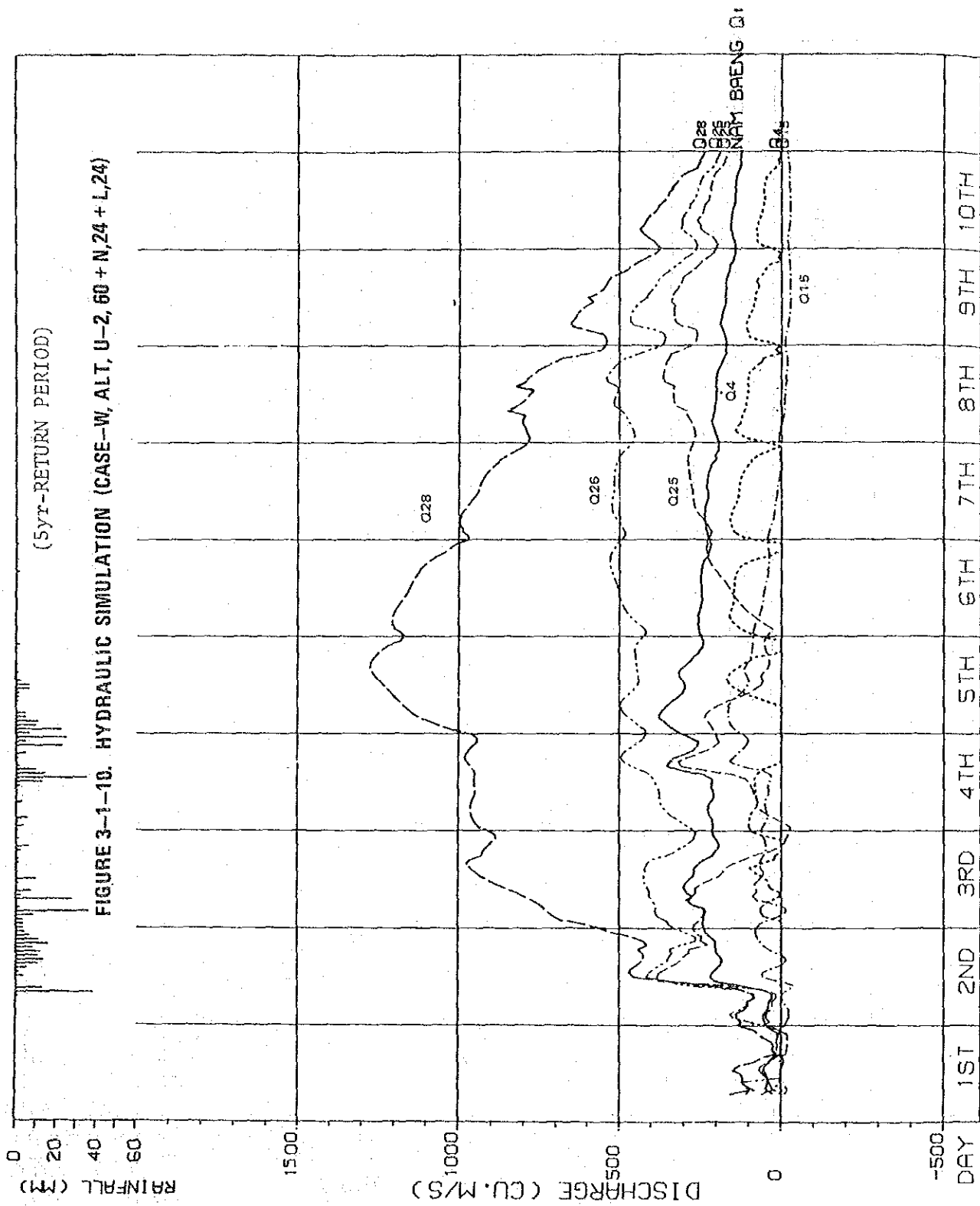
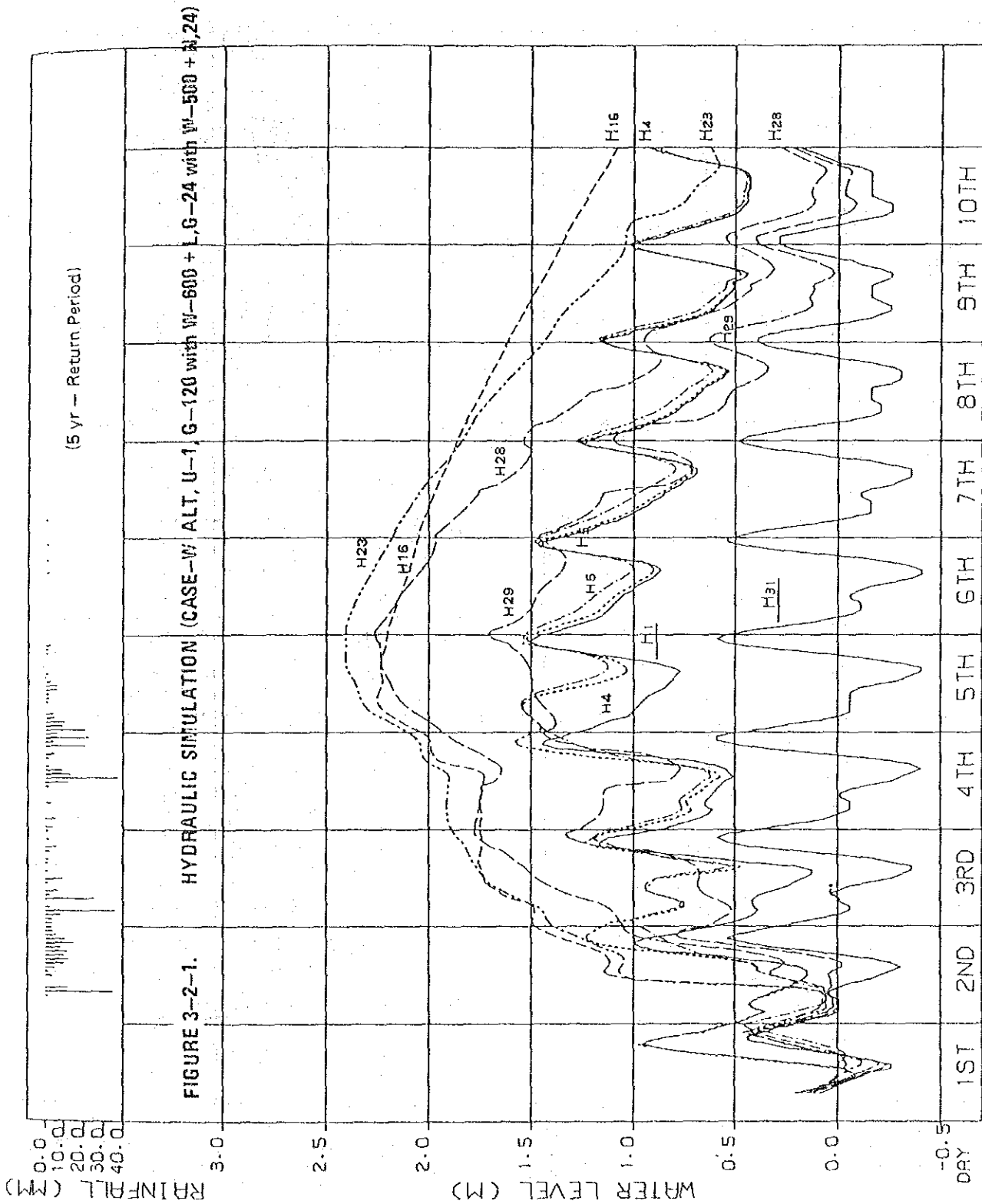
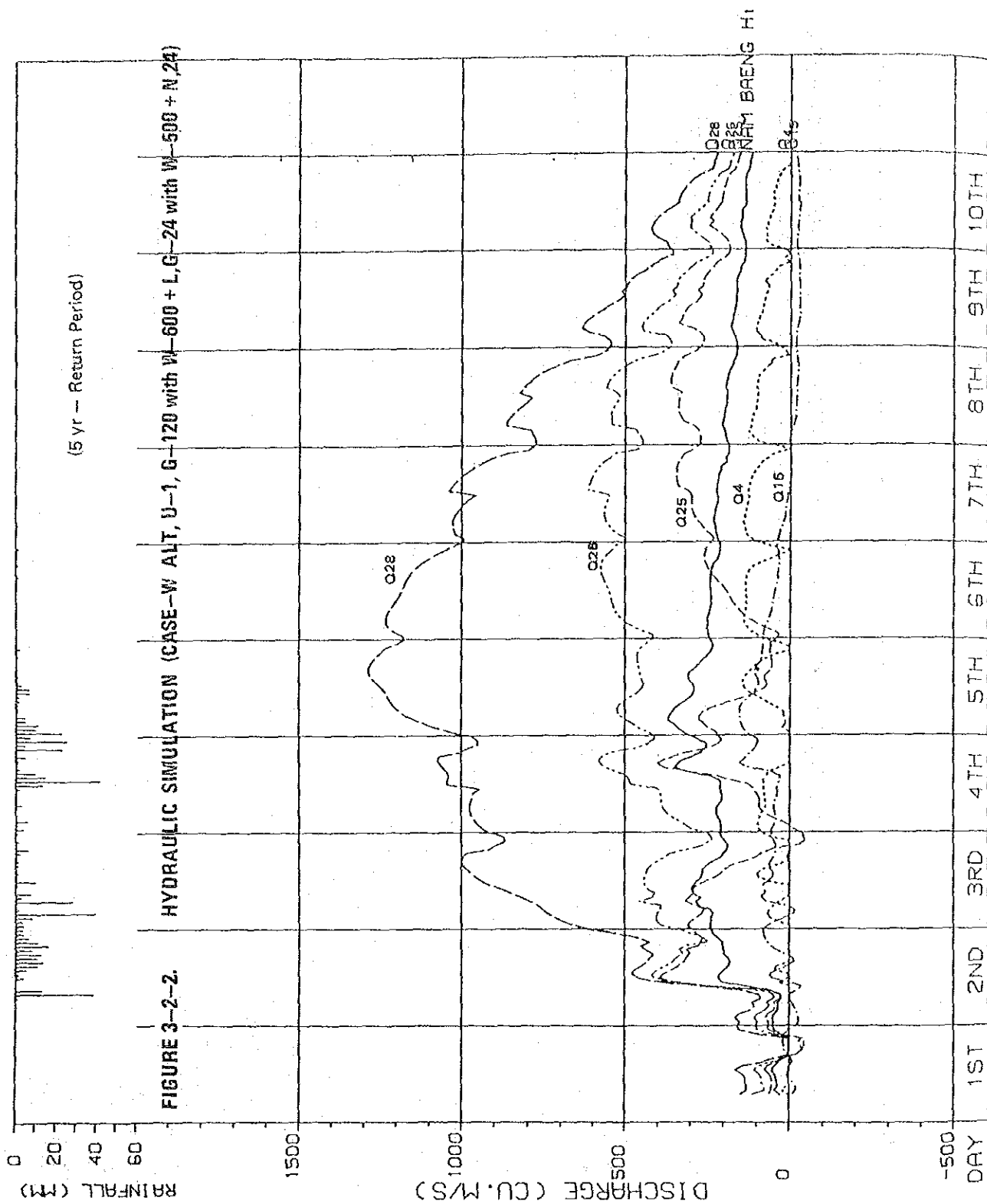


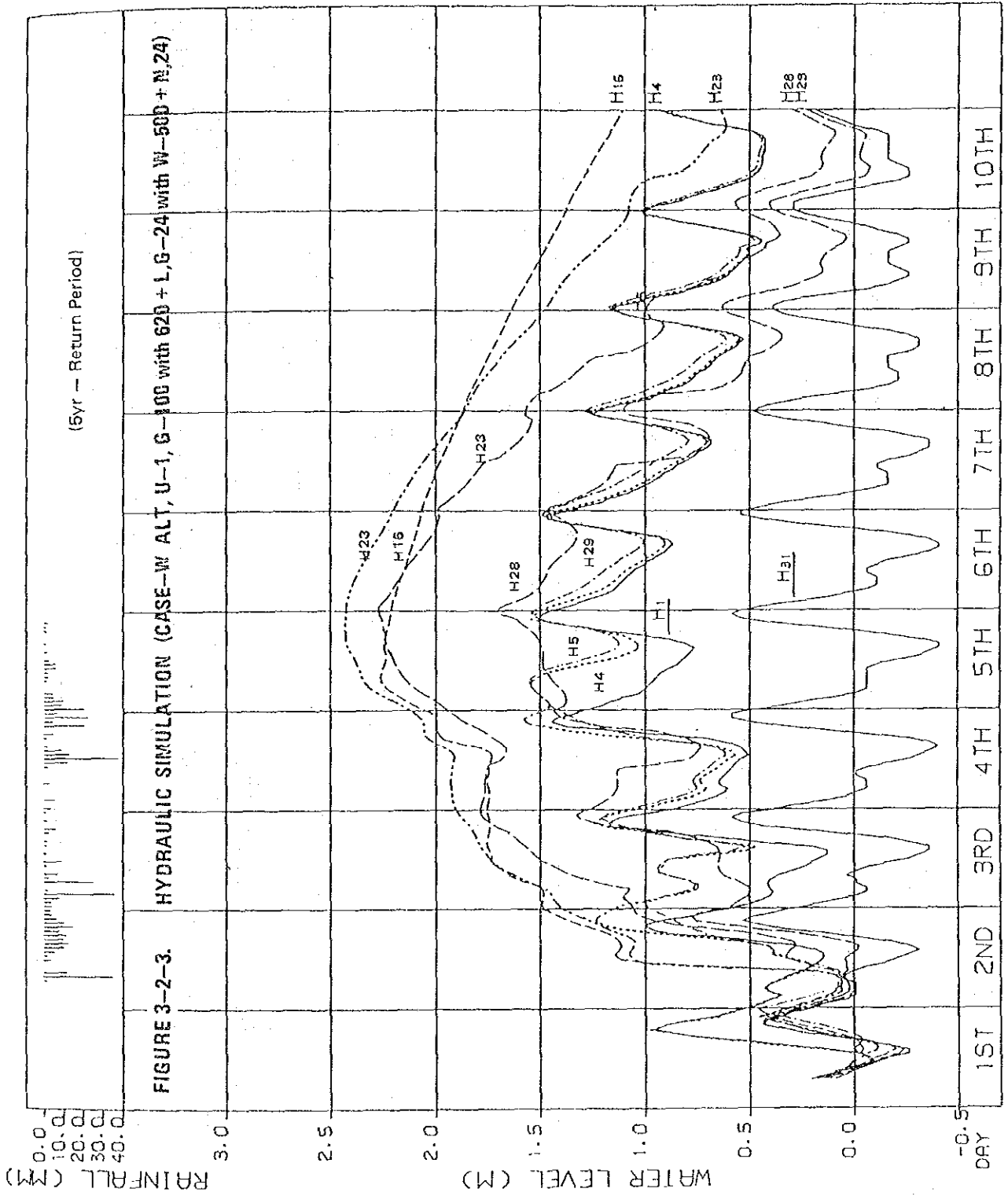
FIGURE 3-1-9. HYDRAULIC SIMULATION (CASE-W, ALT, U-2, 60 + N,24, + L,24)

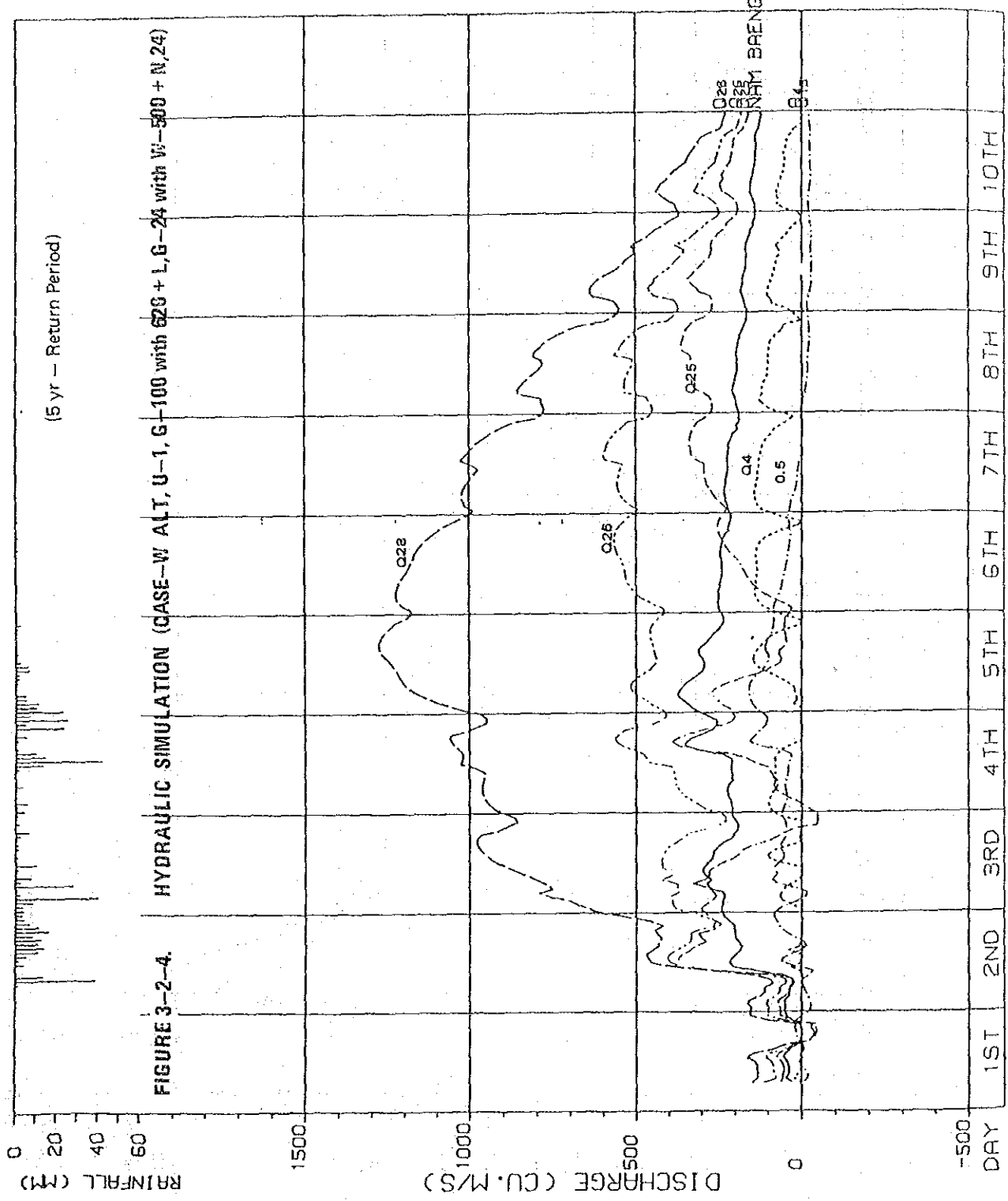


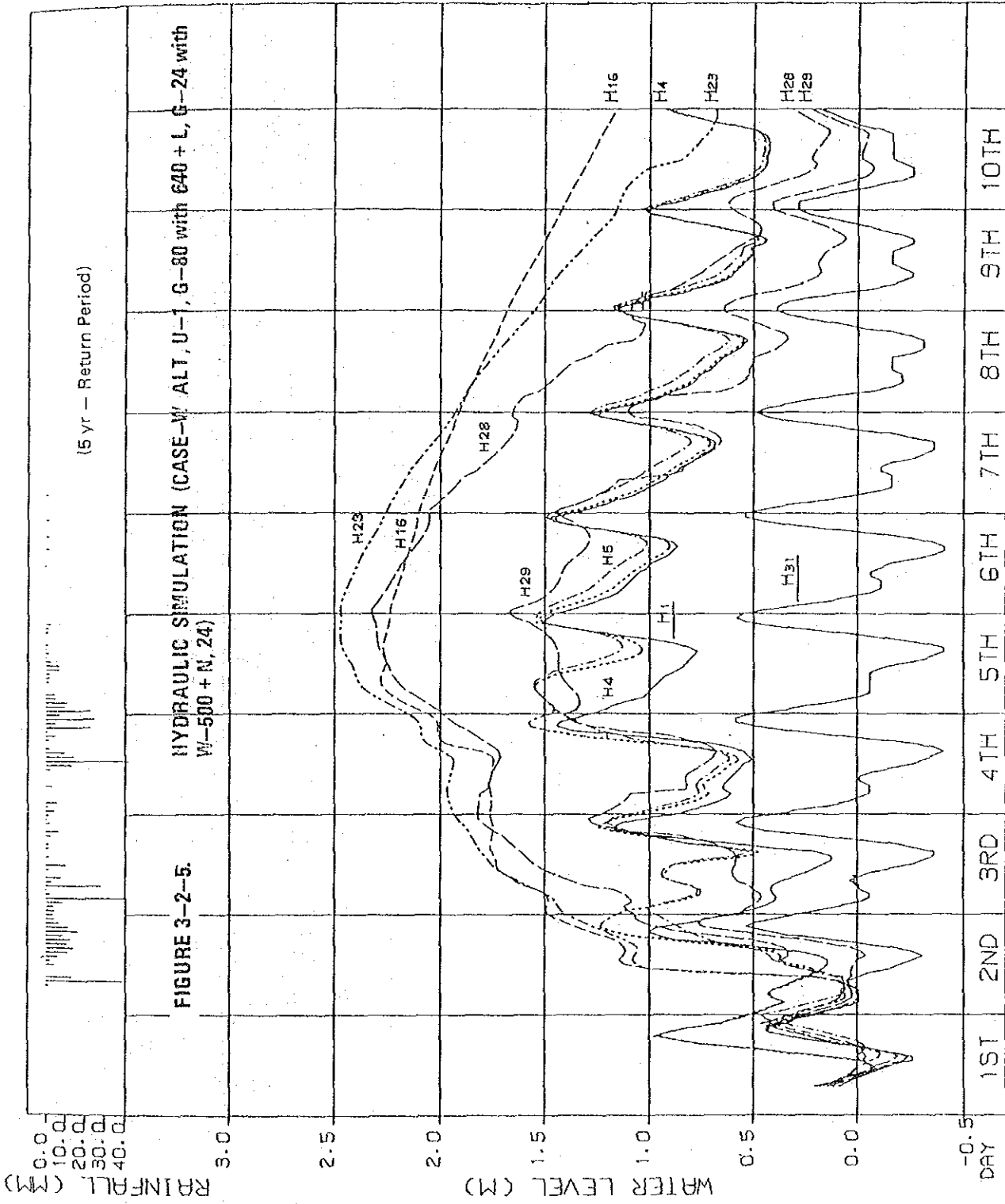
III-2. Flood Simulation for General Cases with Fixed Weir
 (5yr-Return Period)

