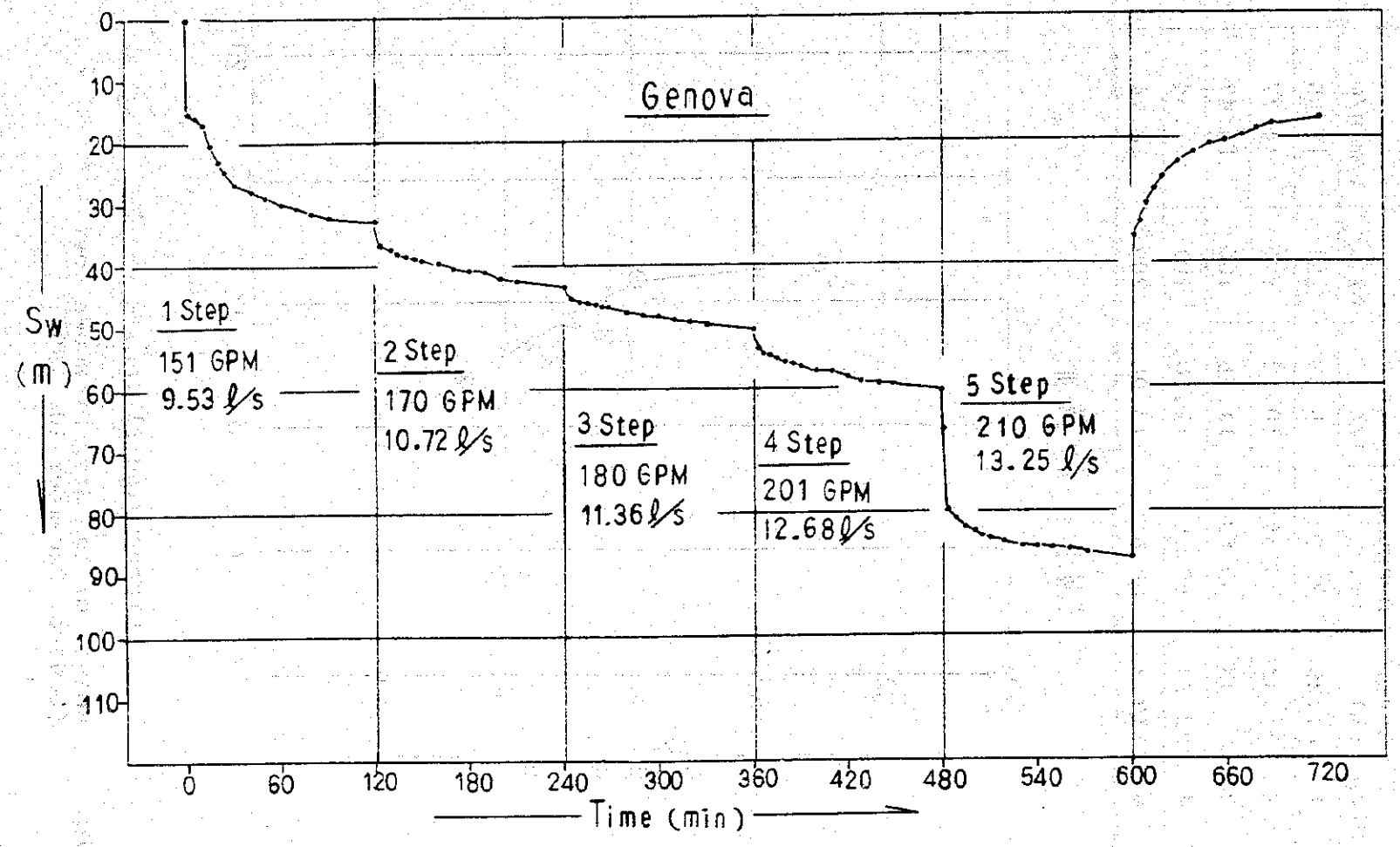


Fig. Result of Step Drawdown Test (S-T Curve)

Step	Water Level (m)	Sw Drawdown (m)	Pumping Rate		Sc	Sw Q_3
			l/s	G/min	l/min/m	(m/m³/min)
1	61.26	33.52	9.53	151	17.05	58.64
2	71.32	43.58	10.72	170	14.77	67.72
3	78.33	50.59	11.36	180	13.47	74.25
4	88.39	60.65	12.68	201	12.54	79.71
5	117.35	89.61	13.06	207	8.74	114.36

