

LIBRO DE DATOS

6: PLAN DE RETARDACIÓN EN OMEGA

Libro de Datos 6

Lista de Cuadros y Figuras: Plan de Retardación en Olomega

Cuadro 6.1	Simulacion de Sequia, Operacion de la Laguna de Olomega-----	6.T.1
Cuadro 6.2	Resultados de los Calculos del Nivel de Agua para Una Inundacion con Periodo de Retorno de 10 Años Bajo P/M -----	6.T.3
Cuadro 6.3	Resultados de los Calculos del Nivel de Agua para Una Inundacion con Periodo de Retorno de 2 Años Bajo P/P -----	6.T.6
Cuadro 6.4	Resultados de la Simulacion de Desbordamiento para Una Inundacion con Periodo de Retorno de 10 Años Bajo P/M -----	6.T.9
Cuadro 6.5	Resultados de la Simulacion de Desbordamiento para Una Inundacion con Periodo de Retorno de 2 Años Bajo P/P -----	6.T.20
Figura 6.1	Probabilidad del Exceso de la Precipitacion Diaria por MES -----	6.F.1
Figura 6.2	Division de Subcuencas 14 y 13 -----	6.F.2
Figura 6.3	Esquema de Simulacion de la Desviacion de Olomega -----	6.F.3
Figura 6.4	Hidrograma de la Desviacion en Olomega para Una Inundacion con Periodo de Retorno de 10 Años -----	6.F.4
Figura 6.5	Hidrograma de la Desviacion en Olomega para Una Inundacion con Periodo de Retorno de 10 Años -----	6.F.5
Figura 6.6	Perfil del Nivel del Agua para Una Inundacion con un Periodo de Inundacion de 10 Años Bajo P/M -----	6.F.6
Figura 6.7	Perfil del Nivel del Agua para Una Inundacion con un Periodo de Inundacion de 2 Años Bajo P/P-----	6.F.7



LIBRO DE DATOS 6: PLAN DE RETARDACIÓN EN OLOMEGA

1. SIMULACIÓN DE SEQUÍA

El resultado de la simulación se muestra en el Cuadro 6.1

2. Probabilidad del Exceso de la Precipitación Diaria por mes

Para poder estudiar la variación en la estación lluviosa de eventos de inundación en el área aguas arriba de la Laguna de Olomega, se estudió la probabilidad de exceso en la precipitación pluvial por mes.

La precipitación máxima diaria se escogió por mes durante el siguiente período:

Estación	Período
San Francisco Gotera	1964 - 1995
El Papalón	1964 - 1995

La probabilidad de precipitación diaria por mes en San Francisco Gotera y en El Papalón se muestra en . La probabilidad de precipitaciones diarias en la estación lluviosa, son menos en octubre que en septiembre y son casi igual en julio.

3. Análisis de la Instalación de Desviación en Olomega

a. Simulación del Desbordamiento

El análisis de la Instalación de Desviación en Olomega se basó en la combinación de la fórmula de derrame sobre el lado del vertedero y el perfil longitudinal del nivel del agua considerando el modelo lateral de desagüe.

Para este análisis, la subcuenca 13 y 14 se dividen de la siguiente manera (fig. 6.2):

Subcuenca	Subcuenca dividida	Área de Captación (km ²)	Descripción
Subcuenca 13	Subcuenca 13-1	127.4	Área norte de la laguna

	Subcuenca 13-2	79.6	Área de colinas al sur de la laguna
	Total	207.0	
Subcuenca 14	Subcuenca 14-1	131.4	Lago de San Juan y área restante del Desagüe de Olomega
	Subcuenca 14-2	27.6	Río Miraflores
	Subcuenca 14-3	60.2	Arroyo Caranga
	Total	219.2	

El hidrograma afluente Q1 se calculó con la siguiente ecuación:

$$Q1 = Q(41) - Q(13) - Q(14) \times \frac{\text{área de subcuenca (14-1)}}{\text{área de subcuenca (14)}}$$

Q(41), Q(13), Q(14) : Descarga en el Punto (41), (13) y (14)

La descarga de escorrentía de la Subcuenca (14-1), Q3 se calculó con la siguiente ecuación:

$$Q3 = Q(14) \times \frac{\text{área de subcuenca (14-1)}}{\text{área de subcuenca (14)}}$$

Q(14) : Descarga en el Punto (14)

La descarga de derrame Q2 se calculó con una fórmula Japonesa llamada Honma Fórmula, la cual sirve para calcular derrame frontal. Esta es una función del largo longitudinal del vertedero, de la profundidad del flujo sobre el vertedero y de un factor de descarga.