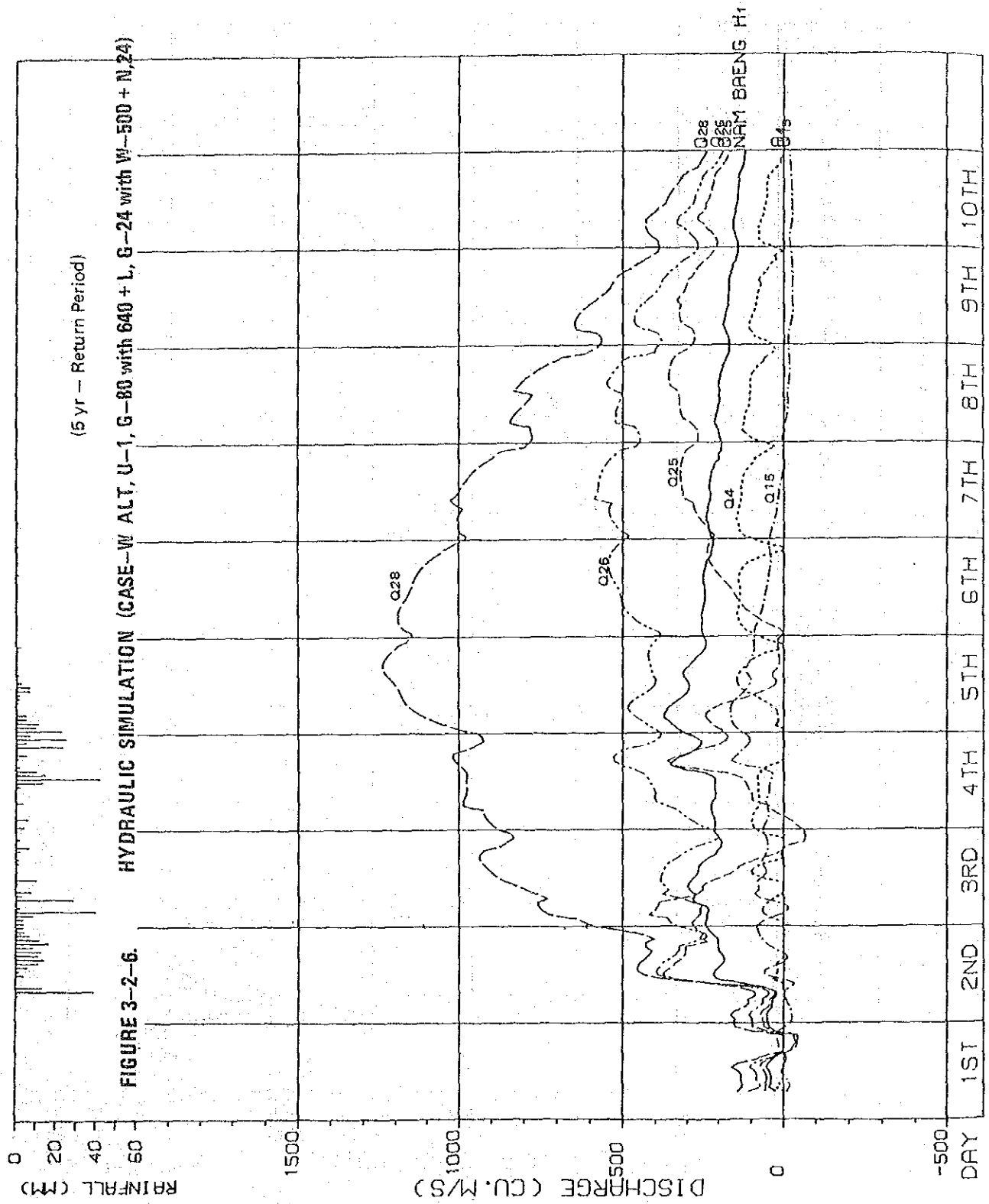


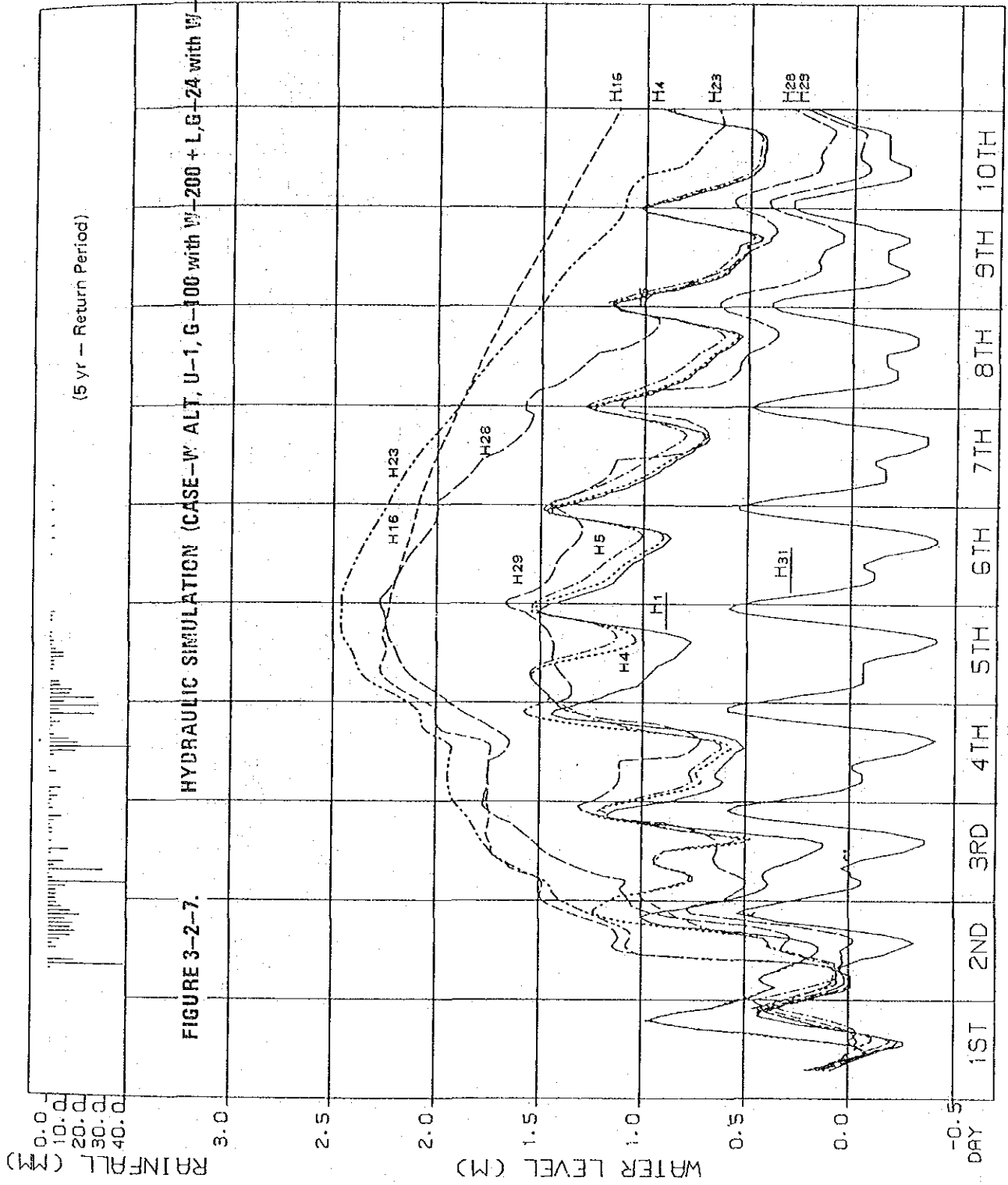


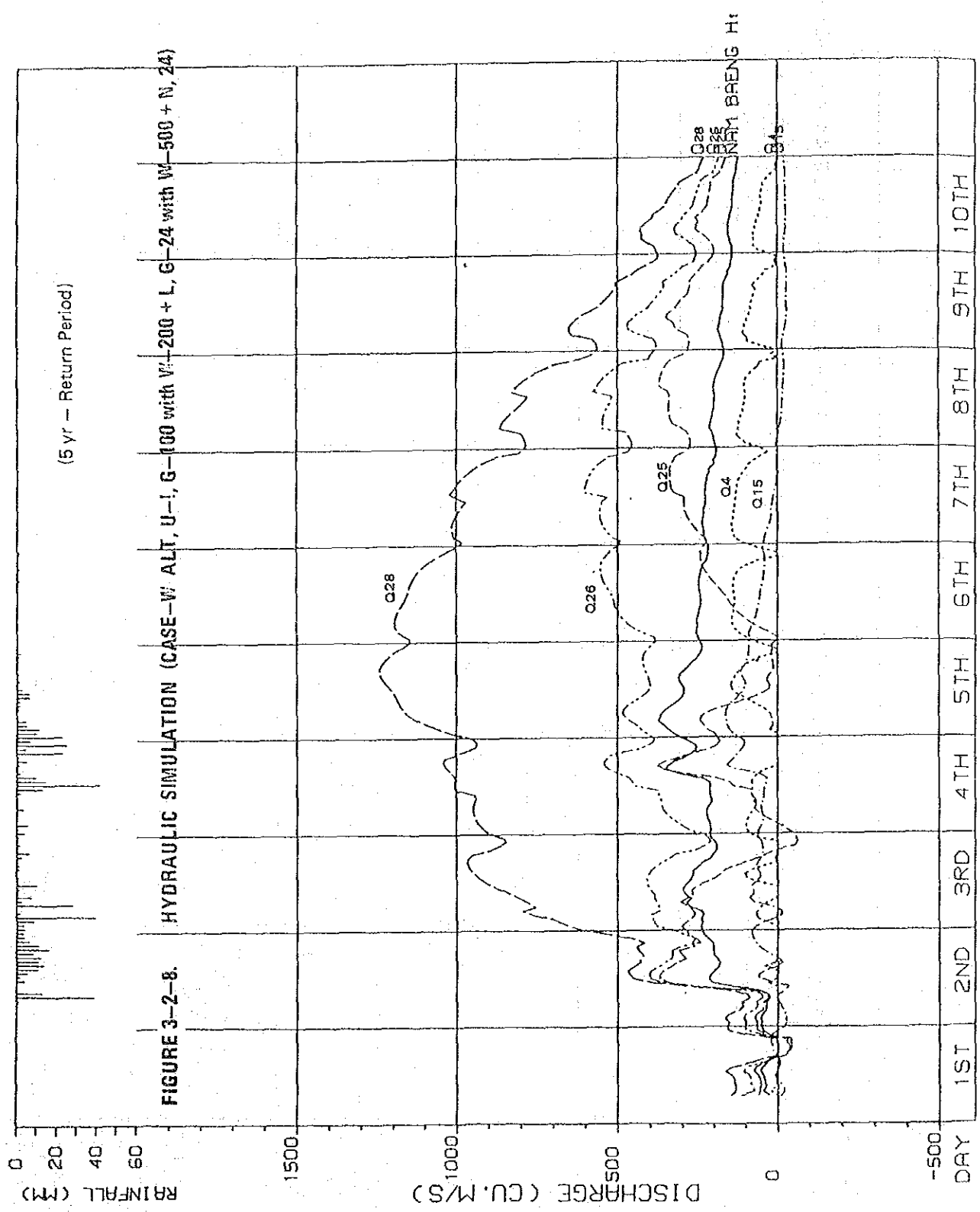




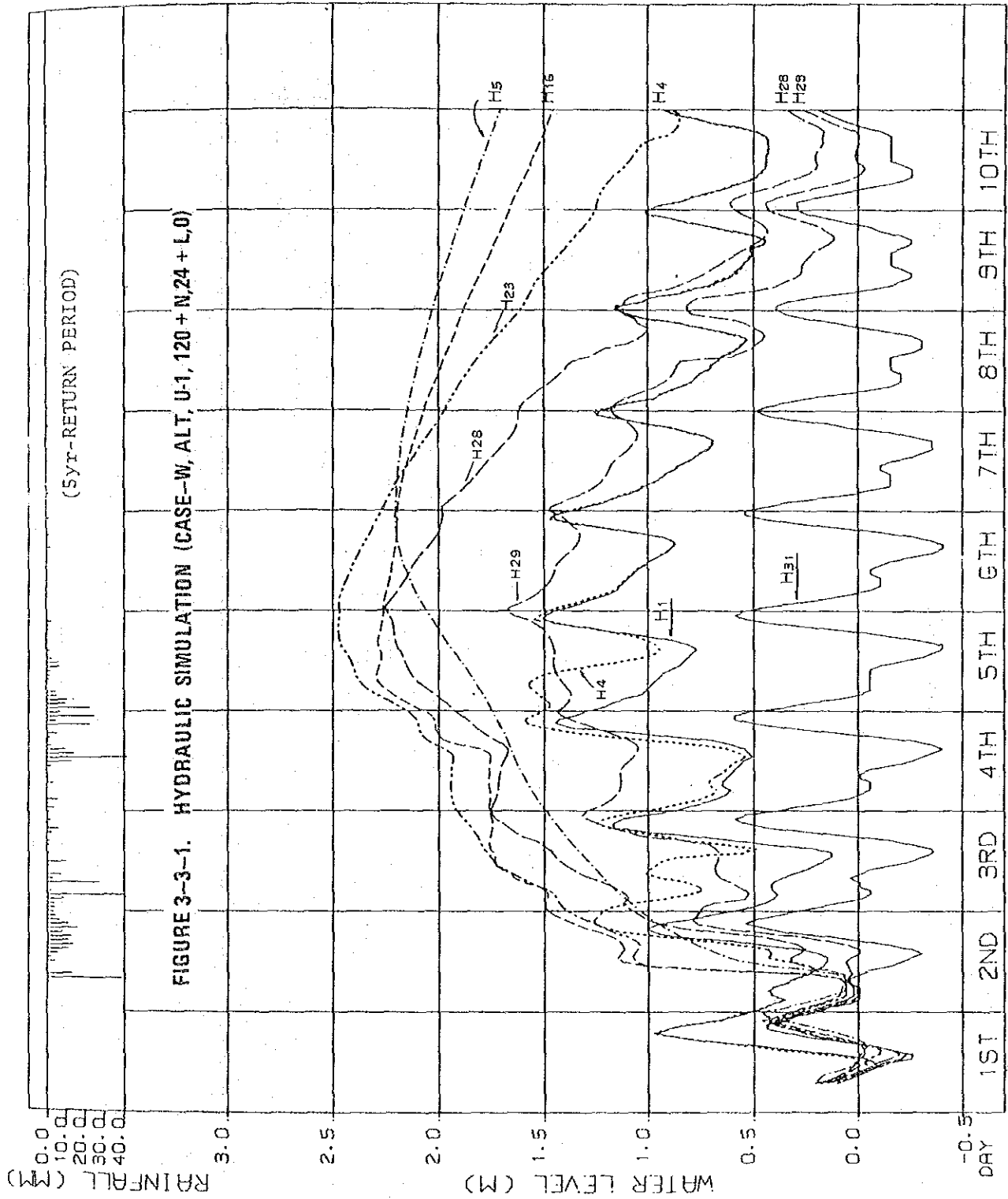


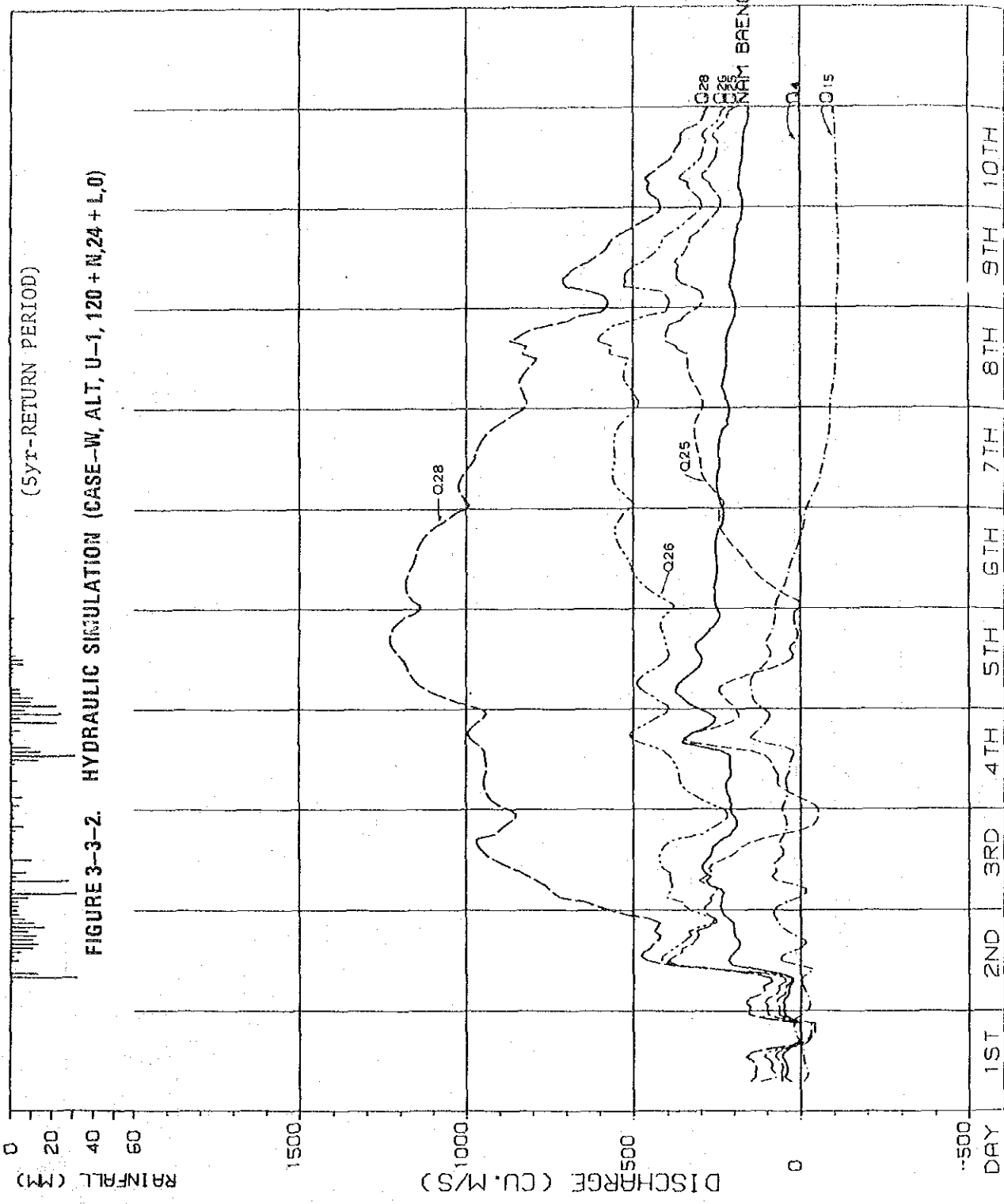




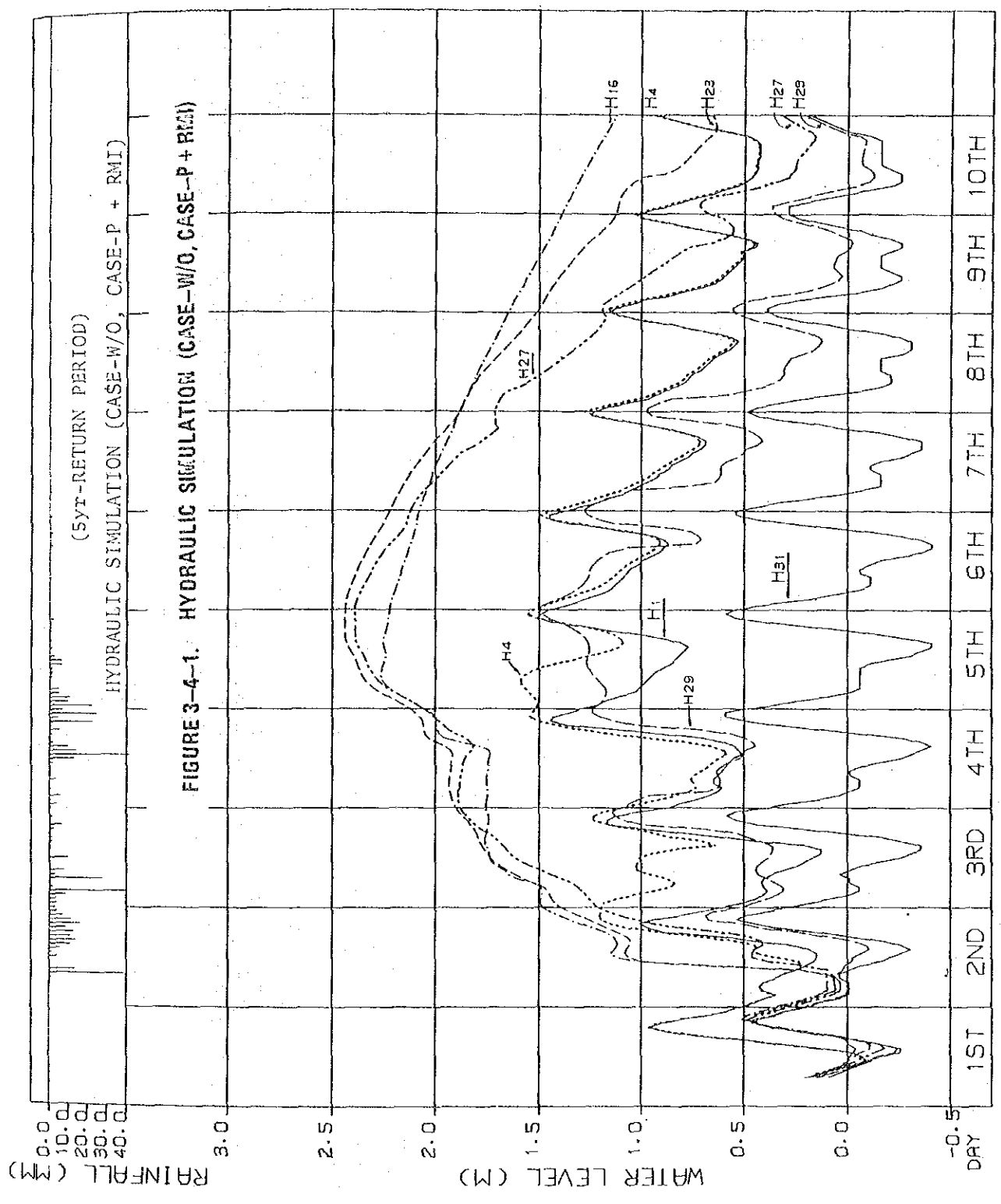


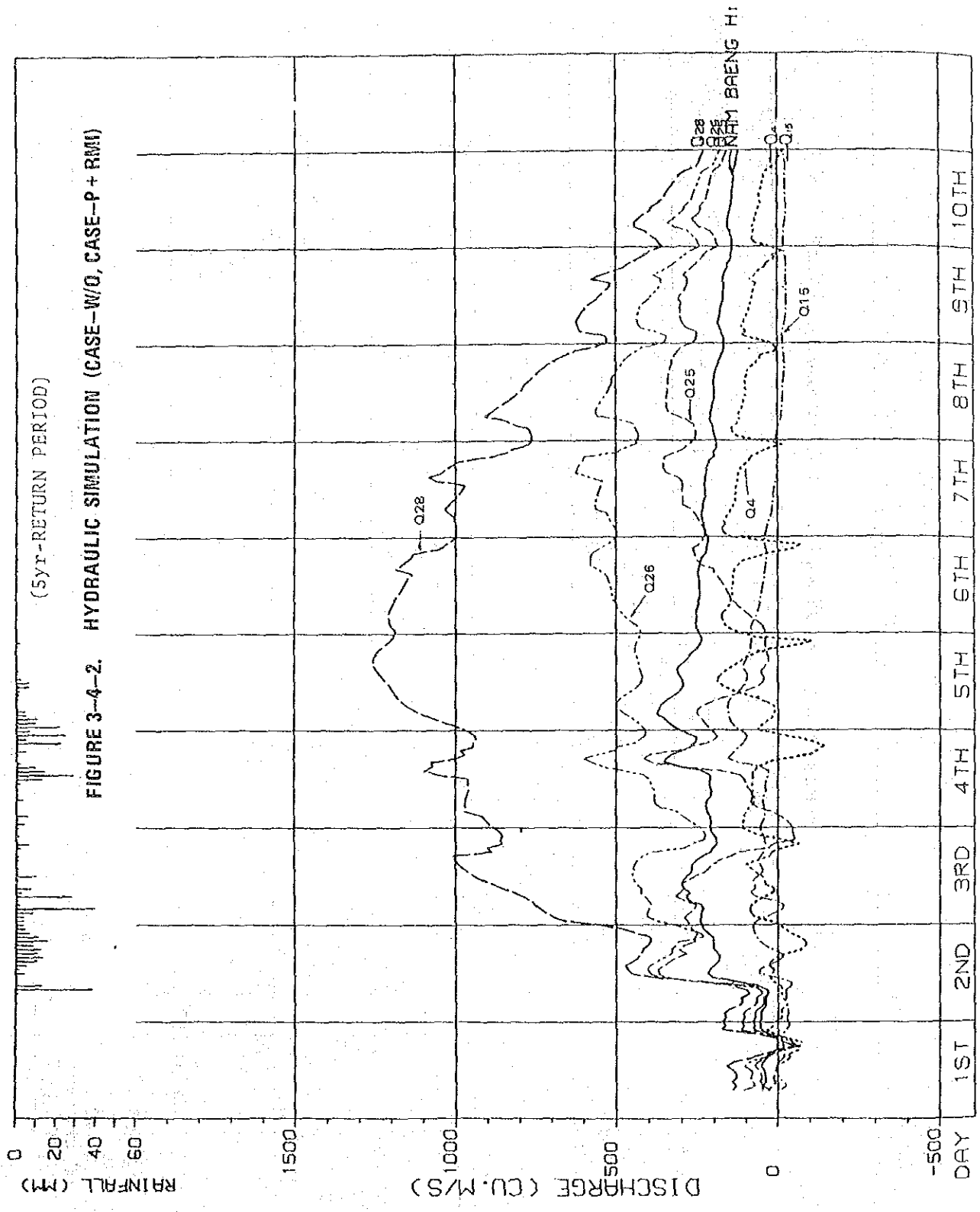
III-3. Flood Simulation for Exclusion of LTR
 (5yr-Return Period)





III-4. Flood Simulation for Special Cases
 (5yr-Return Period)





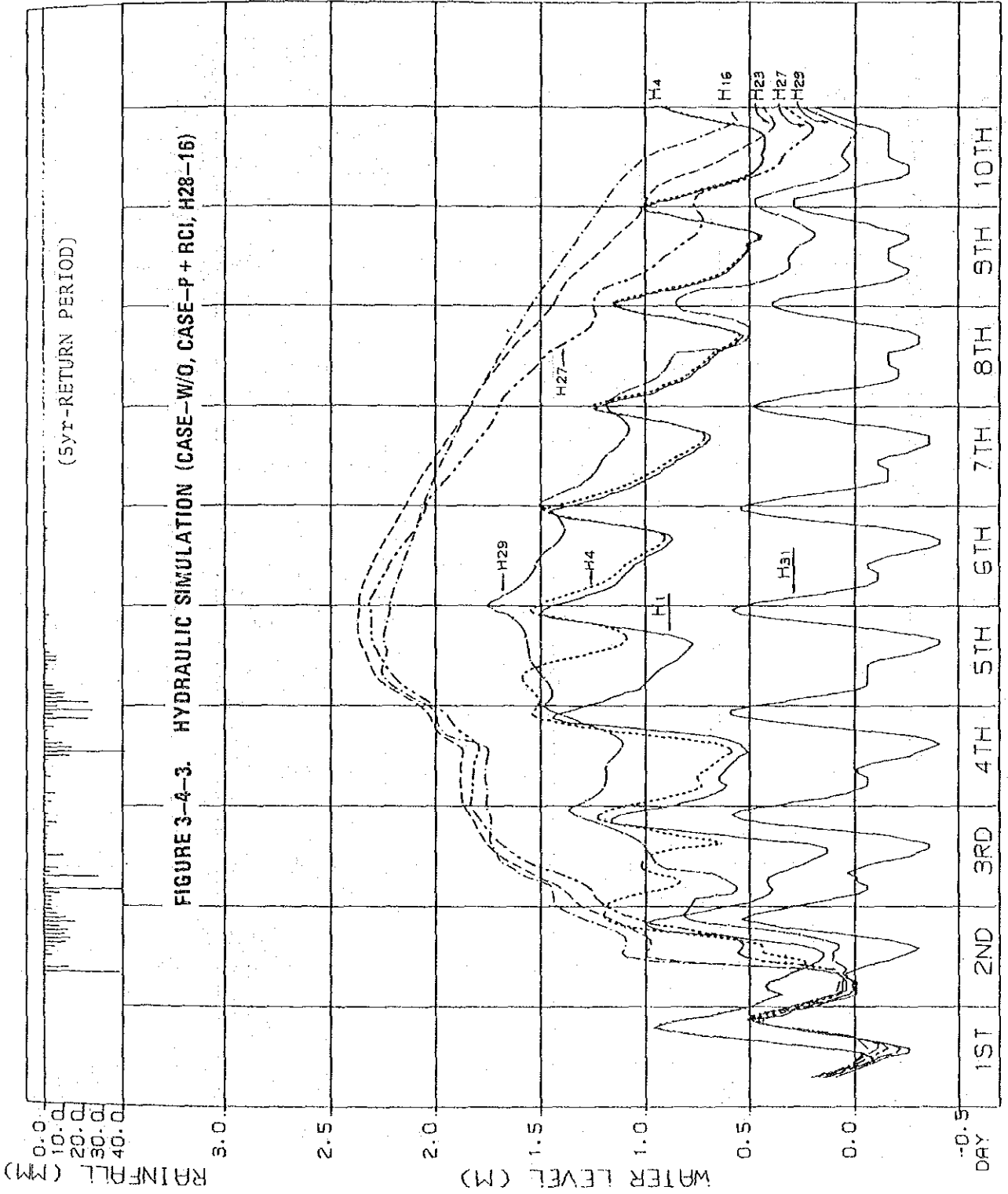


FIGURE 3-4-3. HYDRAULIC SIMULATION (CASE-W/O, CASE-P + RCI, H28-16)

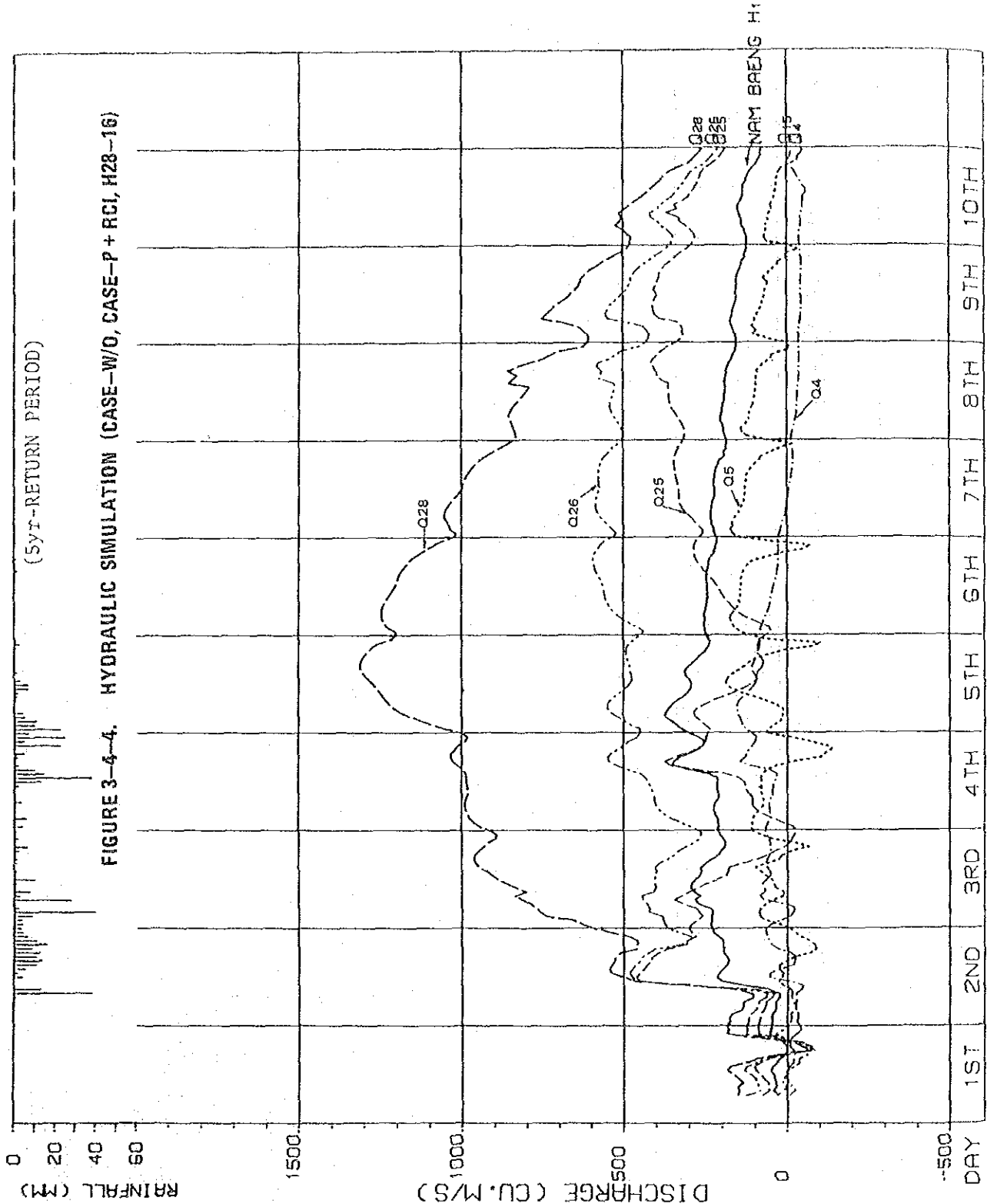


FIGURE 3-4-4. HYDRAULIC SIMULATION (CASE-W/O, CASE-P + RCI, H28-16)

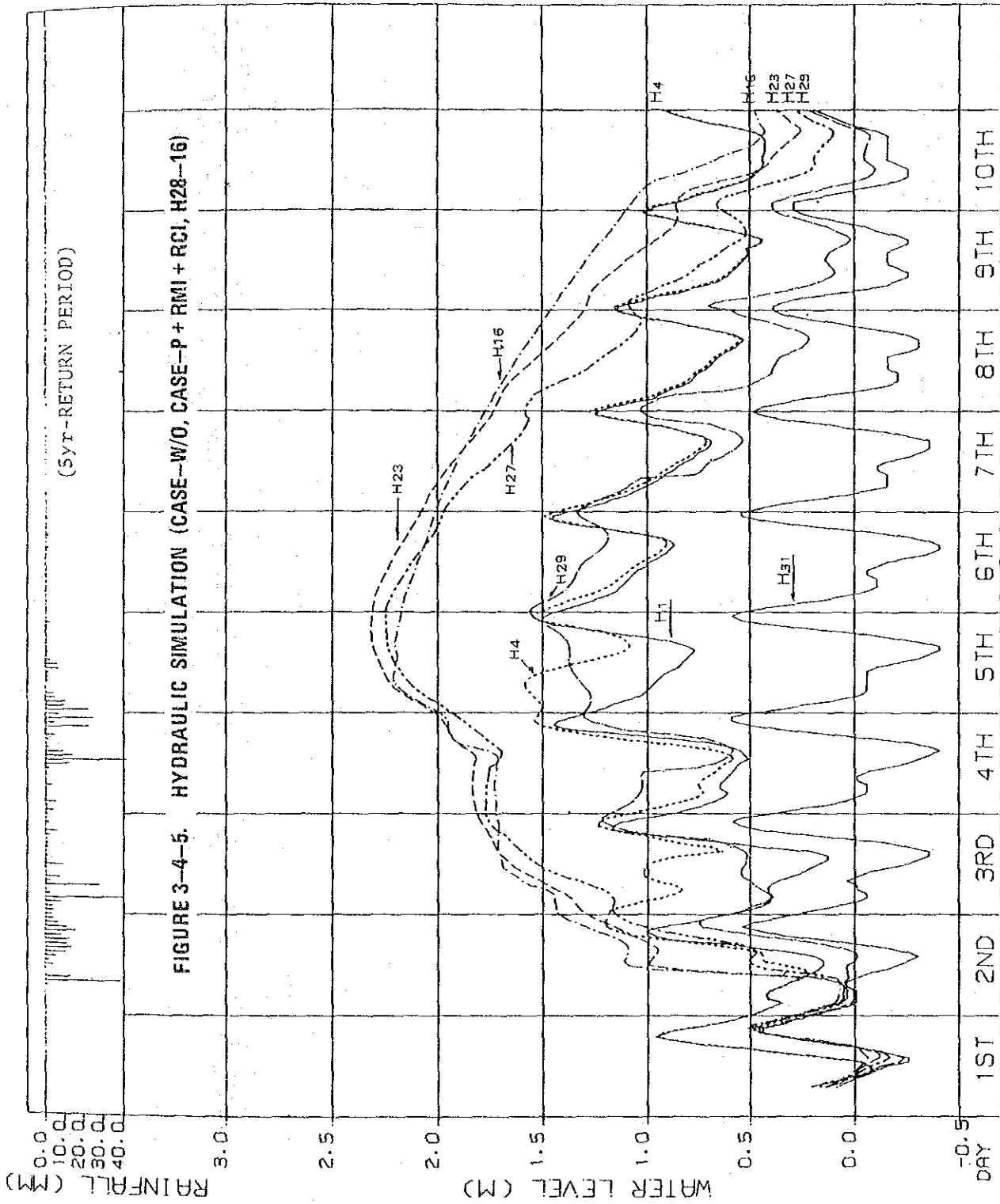
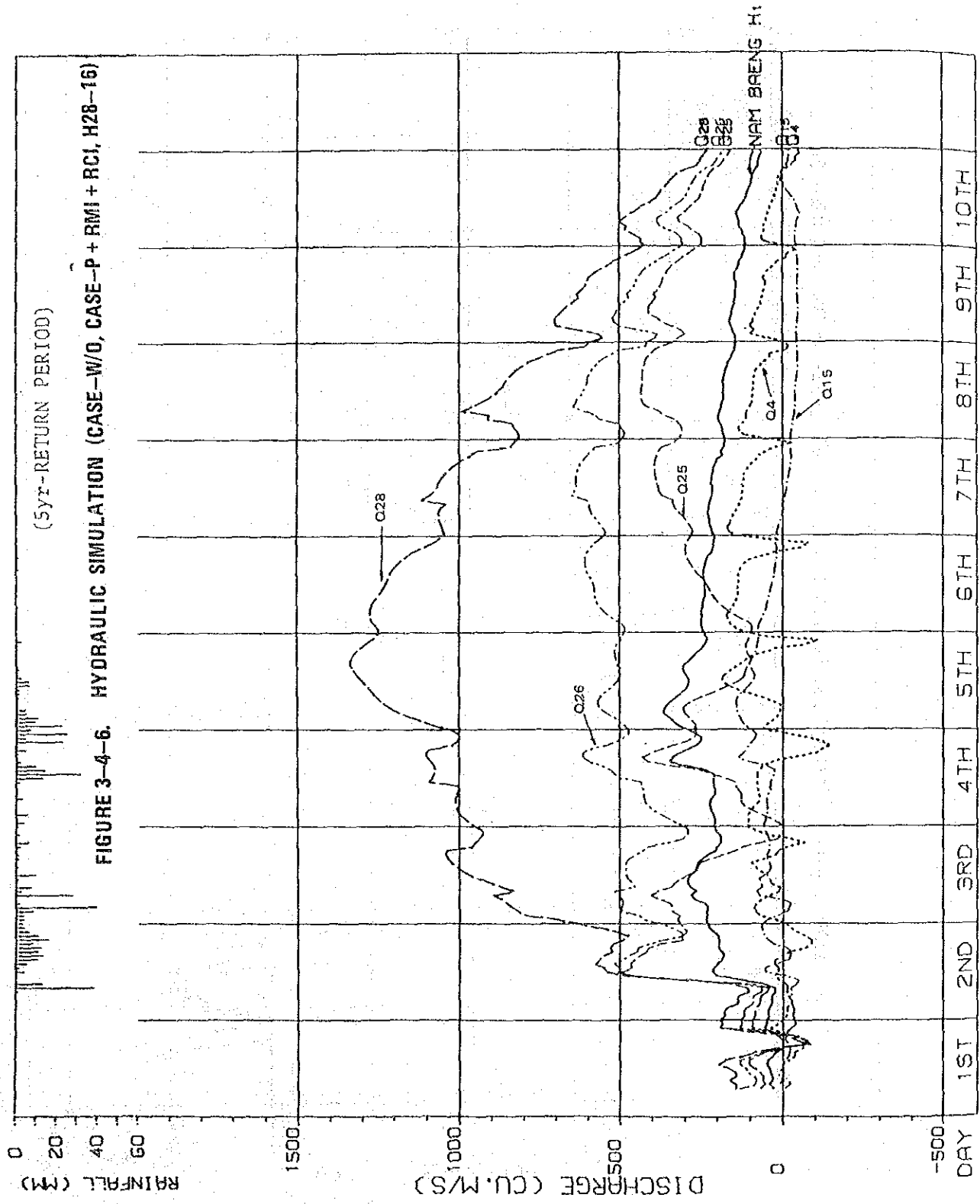


FIGURE 3-4-5. HYDRAULIC SIMULATION (CASE-W/O, CASE-P + RMI + RCI, H28-16)



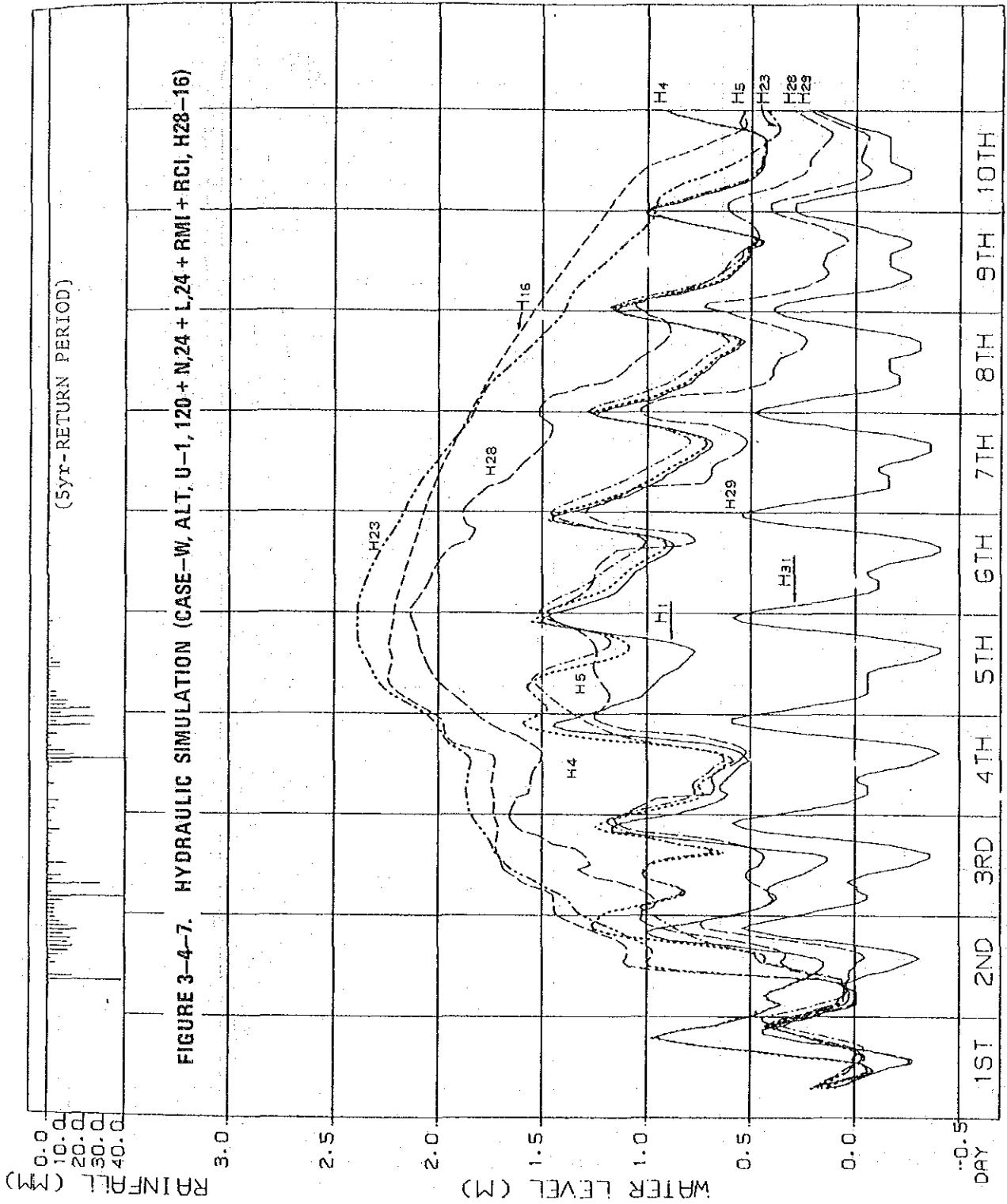
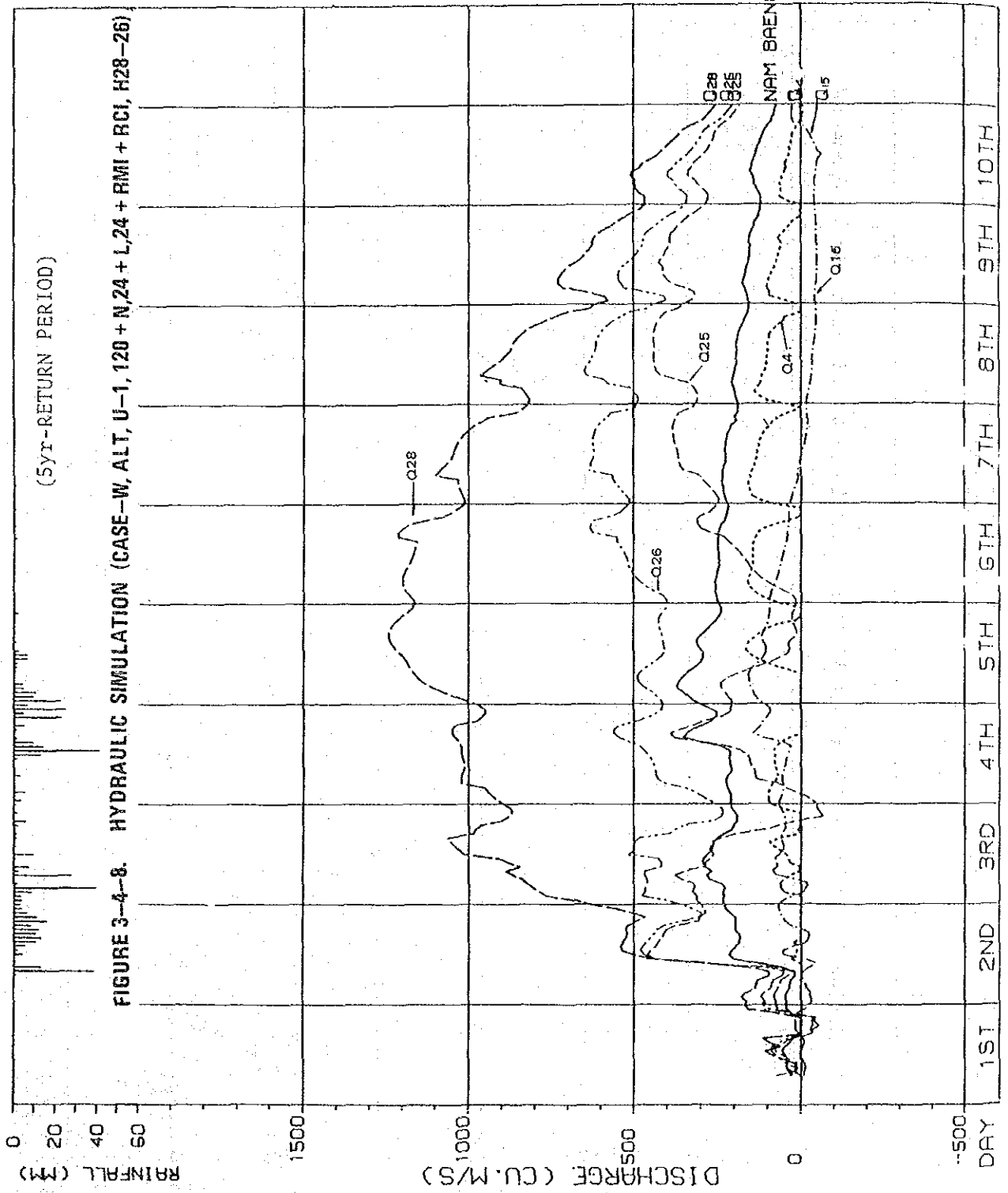
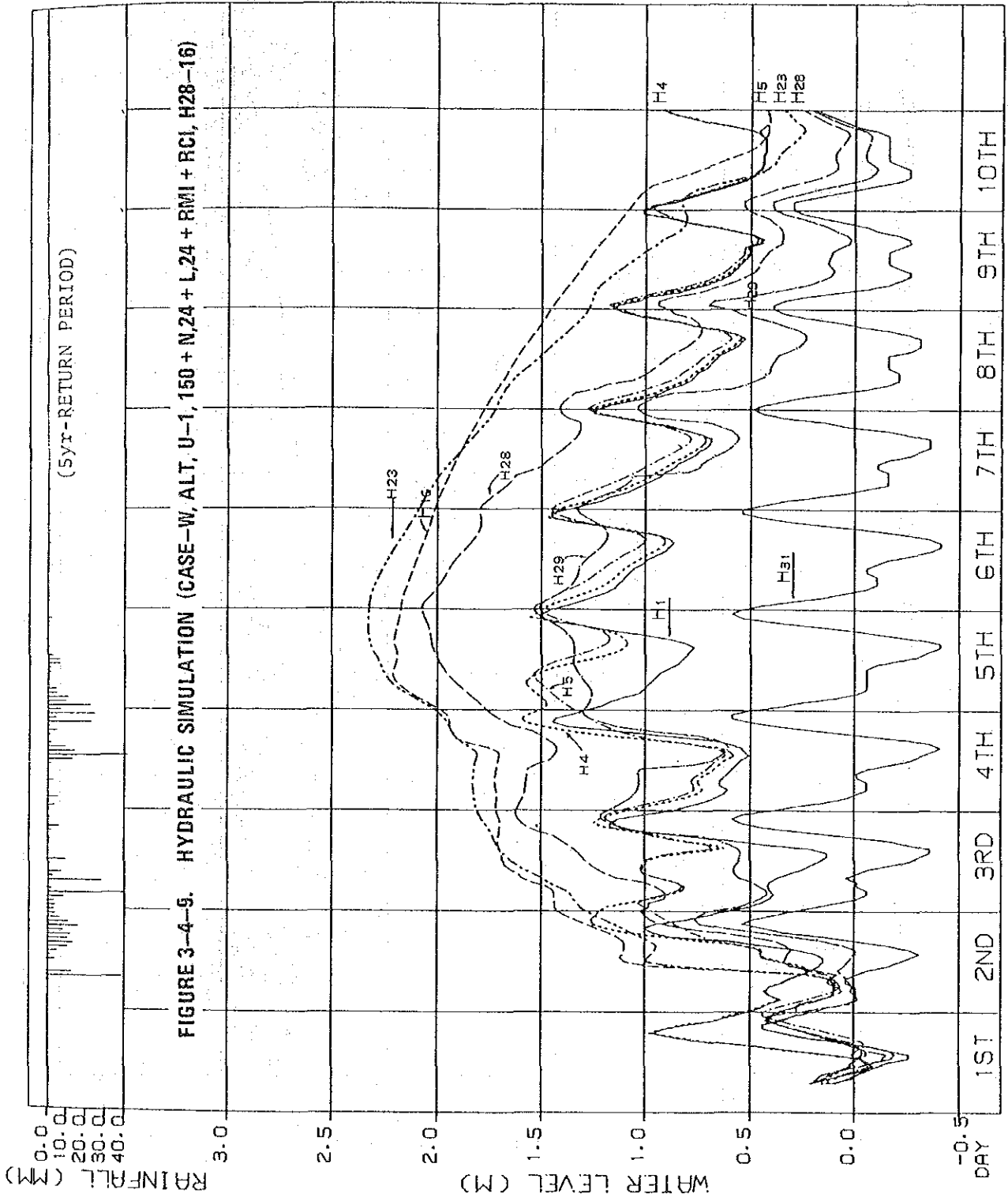