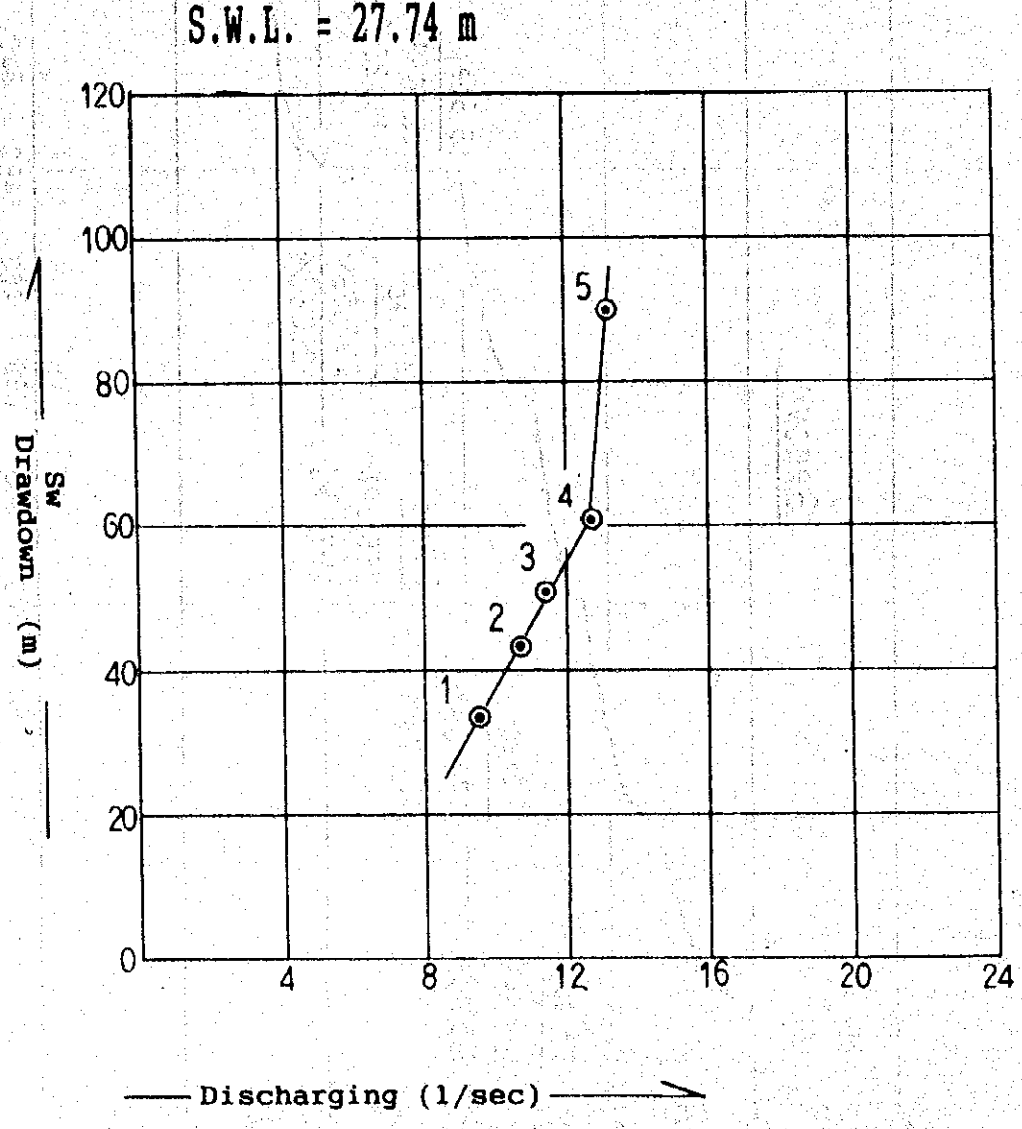
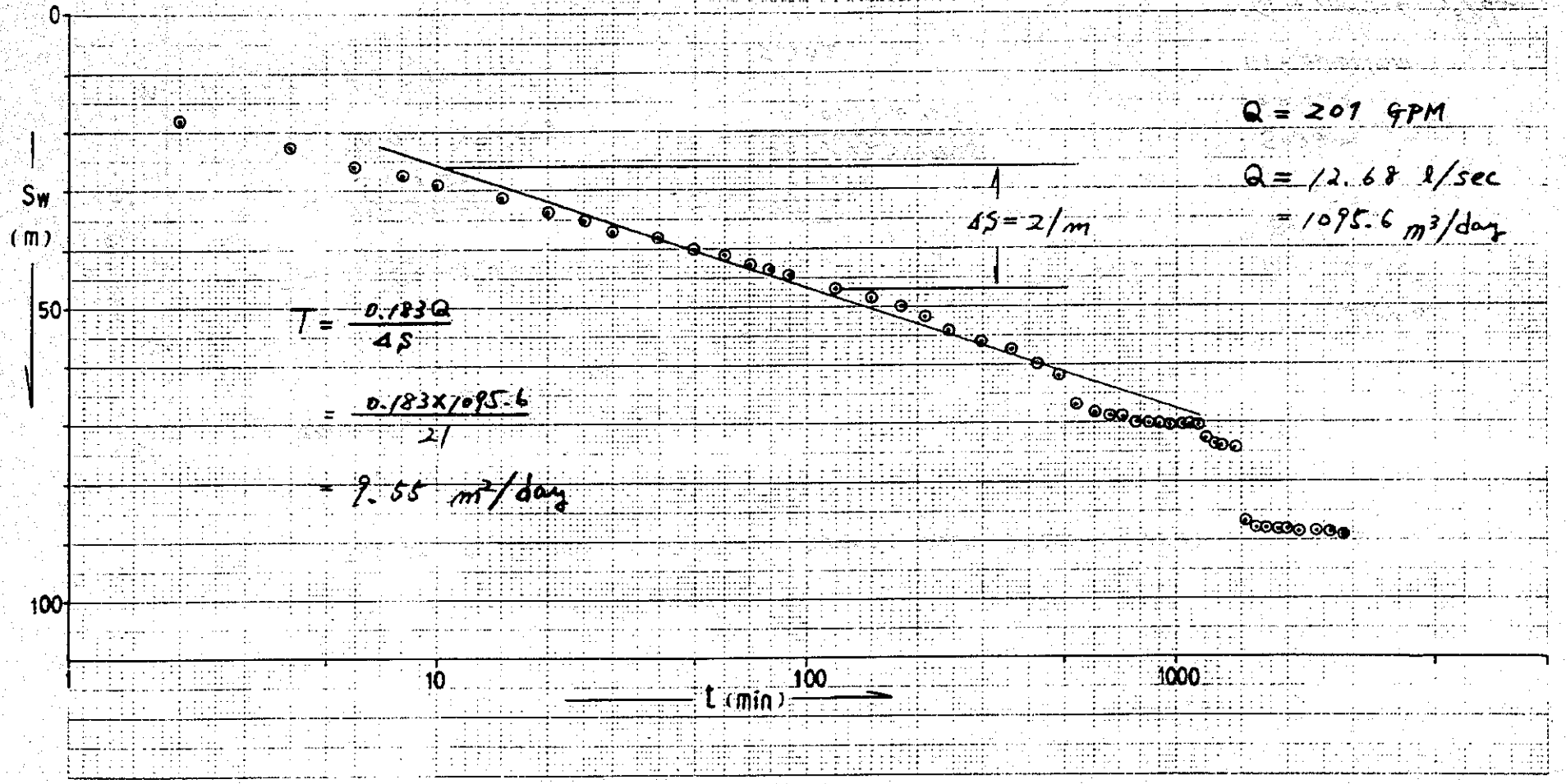


Fig. Result of the Step Drawdown Test (Genova: December 10, 1994)