La siguiente fórmula se utilizó para el derrame perfecto:

$$Q2 = C \times B \times h_f^{1.5}$$

donde:

C : Factor de descarga para un derrame perfecto

B : Largo longitudinal del vertedero en m

h_f : Profundidad del flujo sobre el vertedero en m

La siguiente fórmula se ha utilizado para el derrame sumergido:

$$Q2 = C^1 \times B \times \sqrt{h_1 - h_2}$$

donde:

C^1 : Factor de descarga para derrame sumergido

B : Largo longitudinal del vertedero en m

h_1 : Profundidad del flujo aguas arriba del vertedero en m

h_2 : Profundidad del flujo aguas abajo del vertedero en m

Para considerar la reducción de la cantidad del derrame lateral, un coeficiente 0.9 se multiplicó por la descarga calculada en la fórmula de Honma, mencionada anteriormente. Este coeficiente ha sido examinado en algunos experimentos hidráulicos generales en el Japón.

Basándose en las suposiciones anteriores, la desviación de las aguas de inundación del Río Grande de San Miguel se ha simulado como se muestra en la Fig. 6.3. La profundidad del flujo aguas arriba, h_1 , se ha calculado de la relación entre el nivel del agua y la descarga del Río Grande de San Miguel. La profundidad aguas abajo, h_2 , se ha calculado del nivel del agua y volumen de almacenamiento en la Laguna de Olomega.

La Fig. 6.4 y 6.5 muestra los hidrogramas de la Desviación de Olomega para una inundación con un período de retorno de 10 años bajo el Plan Maestro y una inundación con un período de retorno de 2 años bajo el Proyecto Prioritario, respectivamente.

b. Estudio del Perfil Longitudinal del Nivel del Agua en el Tramo del Vertedero

En el cálculo anterior de la descarga de derrame, la profundidad del desbordamiento en el vertedero se asume constante longitudinalmente. Para comprobarr la disponibilidad de la suposición, se estudió el perfil longitudinal del agua en el vertedero.

Para considerar la reducción del impulso debido al desbordamiento del río hacia la laguna, una ecuación del perfil del agua se usó en lugar de la ecuación convencional

no-uniforme. El perfil longitudinal del agua en el tramo del vertedero es de la siguiente manera:

$$\frac{dH}{dx} = \frac{1 - (Q^2 n^2 / R^{3/4} A^2) + (cmQq / gA^2)}{1 - (\alpha Q^2 / gA^3) (\delta A / \delta H)}$$

donde:

H: nivel del agua (msnm), I: pendiente del lecho, Q: descarga (m³/s),

n: aspereza de Manning

R: radio hidráulico (m), A: área del flujo (m²)

q: descarga lateral (m² / s, derrame de la laguna es positivo) igual a Q²

m: coeficiente de descarga

Basándose en esta ecuación, el perfil del nivel del agua se puede calcular empezando aguas abajo hacia aguas arriba para un cierto nivel del agua y una descarga del límite aguas abajo.

Si es un flujo supercrítico en el vertedero, el nivel del agua en la sección aguas abajo del vertedero es alta comparada con el perfil de flujo uniforme por $dH / dx > 0$.

Para los casos del Plan Maestro y el Proyecto Prioritario, los perfiles del nivel de agua en el tramo del vertedero se ha calculado como se muestra en la Fig. 6.6 y 6.7 respectivamente. Los resultados detallados se muestran en el Cuadro 6.2 y 6.3.

Dentro del tramo del vertedero, el nivel del agua aguas abajo se eleva por 0.1m a 0.2m aunque la descarga esté disminuyendo debido al desbordamiento. Esto significa que la suposición que la profundidad del derrame es constante dentro del tramo del vertedero asegura que se espere la descarga desviada.

4. Descarga con Presa

El efecto de retardación de una presa para el control de inundación es simulada en base a la relación entre el nivel del agua del embalse, el volumen de almacenamiento y el

desagüe ya sea del vertedero o de la instalación de emisión usando la siguiente ecuación:

$$\frac{dS}{dt} = I - O$$

donde:

S: volumen de almacenamiento (m³)

I: Afluente al embalse (m³ / s)

O: Efluente del embalse (m³ / s)

Una presa, como instalación para el almacenamiento de aguas de inundación, se fijó en el punto de descarga No. 29, el cual está ubicado en Villerías bajo las siguientes condiciones:

Ubicación: Punto de descarga No. 29

Aliviadero de desbordamiento: Altura de cresta EL:127.0 m

Ancho de cresta B = 50 m

La relación entre el nivel del agua y el volumen de almacenamiento es de la siguiente manera:

$$H = - \frac{5}{10^5} \left(\frac{V}{10^6} \right)^2 + \frac{0.0705}{10^6} V + 110.24$$

donde:

H: Nivel del agua en msnm

V: Volumen del agua en el embalse en m³

(Relación entre Nivel del Agua y Volumen de Almacenamiento)

Volumen de Almacenamiento en 10 ⁶ m ³	Elevación en msnm
0.00	92
0.79	95
4.41	100
15.49	105
40.33	110
85.38	115
156.48	120

258.62	125
395.48	130
568.74	135
778.13	140

La condición inicial es de la siguiente manera:

$$V_i = 306 * 10^6 \text{ m}^3$$

$$H_i = \text{EL.msnm} + 127.1 \text{ m}$$

La siguiente fórmula de descarga se ha usado:

$$Q = 2 * B * h^{1.5}$$

donde:

B: Ancho de la cresta en m

h: Profundidad del desbordamiento en m

QUADRO 6.1
SIMULACION DE SEQUIA, OPERACION DE LA LAGUNA DE
OLOMEGA(1/2)

MONTH	L.W.L.	RESERVOIR V.		RESERVOIR A.		DELTA V.		INFLOW		EVAPORATION		INFLOW		OUTFLOW		L.W.L.(WITHOUT)	
		m.c.m.	km2	m.c.m.	km2	m.c.m.	km2	m3/s	mm	m.c.m.	m3/s	mm	m.c.m.	m3/s	mm	m.c.m.	m3/s
1975	JAN	65.0	47.4	30.94	30.94	0.39	150	4.63	-1.34	0.00	64.79						
	FEB	64.9	43.8	28.86	28.86	0.33	161	4.98	-1.73	0.00	64.62						
	MAR	64.7	39.7	26.44	26.44	0.3	188	5.41	-1.72	0.00	64.47						
	APR	64.5	35.1	23.77	23.77	0.32	174	4.59	-1.45	0.00	64.32						
	MAY	64.5	33.9	23.11	23.11	1.84	139	3.31	0.60	0.62	64.19						
	JUN	64.5	33.9	23.11	23.11	1.66	135	3.12	0.46	0.46	64.32						
	JUL	64.5	33.9	23.11	23.11	2.88	139	3.22	1.68	1.68	64.41						
	AUG	64.5	33.9	23.11	23.11	6.79	140	3.24	5.58	5.58	64.52						
	SEP	64.5	33.9	23.11	23.11	15.87	100	2.31	14.98	14.98	65.15						
	OCT	64.5	33.9	23.11	23.11	9.82	95	2.20	9.00	9.00	65.71						
	NOV	64.5	33.9	23.11	23.11	5.47	89	2.05	4.68	4.68	65.45						
	DEC	64.9	46.0	30.13	30.13	12.12	125	2.90	-0.18	0.00	65.11						
1976	JAN	64.9	45.6	29.85	29.85	6.23	150	4.51	2.32	2.32	64.84						
	FEB	65.0	45.6	30.94	30.94	0.07	161	4.81	0.39	0.39	64.65						
	MAR	64.9	45.7	29.93	29.93	1.71	188	5.80	-0.46	0.00	64.47						
	APR	64.9	44.5	29.22	29.22	4.36	174	5.20	2.36	2.36	64.31						
	MAY	64.5	33.9	23.11	23.11	4.63	139	4.07	3.11	3.11	64.29						
	JUN	64.5	33.9	23.11	23.11	0.00	135	3.12	49.57	49.57	65.30						
	JUL	64.5	33.9	23.11	23.11	0.00	139	3.22	10.83	10.83	65.54						
	AUG	64.5	33.9	23.11	23.11	0.00	140	3.24	4.60	4.60	65.18						
	SEP	64.5	33.9	23.11	23.11	0.00	100	2.31	13.21	13.21	65.08						
	OCT	64.5	33.9	23.11	23.11	0.00	95	2.20	15.09	15.09	65.12						
	NOV	64.7	40.6	26.99	26.99	6.71	89	2.05	2.59	2.59	64.94						
	DEC	64.8	42.2	27.89	27.89	1.55	125	3.38	0.60	0.60	64.74						
1977	JAN	64.8	41.7	27.64	27.64	1.39	150	4.18	-0.17	0.00	64.58						
	FEB	64.7	40.3	26.80	26.80	1.24	161	4.45	-0.60	0.00	64.41						
	MAR	64.7	38.2	25.61	25.61	1.11	188	5.03	-0.77	0.00	64.22						
	APR	64.6	36.4	24.52	24.52	0.99	174	4.45	-0.73	0.00	64.08						
	MAY	64.5	33.9	23.11	23.11	4.99	139	3.42	3.71	3.71	64.00						
	JUN	64.5	33.9	23.11	23.11	0.00	135	3.12	18.86	18.86	64.23						
	JUL	64.5	33.9	23.11	23.11	0.00	139	3.22	1.13	1.13	64.20						
	AUG	64.5	33.9	23.11	23.11	0.00	140	3.24	7.53	7.53	64.13						
	SEP	64.5	33.9	23.11	23.11	0.00	100	2.31	10.90	10.90	64.20						
	OCT	64.5	33.9	23.11	23.11	0.00	95	2.20	5.68	5.68	64.31						
	NOV	64.5	33.9	23.11	23.11	10.00	89	2.05	3.86	3.86	64.24						
	DEC	64.9	43.9	28.90	28.90	3.21	125	2.90	1.20	1.20	64.19						