FIGURE 3-4-7. HYDRAULIC SIMULATION (CASE-W, ALT. U-1, 120 + N, 24 + L, 24 + RMI + RCI, H28-16)





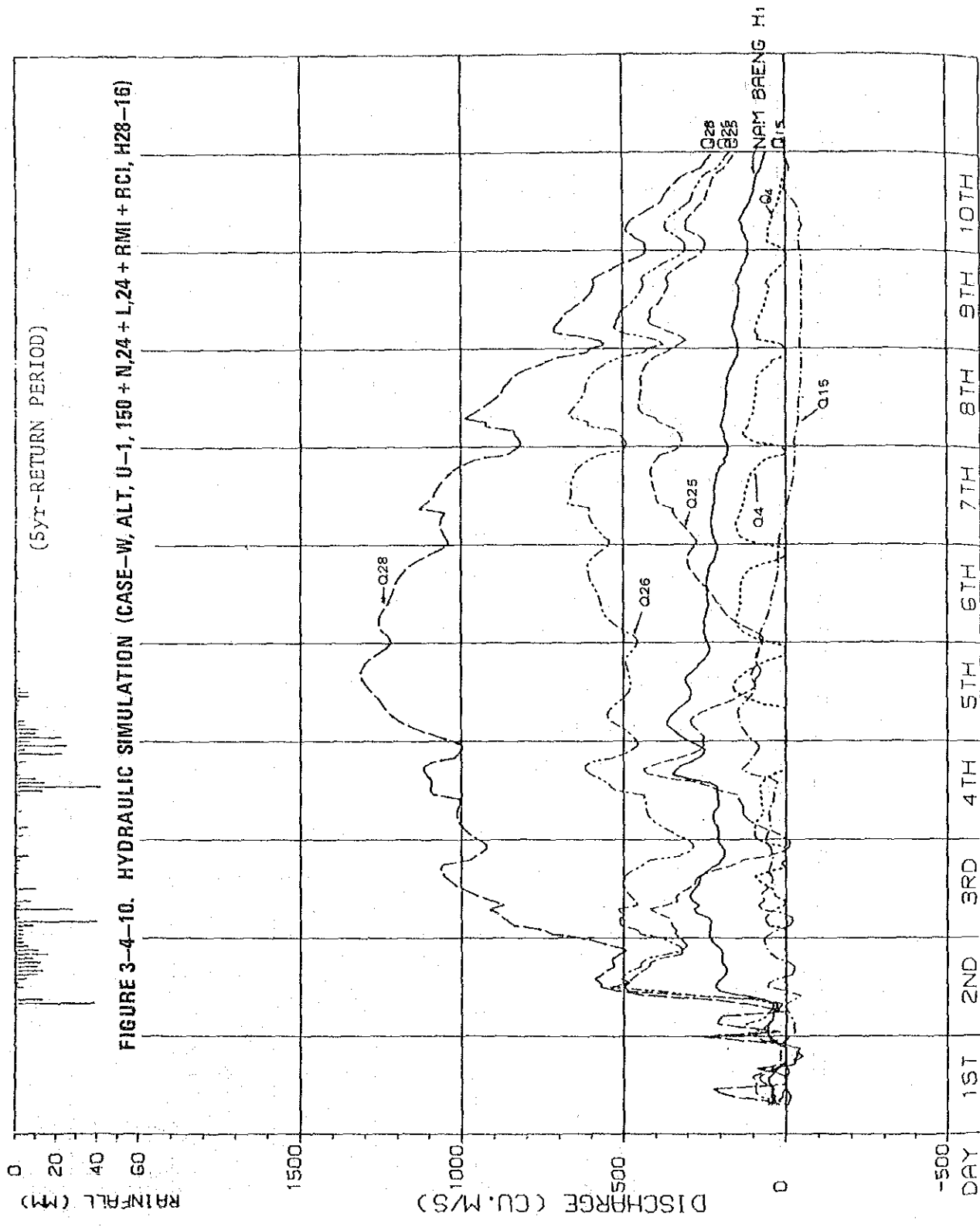


FIGURE 3-4-10. HYDRAULIC SIMULATION (CASE-W, ALT, U-1, 150 + N, 24 + L, 24 + RMI + RCI, H28-16)

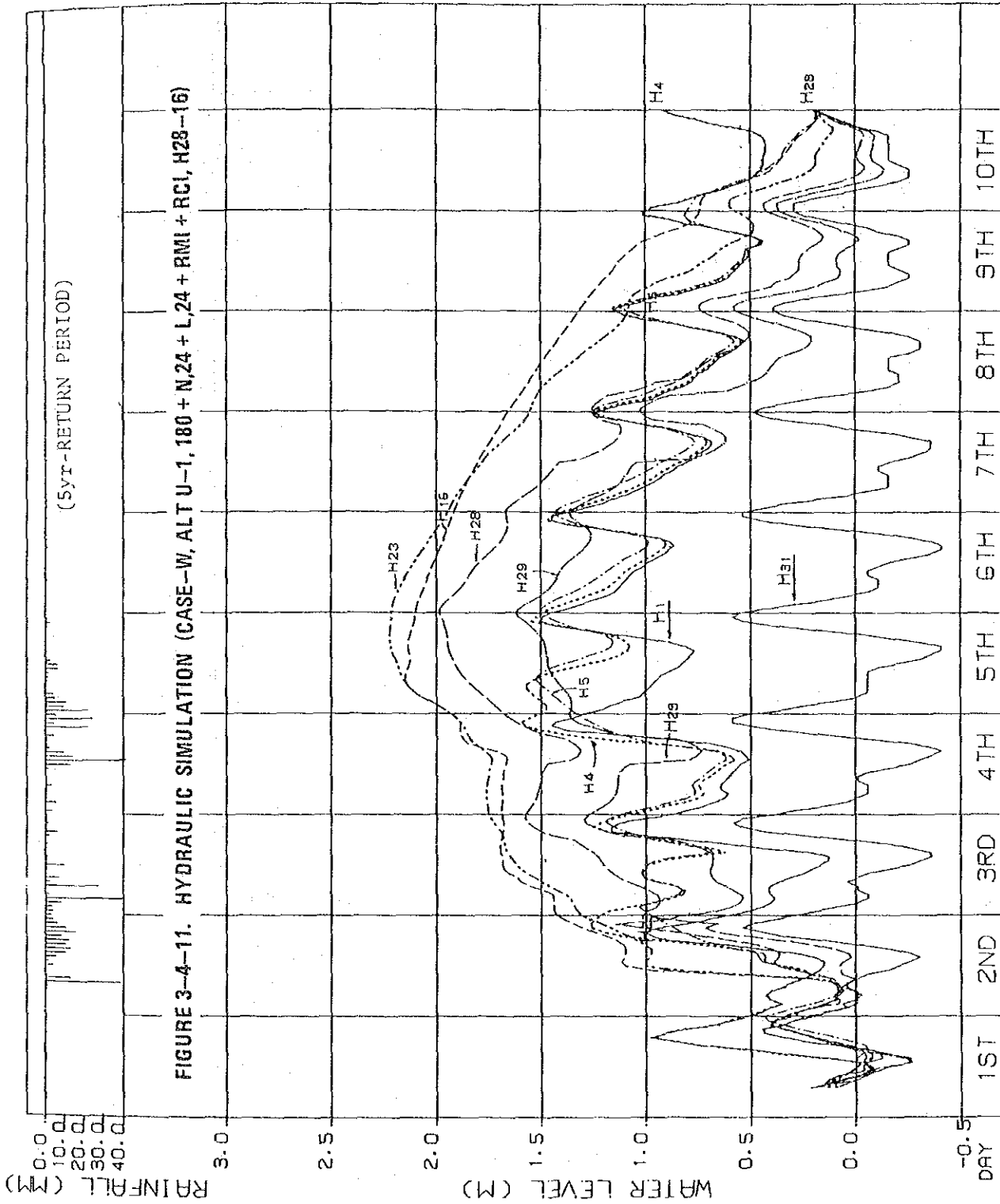


FIGURE 3-4-11. HYDRAULIC SIMULATION (CASE-W, ALT U-1, 180 + N, 24 + L, 24 + RMI + RCI, H28-16)

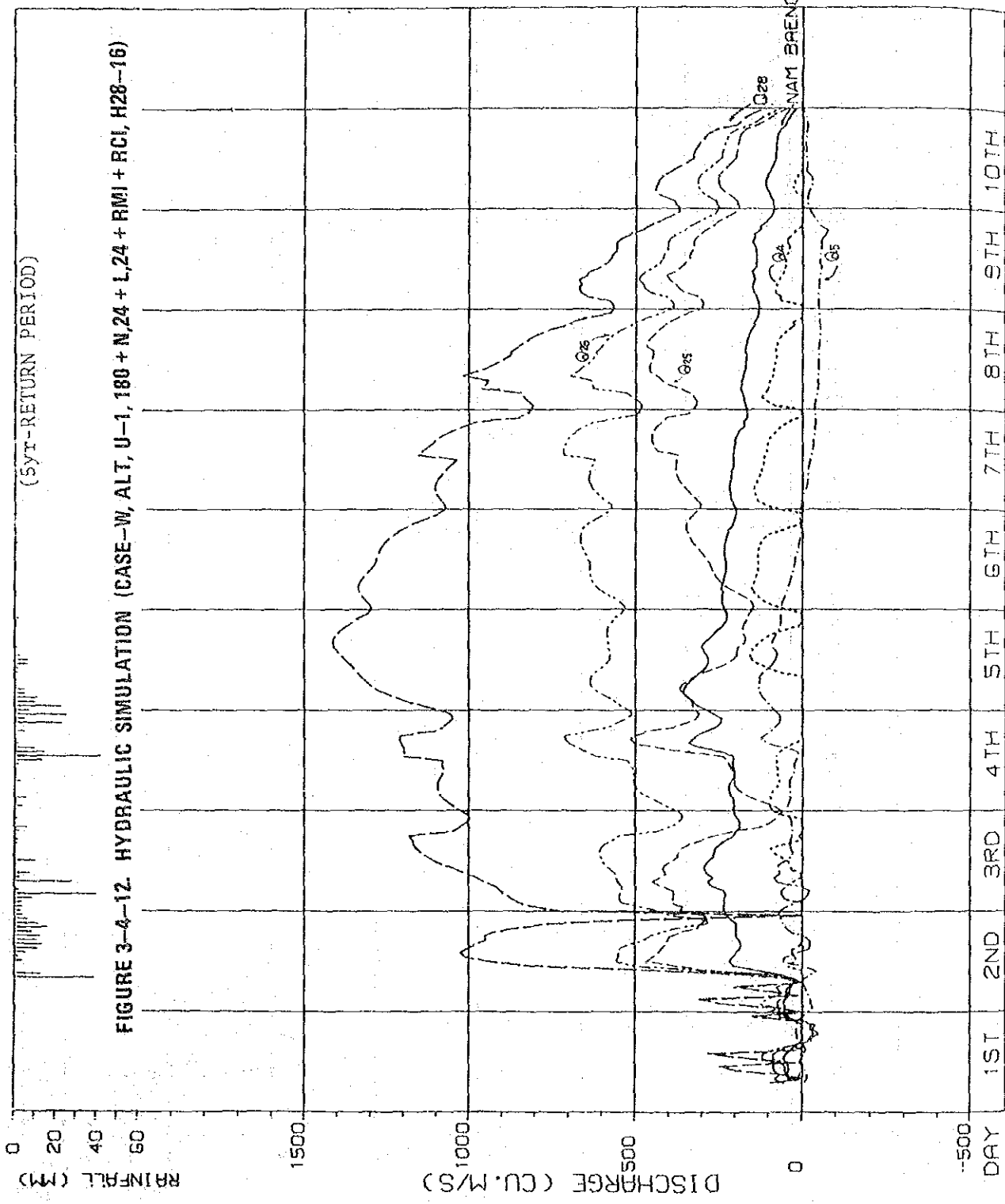
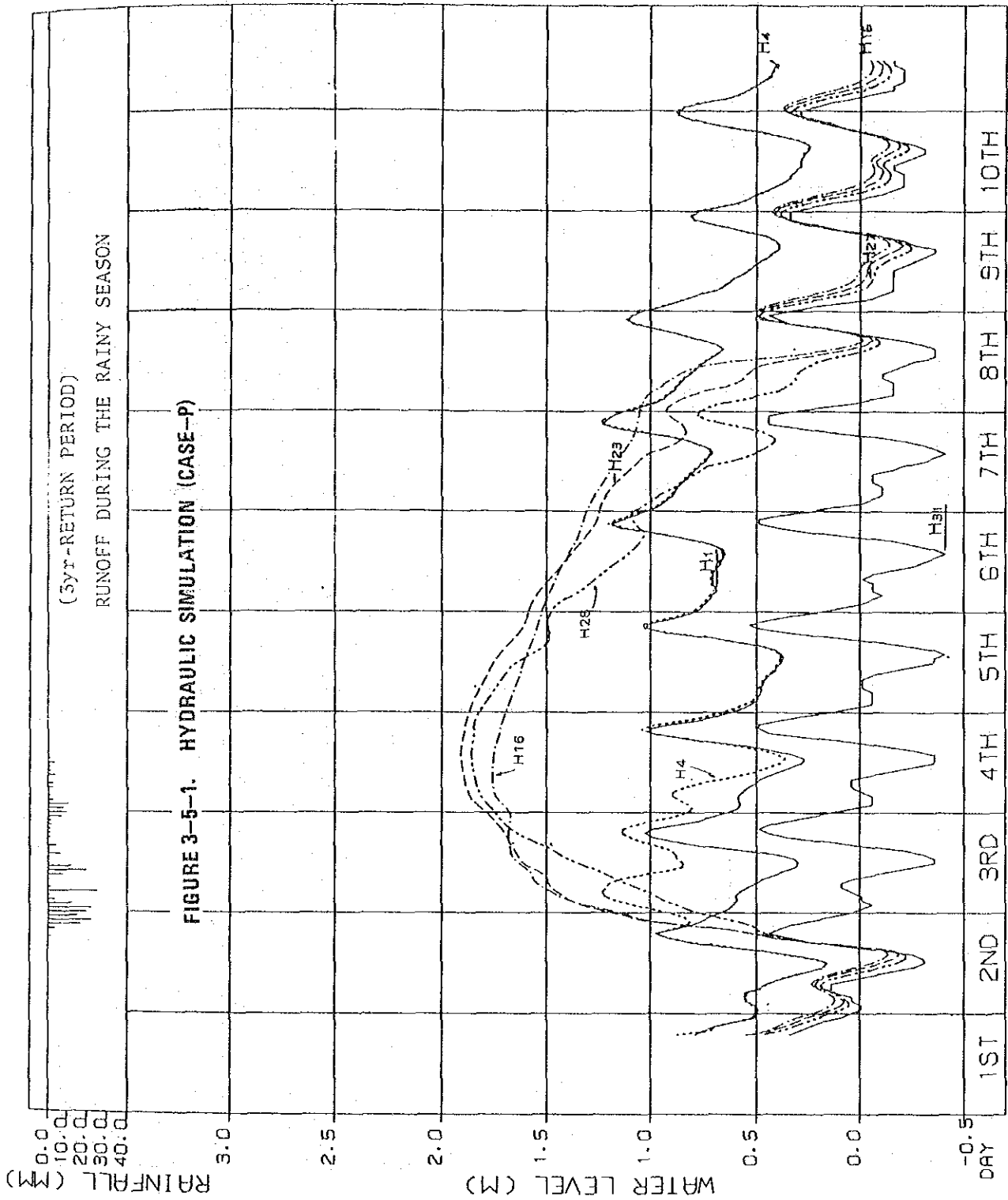
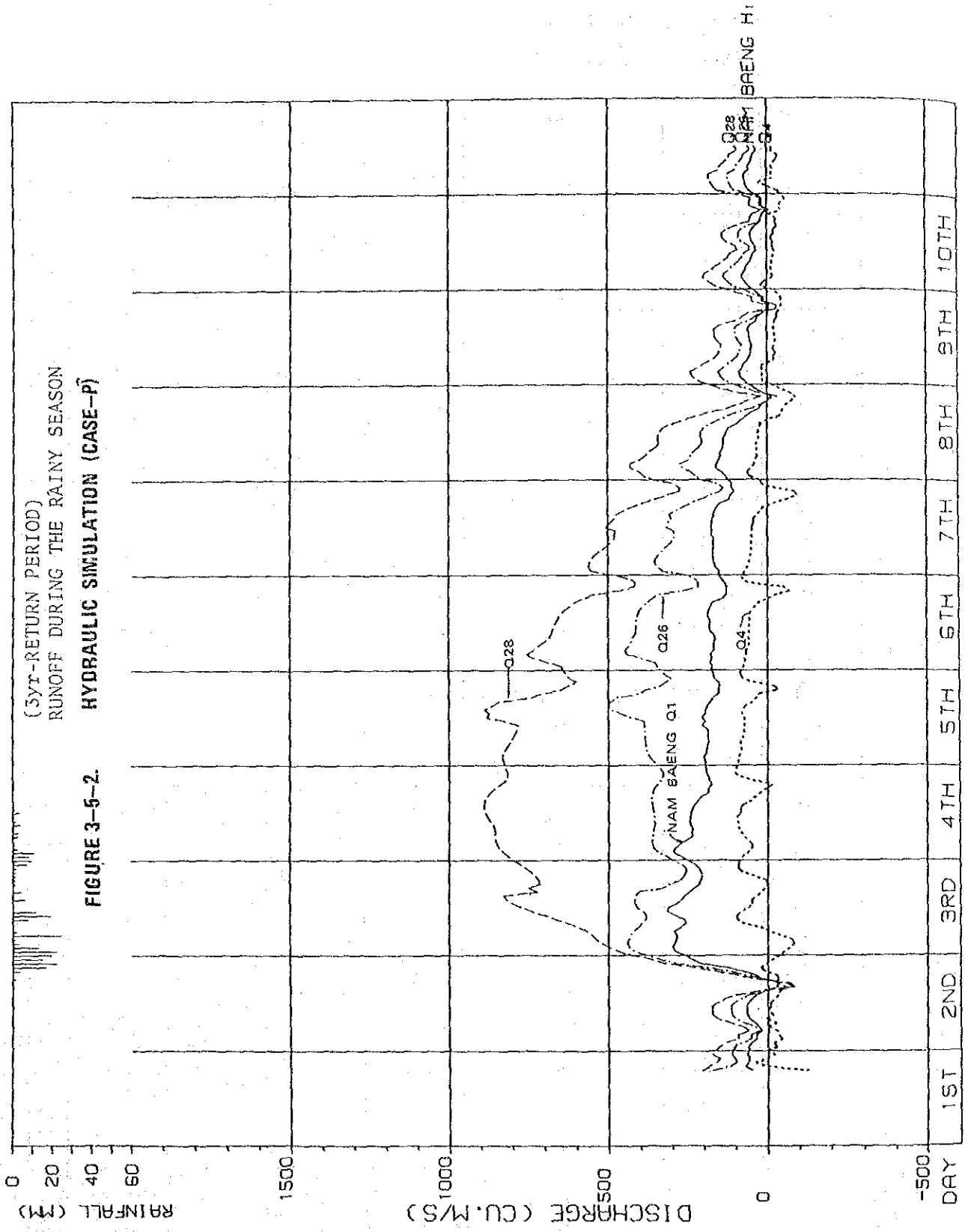
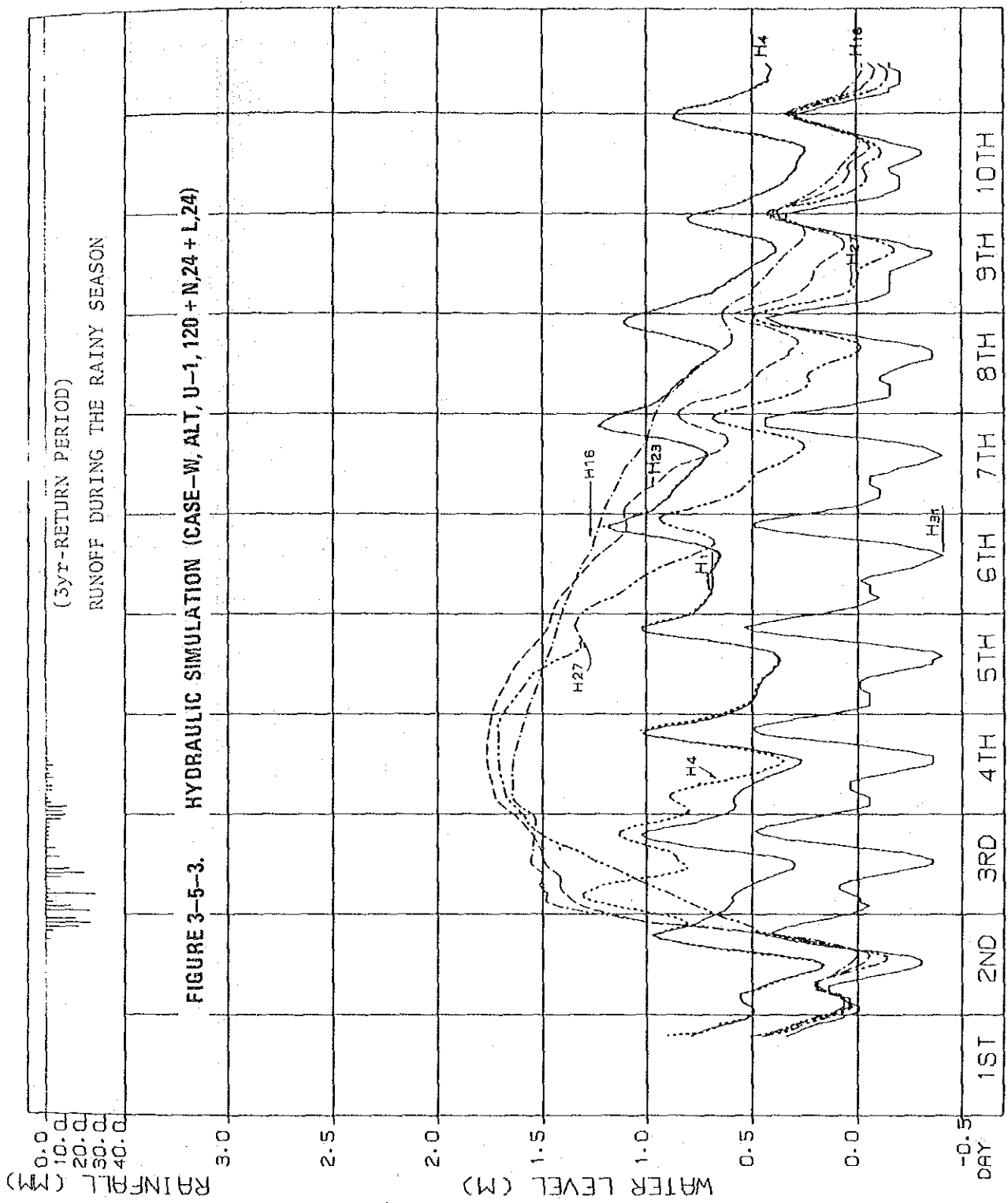


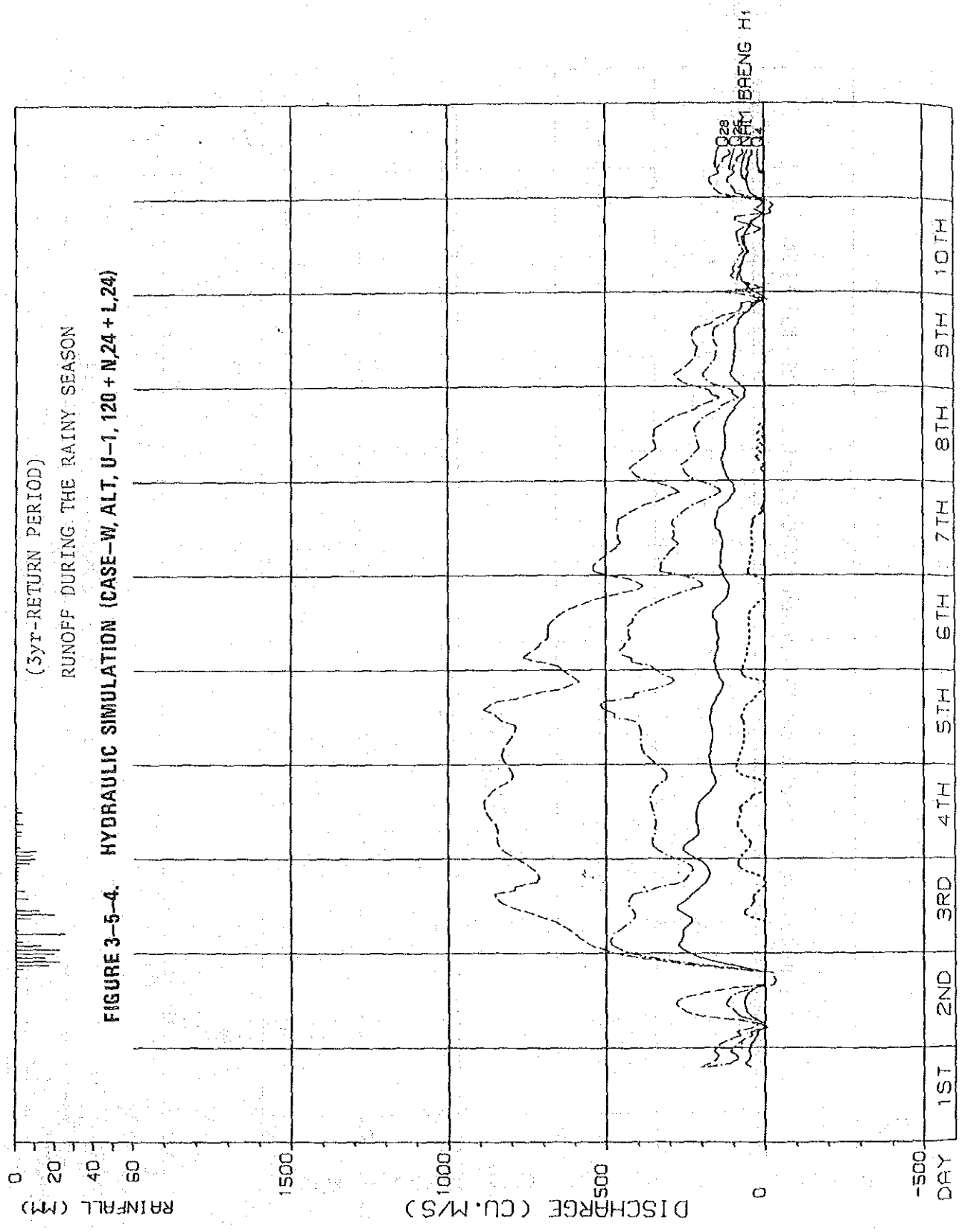
FIGURE 3-4-12. HYDRAULIC SIMULATION (CASE-W, ALT, U-1, 180 + N 24 + L 24 + RM1 + RCI, H20-16)

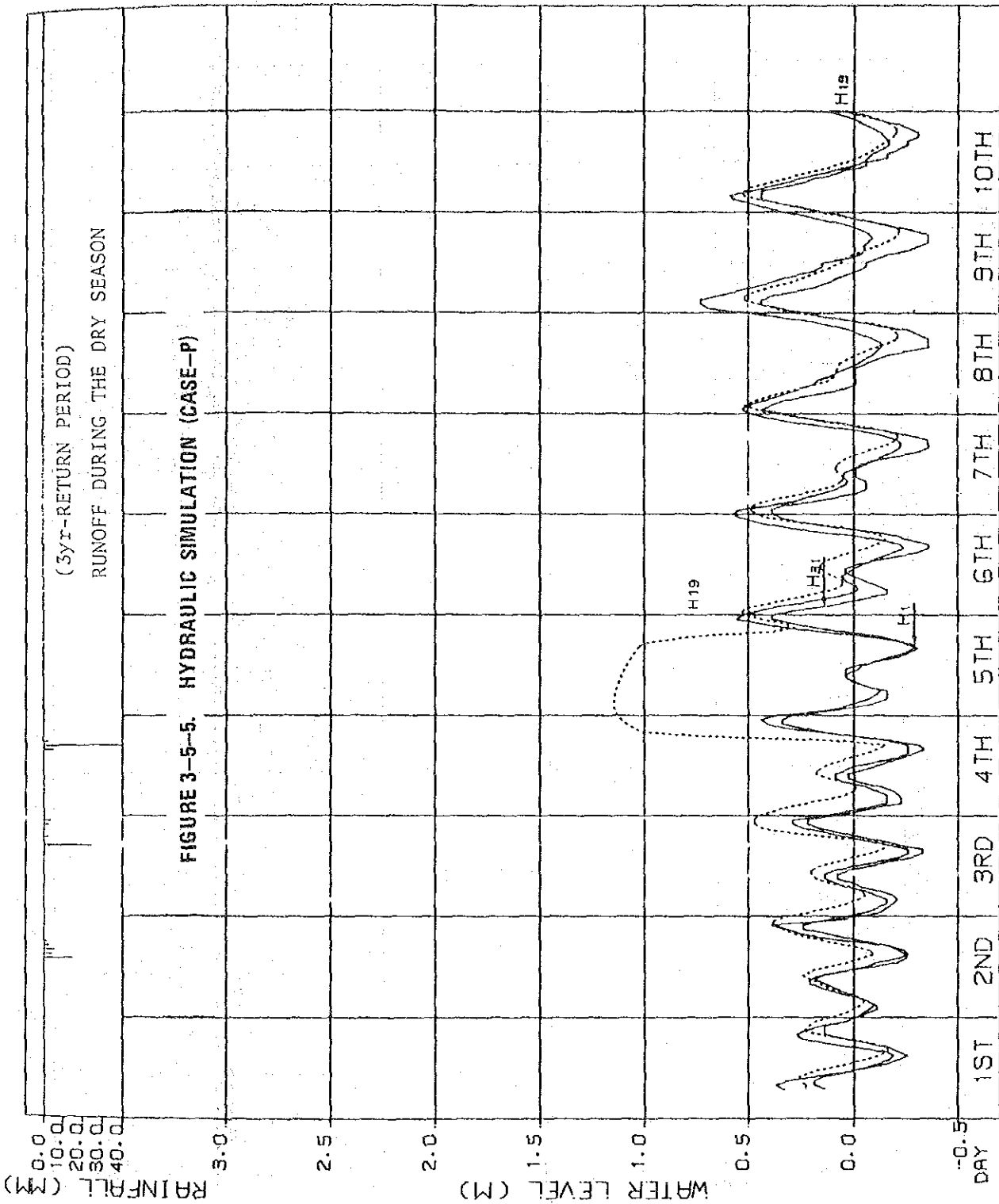
III-5. Small Scale Flood Simulation for General Cases
 (3yr-Return Period)