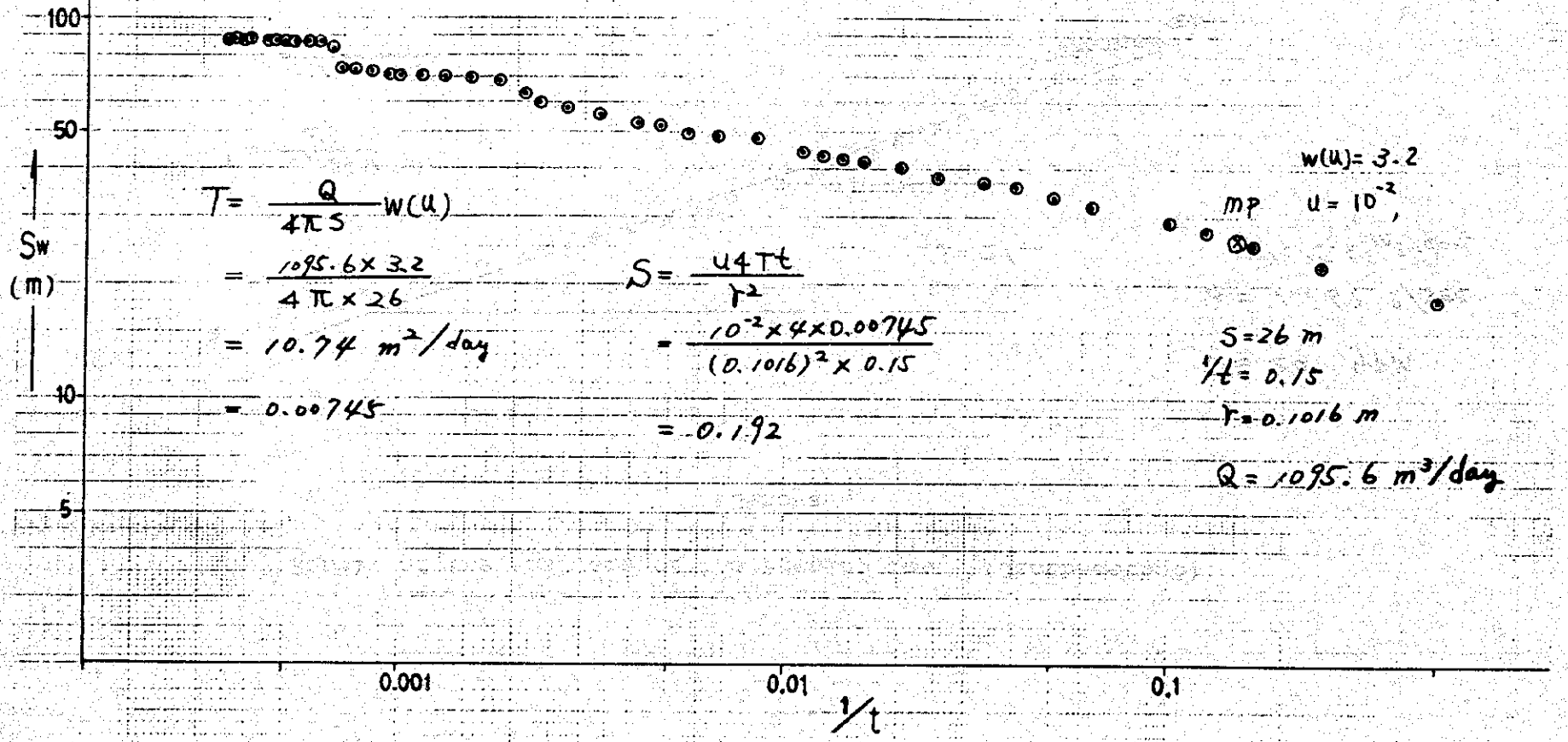
Result of the analysis of the Pumping Test (Jacob method)

(Génova)



Result of the analysis of the Pumping Test (Theis curve)

(Génova)