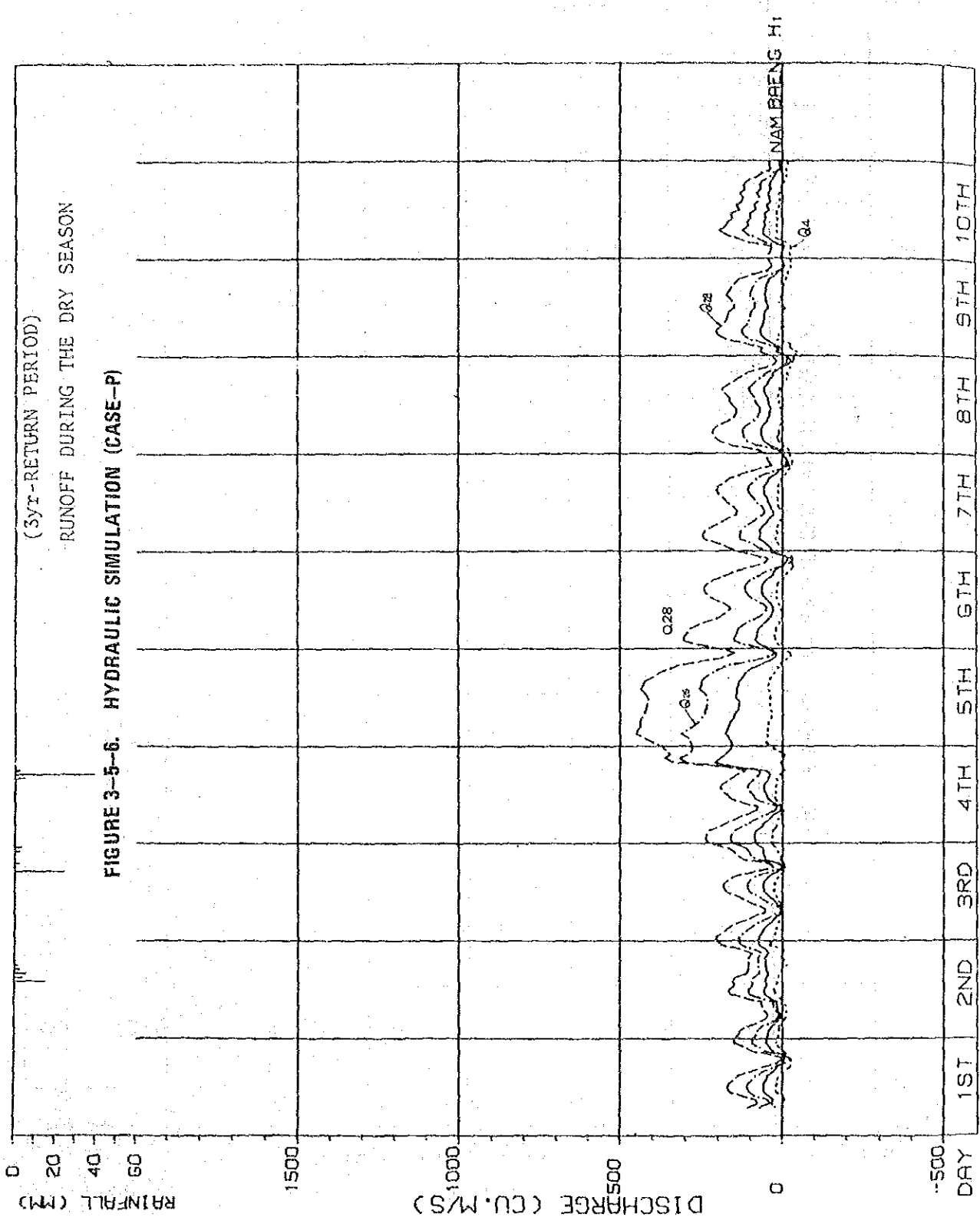


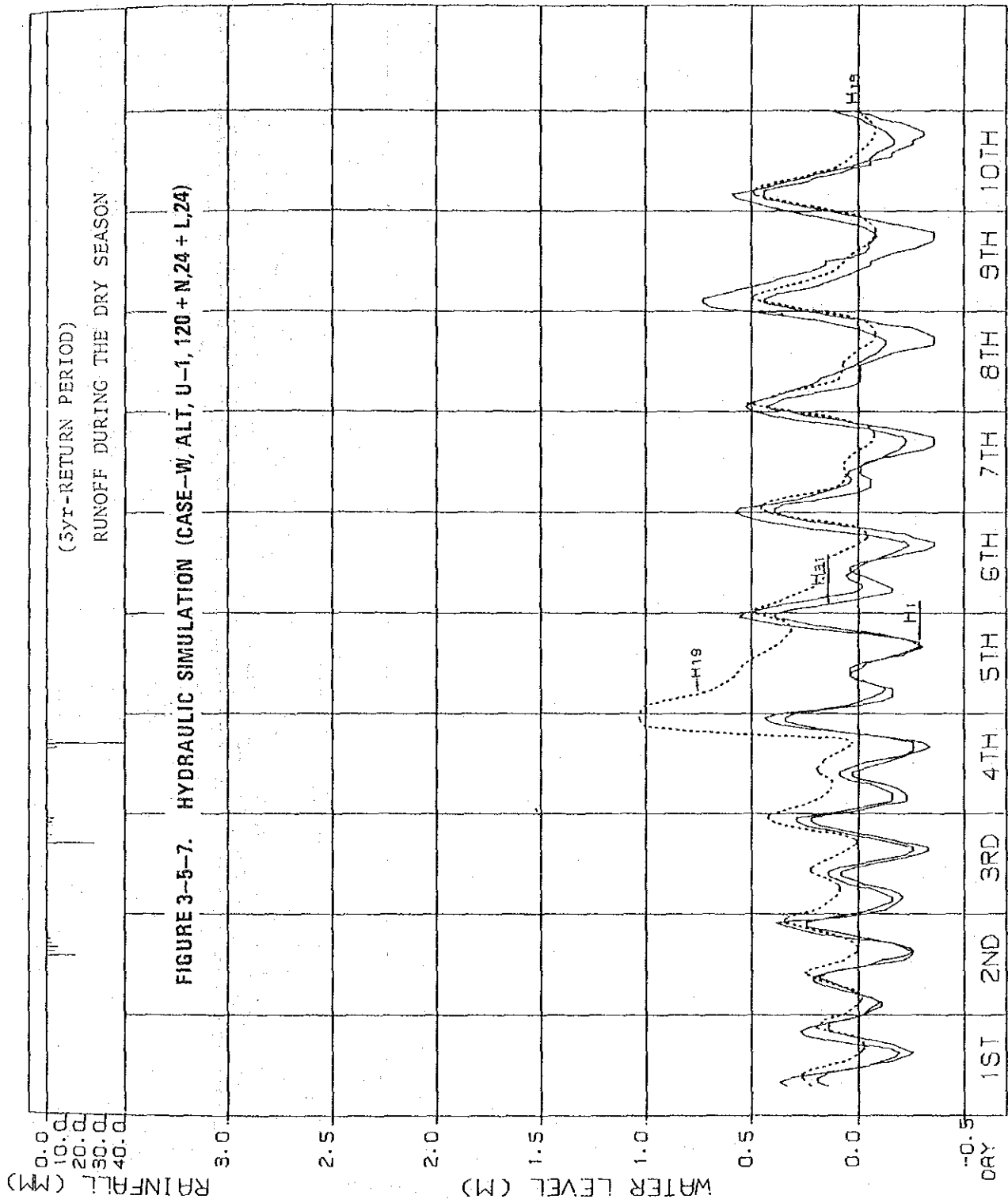


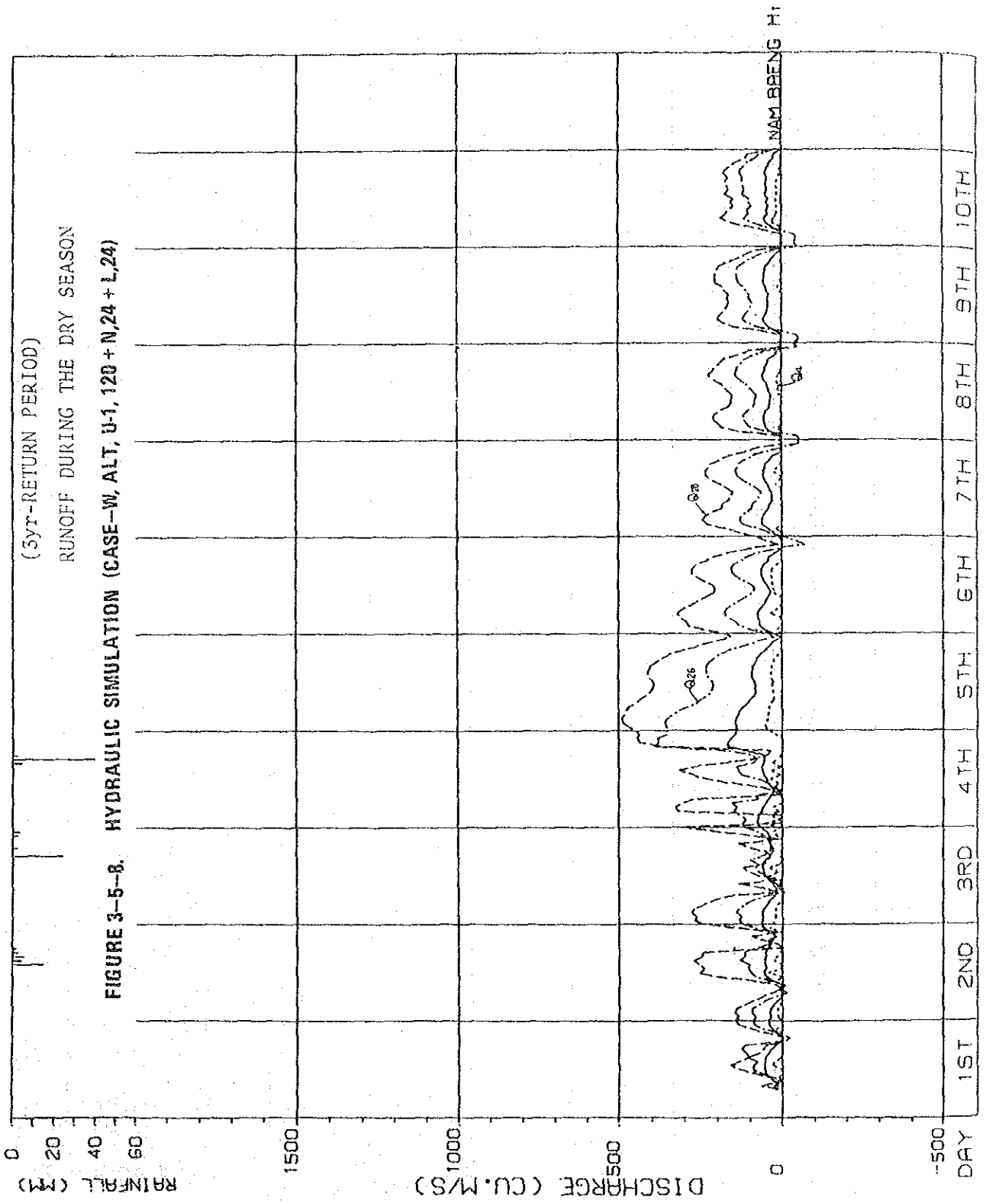




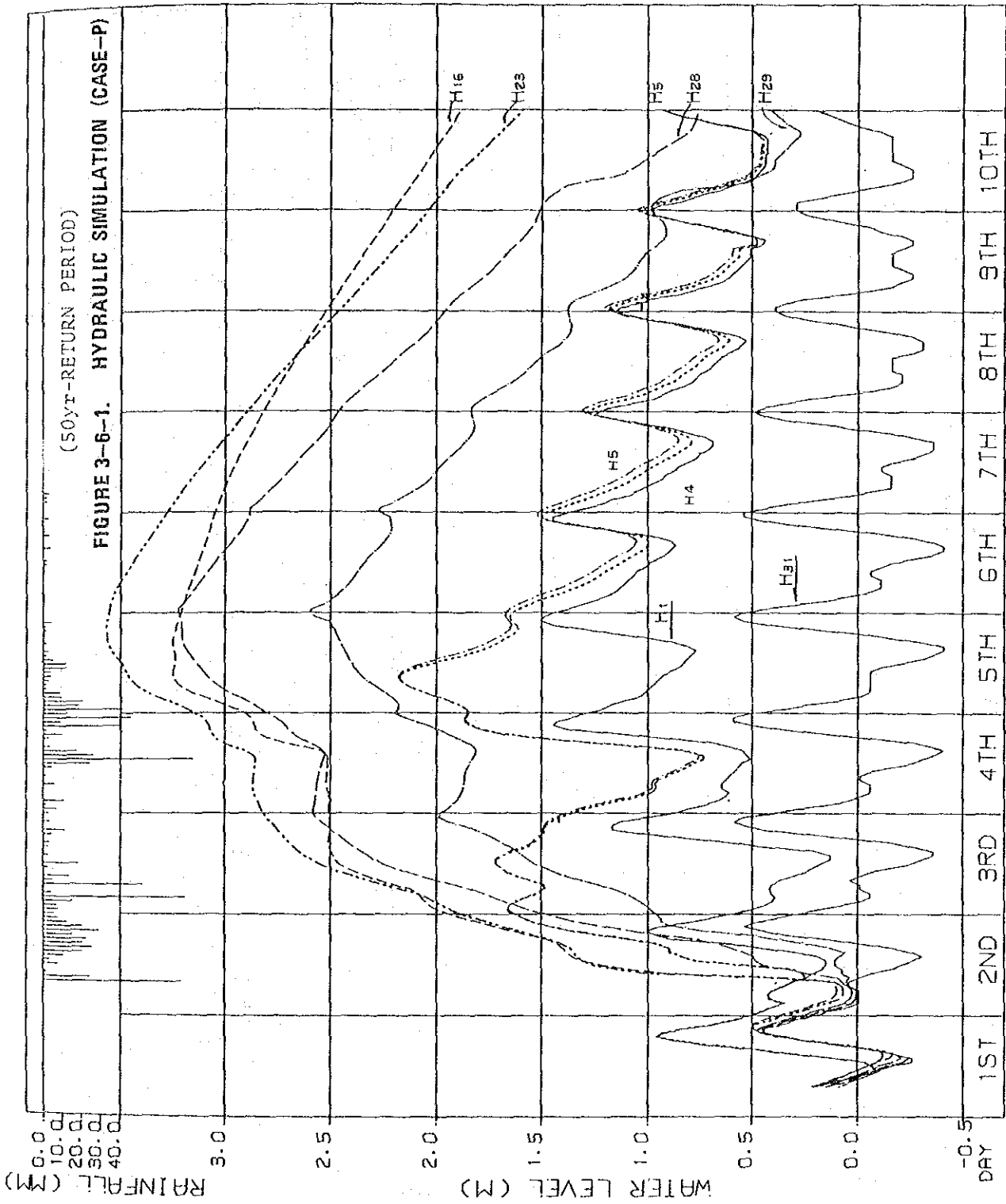


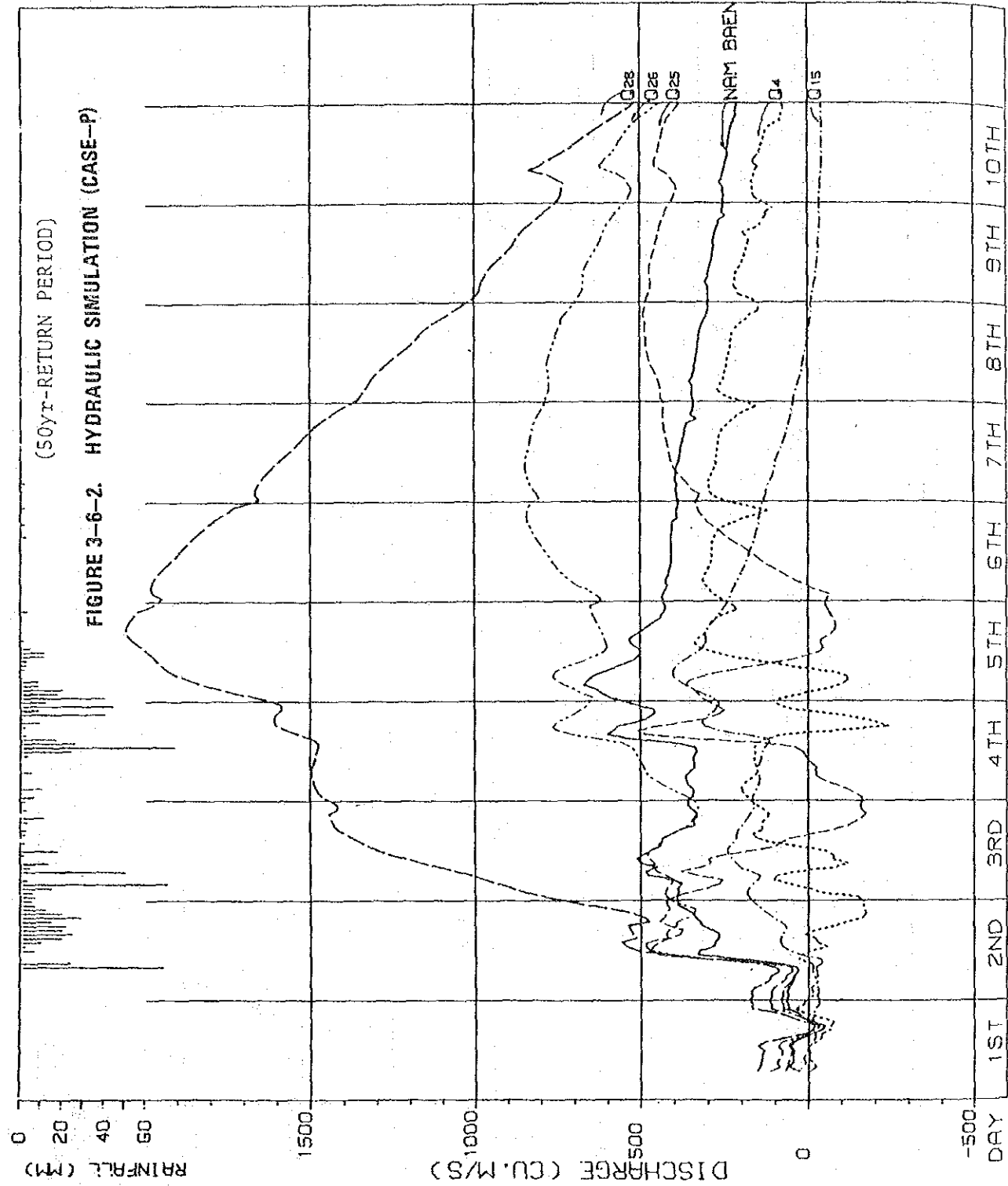


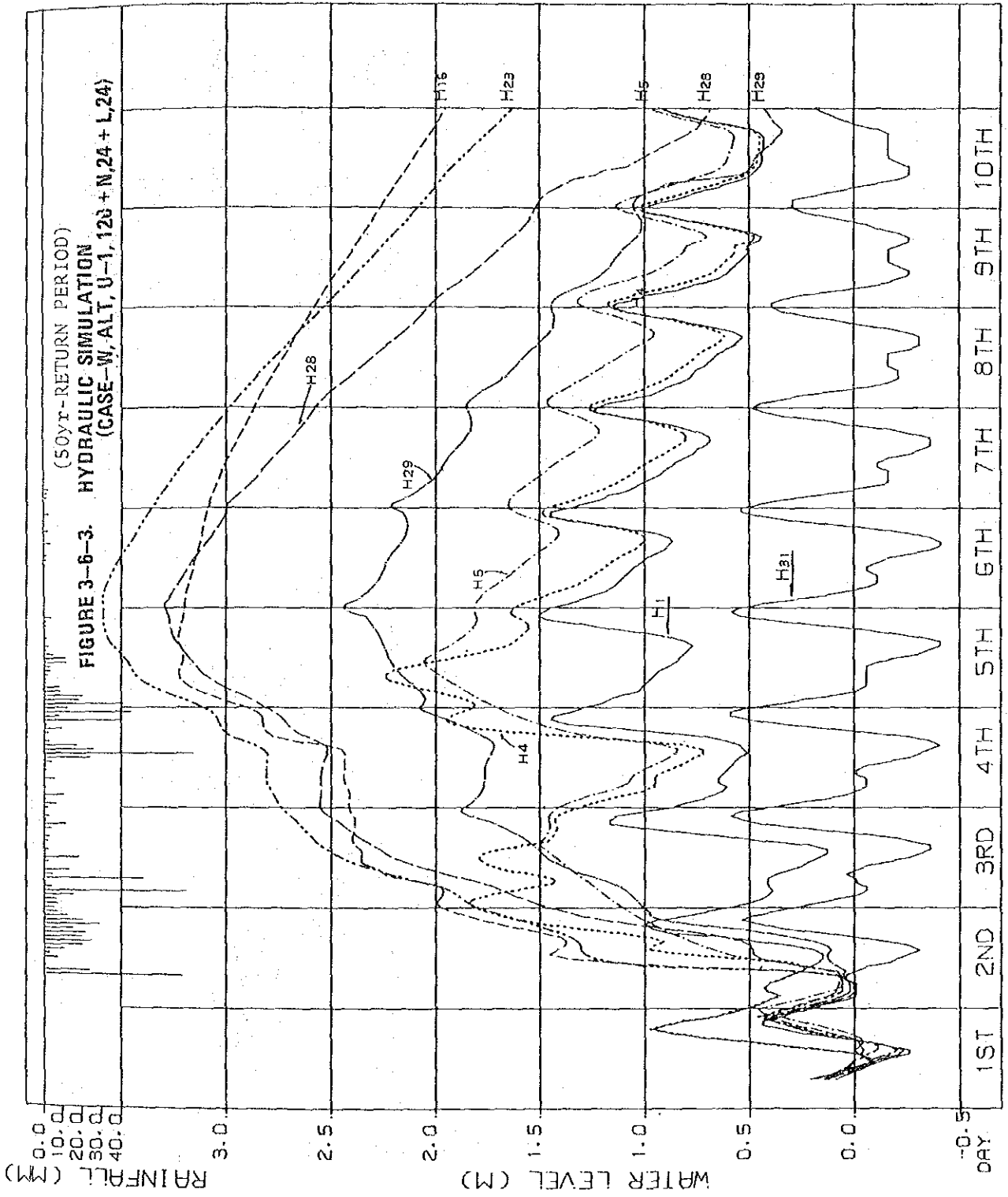


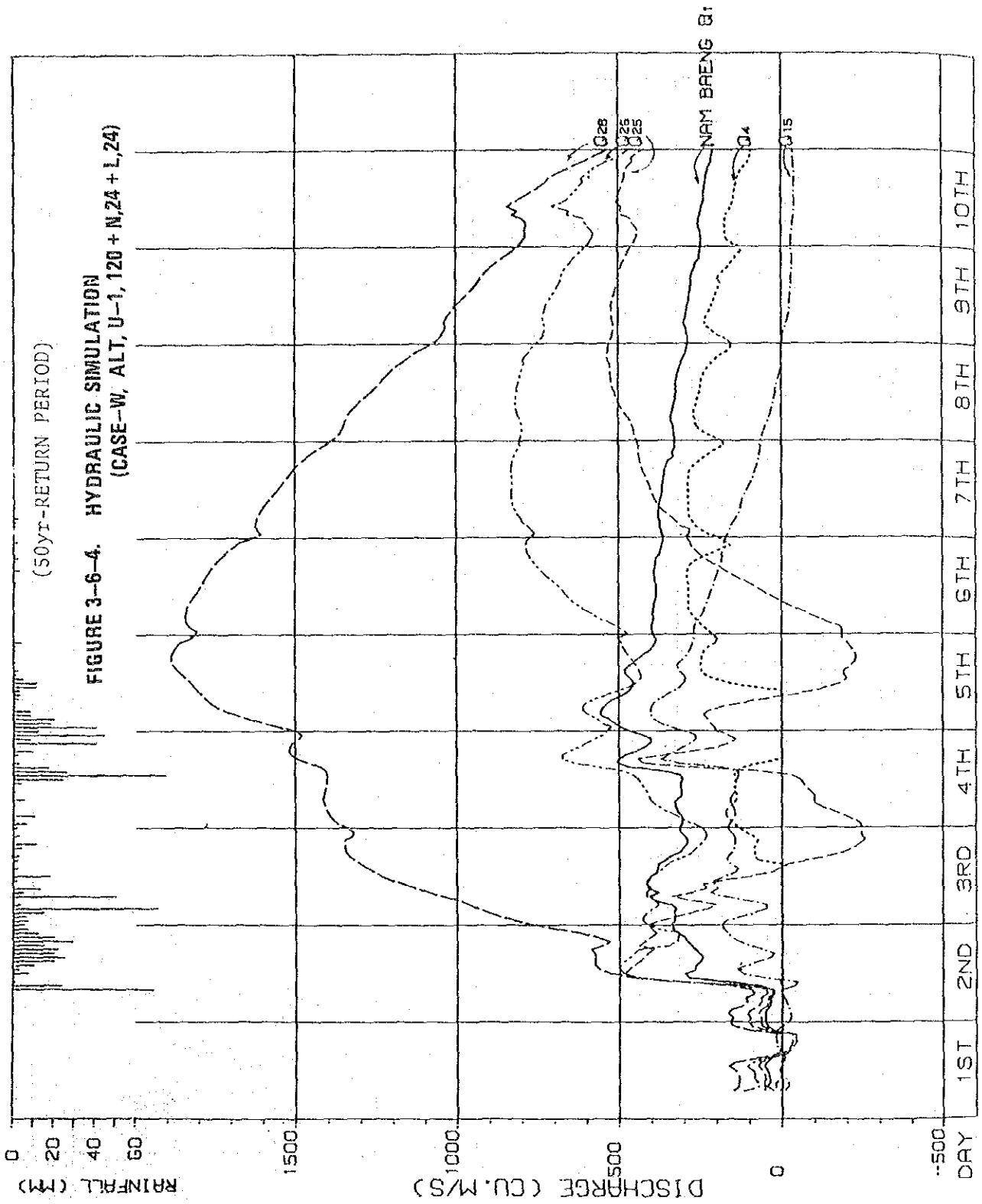


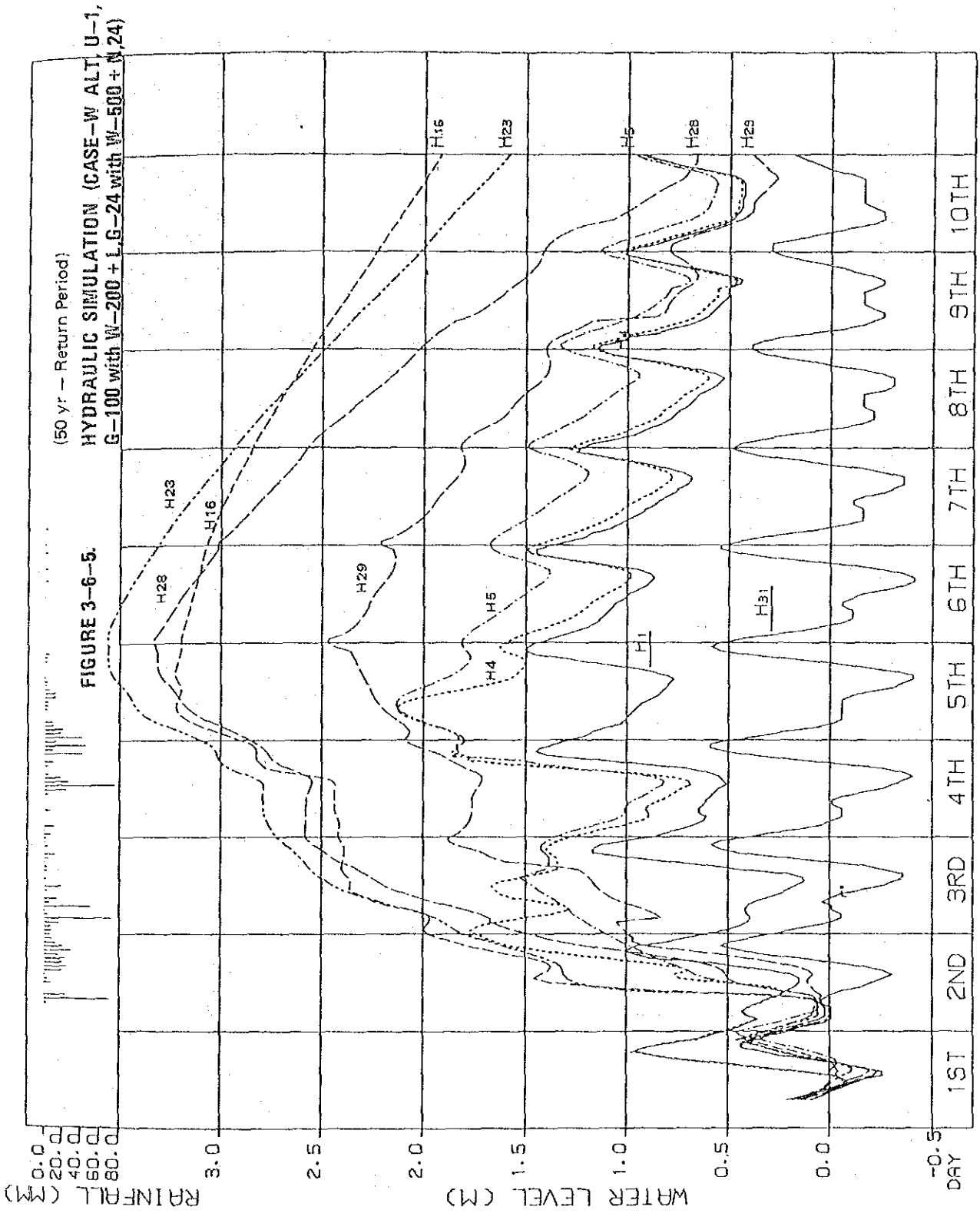
III-6. Large Scale Flood Simulation for General Cases