$$T = \frac{Q}{4\pi S} W(u)$$

$$= \frac{1095.6 \times 3.2}{4\pi \times 26}$$

$$= 10.74 \ m^2/day$$

$$= 0.00745$$

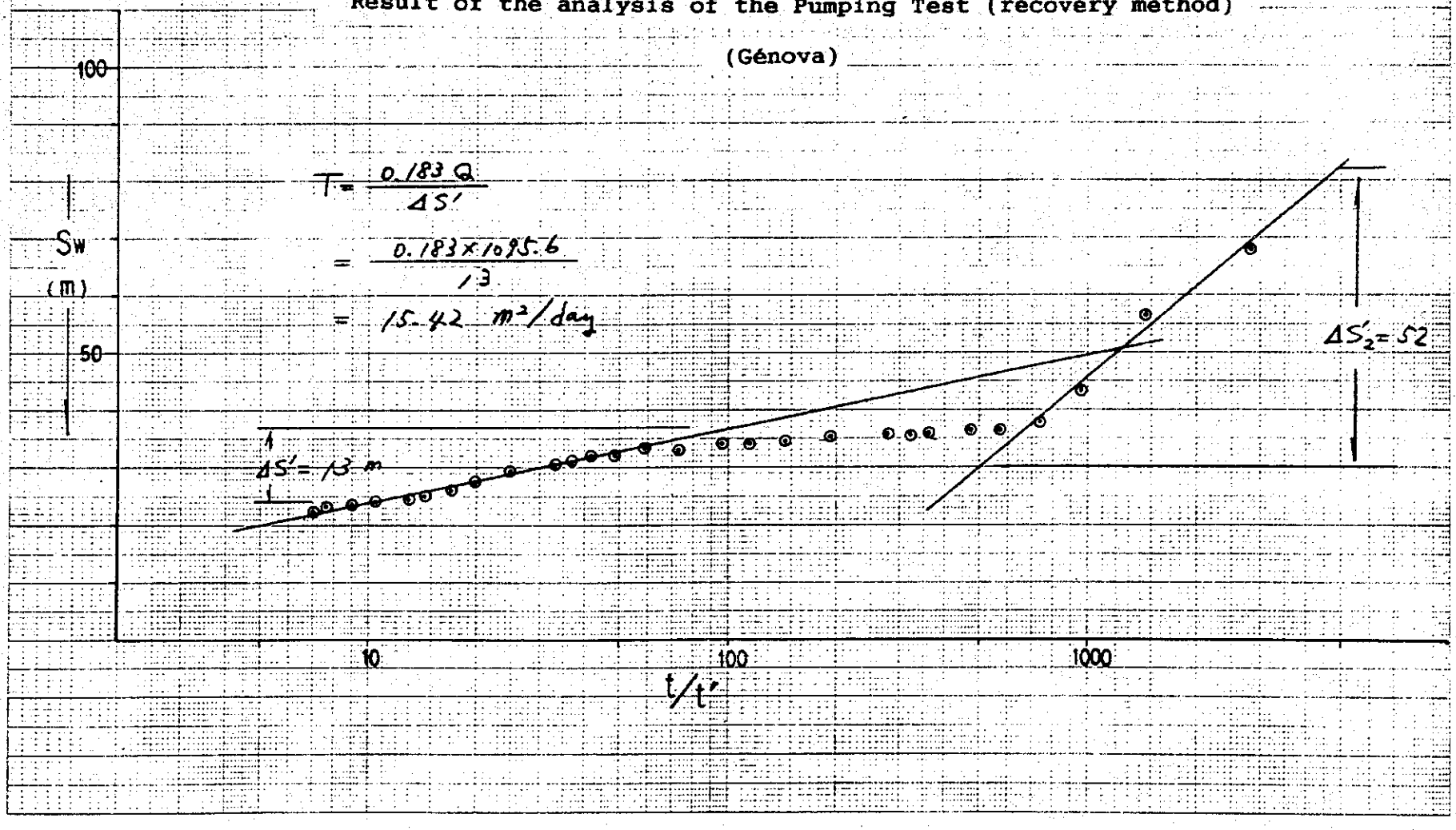
$$S = \frac{u 4Tt}{r^2}$$

$$= \frac{10^{-2} \times 4 \times 0.00745}{(0.1016)^2 \times 0.15}$$

$$= 0.192$$

Result of the analysis of the Pumping Test (recovery method)

(Génova)



3. RESULTS OF WATER QUALITY ANALYSIS

3-1

Quality Standard for Drinking Water in Guatemala by COGUANOR

Table A1-1 Quality Standard for Drinking Water in Guatemala by COGUANOR

Physical Quality

Parameter	MAL	MPL
Color	5 u*	50 u
Odor	No detected -1)	No detected
pH	7.0-8.5	6.5-9.2
Taste	No detected	No detected
Total solids	500 mg/l	1500 mg/l
Turbidity	5 u**	25 u**
Temperature	18-30 °C	34 °C >

Note: * platinum-cobalt scale
** Jackson Turbidity Metrics Unit (J.T.M) or Neferometric Unit (n.t.u.)
1) 1-3 u of Odor in INFOM Standaard

Electric Conductivity : 50 - 1500 uS/cm at 25 °C

Table A1-3 Quality Standard for Drinking Water in Guatemala by COGUANOR

	MAL	MPL
Free Residual Chlorine	0.3 - 0.5 mg/l	0.6 - 1.0 mg/l

MAL in INFOM Standrad: 0.7 mg/l
PAL in INFOM Standrad: 0.5 mg/l<

Table A1-2 Quality Standard for Drinking Water in Guatemala by COGUANOR

Chemical Quality

Parameter	MAL (mg/l)	MPL (mg/l)
Anionic Detergents*	0.200	1.000
Aluminium (Al) *	0.050	0.100
Barium (Ba) -1)	-	1.000
Boron (B) *	-	1.000
Calcium (Ca)	75.000	200.000
Chlorine (Cl-)	200.000	600.000
Copper (Cu) *	0.050	1.500
Fluorine (F-)	-	1.700
Magensium (Mg)	50.000	150.000
Manganese (Mn)	0.050	0.500
Nickel (Ni) -2)	0.010	0.020
Phenole Substances	0.001	0.002
Sulfate (SO4--) *	200.000	400.000
Total Hardness (as CaCO3)	100.000	500.000
Total Iron (Fe)	0.100	1.000
Zinc (Zn) *	5.000	15.000

*: Not standardized parameters in INFOM Standard
1), 2): Found in Toxic Substances in INFOM Standard

Table A1-4 Quality Standard for Drinking Water in Guatemala by COGUANOR

Toxic Substances

Parameter	MPL (mg/l)
Arsenic (As)	0.050
Cadmium (Cd)	0.010
Chromium (Cr)	0.050
Cyanide (CN-)	0.050
Lead (Pb)	0.100
Mercury (Hg)	0.002
Nitrate (NO3-) -1)	45.000
Nitrite (NO2-) *	0.010
Silver (Ag) *	0.050
Selenium (Se)	0.010

*: Not standardized parameters in INFOM Standard
1): Found in Chemical Substances of INFOM Standard

Table A1-6 Quality Standard for Drinking Water in Guatemala by COGUANOR

Bacteriological Quality

Parameter	PML
General Bacteria	500 CFU/ml >
Total Coliform	2 MPN/100ml >
Fecal Coliform	Negative

Table A1-5 Quality Standard for Drinking Water in Guatemala by COGUANOR

Biocide Quality

Parameter	MAL (mg/l)	MPL (mg/l)
Aldrin	0.0010	0.0170
Chlordene	0.0030	0.0030
Organophsphorus and Carbamate	0.1000	0.1000
DDT	0.0500	0.0500
Dieldrin	0.0010	0.0170
Endrin	0.0002	0.0010
Heptachlor	0.0010	0.0180
Epoxyheptachlor	0.0010	0.0180
Lindane	0.0010	0.0560
Methoxychlor	0.0040	0.0350
Toxaphene	0.0050	0.0250
Chlorophenoxy Hebicides:		
2.4 - D (1)	0.0200	0.1000
2,4.5 - TP (2)	0.0300	0.1000
2.4.5 - T (3)	0.0020	0.1000

(1): 2,4-Dichlorophenoxyacetic Acid
(2): 2,4.5-Trichlorophenoxypropanic Acid
(3): 2,4.5-Trichlorophenoxyacetic Acid

3-2

Water Quality of the Existing Water Supply Systems by Simple Method

Table A2-1 Water Quality of the Exisitng Water Supply Systems by Simple Method (April 13 - 29, 1994)