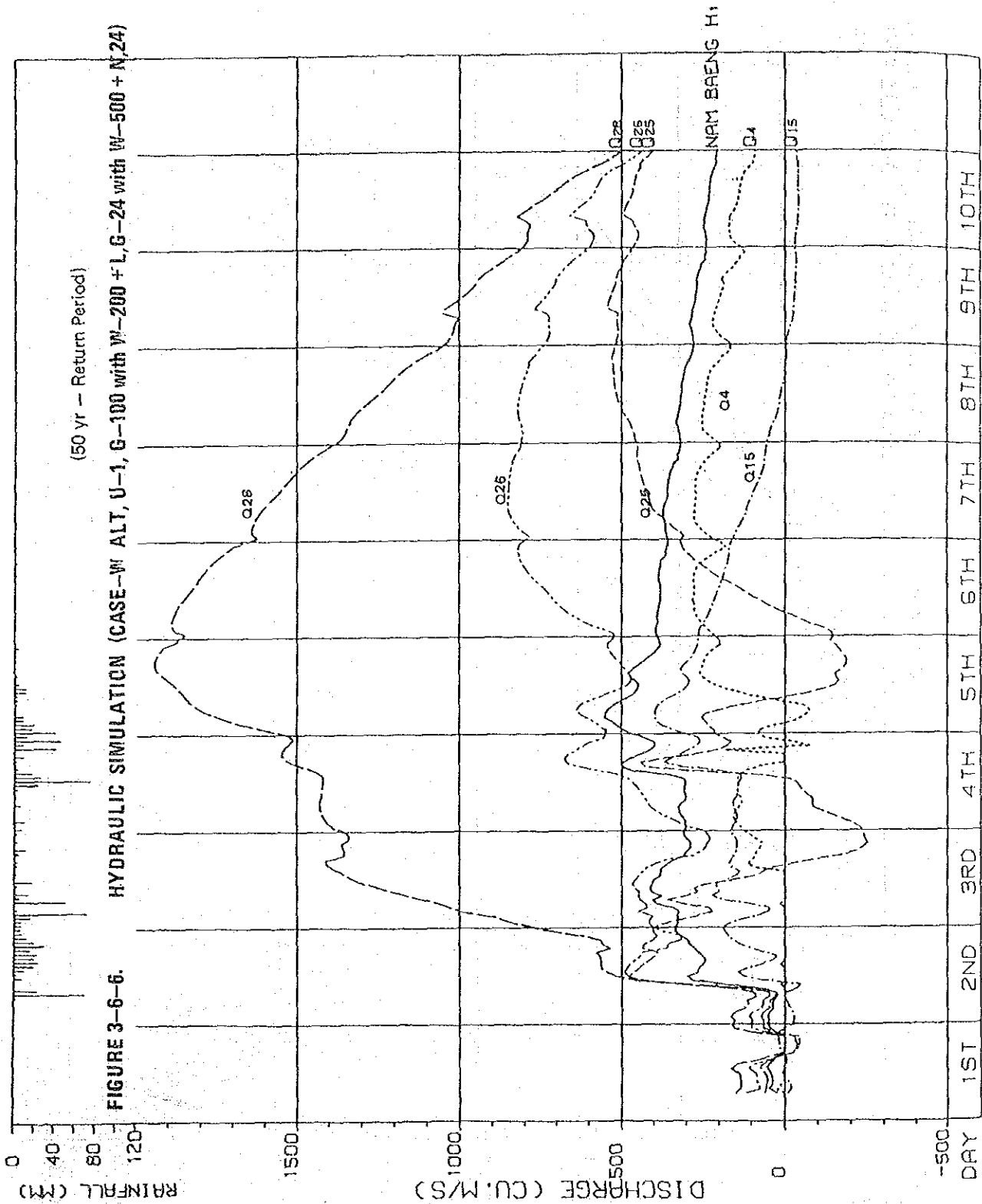


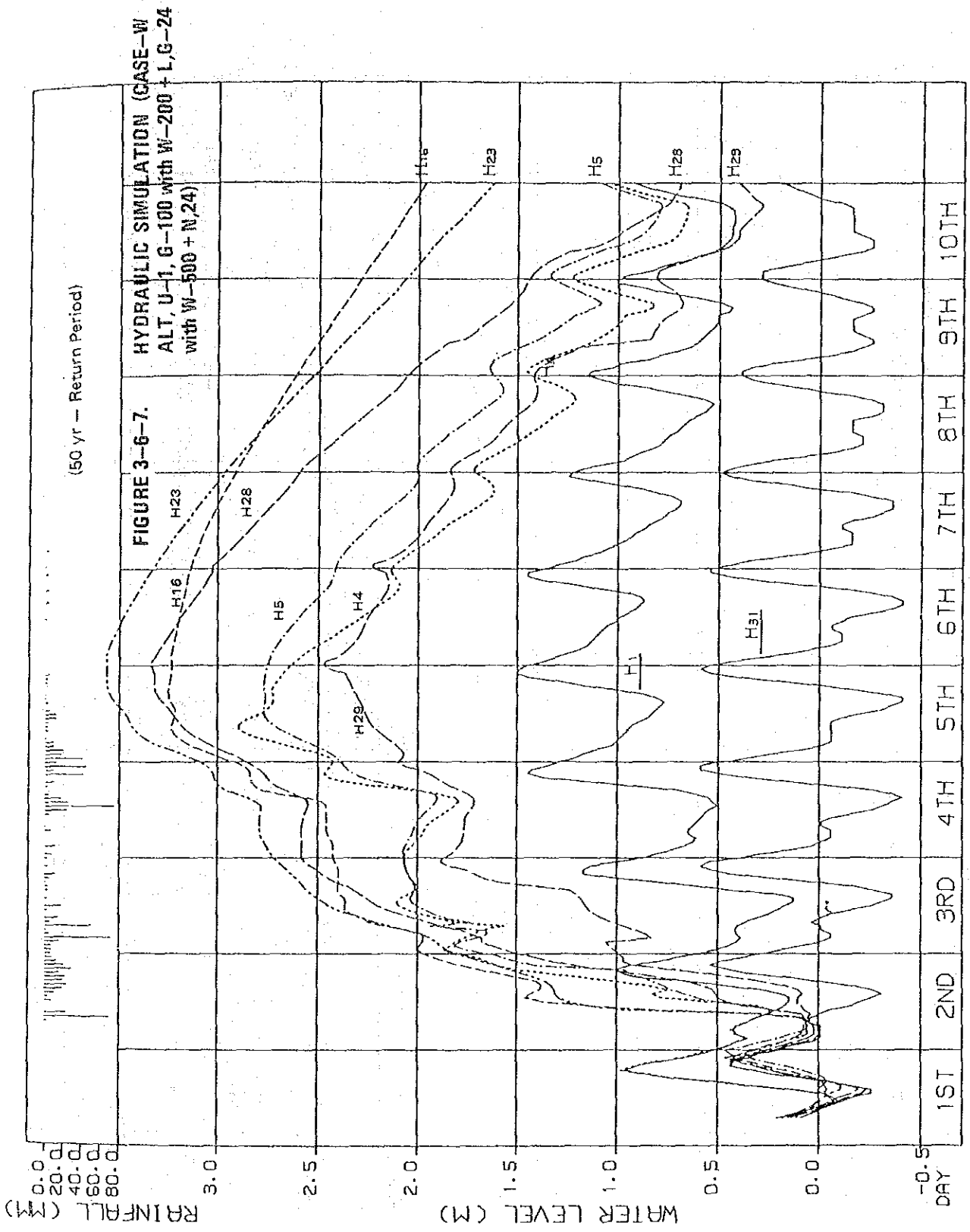


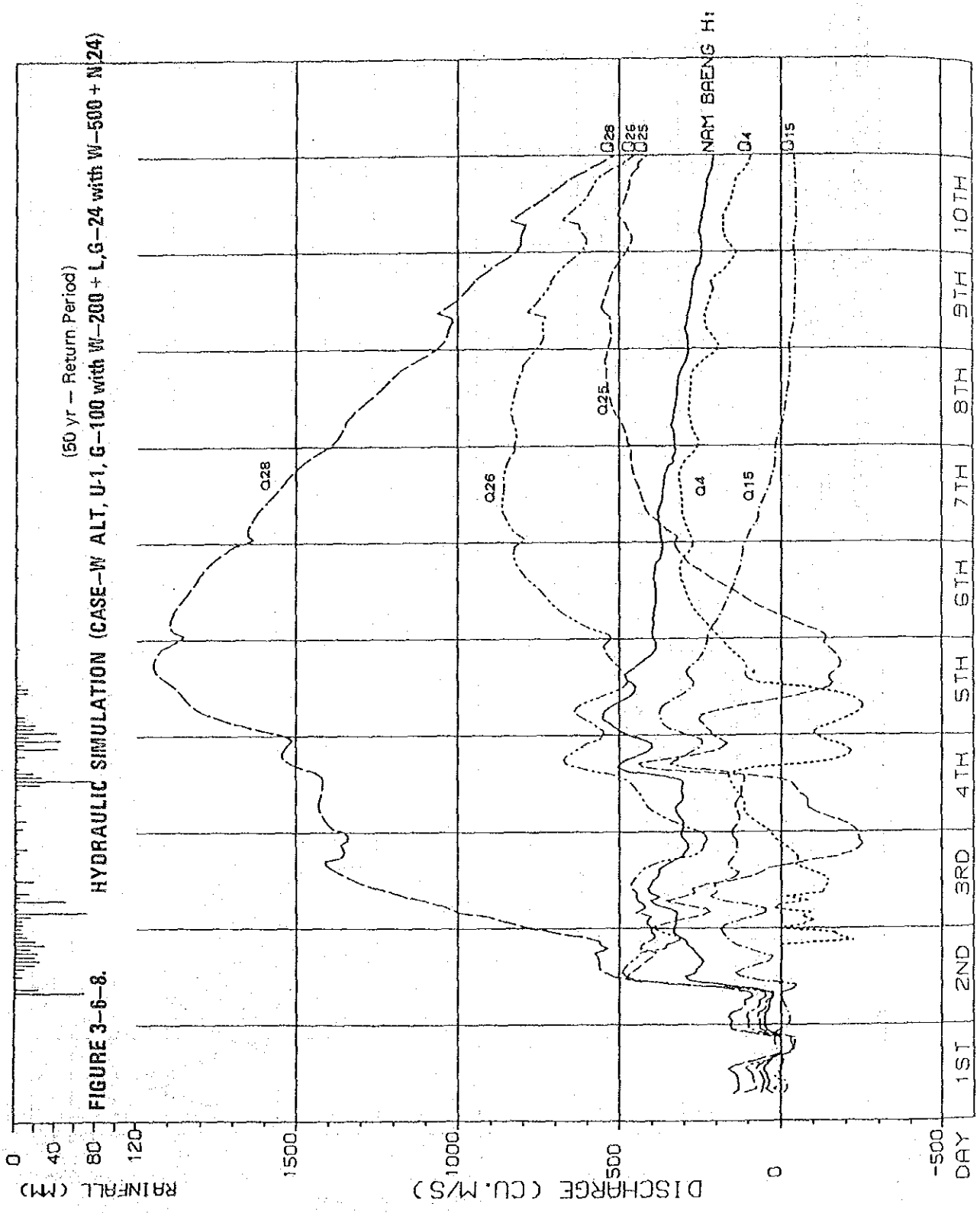


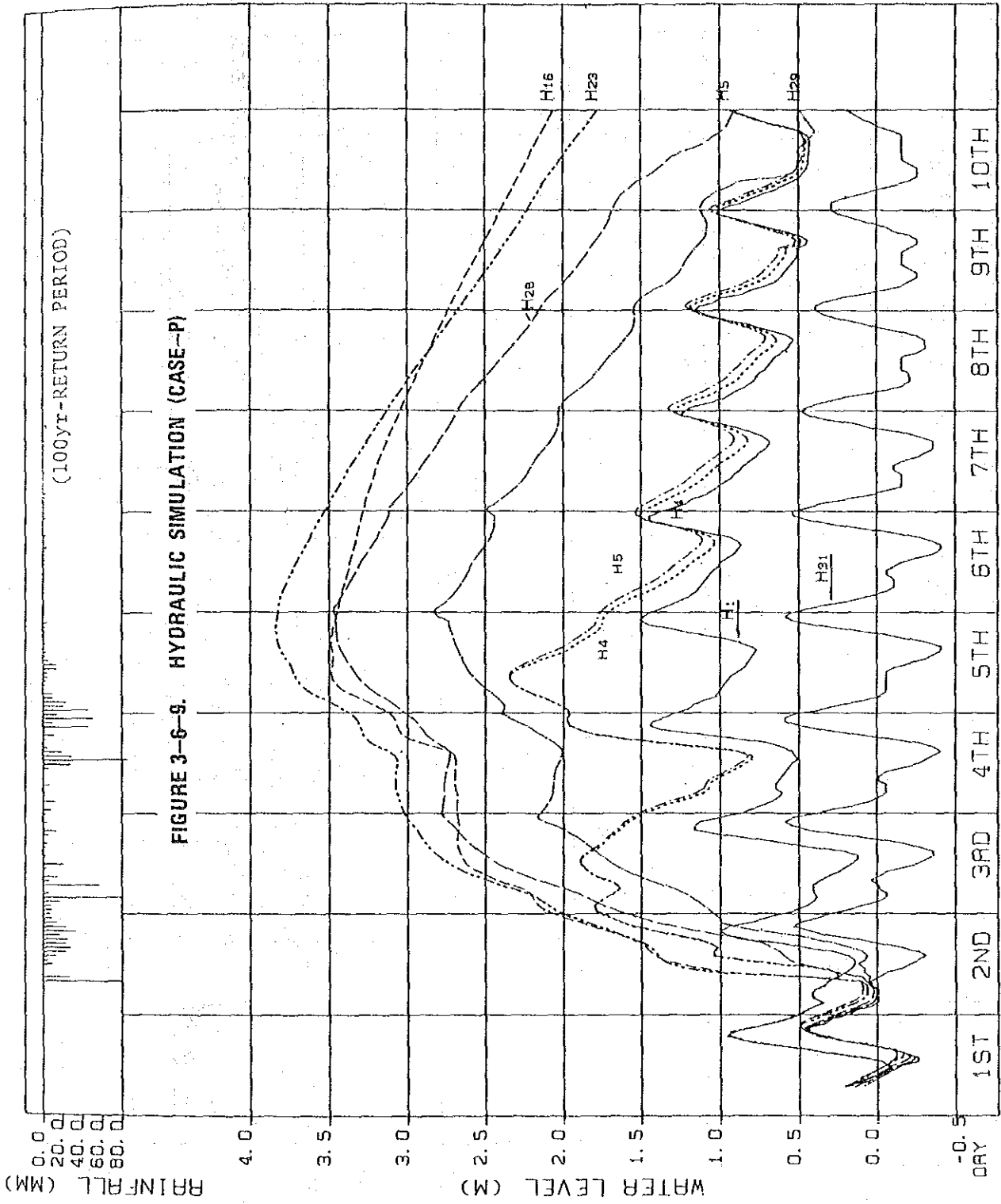


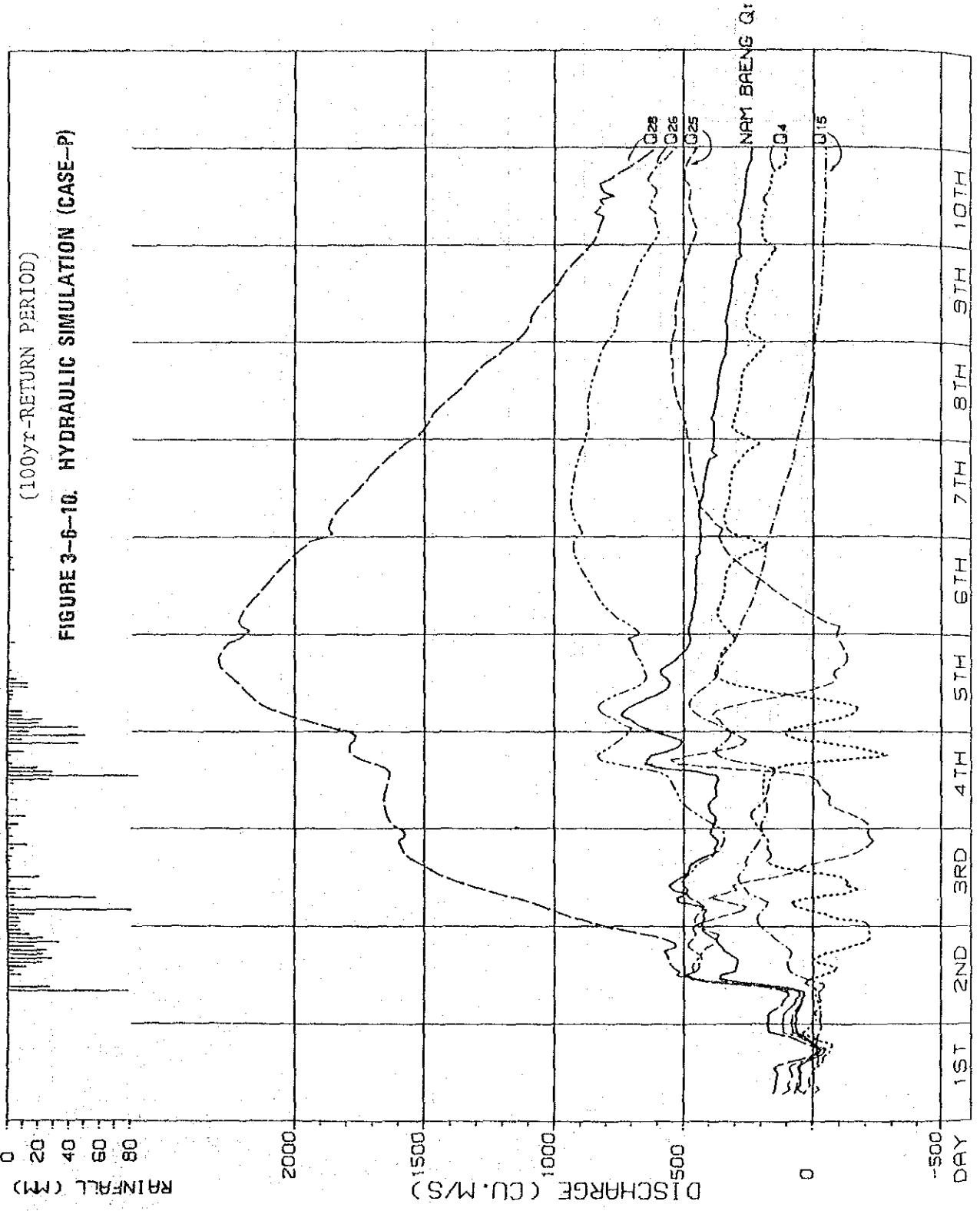












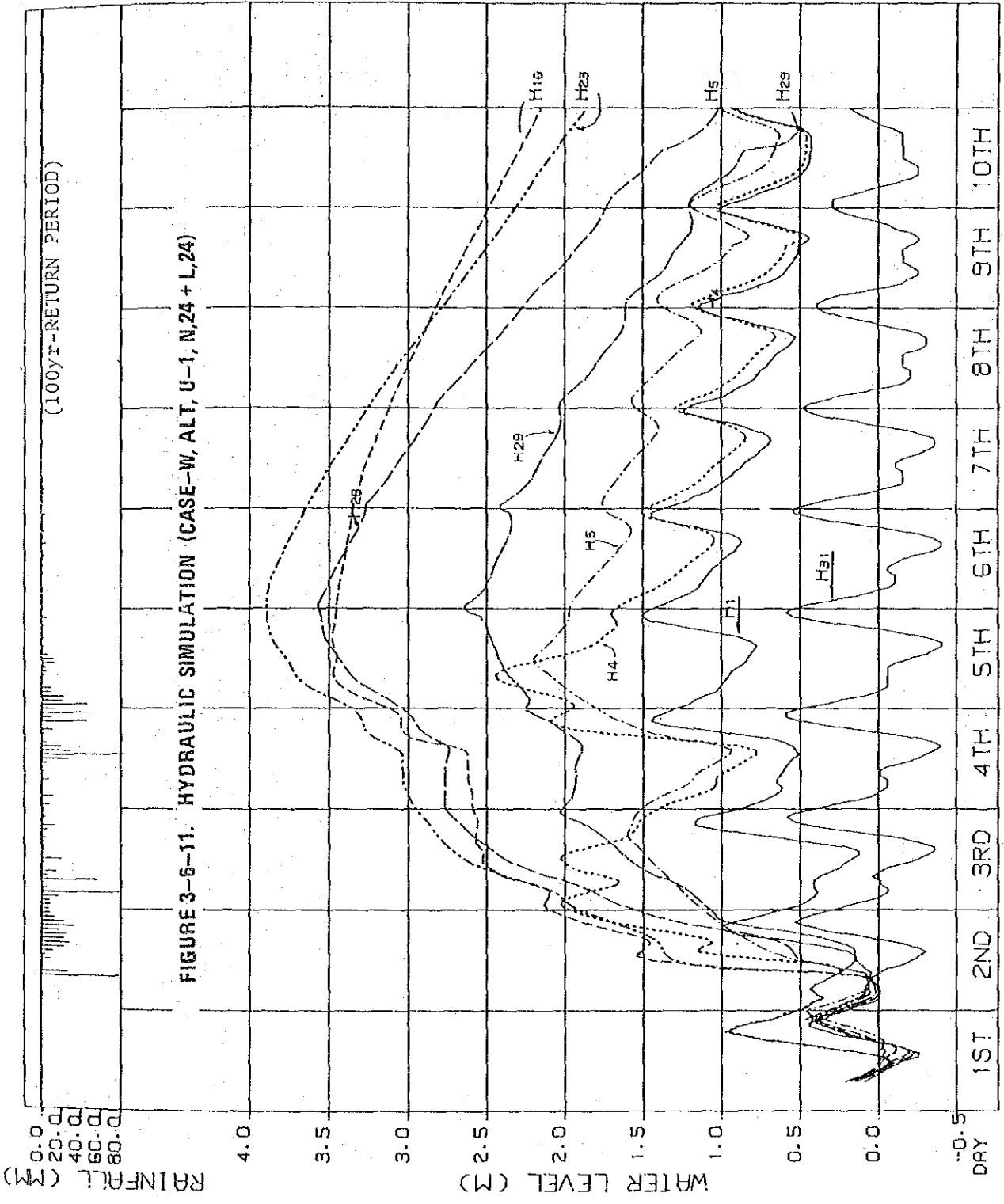
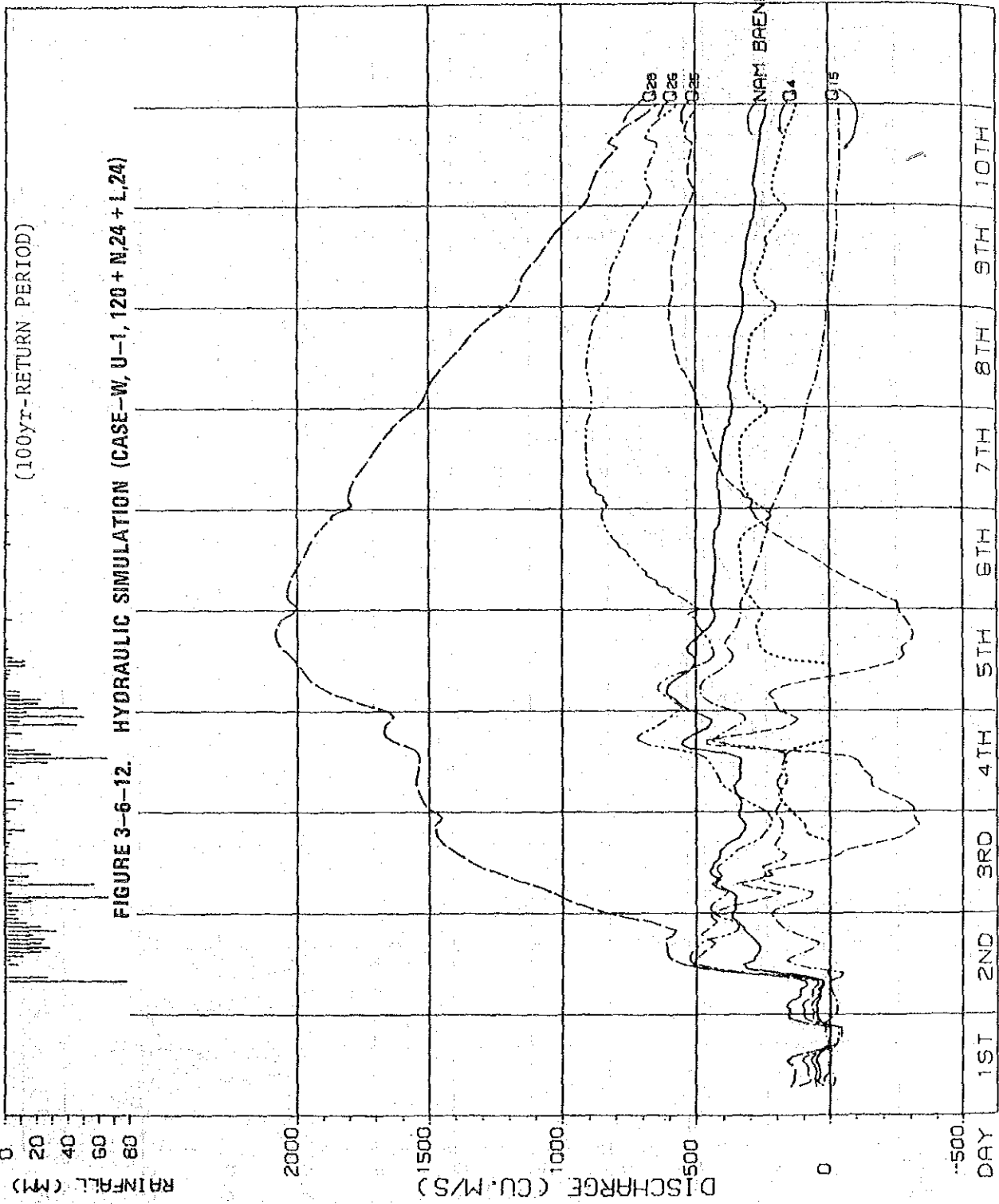
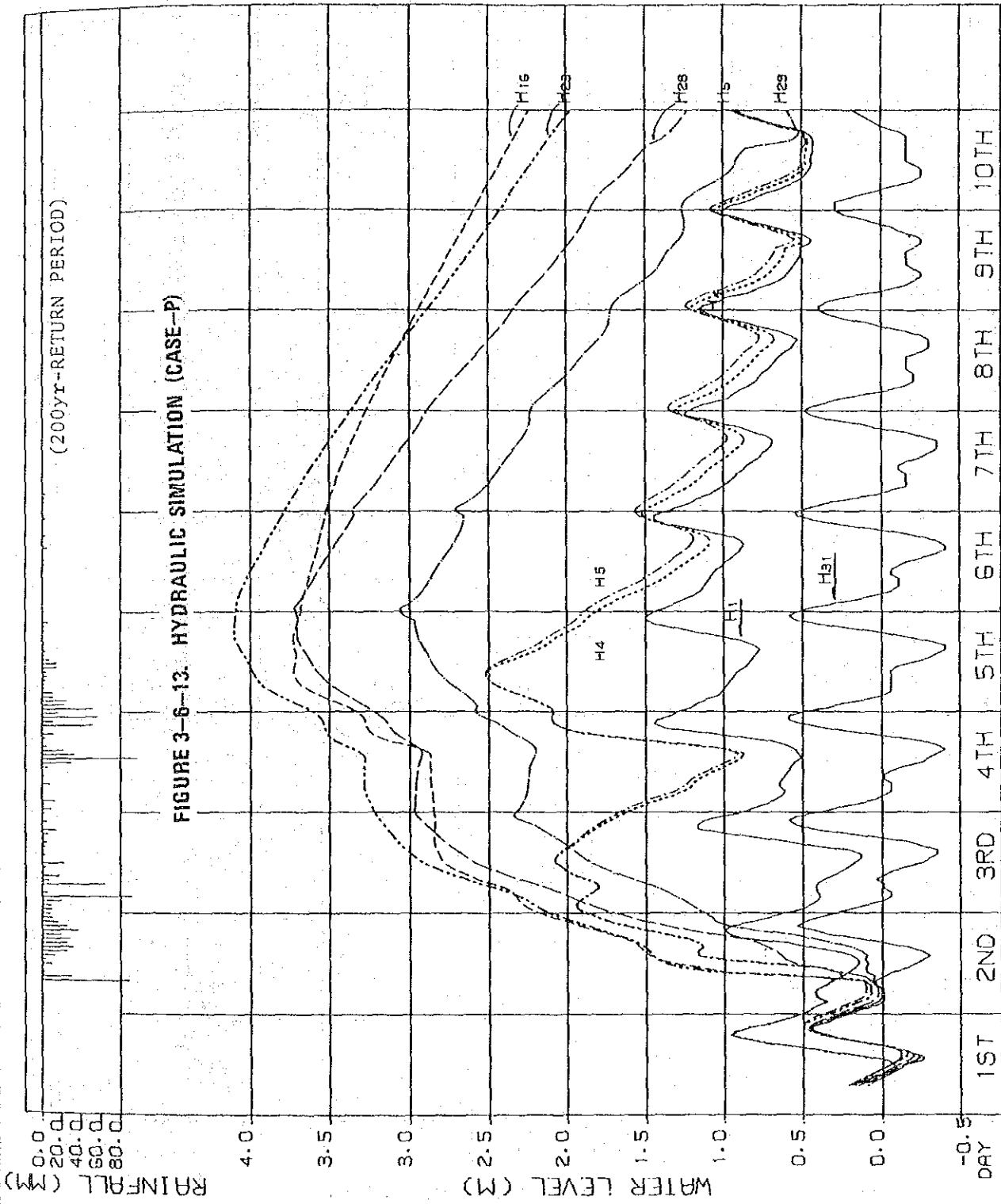
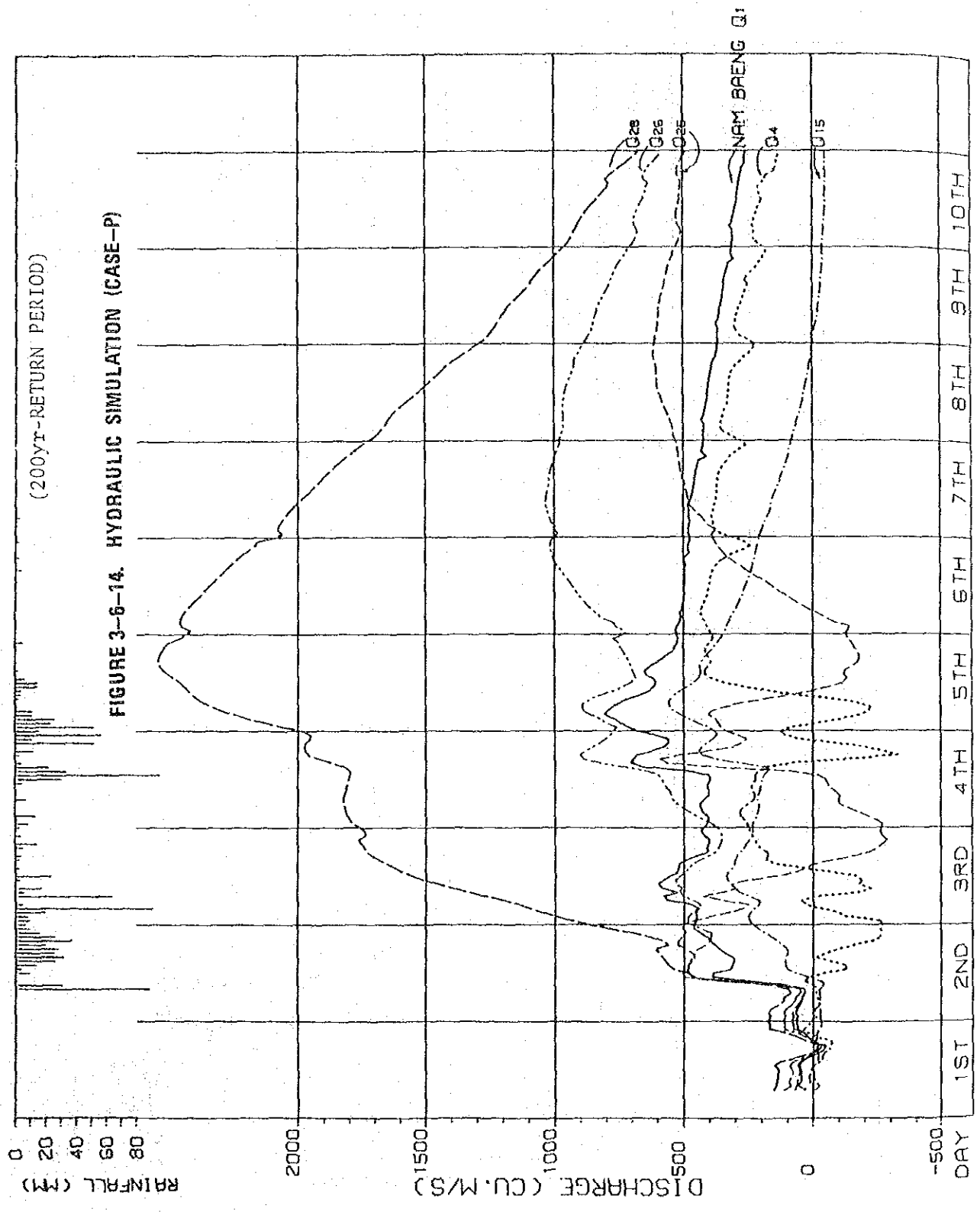
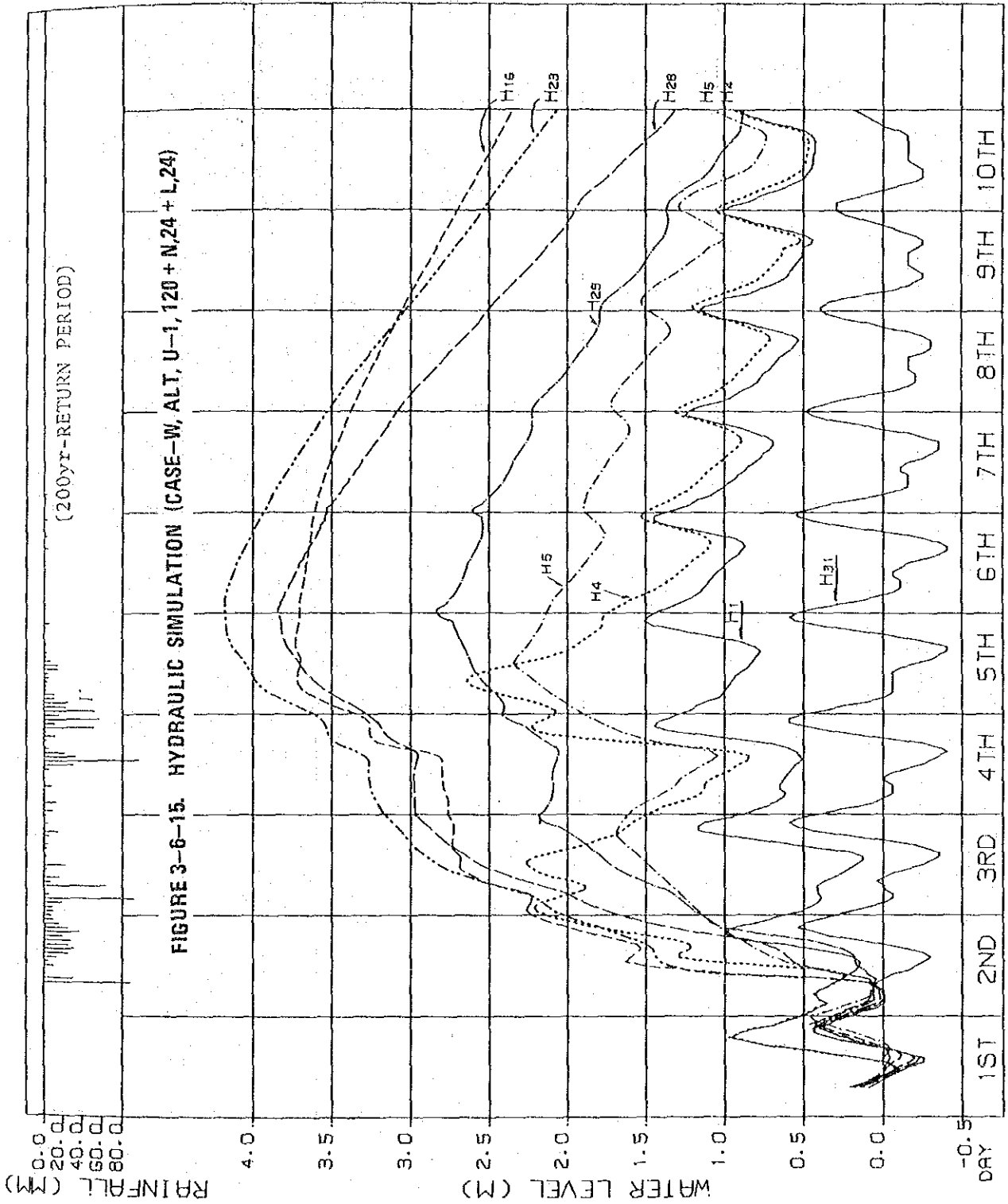


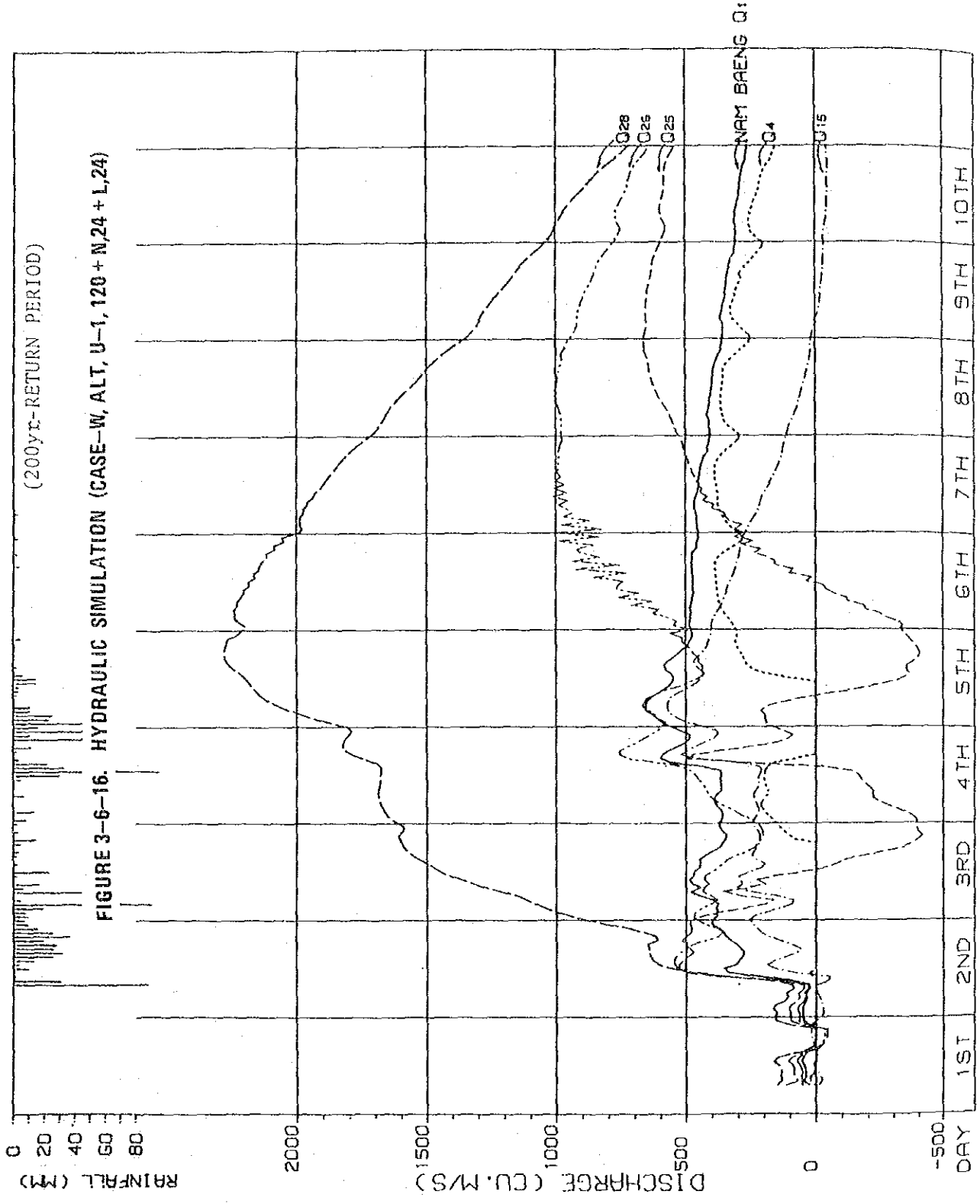
FIGURE 3-6-11. HYDRAULIC SIMULATION (CASE-W, ALT, U-1, N,24 + L,24)











APPENDIX IV. SOILS

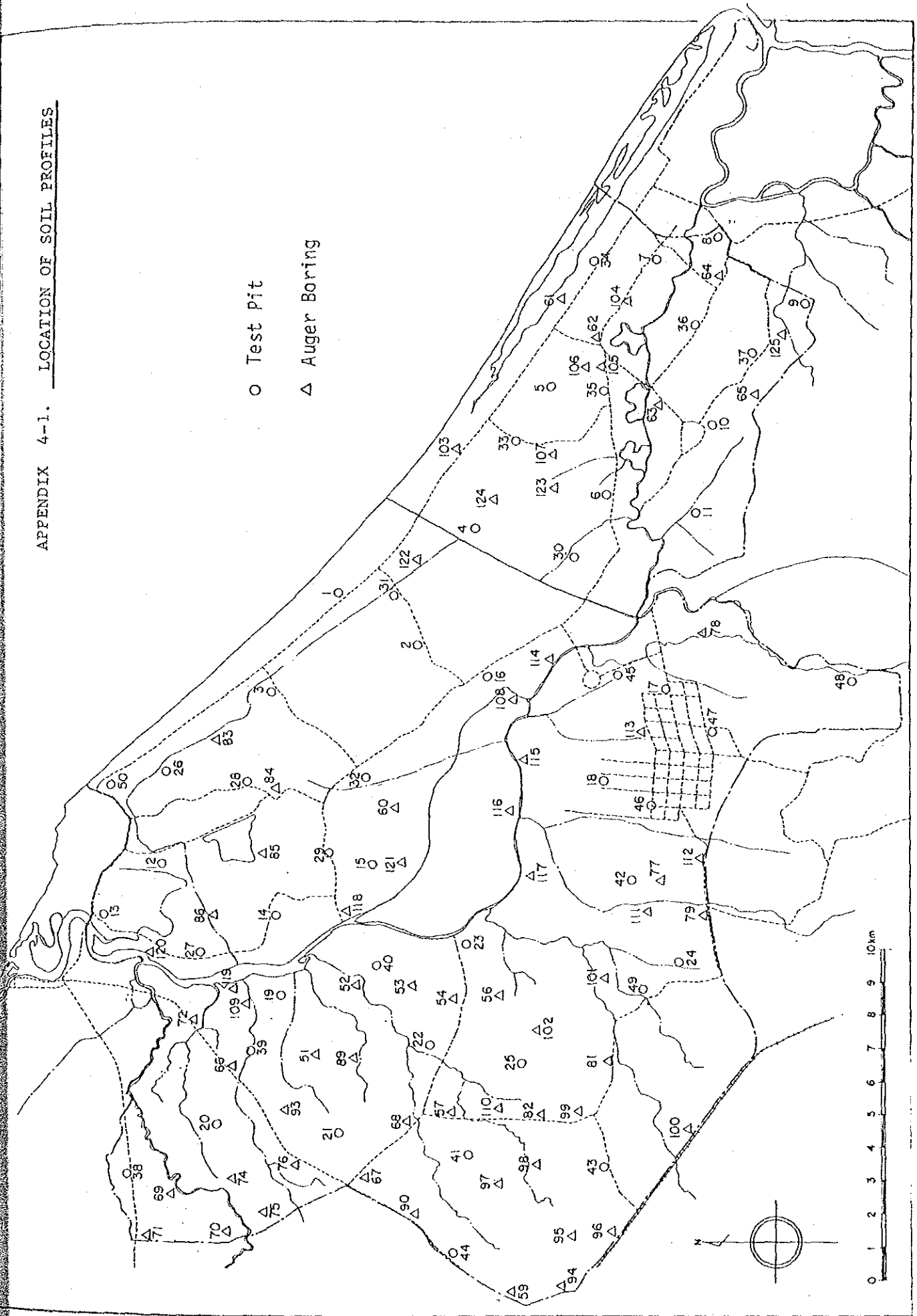
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APPENDIX 4-1. LOCATION OF SOIL PROFILES

○ Test Pit

△ Auger Boring



APPENDIX 4-2. Methods of soil Analyses

4-2-1. Chemical and Physical Analysis

<u>Chemical Properties</u>	<u>Method</u>
1) pH	Standard glass electrode
2) Lime requirement * ^{1/}	Ca(OH) ₂ titration
3) Organic matter *	Modified Walkley - Black wet oxidation
4) Total nitrogen *	Kjeldahl distillation
5) Electrical conductivity	Direct indicating bridge
6) CEC and exchangeable cations	NH ₄ acetate extraction - EDTA titration - Flame photometry
7) Total extractable Al	N-KCl extraction
8) Water soluble SO ₄	BaSO ₄ precipitation
9) Available phosphorus *	Bray No.2 method
<u>Physical Properties</u>	
1) Particle size distribution	Hydrometer method
2) Water retention (1/3, 15 atm)*	Pressure plate method
3) Bulk density *	Direct oven-drying of 100ml soil core

^{1/} * topsoil only

4-2-2. Pyrite Oxidation Test

Procedures:

- Soil samples are taken with a post-hole auger up to 1.50m below the surface.
 - The soil color, mottles, texture and pH of every layers are noted on the site.
 - The samples except for the top layer are brought into 120cc plastic jars, which are sealed immediately.
 - Prior to the air-drying, the pH (1:1 H₂O) of soil sample are measured with a pH meter.
 - Then, the samples are oxidized by repeated air-drying and rewetting.
 - After 2 months, the soil samples are wetted and the pH measured again.
- * During the test, the soil samples are checked about the occurrence of straw yellow mottling of jarosites.