Guatemala Depaetment

NO	Municipality	Water source	Place of measurement	Temp. (°C)	pH	EC (US/cm) (25°C)	Coliforms (NO/ml)	G. Bacteria (NO/ml)	Turbid.	Color	Odor	Taste	Remarks
2	San Jose Pinula	Tank-1 (S + W)	House tap	21.6	6	101.7	231, 210, 358	260, 376, 484	No	Clear	No	No	*Cl gas addition in the tank
		Tank-1	Common tap	22.1	6	106.2	0, 0, 0	12, 16, 4	No	Clear	No	No	*3-4 hs/day supply
		Tank-2	Primary school	22.4	6	123.6	0, 0, 0	-	No	Clear	No	No	*1 Q/month pay
		(Tank-1 + W)	House tap	21.8	6	110.9	0, 0, 0	0, 4, 4	No	Clear	No	No	*New tank under construction in zona-3
		Well-3	House tap	22.3	5	178.8	1, 0, 0	8, 24, 40	No	Clear	No	No	
		Well-3	House tap	21.8	6	170.2	0, 0, 0	8, 36, 52	No	Clear	No	No	*Turbidity by eyes
8	San Pedro Sacatepequez	Spring-1	Spring-1	19.0	5.5	163.9	0, 0	100, 68	No	Clear	No	No	*INFOM advised Cl treatment, but not be done, diarrhea happened
		Spring-2	Spring-2	17.5	6	151.0	0, 0	12, 8	No	Clear	No	No	
		Tank-2	House tap	17.5	6.5	124.6	0, 0	16, 20	No	Clear	No	No	
		Tank-2	House tap	17.8	6.5	124.2	2, 1	28, 20	No	Clear	No	No	
		S + W	Common tap	18.5	6.5	123.0	6, 3	84, 168	No	Clear	No	No	*2-5 hs/day supply *3 Q/month *Turbidity by eyes

Table A2-2 Water Quality of the Exisitng Water Supply Systems by Simple Method (April 13 - 29, 1994)

Sacatepéquez Department

NO	Municipality	Water source	Place of measurement	Temp. (°C)	pH	EC (US/cm) (25°C)	Coliforms (NO/ml)	G. Bacteria (NO/ml)	Turbid.	Color	Odor	Taste	Remarks
11	Santa Maria de Jesus	Spring-1	Common tap	22.2	7	199.1	1, 1, 2	0, 4, 13	No	Clear	No	No	*No Cl treatmmet
			Common tap	21.7	7	211.0	0, 0, 0	12, 44	No	Clear	No	No	*Common tap-every 2 days supply
		Spring-2	Common tap	21.7	6.5	139.9	6, 10	64, 100	No	Clear	No	No	
		Well	House tap	20.4	6.5	291.0	0, 1	44, 20	No	Clear	No	No	*No payment *Turbidity by eye

Table A2-3 Water Quality of the Exisitng Water Supply Systems by Simple Method (April 13 - 29, 1994)

Sololá Department

NO	Municipality	Water source	Place of measurement	Temp. (°C)	pH	EC (US/cm) (25°C)	Coliforms (NO/ml)	G. Bacteria (NO/ml)	Turbid.	Color	Odor	Taste	Remarks
		Tank-1 (S-1+2)	Tank-1	18.1	6.5	106.1	0, 0	11, 1	No	Clear	No	No	*Tank-1:Cl-gas teat treatment
		Tank-1	Common tap	21.3	6	106.3	0, 0	0, 10	No	Clear	No	No	*Tank-2:Hypo-
1	Solola	Tank-2 (S-3)	Tank-2	17.7	6	97.1	0, 0	1, 0	No	Clear	No	No	chloride treatment *ca.1450 house
		Tank-1	House tap	19.7	6	108.5	0, 0	7, 1	No	Clear	No	No	connections
		Tank-1	House tap	20.6	6	106.1	0, 0	5, 8	No	Clear	No	No	*ca. 4hs/day supply
		Tank-2	House tap	20.3	6	98.0	0, 0	8, 3	No	Clear	No	No	*Turbidity by eyes
		Tank (S-1,2,3)	Tank	16.0	6	94.1	19, 32	68, 88	No	Clear	No	No	*No treatment *Turbidity by eyes
5	Nahuala	Tank	Common tap	17.0	6	94.3	4, 4	32, 36	No	Clear	No	No	*27 Qs/year
		Tank	House tap	17.8	6	94.7	2, 3	15, 8	No	Clear	No	No	*Water supply until

Table A2-4 Water Quality of the Exisitng Water Supply Systems by Simple Method (April 13 - 29, 1994)

Totonicapan Department

NO	Municipality	Water source	Place of measurement	Temp. (°C)	pH	EC (US/cm) (25°C)	Coliforms (NO/ml)	G. Bacteria (NO/ml)	Turbid.	Color	Odor	Taste	Remarks
		Tank-1 (S-1+2)	Tank-1	18.1	6	34.4	1, 1	40, 44	No	Clear	No	No	*Turbidity by eyes *Water supply for
5	Momostenango	Tank-2 (S-3)	Tank-2	20.7	6	91.8	1, 1	120, 60	No	Clear	No	No	600 houses *3 Qs/month
		Tank-1	House tap	16.8	6	35.6	2, 5	44, 36	No	Clear	No	No	*3hs-dry and 12 hs-
		Tank-1	Common tap	17.1	6	34.8	1, 1	24, 16	No	Clear	No	No	wet season supply

Table A2-5 Water Quality of the Exisitng Water Supply Systems by Simple Method (April 13 - 29, 1994)

Quetzaltenango Department

NO	Municipality	Water source	Place of measurement	Temp. (°C)	pH	EC (US/cm) (25°C)	Coliforms (NO/ml)	G. Bacteria 24 hrs	Turbid.	Color	Odor	Taste	Remarks
4	San Carlos Sija	Tank (S-1 - 3)	Tank	15.0	6	48.6	0, 8	20, 12	No	Clear	No	No	*No treatment *Water supply for
		Tank	Common tap	15.3	6	49.4	3, 7	28, 40	No	Clear	No	No	*350 houses (100 %
		Tank	House tap	17.4	6	47.9	3, 5	8, 32	No	Clear	No	No	in urban)
		Private-spring	Private-spring	13.1	6	175.5	6, 9	36, 64	Locked very low	Slightly white	No	No	*Private wells and springs with water the supply system *New tank is under-construction
18	San Fransico la Union	Tank-1 (S)	Tank-1	-	-	-	-	-	-	-	-	-	*No treatment *Supply for 102-
		Tank-2 (S)	Tank-2	19.1	6	126.3	0, 0	68, 88	No	Clear	No	No	houses-100 % in urban area
		Private well	(ca. 13 m deep)	15.8	6	536.0	14, 25	36, 100	Looked low	Slightly white	No	No	*Every 2days only a.m. supply
		Private well	(ca. 23 m deep)	15.4	6	186.3	0, 0	24, 12	No	Clear	No	No	*5 Qs/month *Private wells with water supply system
21	Genova	Tank (S-1-7)	Tank	25.6	6	91.1	10, 9	24, 24	No	Clear	No	No	*No treatment *Water supply for
		Tank	Common tap	30.0	6	91.0	7, 10	24, 32	No	Clear	No	No	350 houses (70 %)
		Tank	House tap	29.4	6	91.3	4, 7	44, 176	No	Clear	No	No	*2 hs only a.m.
		Private well	(ca. 7 m deep)	26.8	6	133.9	18, 17	1118, 1264	No	Clear	No	No	*Private wells with water supply system *Pipe from springs will be exchanged to bigger one - 50 % water supply up
22	Flores Costa Cuca	Tank-1 (S-1+2)	Tank-1	24.3	6	107.1	13, 11	120, 80	No	Clear	No	No	*Tank-1 : for 30 ys
		Tank-2 (T-1+W)	Tank-2	25.9	6	201.0	13, 22	72, 108	No	Clear	No	No	*Tank-2 : for 1.5 ys
		Tank-2	House tap	25.9	6	178.9	8, 10	200, 208	No	Clear	No	No	*0.75 Qs/month
		Private-well	(ca. 8 m deep)	25.0	6	166.4	41, 40	256, 200	No	Clear	No	No	*Privae well with water supply system