Data Sheet:

Pyrite Oxidation Test

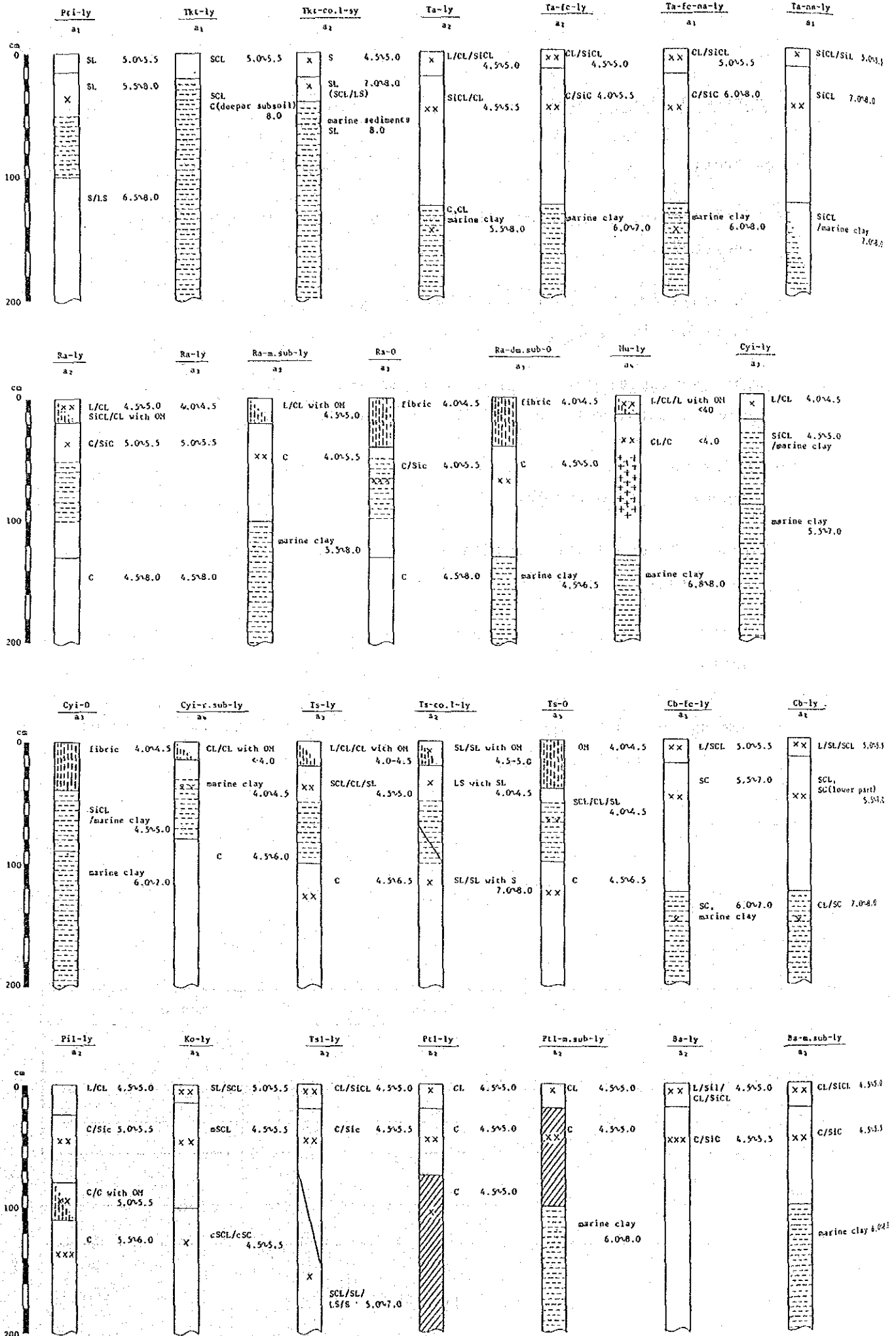
Profile No. _____

Sample No.	Date	pH	Color (dry, wet)	Mottling
(- cm)				
Initial				
Dry/re-wet				
Dry				

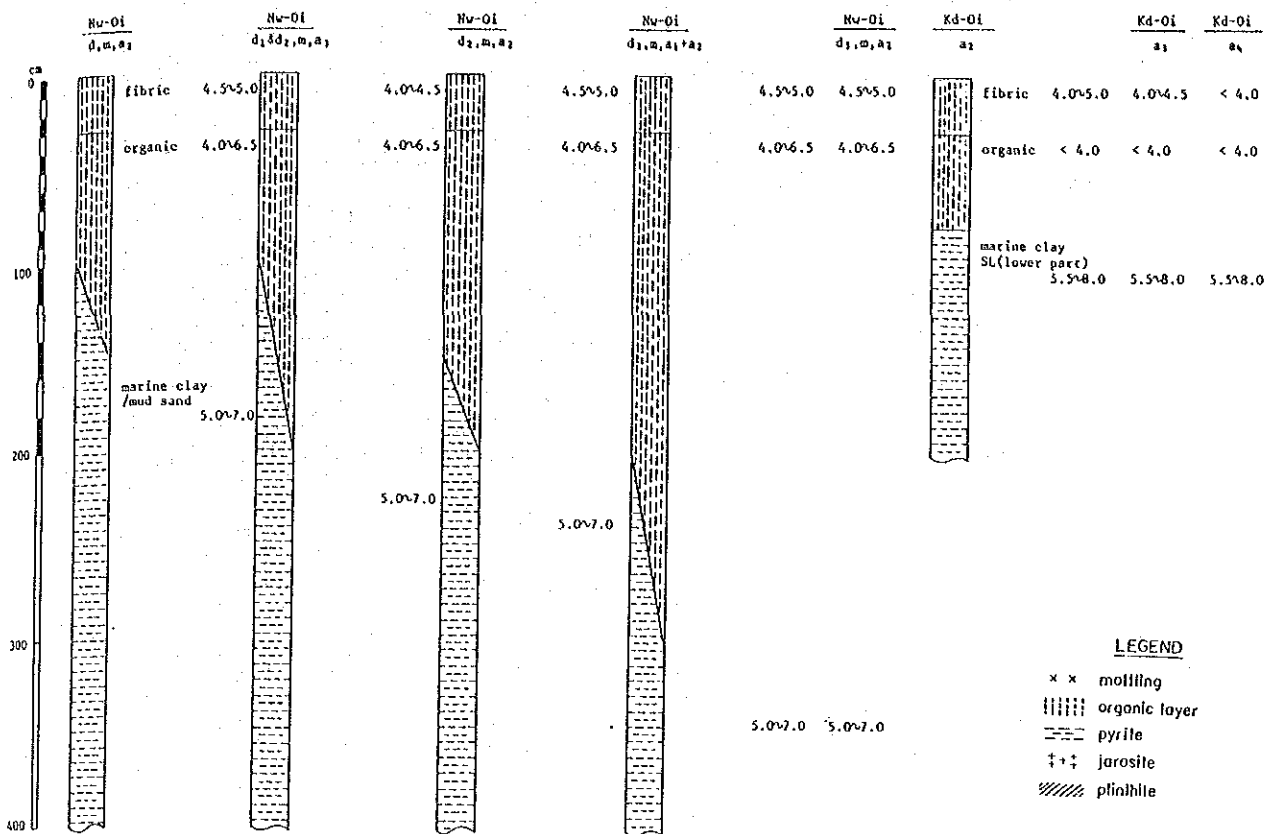
Remarks: _____

APPENDIX 4-3. TYPICAL SOIL PROFILE OF EACH SOIL SERIES

4-3-1. TYPICAL SOIL PROFILES IN LOWLAND AREA



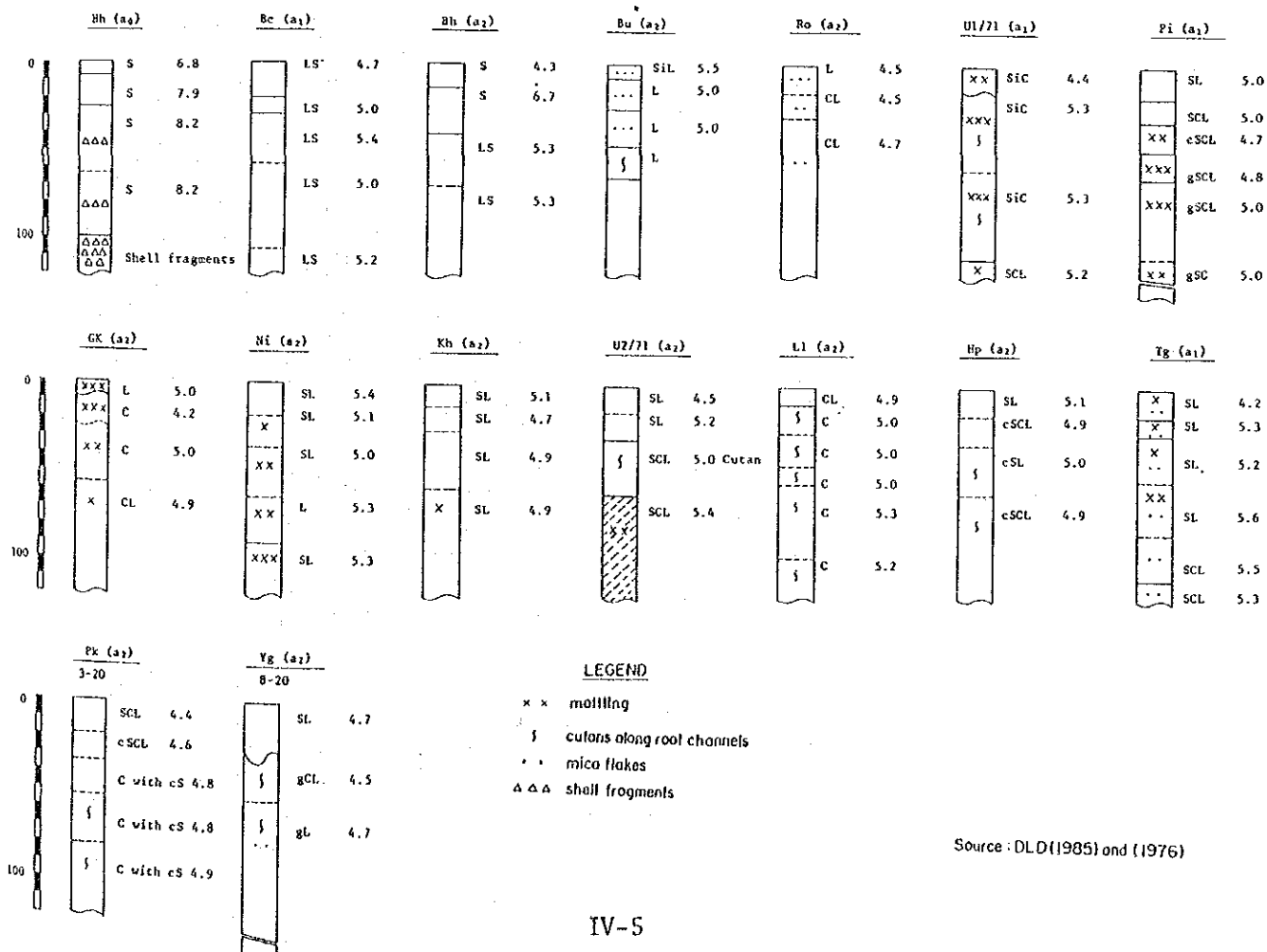
4-3-2. TYPICAL SOIL PROFILES IN SWAMP AREA



LEGEND

- x x molting
- ||||| organic layer
- == pyrite
- ††† jarosite
- //// plinhlite

4-3-3. TYPICAL SOIL PROFILES IN UPLAND AREA



LEGEND

- x x molting
- § cutans along root channels
- mica flakes
- △△△ shell fragments

Source: OLD(1985) and (1976)

APPENDIX 4-4. Major Characteristics of Each Soil Series

Soil Series	Map Symbol	Slope %	Depth	Texture		Organic layer ^{2/}	Acidity ^{3/}		Pyrite/jerosite ^{4/}	Drainage	Permeability	Surface Runoff	GW Depth ^{5/}	Surface Flooding	
				Surface	Subsurface		pH	class							
Hua Hin	Hh	2 - 8	deep	S	S		6.5-8.5	0		excessive	rapid	slow			
Baho	Be	2 - 4	deep	LS	LS		4.5-5.5	1 - 2		excessive	rapid	slow	>2.0	dry	
Ban Thon	Bh	2 - 4	40 - 80cm	S	LS		4.5-6.5	0 - 2		mod. well	rapid, ^{9/} slow	mod. - slow	>2.0	peak dry	
Pattani	Pti-ly	<1	very deep	SL	SL		5.0-5.5	1	50 - 100	P	poor	moderate	slow	≤1.0	rainy season
Takua Thung	Tkt-ly	<1	very deep	SCL	SCL		5.0-5.5	1	20 -	P	poor	slow		≤0.5	all the time ^{8/}
Tak Bai	Ta-ly	<1	deep	L, CL, SiCL	SiCL, CL		4.5-5.0	2	125 -	P	poor	slow	slow	≤1.5	rainy season
	Ta-fc	"	"	CL, SiCL	C, SiC		"	2	"	"	"	"	"	"	"
	Ta-fc-na	"	"	"	"		5.0-5.5	1	"	"	"	"	"	"	"
	Ta-ly-na	"	"	SiCL, SiL	SiCL		"	1	(125 -)	"	"	"	"	"	"
Rangae	Ra-ly-a ₂	0 - 1	deep	L, CL	C, SiC		4.5-5.0	2	50 - 100	P	poor	slow	slow	≤1.5	rainy season
	Ra-ly-a ₃	"	"	"	"		4.0-4.5	3	"	"	"	"	"	"	"
	Ra-m.sub	"	"	L,CL(OM)	C	(0 - 20)	4.5-5.0	2	100 -	"	"	"	"	"	"
	Ra-o	"	"	OM	C, SiC	0 - 40	4.0-4.5	3	50 - 100	"	"	"	"	"	"
	Ra-dm.sub	"	"	OM	C	"	"	3	130 -	"	"	"	"	"	"
Muno	Mu-ly	0 - 1	deep	L,CL, L(OM)	CL, C	(0 - 15)	<4.0	4	50 - 80 ³	A	poor	slow	slow	≤2.0	rainy season
Chian Yai	Cyi-ly	0 - 1	deep	L, CL	SiCL, C		4.0-4.5	3	30 -	P	poor	slow	slow	≤1.5	rainy season
	Cyi-o	"	"	OM	SiCL, C	0 - 40	"	3	40 -	"	"	"	"	"	"
	Cyi-r.sub	"	"	CL, CL(OM)	C	(0 - 15)	<4.0	4	30 - 80	"	"	"	"	"	"
Thon Sai	Ts-ly	<1	deep	L, CL, CL(OM)	SCL, CL, SL	(0 - 20)	4.0-4.5	3	50 - 100	P	poor	moderate	very slow	≤1.5	rainy season
	Ts-col	"	very deep	SL, SL(OM)	LS(SL)	(")	4.5-5.0	2	50 - 100	"	"	"	slow	≤2.0	"
	Ts-o	"	"	OM	SCL, CL, SL	0 - 40	4.0-4.5	3	50 - 100	"	"	"	"	≤1.5	"
Chon buri	Cb-ly	0 - 1	deep	L, SL, SCL	SCL		4.5-5.0	2	125 -	"	poor	moderate		≤1.5	rainy season
	Cb-fc	"	"	L, SCL	SL		5.0-5.5	1	"	"	"	slow		"	"
Sai Buri	Bu	<2		SiL	L		4.5-5.0	2			somewhat poor	moderate	slow-med.		
Ruso	Ro	1 - 2		L	CL		4.5-5.0	2			mod. well	moderate	medium		
Pileng	Pil-ly	0 - 1	deep	L, CL	C, SiC		4.5-5.0	2			poor	slow		≤2.0	rainy season
Khok Kian	Ko-ly	0 - 1	very deep	SL, SCL	m SCL		5.0-5.5	1			poor	slow		≤2.0	rainy season
Tha Sala	Tsl-ly	<1	deep	CL, SiCL	C, SiC		4.5-5.0	2			poor	slow		≤2.0	rainy season
Pattalung	Ptl-ly	0 - 1	deep	CL	C		4.5-5.0	2			poor	slow		≤2.0	rainy season
	Ptl-m.sub	"	"	"	"		"	2	100 -	"	"	"	"	"	"
Bangnara	Ba-ly	0 - 1	deep	L, SiL, CL, SiCL	C, SiC		4.5-5.0	2			poor	slow		≤2.0	rainy season
	Ba-m.sub	"	"	CL, SiCL	C, SiC		"	2	100 -	"	"	"	"	"	"
	U1/71	<1		SiC	SiC		5.0-6.0	0 - 1			poor	slow	slow		"
Sungai Padi	Pi	<2		SL	SCL		5.0-5.5	1			somewhat poor	moderate	medium		
Sungai Kolok Ck		<2		L	C		4.5-5.0	2			poor	slow	slow		
Nam Krachai	Ni	2 - 4		SL	SL		4.0-6.0	0 - 3			somewhat poor	moderate	slow		
Kohong	Kh	2 - 4		SL	SL		4.5-5.0	2			well	moderate	medium		
	U2/71	<2		SL	SCL		4.5-5.5	1 - 2			mod. well	moderate	medium		
Lamphu La	Ll	2 - 6		CL	C		5.0	2			well	moderate	medium		
Huai Pong	Hp	2 - 6		SL	SCL		4.5-5.0	2			mod. well	moderate	medium		
Phuket	Pk	3 - 20		SCL	C(cS)		4.0-5.5	1 - 3			well	moderate	rapid		
Yi-ngo	Yg	8 - 20		SL	g.CL		4.5-5.0	2			well	moderate	rapid		
Narathiwat	Nw-d	<1	-	OM	OM	0 - 100/150	4.5-5.0	2	100/150 -		very poor	rapid	slow	≤0.5	rainy season
	Nw-d ₁	"	-	"	"	0 - 100/200	4.0-4.5	3	100/200 -		"	"	"	"	"
	Nw-d ₁₊₂	"	-	"	"	0 - 150/200	4.5-5.0	2	150/200 -		"	"	"	"	"
	Nw-d ₂	"	-	"	"	0 - 200/300	4.5-5.5	1 - 2	200/300 -		"	"	"	"	"
	Nw-d ₃ , a ₁₊₂	"	-	"	"	"	4.5-5.0	2	"		"	"	"	"	"
	Nw-d ₃ , a ₂	"	-	"	"	"	"	"	"		"	"	"	"	"
Kap Dang	Ka-a ₂	<1	-	OM	OM	0 - 80	4.5-5.0	2	80 -	P	very poor	rapid	slow	≤0.5	rainy season
	Kd-a ₃	"	-	"	"	"	4.0-4.5	3	"	"	"	"	"	"	"
	Kd-a ₄	"	-	"	"	"	<4.0	4	"	"	"	"	"	"	"

Notes 1/ Based on the data collected by DLD
 2/ in cm from soil surface
 3/ of surface soil
 4/ in cm from soil surface
 5/ in meter from soil surface
 6/ up to a spodic horizon
 7/ impeded by the spodic horizon
 8/ submerged by sea water

APPENDIX 4-5. SOIL PROFILE DESCRIPTIONS

4-5-1. General Information of Test Pit Sites

No.	Village	District	Land Use	Soil Series	Slope(%)	Remarks
1	Ban Khok Kraduk Mu	Tak Bai	Coconuts	Bh	1	
2	"	"	Forest	Bc	2	
3	Ban Sapon	Muang	Swamp	Nw	0-1	
4	Ban Kosawat	Tak Bai	Grasses	Mu	<2	Actual
5	Ban Kam Pong Bu Nae	"	Rice	Ta	<1	
6	Ban To Lang	"	Rice	Ta	<1	
7	Ban Sala Pradu	"	Idle	Bb	0-2	
8	Ban Tha Phack	"	Rice	Ba	<1	
9	Ban Khok Nai	"	Rice	Ta	<1	
10	Ban Khok Ngu	"	Cashew	Bh	3	
11	Ban Bang Toei	"	Grasses	Ra	<1	Potential
12	Ban Khiri-Pikung Thong	Muang	Rice	Ra	<1	Potential
13	Ban Khai	"	Coconuts	Bc	>3	
14	Ban Kam Phaeng	"	Rubber	Pk	>3	
15	Ban Kanae	"	Pasture/Rice	Cb	<1	
16	Ban Khok Sila	"	Cassava/Coconut	Ni	2	
17	Ban Pileng	Rangae	Cassava	Mu	<1	Actual
18	"	"	Grasses	Pil	<1	
19	Ban Tang Yong Lulo	Muang	Rice	Mu	<1	Actual
20	Ban Prang	"	Rubber	Bu	5	
21	Ban Ko Wing	"	House	Ro	<1	
22	Ban Ku Bae Bo Nga	"	Rice	Ba	<1	
23	Ban Bang Po	"	Rice	Tsl	<1	
24	Ban Khok	Rangae	Rice	Ko	<1	
25	Ban Tong Krang	"	Rice	Ba	<1	
26	Ban Khok Nae Tae	Muang	Grasses	Kd	1	Potential
27	Ban Phlay	"	Rice	Ta	<1	
28	Ban Jarosato	"	Rubber	U2/71	2-4	
29	Ban Kamu Rae	"	Rice	Cb	<2	
30	Ban To Lang	Tak Bai	Idle	Mu	<1	Actual
31	Ban Khok Kraduk Mu	"	Grasses	Kd	<2	Potential
32	Ban Khao Kam Pan	Muang	Grasses	Ra	<2	Potential

Soil Hardness

The descriptions were made mainly in accordance with the FAO's guidelines. Soil colors were named according to the Munsell's color chart except for gley colors. Soil hardness indexes determined by Yamanaka's tester were classified into five categories as below:

Hardness	
Index	(kg/cm ²)
Soft	< 8 (0.98)
Slightly hard	8 - 12 (1.93)
Hard	12 - 17 (4.04)
Very hard	17 - 23 (10.0)
Extremely hard	> 23 (10.0)

4-5-2. SOIL PROFILE DESCRIPTION OF TEST PIT (NO.1 - NO.50)

PROFILE NO. 1

Date : July 12, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Ban Thon

Soil Taxonomy : Typic Tropohumods

FAO/UNESCO : Humic Podzols

Thai National : Groundwater Podzolic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Kraduk Mu, Amphoe Tak Bai

Slope : 1%

Topography : Undulating old beach ridge

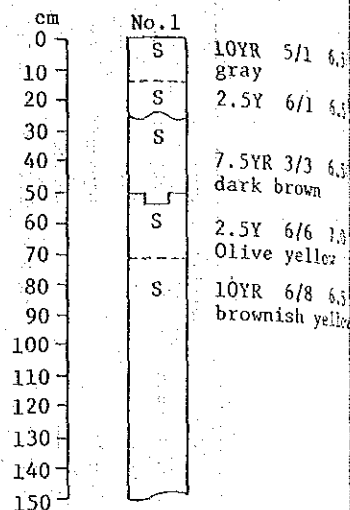
Land Use / Vegetation : Small grasses in coconuts
plantation

Drainage : Well

Water Table & Quality : Deeper than 2.0m from the surface.

Subjected to Flood : None

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
A 0-13	Gray (10YR5/1); coarse sand; single grained; friable, non sticky, non plastic; many roots; pH 6.5; hardness 11; gradual smooth boundary.
E 13-26	Light brownish gray (2.5Y6/1); sand; single grained; friable, non sticky, non plastic; many roots; pH 6.5; hardness 15; clear wavy boundary.
Bs1 26-51	Dark brown (7.5YR3/3); sand, single grained; friable, non sticky, non plastic; common roots; pH 6.5; hardness 21; gradual irregular boundary.
Bs2 51-72	Olive yellow (2.5Y6/6); sand; single grained; friable, non sticky, non plastic; common roots; pH 7.0; hardness 9; gradual smooth boundary.
Bs3 72-120	Brownish yellow (10YR6/8); sand; single grained; friable, non sticky, non plastic; few roots; pH 6.5; hardness 9.

PROFILE NO. 2

Date : July 12, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bacho

Soil Taxonomy : Typic Quartzipsamments

FAO/UNESCO : Dystric Regosols

Thai National : Regosols

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Kraduk Mu, Amphoe Tak Bai

Slope : 2%

Topography : Undulating relief of old ridges

Land Use / Vegetation : Forest (Melaleuca Leucadendron)
"Cajuput"

Drainage : Well

Water Table & Quality : Deeper than 1.2m from the surface

Subjected to Flood : None

Remarks :

0	No. 2			
10	SL	10YR 5/2	6.0(17)	grayish brown
20				
30	SL	10YR 6/2	6.0(20)	light brownish gray
40	XX			
50	SL	2.5Y 7/3	4.5(17)	light gray
60	xxx			
70				
80	SL	2.5Y 7/2	4.5(18)	light gray
90	xx			
100				
110				
120				

PROFILE DESCRIPTION

Depth (cm)	Description
A 0-27	Grayish brown (10YR5/2); sandy loam; weak subangular blocky; very friable, non sticky, non plastic; many roots; pH 6.0; hardness 17; gradual smooth boundary.
AC 27-39	Light brownish gray (10YR6/2), common light red (2.5YR6/8) mottles; sandy loam; weak subangular blocky; friable, non sticky, non plastic; common roots; pH 6.0; hardness 20; gradual smooth boundary.
C1 39-70	Light gray (2.5Y7/3), many light red (2.5YR6/8) mottles; sandy loam; weak subangular blocky; friable, non sticky, non plastic; common roots; pH 4.5; hardness 17; gradual smooth boundary.
C2 70+	Light gray (2.5Y7/2), common yellow (2.5Y7/8) mottles; sandy loam; few roots; pH 4.5; hardness 18.

PROFILE NO. 3

Date : July 12, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Narathiwat

Soil Taxonomy : Typic Tropofibrists

FAO/UNESCO : Dystric Histosols

Thai National : Organic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Sapom, Amphoe Muang

Slope : 0-1%

Topography : Flat

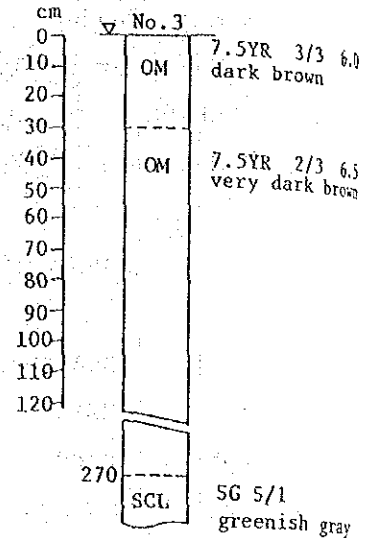
Land Use / Vegetation : Swamp, grasses

Drainage : Very poor

Water Table & Quality : Near the surface

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Oi 0-30	Dark brown (7.5YR3/3); peaty muck; structureless; non sticky, non plastic; pH 6.0; gradual smooth boundary.
Oe 30-27	Dark brown (7.5YR2/3); peaty muck; structureless; non sticky, non plastic; pH 6.5; clear smooth boundary.
Cg 270+	Dark gray (5Y4/1); silty clay; massive; sticky, plastic;

PROFILE NO. 4

Date : July 13, 1985

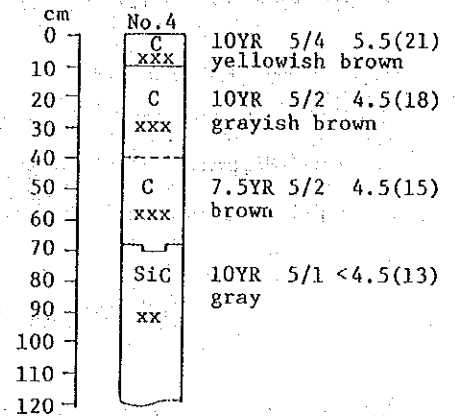
Described by : Nakabayashi, Somsak, Ongard

Soil Name : Muno

Soil Taxonomy : Sulfic Trophaquepts

FAO/UNESCO : Thionic Fluvisols

Thai National : Hydromorphic Alluvial Soils



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Kosawat, Amphoe Tak Bai

Slope : < 2%

Topography : Slightly undulating

Land Use / Vegetation : Grasses (Kreng) after burning forest dominated by Malaleuca leucadendra, cajuput

Drainage : Slightly poor

Water Table & Quality : Deeper than 1.5m from the surface

Subjected to Flood :

Remarks : Right side of Nam Baeng Canal

PROFILE DESCRIPTION

Depth (cm)	Description
A1 0-10	Light gray (10YR6/1), many yellowish brown (10YR5/4) mottles; clay loam; subangular blocky; friable, very sticky, very plastic; many roots, pH 5.5; hardness 21; clear smooth boundary.
A2 10-40	Grayish brown (10YR5/2), many brown (7.5YR5/4) mottles; clay; coarse angular blocky; friable, very sticky, very plastic; common roots; pH 4.5; hardness 18; gradual smooth boundary.
AC 40-67	Brown (7.5YR5/2), many yellow (10YR7/6) mottles; clay; prismatic; friable, very sticky, very plastic; common roots; pH 4.5; hardness 15; clear irregular boundary.
Cg 67-120	Gray (10YR5/1), common yellow (10YR7/6) mottles; silty clay; massive; very sticky, very plastic; few thick roots; pH 4.0; hardness 13.

PROFILE NO. 5

Date : July 13, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Tak Bai

Soil Taxonomy : Typic Tropaquepts

FAO/UNESCO : Humic Gleysols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Kam Pong Bu Nae, Amphoe Tak Bai

Slope : < 1%

Topography : Flat

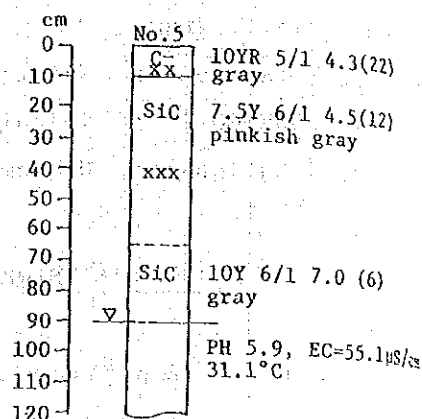
Land Use / Vegetation : Paddy field

Drainage : Poor

Water Table & Quality : 90cm from the surface; pH 5.9,

Subjected to Flood : EC 55.1 μ S/cm, 31.1°C

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-10	Gray (10YR5/1), common strong brown (7.5YR4/6) mottles; clay, subangular blocky; friable, very sticky, very plastic; many roots; pH 4.5; hardness 22; clear smooth boundary.
Bg1 10-64	Light gray (7.5Y6/1), many yellowish red (5YR5/8) mottles; silty clay; massive; friable, very sticky, plastic; common roots; pH 4.5; hardness 12; gradual smooth boundary.
Bg2 64-120	Light gray (10Y6/1); silty clay; massive; very sticky, plastic; few roots; pH 7.0; hardness 6.

PROFILE NO. 6

Date : July 13, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Tak Bai

Soil Taxonomy : Typic Tropaquepts

FAO/UNESCO : Humic Gleysols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban To Lang, Amphoe Tak Bai

Slope : < 1%

Topography : Flat

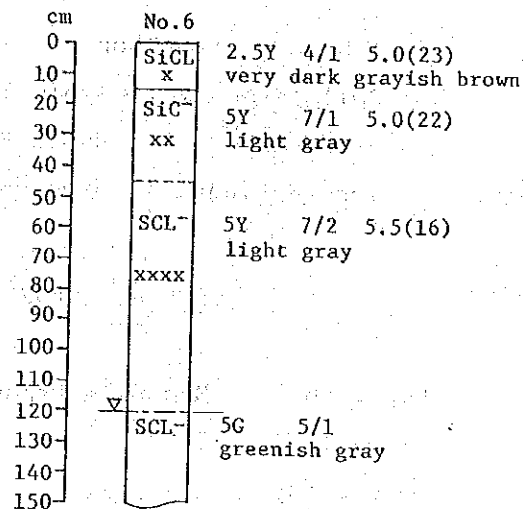
Land Use / Vegetation : Paddy field

Drainage : Slightly poor

Water Table & Quality : 120cm from the surface

Subjected to Flood : Usually 1-2m deep in January

Remarks : Rice yield 50 tang/rai(max), 20-30 tang/rai (average)



PROFILE DESCRIPTION

Depth (cm)	Description
0-14	Dark grayish brown (2.5Y4/1), few strong brown (7.5YR4/6) mottles; silty clay loam with decomposed organic matter; moderate subangular blocky; firm, sticky, plastic; many roots; pH 5.0; hardness 23; clear smooth boundary.
14-45	Light gray (5Y7/1), common strong brown (7.5YR4/6) mottles; silty clay; weak subangular blocky; friable, sticky, plastic; common roots; pH 5.0; hardness 22; gradual smooth boundary.
45-120	Light gray (5Y7/2), prominent yellowish brown (10YR5/8) mottles; sandy clay loam with gray coarse quartz sand; massive; friable, non sticky, non plastic; few roots; pH 5.5; hardness 16; clear boundary.
120-150	Greenish gray* (5G5/1); sandy clay loam; massive; sticky, plastic.

PROFILE NO. 7

Date : July 14, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Ban Thon

Soil Taxonomy : Typic Tropohumods

FAO/UNESCO : Humic Podzols

Thai National : Groundwater Podzolic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Sala Pradu, Amphoe Tak Bai

Slope : 0-2%

Topography : Slightly undulating

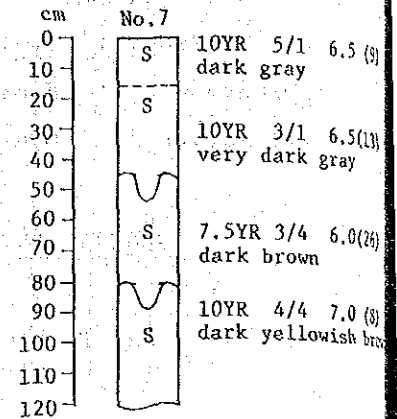
Land Use / Vegetation : Cleared forest

Drainage : Very well

Water Table & Quality : Deeper than 1.5m from the surface

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
A 0-13	Dark gray (10YR4/1); sand; single grained; friable, non sticky, non plastic; many roots; pH 6.5; hardness 9; gradual smooth boundary.
E 13-43/60	Very dark gray (10YR3/1); sand; single grained; compacted, non sticky, non plastic; many roots; pH 6.5; hardness 13; clear wavy boundary.
Bs1 43/60-82/95	Dark brown (7.5YR3/4); sand; single grained; compacted, non sticky, non plastic; pH 6.0; hardness 26; gradual wavy boundary.
Bs2 82/95-120	Dark yellowish brown (10YR4/4); sand; single grained; friable, non sticky, non plastic; pH 7.0; hardness 8.

PROFILE NO. 8

Date : July 14, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bangnara

Soil Taxonomy : Typic Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Tha Phack, Amphoe Tak Bai

Slope : < 1%

Topography : Flat

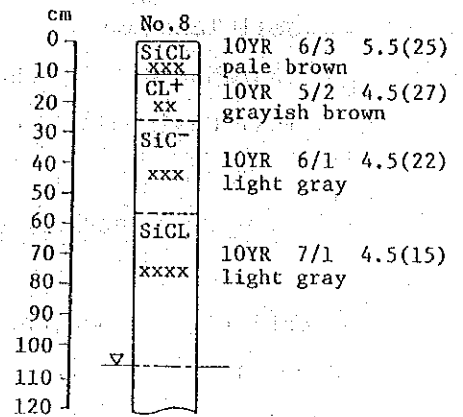
Land Use / Vegetation : Paddy field

Drainage : Poor

Water Table & Quality : 105cm from the surface

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
0-10	Pale brown (10YR6/3), many brownish yellow (10YR6/8) mottles; silty clay loam; moderate angular blocky; hard, sticky, plastic; many roots; pH 5.5; hardness 25; clear smooth boundary.
10-25	Grayish brown (10YR5/2), common brownish yellow (10YR6/8) mottles; clay loam; subangular blocky; firm, sticky, plastic; few roots; pH 4.5; hardness 27; gradual smooth boundary.
25-53	Light gray (10YR6/1), common brownish yellow (10YR6/8) and common red (10R4/6) mottles; silty clay; angular blocky; friable, very sticky, very plastic; pH 4.5; hardness 22; gradual smooth boundary.
53-120	Light gray (10YR7/1), many red (10R4/6) and few brownish yellow (10YR6/8) mottles; silty clay loam; weak angular blocky; slightly sticky, plastic; pH 4.5; hardness 15.

PROFILE NO. 9

Date : July 14, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Tak Bai

Soil Taxonomy : Typic Tropaquepts

FAO/UNESCO : Humic Gleysols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Nai, Amphoe Tak Bai

Slope : < 1%

Topography : Flat

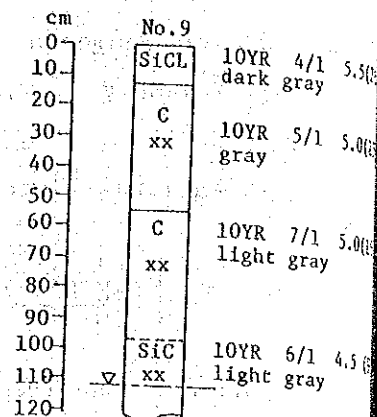
Land Use / Vegetation : Paddy field

Drainage : Poor

Water Table & Quality : 110cm from the surface

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

<u>Depth (cm)</u>	<u>Description</u>
Ap 0-11	Dark gray (10YR4/1); silty clay loam; subangular blocky; firm, slightly sticky, plastic; many roots; pH 5.5; hardness 26; clear smooth boundary.
AB 11-42	Gray (10YR5/1), common brown (10YR4/3) mottles; clay; angular blocky; firm, very sticky, very plastic; many roots; pH 5.0; hardness 25; clear smooth boundary.
Bg1 42-94	Light gray (10YR7/1), common yellowish brown (10YR4/6) mottles; clay; prismatic; firm, very sticky, very plastic; few roots; pH 5.0; hardness 16; gradual smooth boundary.
Bg2 94-120	Light gray (10YR6/1), common yellowish brown (10YR4/6) mottles; silty clay; massive; slightly sticky, plastic; pH 4.5; hardness 9.

PROFILE NO. 10

Date : July 15, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Ban Thon

Soil Taxonomy : Typic Tropohumods

FAO/UNESCO : Humic Podzols

Thai National : Groundwater Podzolic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Ngu, Amphoe Tak Bai

Slope : 3%

Topography : Undulating

Land Use / Vegetation : Cashew nuts trees after clearing forest

Drainage : Well

Water Table & Quality : Deeper than 1.5m from the surface

Subjected to Flood :

Remarks :

cm	No.10	
0	S	10YR 4/1 5.0(15) dark gray
10		
20	S	10YR 6/3 6.5(13) pale brown
30		
40		
50	L	7.5YR 3/2 6.0(25) dark brown
60		
70	LS	10YR 3/3 6.0(22) dark brown
80		
90	S	10YR 6/4 6.0(13) light yellowish brown
100		
110		
120		

PROFILE DESCRIPTION

Depth (cm)	Description
A 0-15	Dark gray (10YR4/1); sand with decomposed organic matter; single grained; loose, non sticky, non plastic; many roots; pH 5.0; hardness 15; clear smooth boundary
E 15-40/43	Pale brown (10YR6/3); sand; single grained; friable, non sticky, non plastic; common roots; pH 6.5; hardness 13; clear wavy boundary.
Bs1 40/43-49	Dark brown (7.5YR3/2); loam; massive; compacted, non sticky, slightly plastic; pH 6.0; hardness 25; clear smooth boundary.
Bs2 49-78	Dark brown (10YR3/3); loamy sand including patches of spodic material; massive; friable, non sticky, non plastic; pH 6.0; hardness 22; gradual smooth boundary.
Bs3 78-120	Light yellowish brown (10YR6/4); sand; single grained; friable, non sticky, non plastic; pH 6.0; hardness 13.

PROFILE NO. 11

Date : July 15, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Rangae

Soil Taxonomy : Sulfic Fluvaquents

FAO/UNESCO : Dystric Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Bang Toei, Amphoe Tak Bai

Slope : < 1%

Topography : Even

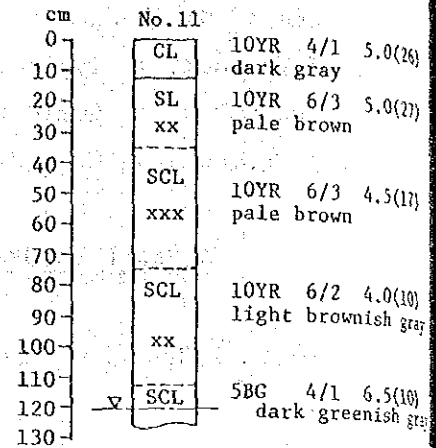
Land Use / Vegetation : Grasses

Drainage : Moderately poor

Water Table & Quality : 120cm from the surface; pH 4.1,
EC 2.54 mS/cm, 31.7°C

Subjected to Flood : About 1.0m deep in January

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
A 0-12	Dark gray (10YR4/1); clay loam; subangular blocky; friable, sticky, plastic; many roots; pH 5.0; hardness 26; clear smooth boundary.
AC 12-35	Pale brown (10YR6/3), common brownish yellow (10YR6/8) mottles; sandy loam; massive; friable, slightly sticky, slightly plastic, common roots; pH 5.0; hardness 27; gradual smooth boundary.
Cl 35-73	Pale brown (10YR6/3), many brownish yellow (10YR6/8) mottles; sandy clay loam; weak subangular blocky; friable, slightly sticky, plastic; few roots; pH 4.5; hardness 17; gradual smooth boundary.
C2 73-110	Light brownish gray (10YR6/2), common brownish yellow (10YR6/8) mottles; sandy clay loam; massive; friable, slightly sticky, plastic; pH 4.0; hardness 10; gradual smooth boundary.
Cg 110-120	Dark greenish gray *(5BG4/1); sandy clay loam; massive; slightly sticky, plastic; pH 6.5; hardness 10.

PROFILE NO. 12

Date : July 15, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Rangae

Soil Taxonomy : Sulfic Fluvaquents

FAO/UNESCO : Dystric Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khiri-Pikun Thong, Amphoe Muang

Slope : < 1%

Topography :

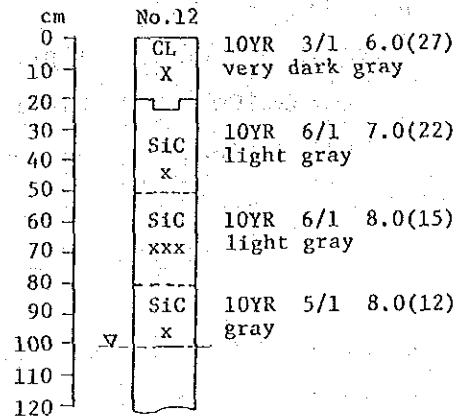
Land Use / Vegetation : Paddy field

Drainage : Moderate

Water Table & Quality : 100cm from the surface; pH 5.6,

Subjected to Flood : EC 5.34 mS/cm, 33.7°C
None

Remarks : Rice yield 30 tang/rai



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-20	Very dark gray(10YR3/1), few yellowish brown (10YR5/8) mottles; clay loam; angular blocky; very hard, sticky, plastic; many roots; pH 6.0; hardness 27; clear irregular boundary.
ACg 20-50	Light gray (10YR6/1), few yellowish brown (10YR5/8) mottles; silty clay; prismatic; firm, sticky, plastic; common roots; pH 7.0; hardness 22; gradual irregular boundary.
Cg1 50-80	Light gray (10YR6/1), many yellowish brown (10YR5/8) mottles; silty clay; weak angular blocky; friable, sticky, plastic; few roots; pH 8.0; hardness 15; gradual smooth boundary.
Cg2 80-120	Gray (10YR5/1), few yellowish brown (10YR5/8) mottles; silty clay; massive; very sticky, very plastic; including thin salt layer; pH 8.0; hardness 12.

PROFILE NO. 13

Date : July 17, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bacho

Soil Taxonomy : Typic Quartzipsamments

FAO/UNESCO : Dystric Regosols

Thai National : Regosols

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khai, Amphoe Muang

Slope : > 3%

Topography : Undulating - Rolling

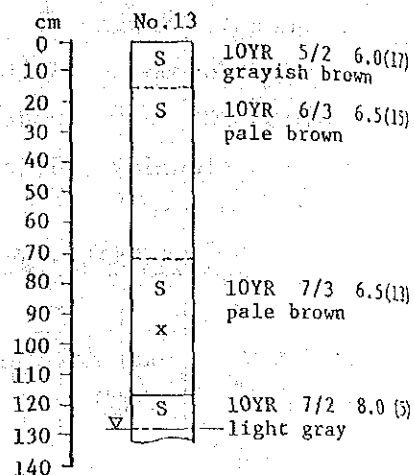
Land Use / Vegetation : Coconut trees

Drainage : Well

Water Table & Quality : 125cm from the surface; pH 5.6,
EC 1.0 mS/cm, 30.2°C

Subjected to Flood :

Remarks : Granite, quartz sand



PROFILE DESCRIPTION

<u>Depth (cm)</u>	<u>Description</u>
Ap 0-16	Grayish brown (10YR5/2); sand; single grained; loose, non sticky, non plastic; many roots; pH 6.0; hardness 17; gradual smooth boundary.
AC 16-70	Pale brown (10YR6/3); sand; single grained; friable, non sticky, non plastic; many roots; pH 6.5; hardness 15; gradual smooth boundary.
C1 70-115	Very pale brown (10YR7/3), few brownish yellow (10YR6/8) mottles; sand; single grained; friable, non sticky, non plastic; few roots; pH 6.5; hardness 13; clear smooth boundary.
C2 115-120	Light gray (10YR7/2); coarse sand; single grained; loose, non sticky, non plastic; pH 8.0; hardness 5.

PROFILE NO. 14

Date : July 17, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Phuket

Soil Taxonomy : Typic Paleudults

FAO/UNESCO : Orthic Acrisols

Thai National : Red-Yellow Podzolic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Kam Phaeng, Amphoe Muang

Slope : < 3%

Topography : Undulating

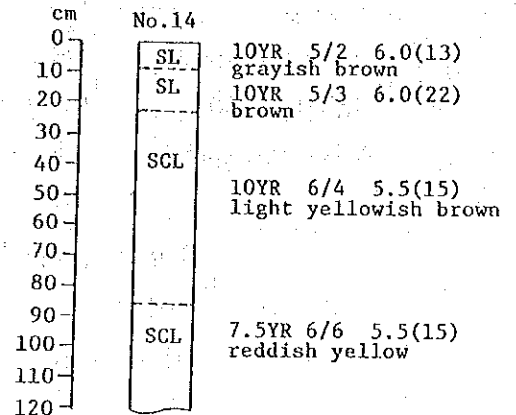
Land Use / Vegetation : Rubber trees with coconut trees

Drainage : Well

Water Table & Quality : Deeper than 1.5m from the surface

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
0-8	Grayish brown (10YR5/2); sandy loam with black decomposed organic matter; structureless; loose, slightly sticky, slightly plastic; many roots; pH 6.0; hardness 13; gradual smooth boundary.
8-21	Brown (10YR5/3); sandy loam; structureless; loose, slightly sticky, slightly plastic; common roots; pH 6.0; hardness 22; gradual smooth boundary.
21-84	Light yellowish brown (10YR6/4), coarse sandy clay loam; structureless; friable, slightly sticky, plastic; few thick roots; pH 5.5; hardness 15; gradual smooth boundary.
84-120	Reddish yellow (7.5YR6/6); sandy clay loam with white coarse sand patch; structureless; friable, slightly sticky, plastic; pH 5.5; hardness 15.

PROFILE NO. 15

Date : July 17, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Chonburi

Soil Taxonomy : Typic Tropaqualfs

FAO/UNESCO : Gleyic Luvisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Kanae, Amphoe Muang

Slope : < 1%

Topography : Even

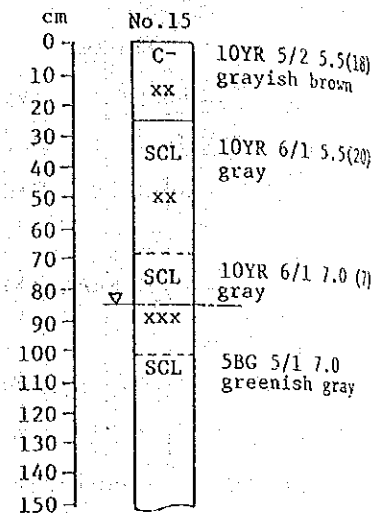
Land Use / Vegetation : Paddy field (idle), grasses for pasture

Drainage : Poor

Water Table & Quality : 84cm from the surface; pH 6.0, EC 102 μ S/cm, 34.3°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-25	Grayish brown (10YR5/2), common yellowish brown (10YR5/8) mottles; clay; subangular blocky; firm, very sticky, very plastic; many roots; pH 5.5; hardness 18; clear smooth boundary.
Bg1 25-68	Light gray (10YR6/1), common yellowish brown (10YR5/8) mottles; sandy clay; massive; slightly sticky, plastic; few roots; pH 5.5; hardness 20; gradual smooth boundary.
Bg2 68-100	Light gray (10YR6/1), many yellowish brown (10YR5/8) mottles; coarse sandy clay loam; massive; slightly sticky, plastic; pH 7.0; hardness 7; clear boundary.
Cg 100-150	Bluish gray *(5BG5/1); coarse sandy clay loam; massive; sticky, plastic; pH 7.0.

PROFILE NO. 16

Date : July 18, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Nam Krachai

Soil Taxonomy : Oxic Plinthaquults

FAO/UNESCO : Plinthic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Sila, Amphoe Muang

Slope : 2%

Topography : Undulating

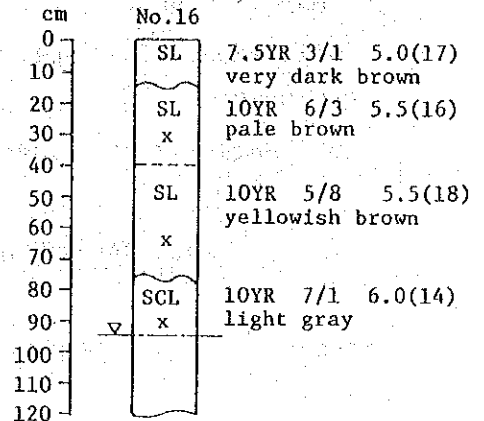
Land Use / Vegetation : Upland field (cassava) with coconut trees

Drainage : Well

Water Table & Quality : 96cm from the surface; pH 4.2, EC 24.6 μ S/cm, 29.0°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
0-15/20	Very dark gray (N3); sandy loam with many decomposed organic matter; weak subangular blocky; friable, non sticky, slightly plastic; many roots; pH 5.0; hardness 17; clear wavy boundary.
15/20-40	Pale brown (10YR6/3), few yellowish brown (10YR5/8) mottles; sandy loam; weak subangular blocky; friable, non sticky, slightly plastic; common roots; pH 5.5; hardness 16; gradual smooth boundary.
40-77/84	Light brownish gray (10YR6/2), prominent yellowish brown (10YR5/8) mottles; sandy loam; weak subangular blocky; friable, non sticky, slightly plastic; few roots; pH 5.5; hardness 18; clear wavy boundary.
77/84-120	Light gray (10YR7/1), few yellowish brown (10YR5/8) mottles; sandy clay loam; massive; slightly sticky, slightly plastic; pH 6.0; hardness 14.

PROFILE NO. 17

Date : July 18, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Muno

Soil Taxonomy : Sulfic Tropaquepts

FAO/UNESCO : Thionic Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Pileng , Amphoe Rangae

Slope : < 1%

Topography : Flat

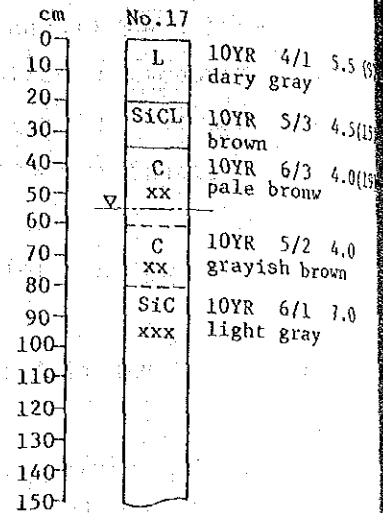
Land Use / Vegetation : Cassava and water melon

Drainage : Poor

Water Table & Quality : 54cm from the surface; pH 3.2,
EC 1.77 mS/cm, 31.8°C

Subjected to Flood : 1.6m deep for 15 days in January and
February

Remarks : Drain water with small fish; pH 3.6, EC 477µS/cm,
34.0°C. Water melon is low yield.



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-20	Dark gray (10YR4/1); loam with peaty muck; structureless; friable, slightly sticky, slightly plastic; many roots, pH 5.5; hardness 9; clear smooth boundary.
AB 20-34	Brown (10YR5/3); silty clay loam; angular blocky; friable sticky, plastic; common roots; pH 4.5; hardness 15; clear smooth boundary.
Bt 34-60	Pale brown (10YR6/3), common reddish brown (5YR5/3) mottles; clay; angular blocky; very sticky, very plastic; pH 4.0; hardness 19; gradual boundary.
BC 60-80	Grayish brown (10YR5/2), common yellowish brown (10YR5/8) mottles; clay; structureless; very sticky, very plastic; pH 4.0.
Cg 80-150	Light gray (10YR6/1), many yellowish brown (10YR5/8) and common red (10R4/8) mottles; silty clay; structureless; very sticky, very plastic; pH 7.0.

PROFILE NO. 18

Date : July 18, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Pileng

Soil Taxonomy : Typic Tropaquepts

FAO/UNESCO : Humic Gleysols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Pileng, Amphoe Rangae

Slope : <1%

Topography : Flat

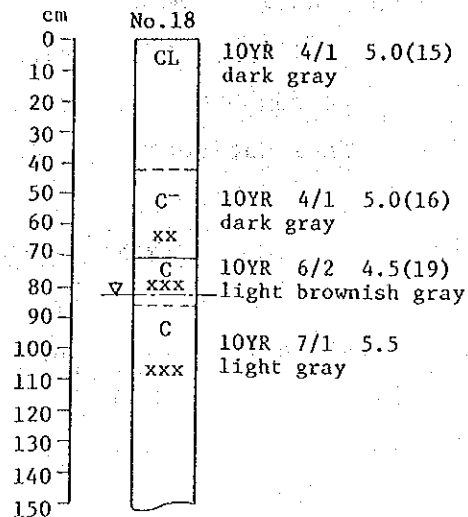
Land Use / Vegetation : Grasses (pasture)

Drainage : Poor

Water Table & Quality : 82cm from the surface; pH 4.7,
EC 53.1 μ S/cm, 34.5°C

Subjected to Flood :

Remarks : Drain water colored light brown; pH 6.0,
EC 48.0 μ S/cm, 36.8°C



PROFILE DESCRIPTION

Depth (cm)	Description
0-42	Dark gray (10YR4/1); clay loam; granular; friable, slightly sticky, plastic; many roots; pH 5.0; hardness 15; gradual smooth boundary.
42-70	Dark gray (10YR4/1), common yellowish brown (10YR5/8) mottles; clay with decomposed organic matter; subangular blocky, friable, very sticky, very plastic; few roots; pH 5.0; hardness 16; clear smooth boundary.
70-85	Light brownish gray (10YR6/2); many yellowish brown (10YR5/8) mottles; clay; angular blocky; very sticky, very plastic; pH 4.5; hardness 19; clear boundary.
84-150	Light gray (10YR7/1), many yellowish brown (10YR5/8) and common red (10R4/8) mottles; clay; structureless; pH 5.5.

PROFILE NO. 19

Date : July 19, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Muno

Soil Taxonomy : Sulfic Trophaquepts

FAO/UNESCO : Thionic Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Tang Yong Lulo, Amphoe Muang

Slope : < 1%

Topography : Flat

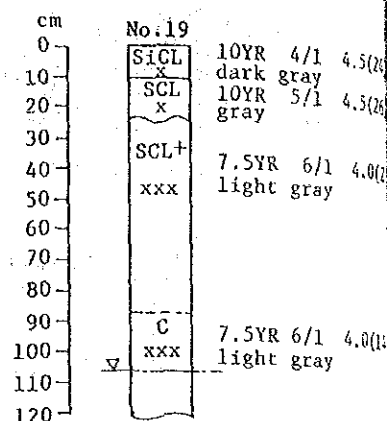
Land Use / Vegetation : Paddy field

Drainage : Poor

Water Table & Quality : 105cm from the surface; pH 3.6,
EC 1.43 mS/cm, 32.5°C

Subjected to Flood : About 1.5m deep for 10 days in
January and February.

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-10	Dark gray (10YR4/1), few yellowish brown (10YR5/8) mottles; silty clay loam; angular blocky; hard, slightly sticky, plastic; many roots; pH 4.5; hardness 24; clear smooth boundary.
AB 10-22/30	Gray (10YR5/1), few strong brown (7.5YR5/6) mottles; sandy clay loam; subangular blocky; firm, slightly sticky, plastic; few roots; pH 4.5, hardness 26; clear wavy boundary.
Btg1 22/30-87	Gray (N6), many strong brown (7.5YR5/8) mottles; sandy clay loam, angular blocky; friable, sticky, plastic; pH 4.0; hardness 21; gradual smooth boundary.
Btg2 87-120	Gray (N6), many strong brown (7.5YR5/8) mottles; clay; massive; very sticky, very plastic; pH 4.0; hardness 14.

PROFILE NO. 20

Date : July 19, 1985

Described by : Nakabayashi, Somsak, Ongard

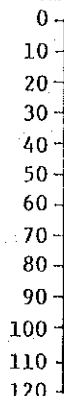
Soil Name : Sai Buri

Soil Taxonomy : Aeric Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

cm



No. 20

SiCL	10YR 5/3 5.0(31)
xx	grayish brown
CL	10YR 6/2 5.0(27)
xx	light brownish gray
SiCL	10YR 6/1 5.0(25)
xx	light gray

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Prang, Amphoe Muang

Slope : 5%

Topography : Rolling

Land Use / Vegetation : Rubber trees

Drainage : Well

Water Table & Quality : Deeper than 100cm from the surface

Subjected to Flood :

Remarks :

PROFILE DESCRIPTION

Depth (cm)	Description
0-12	Grayish brown (10YR5/2), common strong brown (7.5YR5/8) mottles; silty clay loam; compacted subangular blocky; hard, sticky, plastic; many roots; pH 5.0; hardness 31; gradual smooth boundary.
12-32	Light brownish gray (10YR6/2), common strong brown (7.5YR5/8) and few red (10R4/8) mottles; clay loam; angular blocky; firm, sticky, plastic; few roots; pH 5.0; hardness 27, gradual smooth boundary.
32-100	Light gray (10YR6/1), common strong brown (7.5YR5/8) mottles; silty clay loam; angular blocky; firm, sticky, plastic; pH 5.0; hardness 25.

PROFILE NO. 21

Date : July 20, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Ruso

Soil Taxonomy : Typic Paleudults

FAO/UNESCO : Orthic Acrisols

Thai National : Red-Yellow Podzolic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Ko Wing, Amphoe Muang

Slope : < 1%

Topography : Flat

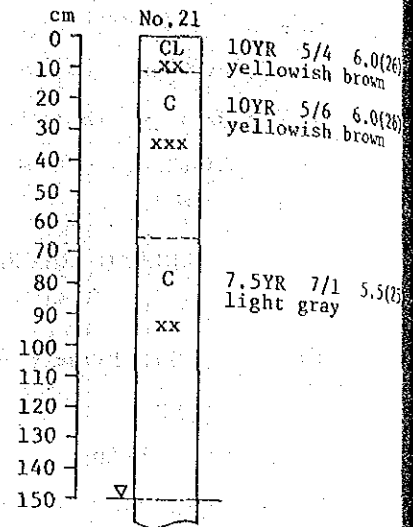
Land Use / Vegetation : House garden

Drainage : Well

Water Table & Quality : 150cm from the surface

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
A 0-11	Yellowish brown (10YR5/4), common dark brown (7.5YR4/4) mottles; clay loam; subangular blocky; friable, sticky, plastic; many roots; pH 6.0; hardness 26; gradual smooth boundary.
Bt1 11-65	Yellowish brown (10YR5/6), many red (10R5/8) mottles; clay; friable, very sticky, very plastic; common roots; pH 6.0; hardness 26; gradual smooth boundary.
Bt2 65-120	Light gray (N7), common strong brown (7.5YR5/6) and common red (10R5/8) mottles; clay; friable, very sticky, very plastic; pH 5.5; hardness 25.

PROFILE NO. 22

Date : July 20, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bangnara

Soil Taxonomy : Typic Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Ku Bae Bo Nga, Amphoe Muang

Slope : < 1%

Topography : Flat

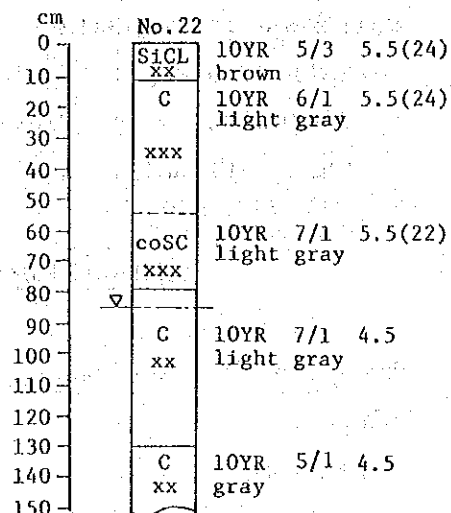
Land Use / Vegetation : Paddy field

Drainage : Poor

Water Table & Quality : 85cm from the surface; pH 4.7,
EC 41.7 µS/cm, 31.7°C

Subjected to Flood : About 70cm deep for 3 days in
January

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
0-12	Brown (10YR5/3), common yellowish brown (10YR5/8) mottles; silty clay loam; subangular blocky; friable, sticky, plastic; many roots; pH 5.5; hardness 24; clear smooth boundary.
12-55	Light gray (10YR6/1), many yellowish brown (10YR5/8) mottles, common red (10R4/8) mottles; clay; subangular blocky; friable, very sticky, very plastic; few roots; pH 5.5; hardness 24; gradual smooth boundary.
55-80	Light gray (10YR7/1), many yellowish brown (10YR5/8) and few red (10R4/8) mottles; coarse sandy clay; weak subangular blocky; very sticky, plastic; pH 5.5; hardness 22; gradual boundary.
80-150	Gray (10YR5/1), common red (10YR4/8) and few yellowish brown (10YR5/8) mottles; clay; massive; very sticky, very plastic; pH 4.5.

PROFILE NO. 23

Date : July 20, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Tha Sala

Soil Taxonomy : Typic Tropaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Bang Po, Amphoe Muang

Slope : < 1%

Topography : Flat

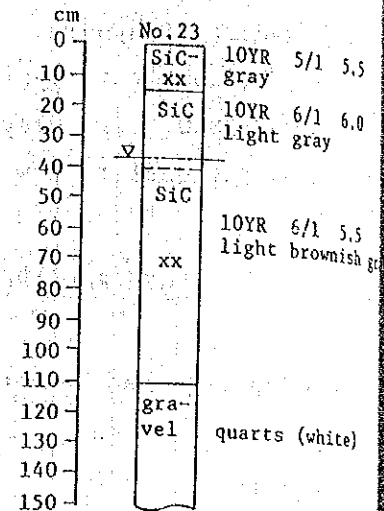
Land Use / Vegetation : Paddy field, near Bang Nara River, surrounded by rubber trees

Drainage : Poor

Water Table & Quality : 40cm from the surface; pH 5.9, EC 123 μ S/cm, 30.3°C

Subjected to Flood : About 10-15 days in January

Remarks :



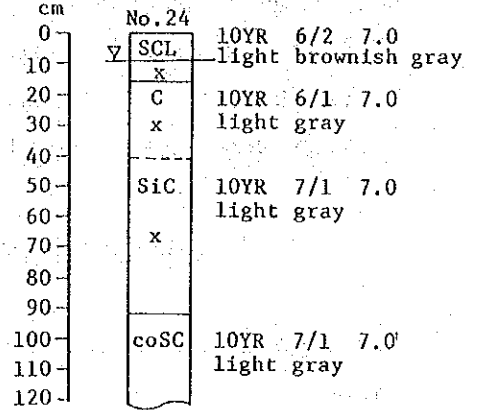
PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-15	Gray (10YR5/1), common yellowish brown (10YR5/8) mottles; silty clay; angular blocky; friable, sticky, plastic; many roots; pH 5.5; clear boundary.
Btg1 15-40	Light gray (10YR6/1); silty clay; massive; sticky, plastic; common roots; pH 6.0; gradual boundary.
Btg2 40-90	Light brownish gray (10YR6/2), common strong brown (7.5YR4/6) mottles; silty clay; structureless; sticky, plastic; pH 5.5; clear boundary.
C 90-130	Coarse gravels

PROFILE NO. 24

Date : July 21, 1985
 Described by : Nakabayashi, Somsak, Ongard

Soil Name : Khok Kian
 Soil Taxonomy : Typic Paleaquults
 FAO/UNESCO : Gleyic Acrisols
 Thai National : Low Humic Gley Soils



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Bank Khok, Amphoe Rangae
 Slope : < 1%
 Topography : Nearly flat
 Land Use / Vegetation : Paddy field
 Drainage : Very poor
 Water Table & Quality : 10cm from the surface; pH 6.0, EC 134 µS/cm, 29.0°C
 Subjected to Flood : Sometimes during rainy season
 Remarks :

PROFILE DESCRIPTION

Depth (cm)	Description
0-15	Light brownish gray (10YR6/2), few yellowish brown (10YR5/8) mottles; sandy clay loam; subangular blocky; sticky, plastic; many roots; pH 7.0; gradual boundary.
15-40	Light gray (10YR6/1), few strong brown (7.5YR4/6) mottles; clay; weak subangular blocky; very sticky, very plastic; common roots; pH 7.0; gradual boundary.
40-90	Light gray (10YR7/1), few strong brown (7.5YR4/6), silty clay; massive; sticky, very plastic; pH 7.0; gradual boundary.
90-120	Light gray (10YR7/1), coarse sandy clay; massive; sticky, slightly plastic; pH 7.0.

PROFILE NO. 25

Date : July 21, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bangnara

Soil Taxonomy : Typic Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Tong Krang, Amphoe Rangae

Slope : < 1%

Topography : Flat

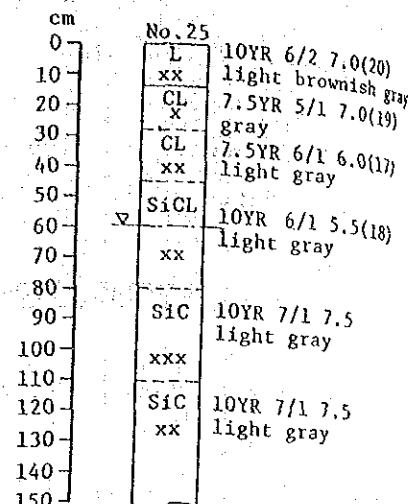
Land Use / Vegetation : Paddy field

Drainage : Moderate

Water Table & Quality : 60cm from the surface; pH 5.0,
EC 25.9 μ S/cm, 30.4°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-13	Light brownish gray (10YR6/2), common yellowish brown (10YR5/8) mottles; loam; weak subangular blocky; friable, slightly sticky, plastic; many roots; pH 7.0; hardness 20; clear smooth boundary.
Bt1 13-27	Gray (N5), few brownish yellow (10YR6/8) mottles; clay loam; weak subangular blocky; friable, sticky, plastic; many roots; pH 7.0; hardness 19; gradual smooth boundary.
Bt2 27-44	Light gray (7.5YR6/1), common brownish yellow (10YR6/8) and few red (10R4/8) mottles; clay loam; weak subangular blocky; sticky, plastic; few roots; pH 6.0; hardness 17; gradual smooth boundary.
Bt3 44-80	Light gray (10YR6/1), common brownish yellow (10YR6/8) and common red (10R4/8) mottles; silty clay loam; weak angular blocky; sticky, plastic; pH 5.5; hardness 18; gradual boundary.
Bt4 80-110	Light gray (10YR7/1), common red (10R4/8) and few yellowish brown (10YR5/8) mottles; silty clay; massive; sticky, very plastic; pH 7.5; gradual boundary.
Btg 110-150	Similar to above except for yellowish brown mottles dominate, i.e. common yellowish brown (10YR5/8) and few red (10R4/8) mottles.

PROFILE NO. 26

Date : July 21, 1985

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Kap Dang

Soil Taxonomy : Typic Sulfihemists

FAO/UNESCO : Dystric Histosols

Thai National : Organic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Nae Tae, Amphoe Muang

Slope : 1%

Topography : Slightly depressed

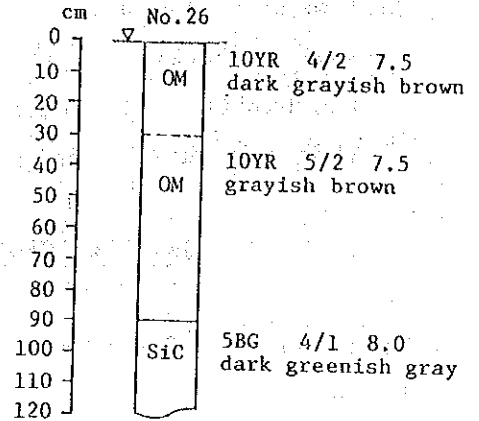
Land Use / Vegetation : Grasses

Drainage : Very poor

Water Table & Quality : At the surface; pH 6.2,
EC 206 $\mu\text{S}/\text{cm}$, 35.2°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
0i 0-30	Dark grayish brown (10YR4/2); peat; structureless; pH 7.5; gradual boundary.
0e 30-90	Grayish brown (10YR5/2); peaty muck with loam; structureless; pH 7.5; clear boundary.
0g 90+	Dark greenish gray (5BG4/1); silty clay; massive; sticky, very plastic; pH 8.0.

PROFILE NO. 27

Date : Jan. 21, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Tak Bai

Soil Taxonomy : Typic Tropaquepts

FAO/UNESCO : Humic Gleysols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Phlay, Amphoe Muang

Slope : <1%

Topography : Flat

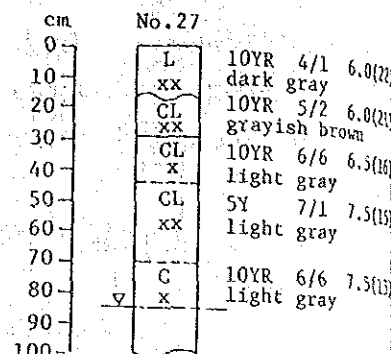
Land Use / Vegetation : Paddy field

Drainage : Somewhat poor

Water Table & Quality : 85 cm. from the surface, pH 6.2, 28.1 °C

Subjected to Flood : About 1m for a week or a month

Remarks : After rice harvesting, vegetables and beans are grown under irrigation using hand pump.



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-18	Dark gray (10YR4/1), common dark reddish brown (5YR3/4) mottles; loam; granular; friable, slightly sticky, slightly plastic; many pores; many roots, many decomposed organic matter; pH 6.0; hardness 22; clear wavy boundary.
AB 18-30	Grayish brown (10YR5/2), common reddish yellow (7.5YR7/8) mottles; clay loam; subangular blocky; friable, slightly sticky, plastic; common pores; few roots, common decomposed organic matter; pH 6.0; hardness 21; clear smooth boundary.
Bg1 30-45	Light gray (N7), few brownish yellow (10YR6/6) mottles; clay loam; weak subangular blocky; friable, slightly sticky, plastic; common pores; pH 6.5; hardness 16; gradual smooth boundary.
Bg2 40-70	Light gray (5Y7/1), common brownish yellow (10YR6/6) mottles; clay loam; weak subangular blocky; friable, slightly sticky, plastic; few pores; pH 7.5; hardness 15; gradual smooth boundary.
Bg3 70-110	Light gray (N7), few brownish yellow (10YR6/6) mottles; clay; massive; very sticky, very plastic; few pores; pH 7.5; hardness 15.

PROFILE NO. 28

Date : Jan. 21, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Kohong

Soil Taxonomy : Typic Paleudults

FAO/UNESCO : Orthic Acrisols

Thai National : Red-Yellow Podzolic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Jarosato, Amphoe Muang

Slope : 2-4%

Topography : Undulating

Land Use / Vegetation : Rubber trees

Drainage : Well

Water Table & Quality : 85cm from the surface, pH 4.4
29.6°C

Subjected to Flood : None

Remarks :

cm	No. 28	
0	SL	10YR 4/1 6.0(13) dark gray
10		
20		
30	SL	2.5Y 6/4 6.0(16) light yellowish brown
40		
50	SL	2.5Y 7/4 5.5(16) pale yellow
60	xx	
70		
80	SL	10YR 6/6 5.0(14) brownish yellow
90	xxx	
100		

PROFILE DESCRIPTION

Depth (cm)	Description
0-27	Dark gray (10YR4/1); sandy loam; weak granular; friable, non sticky, slightly plastic; many pores; many roots; pH 6.0; hardness 13; gradual smooth boundary.
27-47	Light yellowish brown (2.5Y6/4); sandy loam; structureless; friable, non sticky, non plastic; many fine pores; many roots and decomposed organic matter; pH 6.0; hardness 16; gradual smooth boundary.
47-72	Pale yellow (2.5Y7/4), common brown (7.5YR4/4) mottles; sandy loam; structureless; friable, non sticky, non plastic; few pores; few roots and decomposed organic matter; pH 5.5; hardness 16; gradual smooth boundary.
72-100	Brownish yellow (10YR6/6), many light yellowish brown (10YR6/4) and red (10YR4/8) mottles in deeper layer; sandy loam; structureless; non sticky, slightly plastic; few pores; pH 5.0; hardness 14.

PROFILE NO. 29

Date : Jan. 21, 1986

Described by : Nakabayashi, Somsak, Oungard

Soil Name : Chonburi

Soil Taxonomy : Typic Tropaqualfs

FAO/UNESCO : Gleyic Luvisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Kamu Rae, Amphoe Muang

Slope : < 2%

Topography : Flat

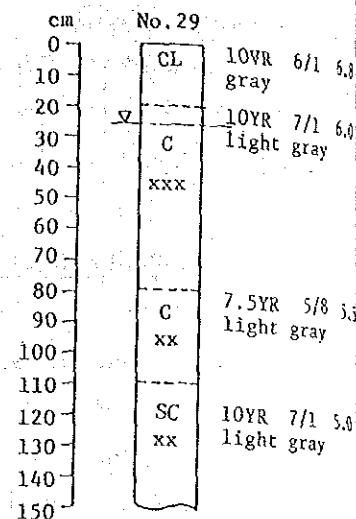
Land Use / Vegetation : Paddy field

Drainage : Poor

Water Table & Quality : 25cm from the surface; pH 5.3,
27.3°C

Subjected to Flood :

Remarks : Surface water pH 5.8, 27.3°C; estimated
yield less than 30 tang/rai.
By auger boring.



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-20	Gray (10YR6/1); clay loam; weak subangular blocky; sticky, plastic; many roots; pH 6.8; gradual boundary.
Btg1 20-80	Light gray (10YR7/1), many strong brown (10YR5/6) mottles; clay; massive; very sticky, very plastic; pH 6.0; gradual boundary.
Btg2 80-110	Light gray (N7), common strong brown (7.5YR5/8) mottles; clay; massive; very sticky, very plastic; pH 5.5; gradual boundary.
Bg 110-150	Light gray (10YR7/1), common strong brown (7.5YR5/8) mottles; sandy clay; very sticky, plastic; pH 5.0.

PROFILE NO. 30

Date : Jan. 22, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Muno

Soil Taxonomy : Sulfic Trophaepts

FAO/UNESCO : Thionic Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban To Lang, Amphoe Tak Bai

Slope : < 1%

Topography : Flat

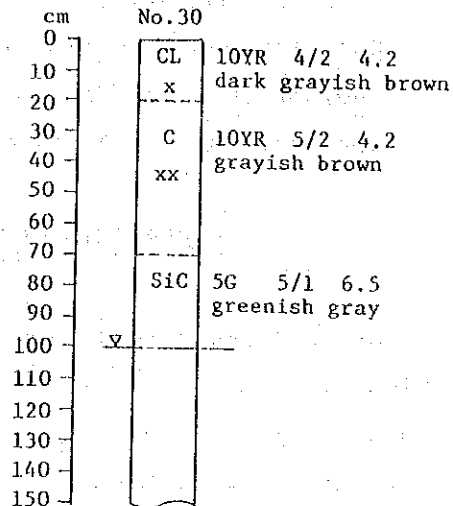
Land Use / Vegetation : Barren land with scarce small grasses

Drainage : Poor

Water Table & Quality : 100cm from the surface; pH 6.6, 27.3°C

Subjected to Flood :

Remarks : Drain water pH 2.9, 26.6°C; This area is surrounded by Samet trees and dwelling area at one side. Rice is planted in small area.



PROFILE DESCRIPTION

Depth (cm)	Description
0-20	Dark grayish brown (10YR4/2), few dark yellowish brown (10YR4/6) mottles; clay loam; subangular blocky; friable, sticky, plastic; pH 4.2; gradual boundary.
20-70	Grayish brown (10YR5/2), common brownish yellow (10YR6/8) mottles; clay; subangular blocky; friable, very sticky, very plastic; pH 4.2; clear boundary
70-150	Greenish gray (5G5/1); silty clay; massive; very sticky, plastic; pH 6.5.

PROFILE NO. 31

Date : Jan. 22, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Kap Dang

Soil Taxonomy : Typic Sulfihemists

FAO/UNESCO : Dystric Histosols

Thai National : Organic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Kraduk Mu, Amphoe Tak Bai

Slope : < 2%

Topography : Uneven

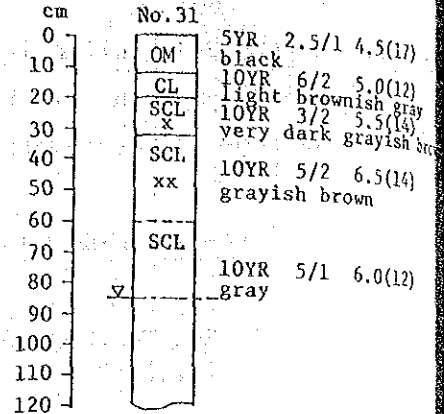
Land Use / Vegetation : Grasses

Drainage : Moderate (adjacent Kap Daeng drainage canal)

Water Table & Quality : 85cm from the surface

Subjected to Flood :

Remarks : This area is near drainage canal and in a small paddy field demonstrated by DLD.