3-3

Water Quality of the Existing Supply Systems by INFOM

(1990)

Table A2-6 Water Quality of the Existing Supply System analyzed by INFOM since 1990

Guatemala Department

Municipality	San Jose del Golfo			Sta. Catarina Pinula		
Date	4-9-90	4-9-90	30-4-91	8-9-92	15-2-93	10-8-93
Place	Municipality	Llenacantaros	Casa N. Carrera	Municipality	Casa A. Dionisio	Casa G. A. Barillas
Parameter						
Residual chloride (mg/l)	0.0	0.0	0.0	0.0	0.0	0.0
Appearance	Clear	Clear	Clear	Clear	Yellowish	Clear
Temp. (°C)	-	-	-	-	22.4	-
pH	-	-	-	-	6.8	-
True color	-	-	-	-	140	-
Odor	No	No	No	No	No	No
SS	1*	1*	2#	1*	3$	1*
Turbidity (U.N.T)	-	-	-	-	22.4	-
Hardness (mg/l)	-	-	-	-	113	-
Chlorine (mg/l)	-	-	-	-	25	-
T-Fe (mg/l)	-	-	-	-	2.35	-
Mn (mg/l)	-	-	-	-	2	-
NO3-N (mg/l)	-	-	-	-	0.0	-
NO2-N (mg/l)	-	-	-	-	0.00	-
Sulphide (mg/l)	-	-	-	-	0	-
EC (uS/cm)	-	-	-	-	1	-
T-S (mg/l)	-	-	-	-	186	-
General-bacteria (NO/ml)	40	60	500	90	5000	200
Total-coliforms (MPN/100ml)	13	17	220	23	220	79
Fecal-coliforms (MPN/100ml)	2	2	8	<2	79	<2

	Guatemala Deaprtment			Sacatepéquez Department		
Municipality	San Pedro Sacatepéquez			Santa María de Jesús		
Date	28-8-90	19-4-93	28-9-93	13-8-90	8-5-91	24-8-92
Place	Disri. Tank	Municipality	Park	Iglrsia	Llenacantaros	Central Park
Parameter						
Residual chloride (mg/l)	0.0	0.0	0.0	0.0	0.0	0.0
Appearance	Clear	Clear	Clear	Clear	Clear	Clear
Temp. (°C)	19.7	-	22.6	18	-	-
pH	-	-	7.1	7.2	-	-
True color	10	-	5	5	-	-
Odor	1	No	0	2	No	No
SS	1*	1*	-	3$	2*	2*
Turbidity (U.N.T)	0.3	-	0.5	0.25	-	-
Hardness (mg/l)	45	-	48	76	-	-
Chlorine (mg/l)	36	-	23	28	-	-
T-Fe (mg/l)	0.01	-	0.00	0.00	-	-
Mn (mg/l)	0.1	-	0.0	0.1	-	-
NO3-N (mg/l)	1.8	-	1.4	0.7	-	-
NO2-N (mg/l)	0.002	-	0.001	0.003	-	-
Sulphide (mg/l)	1.0	-	0.0	0.0	-	-
EC (uS/cm)	143.7	-	-	171.8	-	-
T-S (mg/l)	72.0	-	1.6	86.1	-	-
General-bacteria (NO/ml)	300	400	-	80	20	10000
Total-coliforms (MPN/100ml)	11	70	-	2	8	34
Fecal-coliforms (MPN/100ml)	<2	<2	-	<2	2	22

Table A2-7 Water Quality of the Existing Supply System analyzed by INFOM since 1990

	Sacatepéques Department				Chimaltenango Department	
Municipality	Ciudad Vieja				San Juan Comalapa	
Date	10-1-90	10-8-92	2-8-93	1-6-93	25-11-91	24-11-92
Place	Munici-pality	Pozo Nuevo	Pozo Fluyente	Munici-pality	Llena-cantaros	N. el Cojol
Parameter						
Residual chloride (mg/l)	-	0.0	0.0	0.0	0.1	0.0
Appearance	-	Clear	Clear	Clear	Clear	Clear
Temp. ('C)	21.5	-	24.3	-	-	-
pH	7.2	-	7.4	-	-	-
True color	10	-	40	-	-	-
Odor	1	No	0	No	-	No
SS	-	1*	1*	1*	2#	1*
Turbidity (U.N.T)	0.3	-	4.0	-	-	-
Hardness (mg/l)	120	-	123	-	-	-
Chlorine (mg/l)	31	-	28	-	-	-
T-Fe (mg/l)	0.02	-	0.02	-	-	-
Mn (mg/l)	0.2	-	0.0	-	-	-
NO3-N (mg/l)	3.7	-	0.3	-	-	-
NO2-N (mg/l)	0.004	-	0.001	-	-	-
Sulphide (mg/l)	14.0	-	0.0	-	-	-
EC (uS/cm)	156.7	-	169.9	-	-	-
T-S (mg/l)	1	-	1	-	-	-
General-bacteria (NO/ml)	-	20	60000	40	600	10000
Total-coliforms (MPN/100ml)	-	<2	>1600	7	79	5
Fecal-coliforms (MPN/100ml)	-	-	<2	<2	23	2