PROFILE DESCRIPTION

Depth (cm)	Description
Oe 0-12	Black (5YR2.5/1); peat & muck; slightly sticky, non plastic; porous; many roots; pH 4.5; hardness 17; clear smooth boundary.
E 12-20	Light brownish gray (10YR6/2), common yellowish brown (10YR5/8) mottles; clay loam; massive; slightly sticky, plastic; many roots, common decomposed organic matter, pH 5.0; hardness 12; clear smooth boundary.
Bh 20-32	Very dark grayish brown (10YR3/2), few dark yellowish brown (10YR4/6) mottles; sandy clay loam; structureless; slightly sticky, plastic; common roots, few decomposed organic matter; pH 5.5; hardness 14; clear smooth boundary.
B 32-60	Grayish brown (10YR5/2), common strong brown (7.5YR5/8) mottles; sandy clay loam; structureless; sticky, plastic; common roots; pH 6.0; hardness 14; gradual smooth boundary.
Cg 60-120	Gray (10YR5/1); sandy clay loam; massive; sticky, plastic; common roots, common decomposed organic matter; pH 6.0; hardness 12.

PROFILE NO. 32

Date : Jan. 22, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Rangae

Soil Taxonomy : Sulfic Fluvaquents

FAO/UNESCO : Dystric Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khao Kam Pan, Amphoe Muang

Slope : < 2%

Topography : Flat

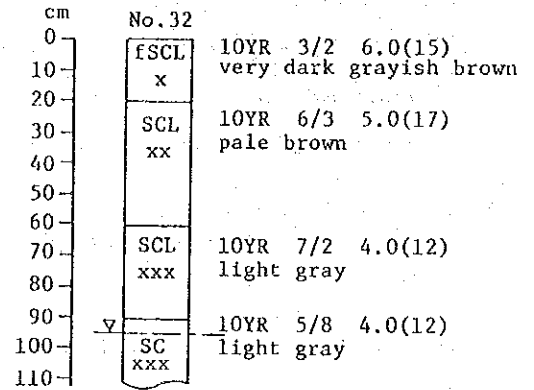
Land Use / Vegetation : Grasses

Drainage : Somewhat poor

Water Table & Quality : 93cm from the surface; pH 3.8, 30.2°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
0-20	Very dark grayish brown (10YR3/2), few strong brown (7.5YR4/6) mottles; fine sandy clay loam; subangular blocky; friable, slightly sticky, plastic; few pores; many roots, many decomposed organic matter; pH 6.0; hardness 15; clear smooth boundary.
20-60	Pale brown (10YR6/3), common strong brown (7.5YR5/6) mottles; sandy clay loam; weak subangular blocky; friable, slightly sticky, plastic; few pores; few roots; pH 5.0; hardness 17; clear smooth boundary.
60-90	Light gray (10YR7/2), many brownish yellow (10YR6/8) mottles; sandy clay loam; subangular blocky; friable, sticky, plastic; few pores; common roots; pH 4.0; hardness 12; clear smooth boundary.
90-110	Light gray (N7), many yellowish brown (10YR5/8) mottles; sandy clay; massive; very sticky, plastic, few roots, many decomposed organic matter; pH 4.0; hardness 12, smelling of H ₂ S.

PROFILE NO. 33

Date : Jan. 23, 1986

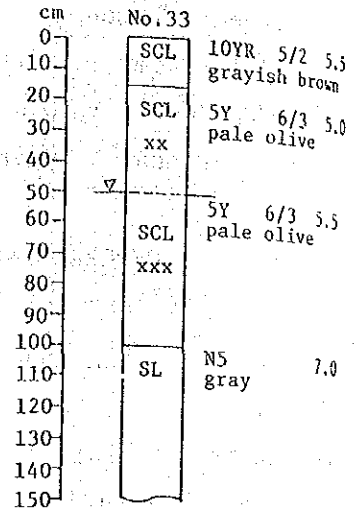
Described by : Nakabayashi, Somsak, Ongard

Soil Name : Pattani

Soil Taxonomy : Sulfic Fluvaquents

FAO/UNESCO : Dystric Fluvisols

Thai National : Hydromorphic Alluvial Soils



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Ko Sawad, Amphoe Tak Bai

Slope : 1-2%

Topography : Flat

Land Use / Vegetation : Paddy field

Drainage : Somewhat poor

Water Table & Quality : 50cm from the surface; pH 5.1, 27.6°C

Subjected to Flood :

Remarks : By auger boring

PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-15	Grayish brown (10YR5/2); sandy clay loam; subangular blocky, friable, slightly sticky, slightly plastic; many roots; pH 5.5; clear boundary.
B1 15-50	Pale olive (5Y6/3), common yellowish brown (10YR5/8) mottles; sandy clay loam; subangular blocky; friable, slightly sticky, slightly plastic; few roots; pH 5.0; gradual boundary.
B2 50-100	Pale olive (5Y6/3), many yellowish brown (10YR5/8) and few yellowish red (5YR5/8) mottles, sandy clay loam; structureless; slightly sticky, slightly plastic; pH 5.5; clear boundary.
Cg 100-150	Gray (N5); sandy loam; structureless; non sticky, non plastic; pH 7.0.

PROFILE NO. 34

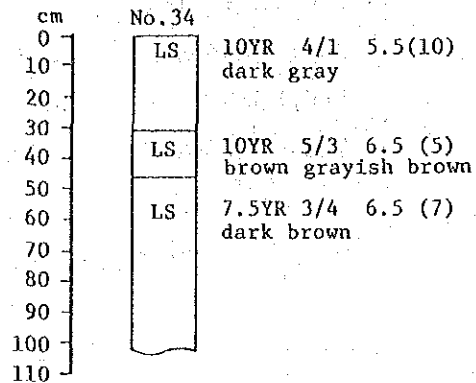
Date : January 23, 1986
Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bacho

Soil Taxonomy : Typic Quartzipsamments

FAO/UNESCO : Dystric Regosols

Thai National : Regosols



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Ma Fuang, Amphoe Tak Bai
Slope : 4-8%
Topography : Undulating
Land Use / Vegetation : Coconuts trees
Drainage : Well
Water Table & Quality : Deeper than 1.5m from the surface
Subjected to Flood :
Remarks :

PROFILE DESCRIPTION

<u>Depth (cm)</u>	<u>Description</u>
A 0-30	Dark gray (10YR4/1); loamy sand; single grain; loose; non sticky, non plastic; many roots, common decomposed organic matter; pH 5.5; hardness 10; clear smooth boundary.
AC 30-45	Brown (10YR5/3); loamy sand; single grain; loose, non sticky, non plastic; many roots; pH 6.5; hardness 5; clear smooth boundary.
C 45-100	Dark brown (7.5YR3/4); loamy sand; single grain; loose, non sticky, non plastic; few roots; pH 6.5; hardness 7.

PROFILE NO. 35

Date : January 23, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Tak Bai

Soil Taxonomy : Typic Tropaquepts

FAO/UNESCO : Humic Gleysols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Taling Soong, Amphoe Tak Bai

Slope : <2%

Topography : Flat

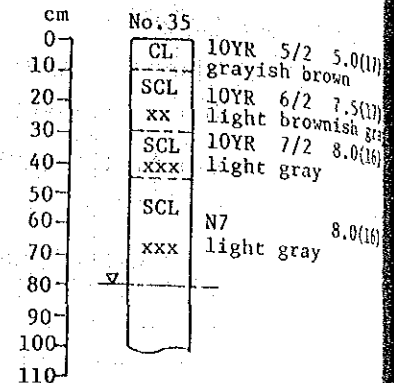
Land Use / Vegetation : Paddy field

Drainage : Moderate

Water Table & Quality : 80cm from the surface, pH 6.5,
31.0°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-10	Grayish brown (10YR5/2), few yellowish brown (10YR5/8) mottles; clay loam; weak angular blocky; friable, sticky, plastic; common pores; many roots; pH 5.0; hardness 17; gradual smooth boundary.
AB 10-30	Light brownish gray (10YR6/2), common brownish yellow (10YR6/6) mottles; sandy clay loam; weak subangular blocky; friable, sticky, plastic; common pores; common roots; pH 7.5; hardness 17; gradual smooth boundary.
B 30-45	Light gray (10YR7/2), many brownish yellow (10YR6/6) mottles; sandy clay loam; weak subangular blocky; friable, sticky, plastic; common pores; few roots; pH 8.0; hardness 16; gradual smooth boundary.
Bg 45-100	Light gray (N7), many yellow (10YR7/8) mottles, sandy clay loam; angular blocky; sticky, plastic; few pores; few roots; pH 8.0; hardness 16.

PROFILE NO. 36

Date : January 24, 1986

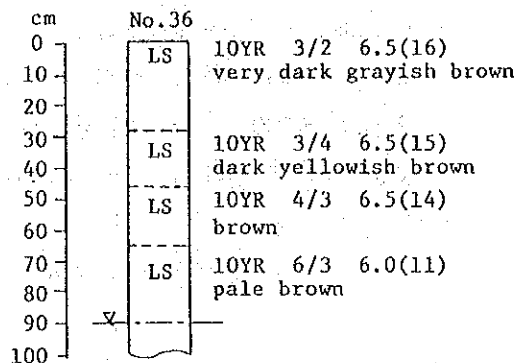
Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bacho

Soil Taxonomy : Typic Quartzipsamments

FAO/UNESCO : Dystric Regosols

Thai National : Regosols



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Tung Fai, Amphoe Tak Bai

Slope : 2-6%

Topography : Undulating

Land Use / Vegetation : Coconut trees

Drainage : Well

Water Table & Quality : 90cm from the surface; pH 4.8, 27.4°C

Subjected to Flood :

Remarks :

PROFILE DESCRIPTION

Depth (cm)	Description
0-28	Very dark grayish brown (10YR3/2); loamy sand; single grain; friable, non sticky, non plastic; many roots, many decomposed organic matter; pH 6.5; hardness 16; gradual smooth boundary.
28-46	Dark yellowish brown (10YR3/4); loamy sand; single grain; friable, non sticky, non plastic; many roots; pH 6.5; hardness 15; gradual smooth boundary.
46-64	Brown (10YR4/3); loamy sand; single grain; friable, non sticky, non plastic; few roots; pH 6.5; hardness 14; gradual smooth boundary.
65-100	Pale brown (10YR6/3); loamy sand; single grain; friable, non sticky, non plastic; few roots; pH 6.0; hardness 11.

PROFILE NO. 37

Date : January 24, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Nam Krachai

Soil Taxonomy : Oxic Plinthaquults

FAO/UNESCO : Plinthic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Chumbok, Amphoe Tak Bai

Slope : 2-6%

Topography : Uneven

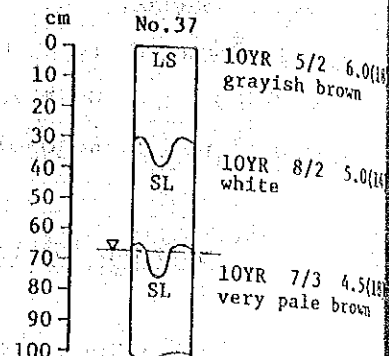
Land Use / Vegetation : Rubber trees

Drainage : Well

Water Table & Quality : 65cm from the surface; pH 4.7,
28.7°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

<u>Depth (cm)</u>	<u>Description</u>
A 0-30/40	Grayish brown (10YR5/2); loamy sand; single grain; friable, non sticky, non plastic; common pores; common roots; pH 6.0; hardness 18; clear wavy boundary.
B1 30/40-65/75	White (10YR8/2); sandy loam; single grain; friable, non sticky, non plastic; few roots; pH 5.0; hardness 14; gradual wavy boundary.
B2 65/65-100	Very pale brown (10YR7/3); sandy loam; single grain; non sticky, non plastic; few roots; pH 4.5; hardness 18.

PROFILE NO. 38

Date : January 25, 1986

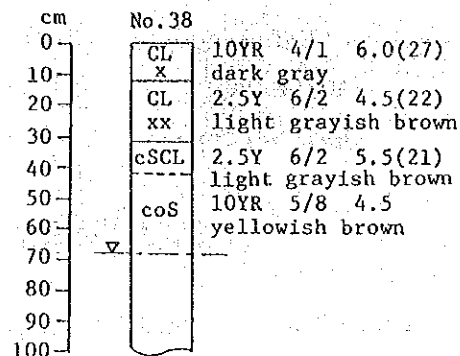
Described by : Nakabayashi, Somsak, Ongard

Soil Name : Tha Sala

Soil Taxonomy : Typic Tropaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Pu Ta, Amphoe Yi-ngo

Slope : 0-2%

Topography : Uneven

Land Use / Vegetation : Grasses

Drainage : Moderate

Water Table & Quality : 67cm from the surface; pH 4.9, 28.4°C

Subjected to Flood :

Remarks :

PROFILE DESCRIPTION

Depth (cm)	Description
0-12	Dark gray (10YR4/1), few strong brown (7.5YR5/6) mottles; clay loam; angular blocky; friable, sticky, plastic; few pores; common roots; pH 6.0; hardness 27; abrupt smooth boundary.
12-32	Light grayish brown (2.5Y6/2), common brownish yellow (10YR6/6) mottles; clay loam; angular blocky; friable, sticky, plastic; few pores; few roots, few decomposed organic matter; pH 4.5; hardness 22; clear smooth boundary.
32-42	Light grayish brown (2.5Y6/2), common brownish yellow (10YR6/6) mottles; coarse sandy clay loam; single grain; friable, non sticky, non plastic; common pores; few roots, few decomposed organic matter; pH 5.5; hardness 21; gradual smooth boundary.
42-100	Yellowish brown (10YR5/8); coarse sand; single grain; loose, non sticky, non plastic; pH 4.5 (no sampling).

PROFILE NO. 39

Date : January 25, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Rangae

Soil Taxonomy : Sulfic Fluvaquents

FAO/UNESCO : Dystric Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Lam Phu, Amphoe Muang

Slope : 0-2%

Topography : Uneven

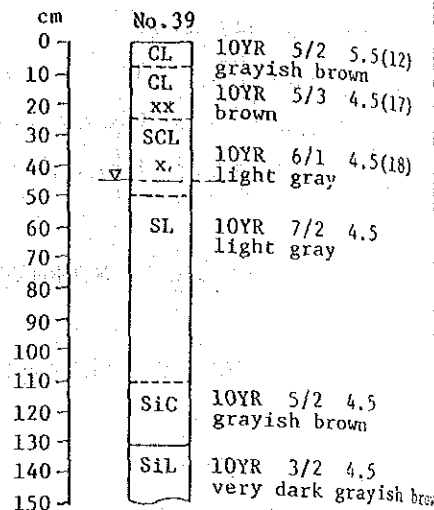
Land Use / Vegetation : Paddy field

Drainage : Somewhat poor

Water Table & Quality : 45cm from the surface; pH 4.0,
28.0°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-8	Grayish brown (10YR5/2), common strong brown (7.5YR4/6) mottles; clay loam; weak angular blocky; friable, sticky, plastic; common pores; many roots, many decomposed organic matter; pH 5.5; hardness 12; gradual smooth boundary.
AB 8-25	Brown (10YR5/3), common strong brown (7.5YR5/6) mottles; clay loam; weak angular blocky; friable, sticky, plastic; common pores; common roots; pH 4.5; hardness 17; gradual smooth boundary.
Bg 25-50	Light gray (10YR6/1), few strong brown (7.5YR5/6) mottles; sandy clay loam; very weak angular blocky; slightly sticky, slightly plastic; common pores; few roots; pH 4.5; hardness 18, gradual smooth boundary.
Bg 50-110	Light gray (10YR7/2); sandy loam; structureless; non sticky, non plastic; pH 4.5; gradual boundary.
Bg 110-130	Grayish brown (10YR5/2); silty clay; structureless; very sticky, very plastic; pH 4.5; clear boundary.
2C 130-150	Very dark grayish brown (10YR3/2); silty loam (muck); structureless; non sticky, non plastic; pH 4.5; smelling H ₂ S.

PROFILE NO. 40

Date : January 26, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Thon Sai

Soil Taxonomy : Tropic Fluvaquents

FAO/UNESCO : Dystric Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Khok Sai, Amphoe Muang

Slope : 1-2%

Topography : Uneven

Land Use / Vegetation : Grasses and rubber trees

Drainage : Poor

Water Table & Quality : 60cm from the surface; pH 4.3, 27.6°C

Subjected to Flood : About 60cm deep for a few days

Remarks : by heavy rain.

cm	No.40			
0	CL	10YR	4/2	5.0(20)
10	x		dark grayish brown	
20	C	10YR	6/3	5.0(20)
30	xxx		pale brown	
40	C	10YR	7/2	5.0(20)
50	xx		light gray	
60	v SCL	10YR	6/2	4.5(16)
70	xxx		light brownish gray	
80	SC	10YR	7/2	4.5
90	xx		light gray	
100				
110				
120				
130	C	10YR	7/1	4.5
140	x		light gray	
150				

PROFILE DESCRIPTION

Depth (cm)	Description
0-12	Dark grayish brown (10YR4/2), few strong brown (7.5YR4/6) mottles; clay loam; subangular blocky; friable, sticky, plastic; common pores; many roots, many decomposed organic matter; pH 5.0; hardness 20; clear smooth boundary.
12-30	Pale brown (10YR6/3), many strong brown (7.5YR5/8) mottles; clay; subangular blocky; friable, very sticky, very plastic; few pores; common roots; pH 5.0; hardness 20; gradual smooth boundary.
30-45/50	Light gray (10YR7/2), common yellowish brown (10YR5/8) and few red (10R4/8); clay; massive; friable, very sticky, very plastic; few pores; few roots; pH 5.0; hardness 20; gradual wavy boundary.
45/50-120	Light brownish gray (10YR6/2), common yellowish brown (10YR5/8) and common red (10R4/8) mottles; sandy clay loam; weak angular blocky; slightly sticky, slightly plastic; few pores; few roots; pH 4.5; hardness 16; gradual boundary.
120-150	Light gray (10YR7/1), few yellowish brown (10YR5/8) mottles; clay; massive; very sticky, very plastic; pH 4.5.

PROFILE NO. 41

Date : January 26, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bangnara

Soil Taxonomy : Typic Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Mai Naarm, Amphoe Muang

Slope : 1-2%

Topography : Flat

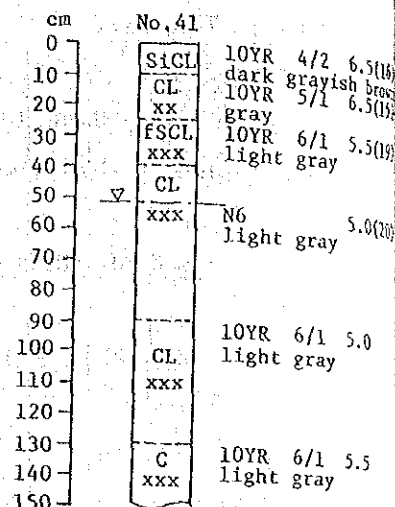
Land Use / Vegetation : Paddy field

Drainage : Moderate

Water Table & Quality : 52cm from the surface; pH 4.9,
28.4°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-10	Dark grayish brown (10YR4/2), common dark brown (10YR3/3) mottles; silty clay loam; subangular blocky; friable, sticky, plastic; many pores; many roots, common decomposed organic matter; pH 6.5; hardness 16; gradual smooth boundary.
AB 10-25	Gray (10YR5/1), common strong brown (7.5YR4/6) mottles; clay loam; weak subangular blocky; friable, sticky, plastic; many pores; many roots; pH 6.5; hardness 15; gradual smooth boundary.
Bt1 25-40	Light gray (10YR6/1), many strong brown (7.5YR5/8) mottles; fine sandy clay loam; weak subangular blocky; few pores; few roots; pH 5.5; hardness 19; diffuse boundary.
Bt2 40-90	Light gray (N6), many red (10R4/8) mottles; clay loam; weak angular blocky; sticky, plastic; few pores; pH 5.0; hardness 20; gradual boundary.
Bt3 90-130	Light gray (10YR6/1), many yellowish brown (10YR5/8) and few red (10R4/8) mottles; clay loam; massive; sticky, plastic; pH 5.0; gradual boundary.
Bt4 130-150	Light gray (10YR6/1), many red (10R4/8) mottles; clay; massive; very sticky, very plastic; pH 5.5.

PROFILE NO. 42

Date : January 30, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Khok Kian

Soil Taxonomy : Typic Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Borngoa, Amphoe Rangae

Slope : 2-4%

Topography : Uneven

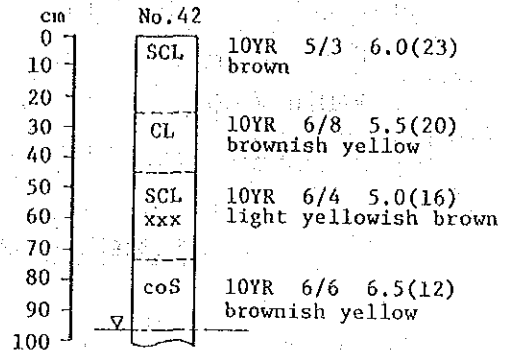
Land Use / Vegetation : Coconut and banana trees

Drainage : Well

Water Table & Quality : 95cm from the surface; pH 4.8, 28.2°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
A 0-25	Brown (10YR5/3); sandy clay loam; granular; friable, sticky; plastic; common pores; common roots, few decomposed organic matter; pH 6.0; hardness 23; gradual smooth boundary.
AB 25-44	Brownish yellow (10YR6/8); clay loam; granular; friable, sticky; plastic; common pores; common roots; pH 5.5; hardness 20; gradual smooth boundary.
B1 44-72	Light yellowish brown (10YR6/4), many yellow (10YR7/6) mottles; sandy clay loam; weak granular; few pores; few roots; pH 5.0; hardness 16; gradual smooth boundary.
B2 72-100	Brownish yellow (10YR6/6); coarse sand; single grain; loose, non sticky, non plastic; pH 6.5; hardness 12.

PROFILE NO. 43

Date : January 30, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Sungai Padi

Soil Taxonomy : Aeric Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Pha Pai, Amphoe Rangae

Slope : 4%

Topography : Undulating

Land Use / Vegetation : Rubber trees

Drainage : Well

Water Table & Quality : Deeper than 1.5m from the surface

Subjected to Flood :

Remarks : Sampling cannot be permitted by owner.

cm	No. 43	
0	S1CL	10YR 6/1 5.5(26)
10	x	light gray
20	CL	5Y 6/1 5.5(23)
30	x	light gray
40		
50	CL	10YR 6/2 5.0(21)
60		light brownish gray
70	x	
80		
90		
100	G	10YR 7/1 5.0
110	xxxx	light gray
120		
130	G	N7 5.0
140	xxxx	light gray
150		

PROFILE DESCRIPTION

Depth (cm)	Description
A 0-20	Light gray (10YR6/1), few yellowish brown (10YR5/6) mottles; silty clay loam; angular blocky; very hard, sticky, plastic; many pores; common roots; pH 5.5; hardness 26; clear smooth boundary.
AB 20-47	Light gray (5Y6/1), few brownish yellow (10YR6/6) mottles; clay loam; angular blocky; firm, sticky, plastic; common pores; few roots; pH 5.5; hardness 23; gradual smooth boundary.
Bt1 47-90	Light brownish gray (10YR6/2), few brown (7.5YR5/4) mottles; clay loam; angular blocky; firm, sticky, plastic; few pores; pH 5.0; hardness 21; gradual boundary.
Bt2 90-120	Light gray (10YR7/1), many brownish yellow (10YR6/8) and many red (10R4/6) mottles; clay; subangular blocky; friable, very sticky, very plastic; pH 5.0; clear boundary.
Bt3 120-150	Light gray (N7), prominent red (10R4/6) and common strong brown (7.5YR5/8) mottles; clay; subangular blocky; friable, very sticky, very plastic; pH 5.0.

PROFILE NO. 44

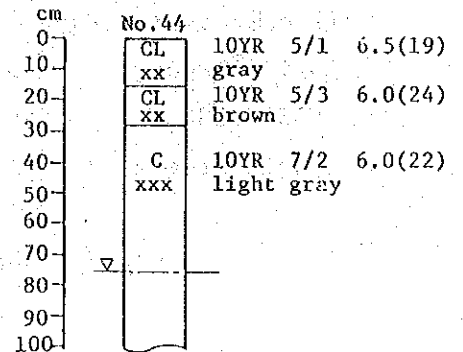
Date : January 30, 1986
Described by : Nakabayashi, Somsak, Ongard

Soil Name : Bangnara

Soil Taxonomy : Typic Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Kae Mae, Amphoe Rangae
Slope : 1-2%
Topography : Flat
Land Use / Vegetation : Paddy field
Drainage : Moderate
Water Table & Quality : 75cm from the surface; pH 6.0, 30.7°C
Subjected to Flood :
Remarks :

PROFILE DESCRIPTION

Depth (cm)	Description
0-15	Gray (10YR5/1), common strong brown (7.5YR4/4) mottles; clay loam; weak subangular blocky; friable, sticky, plastic; common pores; many roots; pH 6.5; hardness 19; clear smooth boundary.
15-28	Brown (10YR5/3), common strong brown (7.5YR4/6) mottles; clay loam; weak subangular blocky; friable, sticky, plastic; few pores; common roots; pH 6.0; hardness 24; clear smooth boundary.
28-100	Light gray (10YR7/2), many red (10R4/6) and common strong brown (7.5YR4/6) mottles; clay; weak subangular blocky; friable, very sticky, very plastic; few pores; pH 6.0; hardness 22.

PROFILE NO. 45

Date : January 31, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Kap Dang

Soil Taxonomy : Typic Sulfihemists

FAO/UNESCO : Dystric Histosols

Thai National : Organic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Pileng, Amphoe Rangae

Slope : <2%

Topography : Slightly uneven

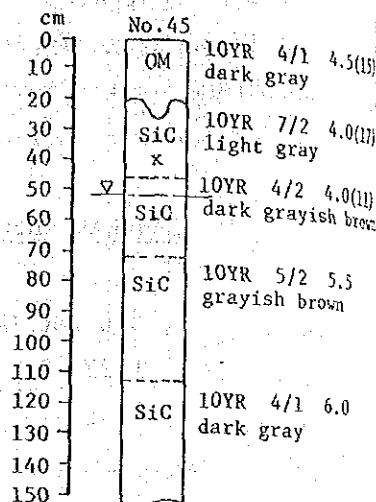
Land Use / Vegetation : Forest (Malaleuca leucadendra)

Drainage : Poor

Water Table & Quality : 49cm from the surface; pH 4.3,
25.7°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
Oe 0-20/25	Dark gray (10YR4/1); peat & muck; many roots; pH 4.5; hardness 15; clear wavy boundary.
E 20/25-45	Light gray (10YR7/2), few brownish yellow (10YR6/8) mottles; silty clay; massive; friable, very sticky, very plastic; many roots, common decomposed organic matter; pH 4.0; hardness 17; gradual smooth boundary.
Bt1 45-70	Dark grayish brown (10YR4/2); silty clay; massive; very sticky, very plastic; common roots; pH 4.0; hardness 11; gradual boundary.
Bt2 70-110	Grayish brown (10YR5/2); silty clay; massive; very sticky, very plastic; pH 5.5; gradual boundary.
Cg 110-150	Dark gray (10YR4/1); silty clay; massive; very sticky, very plastic; pH 6.0

PROFILE NO. 46

Date : January 31, 1986

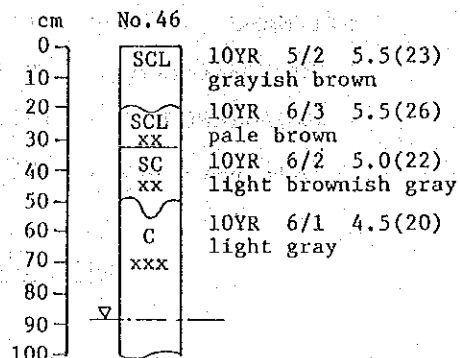
Described by : Nakabayashi, Somsak, Ongard

Soil Name : Pileng

Soil Taxonomy : Typic Trophaquepts

FAO/UNESCO : Humic Gleysols

Thai National : Hydromorphic Alluvial Soils



GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Pileng, Amphoe Rangae

Slope : < 2%

Topography : Flat

Land Use / Vegetation : Grasses and paddy field

Drainage : Moderate

Water Table & Quality : 88cm from the surface; pH 5.0, 29.7°C

Subjected to Flood :

Remarks :

PROFILE DESCRIPTION

Depth (cm)	Description
Ap 0-20/23	Grayish brown (10YR5/2); sandy clay loam; granular; friable, sticky, plastic; many roots; pH 5.5; hardness 23; clear wavy boundary.
AB 20/23-32	Pale brown (10YR6/3), common brownish yellow (10YR6/8) mottles; sandy clay loam; structureless; friable, sticky, plastic; few roots; pH 5.5; hardness 26; clear smooth boundary.
Bt1 32/50/55	Light brownish gray (10YR6/2), common strong brown (7.5YR5/8) mottles; sandy clay; subangular blocky; friable, very sticky, plastic; common pores; pH 5.0; hardness 22; clear wavy boundary.
Bt2 50/55-100	Light gray (10YR6/1), many yellowish red (5YR5/8) mottles; clay; subangular blocky, very sticky, very plastic; many pores; common decomposed organic matter; pH 4.5; hardness 20.

PROFILE NO. 47

Date : January 31, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Chian Yai

Soil Taxonomy : Typic Sulfaquents

FAO/UNESCO : Thionic Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Pileng Project Area, Amphoe Rangae

Slope : 1-2%

Topography : Flat

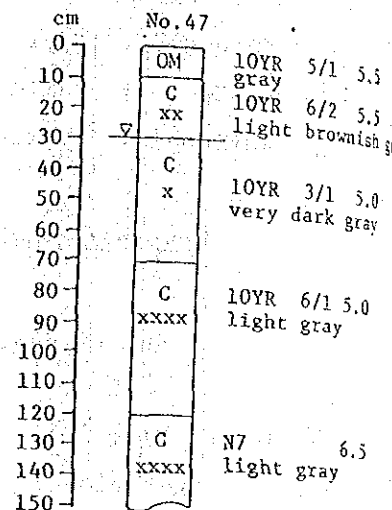
Land Use / Vegetation : Grasses

Drainage : Poor

Water Table & Quality : 29cm from the surface; pH 4.9,
29.1°C

Subjected to Flood :

Remarks : By auger boring



PROFILE DESCRIPTION

Depth (cm)	Description
Oa 0-10	Gray (10YR5/1), few yellowish brown (10YR5/4) mottles; muck; many roots; pH 5.5; clear boundary.
A 10-30	Light brownish gray (10YR6/2), common strong brown (7.5YR4/6) mottles; clay; massive, very sticky, very plastic; pH 5.5; clear boundary.
AB 30-70	Very dark gray (10YR3/1), few brownish yellow (10YR6/8) mottles; clay; massive; very sticky, very plastic; pH 5.0 clear boundary.
Bt1 70-120	Light gray (10YR6/1), many brownish yellow (10YR6/8) and common strong brown (7.5YR5/6) mottles; clay; massive; very sticky, very plastic; pH 5.0; clear boundary.
Bt2 120-150	Light gray (N7) and red (10R4/8), common brownish yellow (10YR6/8) mottles; clay; massive; very sticky, very plastic; pH 6.5.

PROFILE NO. 48

Date: February 1, 1986

Described by: Nakabayashi, Somsak, Ongard

Soil Name: Kap Dang

Soil Taxonomy: Typic Sulfihemists

FAO/UNESCO: Dystric Histosols

Thai National: Organic Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location: Ban Pa Wai, Amphoe Sungai Padi

Slope: 2%

Topography: Uneven

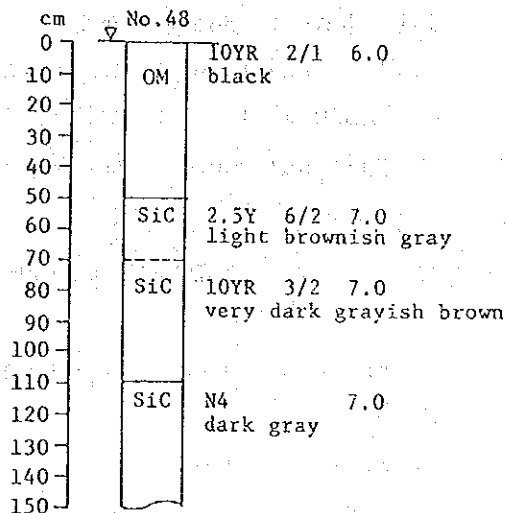
Land Use / Vegetation: Forest (Malaleuca leucadendra)

Drainage: Poor

Water Table & Quality: At surface; pH 5.5, 25.7°C

Subjected to Flood:

Remarks: By auger boring



PROFILE DESCRIPTION

Depth (cm)	Description
0-50	Black (10YR2/1); peat; pH 6.0; clear boundary.
50-70	Light brownish gray (2.5Y6/2); silty clay; massive; very sticky, very plastic; pH 7.0; gradual boundary.
70-110	Very dark grayish brown (10YR3/2); silty clay; massive; very sticky, very plastic; pH 7.0; clear boundary.
110-150	Dark gray (N4); silty clay (marine deposits); massive; very sticky, very plastic; pH 7.0

PROFILE NO. 49

Date : February 2, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Sungai Padi

Soil Taxonomy : Aeric Paleaquults

FAO/UNESCO : Gleyic Acrisols

Thai National : Low Humic Gley Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Ba Ngo Du Dung-Ban Khok, Amphoe Rangae

Slope : 2%

Topography : Uneven

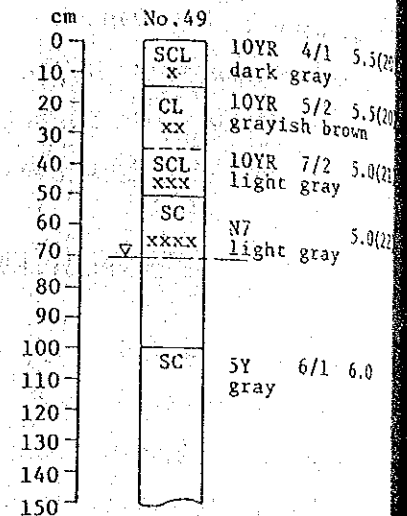
Land Use / Vegetation : Rubber and coconut trees

Drainage : Moderate

Water Table & Quality : 70cm from the surface; pH 4.9,
27.5°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
A 0-15	Dark gray (10YR4/1), few yellowish brown (10YR5/6) mottles; sandy clay loam; subangular blocky; friable, sticky, plastic, many pores; many roots; pH 5.5; hardness 20; clear smooth boundary.
AB 15-35	Grayish brown (10YR5/2), common brownish yellow (10YR6/6) mottles; clay loam; subangular blocky; friable, sticky, plastic; common pores; common roots; pH 5.5; hardness 20; gradual smooth boundary.
Bt1 35-50	Light gray (10YR7/2), many brownish yellow (10YR6/8) mottles; sandy clay loam; weak subangular blocky; friable, sticky, plastic; common pores; few roots; pH 5.0; hardness 21; clear smooth boundary.
Bt2 50-110	Light gray (N7), many red (2.5YR4/8) and common brownish yellow (10YR6/8) mottles; sandy clay; angular blocky; very sticky, plastic; few pores; pH 5.0; hardness 22; clear boundary.
Btg 100-150	Gray (5Y6/1); sandy clay; massive; very sticky, plastic; pH 6.0.

PROFILE NO. 50

Date : February 3, 1986

Described by : Nakabayashi, Somsak, Ongard

Soil Name : Muno

Soil Taxonomy : Sulfic Tropaquepts

FAO/UNESCO : Thionic Fluvisols

Thai National : Hydromorphic Alluvial Soils

GENERAL INFORMATION OF THE SOIL PROFILE

Location : Ban Hua Khao, Amphoe Muang

Slope : <1%

Topography : Flat

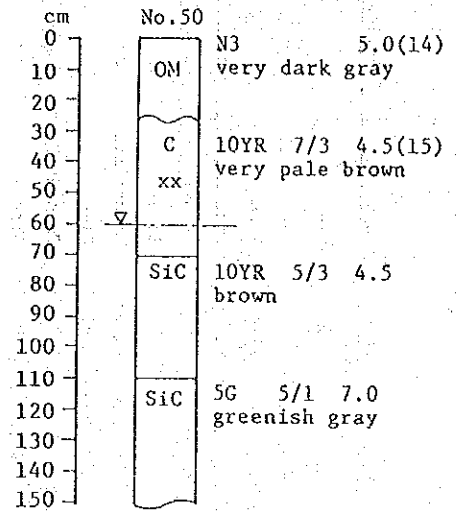
Land Use / Vegetation : Paddy field and grasses

Drainage : Poor

Water Table & Quality : 60cm from the surface; pH 4.2,
28.8°C

Subjected to Flood :

Remarks :



PROFILE DESCRIPTION

Depth (cm)	Description
0-25/30	Very dark gray (N3); peat & muck; many roots; pH 5.0; hardness 14; clear wavy boundary.
25/30-70	Very pale brown (10YR7/3), common strong brown (7.5YR4/6) mottles; clay; massive; very sticky, very plastic; few pores; common roots; pH 4.5, hardness 15; clear boundary.
70-110	Brown (10YR5/3); silty clay; massive; very sticky, very plastic; pH 4.5; some spots of decomposed organic matter; clear boundary.
110-150	Greenish gray (5G5/1); silty clay; massive; very sticky, very plastic; pH 7.0