	Sololá Department		Nahuala	Totonicapan Department		
Municipality	Sololá		Nahuala	Momostenango		
Date	22-7-91	31-8-93	2-7-90	17-4-90		
Place	Hospital Nacional	Munici-pality	Centro de Salud	Llena-cantaros		
Parameter						
Residual chloride (mg/l)	1.0	1.0	0.0	-		
Appearance	Clear	Clear	Clear	-		
Temp. ('C)	-	-	-	18.7		
pH	-	-	-	6.6		
True color	-	-	-	10		
Odor	No	No	No	0		
SS	1*	1*	1*	-		
Turbidity (U.N.T)	-	-	-	0.4		
Hardness (mg/l)	-	-	-	-		
Chlorine (mg/l)	-	-	-	30		
T-Fe (mg/l)	-	-	-	0.02		
Mn (mg/l)	-	-	-	0.0		
NO3-N (mg/l)	-	-	-	1.0		
NO2-N (mg/l)	-	-	-	0.003		
Sulphide (mg/l)	-	-	-	1.0		
EC (uS/cm)	-	-	-	16.4		
T-S (mg/l)	-	-	-	33.1		
General-bacteria (NO/ml)	1	1	1000	-		
Total-coliforms (MPN/100ml)	<2	<2	8	-		
Fecal-coliforms (MPN/100ml)	-	-	4	-		

Table A2-8 Water Quality of the Existing Supply System analysed by INFOM since 1990

Quetzaltenango Department

Municipality	Génova Costa Cuca		F. C. C.	San Carlos Sijá		
Date	27-8-90	7-10-91	7-10-91	27-3-90	27-3-90	27-3-90
Place	Casa de M. Escobal	Tank Lavadero	Casa de F. V.	Casa de F. R. G	Market	Casa de F. Ramon
Parameter						
Residual chloride (mg/l)	0.0	0.0	0.0	0.0	0.0	0.0
Appearance	Clear	Clear	Clear	Clear	Clear	Clear
Temp. (°C)	-	-	-	-	-	17.6
pH	-	6.6	-	-	-	7.3
True color	-	10	10	-	-	10
Odor	No	0	0	No	No	1
SS	3*	1*	1*	1*	2#	1*
Turbidity (U.N.T)	-	0.55	1.3	-	-	0.45
Hardness (mg/l)	-	-	-	-	-	22
Chlorine (mg/l)	-	27	29	-	-	39
T-Fe (mg/l)	-	0.01	0.03	-	-	0.01
Mn (mg/l)	-	-	-	-	-	0.3
NO3-N (mg/l)	-	3.2	8.0	-	-	1.5
NO2-N (mg/l)	-	0.003	0.007	-	-	0.003
Sulphide (mg/l)	-	0.0	0.0	-	-	0.0
EC (uS/cm)	-	82.2	96.0	-	-	47.7
T-S (mg/l)	-	41.1	48.1	-	-	23.8
General-bacteria (NO/ml)	59000	3	600	180	700	200
Total-coliforms (NMP/100ml)	2	<2	350	8	49	79
Fecal-coliforms (NMP/100ml)	2	-	33	<2	49	<2

Quetzaltenango Department

Municipality	San Fco. la Unión	Cajola
Date	28-8-90	26-2-90
Place	Municipality	Municipality
Parameter		
Residual chloride (mg/l)	0.0	0.0
Appearance	Yellowish	Clear
Temp. (°C)	16.7	17.1
pH	7.4	7.3
True color	30	20
Odor	1	2
SS	2#	1*
Turbidity (U.N.T)	0.94	3.0
Hardness (mg/l)	75	162
Chlorine (mg/l)	32	28
T-Fe (mg/l)	0.79	0.04
Mn (mg/l)	0.3	0.2
NO3-N (mg/l)	1.2	1.6
NO2-N (mg/l)	0.001	0.002
Sulphide (mg/l)	5.0	9.0
EC (uS/cm)	170.7	143.0
T-S (mg/l)	86.0	71.5
General-bacteria (NO/ml)	150	60
Total-coliforms (NMP/100ml)	2	8
Fecal-coliforms (NMP/100ml)	-	2

3-4

Quality of Drinking Water from Distribution Tank

Table A3-1 Quality of Drinking Water from Distribution Tank

Municipality: San José Pinula
Tank No.1
Date: October 8, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	20.0	T-Fe (mg/l)	0.12	Pb (mg/l)	0.0
pH	6.6	T-Hardness		T-Residual	
EC (uS/cm)	65.0	(mg/l as CaCO3)	32.54	(mg/l at 104°C)	142.40
Color (u)	5.0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	13.25	(CFU/ml)	33
Residual Clorine	0.0	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	-	Zn (mg/l)	0.0	(MPN/100ml)	2>
NO3-N (mg/l)	0	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N (mg/l)	0.0	As (mg/l)	0.0		
NH4-N (mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-2 Quality of Drinking Water from Distribution Tank

Municipality: San Pedro Sacatepéquez
Tank No.2
Date: October 13, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	21.0	T-Fe (mg/l)	0.04	Pb (mg/l)	0.0
pH	6.9	T-Hardness		T-Residual	
EC (uS/cm)	340.0	(mg/l as CaCO3)	52.88	(mg/l at 104°C)	159.6
Color (u)	10.0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	8.37	(CFU/ml)	1450
Residual Clorine	-	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.01	(MPN/100ml)	93
NO3-N (mg/l)	5	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N (mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-3 Quality of Drinking Water from Distribution Tank

Municipality: Santa María de Jusús
Tank No.2
Date: November 5, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	20.0	T-Fe (mg/l)	0.01	Pb (mg/l)	0.0
pH	7.2	T-Hardness		T-Residual	
EC (uS/cm)	200	(mg/l as CaCO3)	138.30	(mg/l at 104°C)	250.8
Color (u)	5.0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	11.16	(CFU/ml)	4610
Residual Clorine	-	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.03	(MPN/100ml)	110
NO3-N (mg/l)	10	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-4 Quality of Drinking Water from Distribution Tank

Municipality: San Martín Jilotepeque
Tank No.
Date: October 29, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	22.0	T-Fe (mg/l)	0.39	Pb (mg/l)	0.0
pH	7.0	T-Hardness		T-Residual	
EC (uS/cm)	130.0	(mg/l as CaCO3)	63.05	(mg/l at 104°C)	179.2
Color (u)	5.0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	9.76	(CFU/ml)	1030
Residual Clorine	-	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	-	Zn (mg/l)	0.08	(MPN/100ml)	1100
NO3-N (mg/l)	0	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-5 Quality of Drinking Water from Distribution Tank

Municipality: San Juan Comalapa
Tank No.1
Date: November 10, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	17.0	T-Fe (mg/l)	0.11	Pb (mg/l)	0.0
pH	7.2	T-Hardness		T-Residual	
EC (uS/cm)	55	(mg/l as CaCO3)	32.54	(mg/l at 104°C)	92.8
Color (u)	5.0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	9.07	(CFU/ml)	21
Residual Clorine	0.0	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.03	(MPN/100ml)	2>
NO3-N (mg/l)	0	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-6 Quality of Drinking Water from Distribution Tank

Municipality: Sololá
Tank No.1
Date: November 10, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	16.0	T-Fe (mg/l)	0.0	Pb (mg/l)	0.0
pH	7.1	T-Hardness		T-Residual	
EC (uS/cm)	75	(mg/l as CaCO3)	44.76	(mg/l at 104°C)	140.4
Color (u)	0.0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	9.76	(CFU/ml)	4
Residual Clorine	1.0	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.0	(MPN/100ml)	2>
NO3-N (mg/l)	5	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-7 Quality of Drinking Water from Distribution Tank

Municipality: Santa Lucía Utatlán
Tank No.1
Date: November 10, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	15.0	T-Fe (mg/l)	0.0	Pb (mg/l)	0.0
pH	6.8	T-Hardness		T-Residual	
EC (uS/cm)	50	(mg/l as CaCO3)	30.52	(mg/l at 104°C)	109.6
Color (u)	5.0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	11.16	(CFU/ml)	10
Residual Clorine	-	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.01	(MPN/100ml)	2>
NO3-N (mg/l)	0	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-8 Quality of Drinking Water from Distribution Tank

Municipality: Momostenango
Tank No.1
Date: November 17, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	18.0	T-Fe (mg/l)	0.0	Pb (mg/l)	0.0
pH	7.0	T-Hardness		T-Residual	
EC (uS/cm)	90	(mg/l as CaCO3)	24.41	(mg/l at 104°C)	112.0
Color (u)	5	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0.0	Chloride (mg/l)	7.67	(CFU/ml)	616
Residual Clorine	-	Mn (mg/l)	0.0	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.01	(MPN/100ml)	460
NO3-N (mg/l)	0	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-9 Quality of Drinking Water from Distribution Tank

Municipality: San Francisco La Unión
Tank No.1
Date: November 17, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. (°C)	16.0	T-Fe (mg/l)	0.18	Pb (mg/l)	0.0
pH	7.3	T-Hardness		T-Residual	
EC (uS/cm)	175	(mg/l as CaCO3)	54.97	(mg/l at 104°C)	128.8
Color (u)	0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0	Chloride (mg/l)	9.07	(CFU/ml)	1336
Residual Clorine	-	Mn (mg/l)	0.16	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.02	(MPN/100ml)	290
NO3-N (mg/l)	0	Cu (mg/l)	0.0	Fecal coliforms	N
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-10 Quality of Drinking Water from Distribution Tank

Municipality: Génova
Tank No.1
Date: November 18, 1994

Appearance: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. ('C)	24.0	T-Fe (mg/l)	0.04	Pb (mg/l)	0.0
pH	6.8	T-Hardness		T-Residual	
EC (uS/cm)	70	(mg/l as CaCO3)	32.54	(mg/l at 104'C)	77.2
Color (u)	0	Cr(6+) (mg/l)	0.0	General bacteria	
Turbid. (mg/l)	0	Chloride (mg/l)	13.25	(CFU/ml)	63
Residual Clorine	-	Mn (mg/l)	0.16	Total coliforms	
COD(Mn) (mg/l)	0.0	Zn (mg/l)	0.0	(MPN/100ml)	29
NO3-N (mg/l)	10	Cu (mg/l)	0.0	Fecal coliforms	P
NO2-N(mg/l)	0.0	As (mg/l)	0.0		
NH4-N(mg/l)	0.0	Cd (mg/l)	0.0		

Table A3-11 Quality for Drinking Water from Test Well

Municipality: San José Pinula
Date: October 8, 1994

Appearnce: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. ('C)	23.0	T-Fe (mg/l)	0.10	Cd (mg/l)	0.0
pH	6.7	T-Hardness		Pb (mg/l)	0.0
EC (uS/cm)	240	(mg/l as CaCO3)	152.54	T-Residual	
Color (u)	0	Cr(6+) (mg/l)	0.0	(mg/l at 104'C)	309.2
Turbid. (mg/l)	0	Chloride (mg/l)	18.83	General bacteria	
COD(Mn) (mg/l)	-	Mn (mg/l)	0.0	(CFU/ml)	2200
NO3-N (mg/l)	10	Zn (mg/l)	0.05	Total coliforms	
NO2-N (mg/l)	0.0	Cu (mg/l)	0.0	(MPN/100ml)	3
NH4-N (mg/l)	0.0	As (mg/l)	0.0	Fecal coiliforms	N

Table A3-12 Quality for Drinking Water from Test Well

Municipality: San Pedro Sacatepéquez
Date: October 13, 1994

Appearnce: Clear
Odor: No
Taste: No

Parameter	Value	Parameter	Value	Parameter	Value
Temp. ('C)	20.0	T-Fe (mg/l)	0.06	Cd (mg/l)	0.0
pH	6.8	T-Hardness		Pb (mg/l)	0.0
EC (uS/cm)	380	(mg/l as CaCO3)	44.74	T-Residual	
Color (u)	5	Cr(6+) (mg/l)	0.0	(mg/l at 104'C)	198.0
Turbid. (mg/l)	0	Chloride (mg/l)	8.37	General bacteria	
COD(Mn) (mg/l)	0.0	Mn (mg/l)	0.0	(CFU/ml)	2300
NO3-N (mg/l)	0	Zn (mg/l)	0.12	Total coliforms	
NO2-N(mg/l)	0.0	Cu (mg/l)	0.0	(MPN/100ml)	1100
NH4-N(mg/l)	0.0	As (mg/l)	0.0	Fecal coiliforms	N