Simulación de Sequía, Operación de la Laguna de OMEGA(2/2)

Cuadro 6.1

MONTH	RESERVOIR V.		RESERVOIR A.		DELTA V.		INFLOW		EVAPORATION		OUTFLOW		L.W.L.(WITHOUT)	
	m	m.c.m.	km2	m.c.m.	m3/s	mm	m.c.m.	m3/s	m.c.m.	m3/s	m3/s	m	m	
1978														
JAN	65.0	47.1	30.76		1.22	150	4.33	-0.40		0.00	64.05			
FEB	64.9	46.1	30.15		1.01	161	4.95	-1.04		0.00	63.90			
MAR	64.9	43.6	28.69		1.03	188	5.66	-1.08		0.00	63.73			
APR	64.7	40.7	27.01		1.41	174	4.98	-0.51		0.00	63.50			
MAY	64.5	33.9	23.11		4.78	139	3.76	3.38		5.93	63.39			
JUN	64.5	33.9	23.11	0.00	6.08	135	3.12	4.88		4.88	63.62			
JUL	64.5	33.9	23.11	0.00	19.21	139	3.22	18.01		17.97	63.72			
AUG	64.5	33.9	23.11	0.00	19.94	140	3.24	18.73		18.69	63.93			
SEP	64.5	33.9	23.11	0.00	61.12	100	2.31	60.23		60.23	64.90			
OCT	64.5	33.9	23.11	0.00	37.07	95	2.20	36.22		36.22	65.34			
NOV	64.9	44.5	29.23	10.57	4.87	89	2.05	4.08		0.00	65.13			
DEC	65.0	47.4	30.94	2.95	2.49	125	3.66	1.12		-0.06	64.87			
1979														
JAN	65.0	46.7	30.53		1.46	150	4.63	-0.27		0.00	64.65			
FEB	64.9	46.0	30.13		1.3	161	4.92	-0.73		0.00	64.49			
MAR	64.9	44.3	29.10		1.11	188	5.65	-1.00		0.00	64.29			
APR	64.8	41.6	27.55	3.86	3.44	174	5.05	1.49		0.00	64.13			
MAY	64.5	33.9	23.11		3.85	139	3.84	2.42		5.33	64.11			
JUN	64.5	33.9	23.11	0.00	19.55	135	3.12	18.35		18.35	64.55			
JUL	64.5	33.9	23.11	0.00	24	139	3.22	22.80		22.76	65.01			
AUG	64.5	33.9	23.11	0.00	21.98	140	3.24	20.77		20.73	65.46			
SEP	64.5	33.9	23.11	0.00	42.35	100	2.31	41.46		41.46	65.92			
OCT	64.5	33.9	23.11	0.00	38.44	95	2.20	37.62		37.59	65.73			
NOV	64.5	33.9	23.11	26.74	11.11	89	2.05	10.32		0.00	65.49			
DEC	65.0	60.7	30.94	7.20	3.77	125	2.90	2.69		0.00	65.20			

RESULTADOS DE LOS CALCULOS DEL NIVEL DE AGUA PARA
 Cuadro 6.2 UNA INUNDACION CON PERIODO DE RETORNO DE 10 AÑOS
 BAJO P/M(1/3)

X (m)	Zb MSL	Dh MSL	Depth (m)	Waterlevel MSL	Fr -	Qover (m3/s)	Qttotal (m3/s)	Radius (m)
1	62.93	71.13	7.20	70.13	0.19	0.0	660.0	5.62
2	62.93	71.13	7.20	70.13	0.19	0.0	660.0	5.62
3	62.93	71.13	7.20	70.13	0.19	0.0	660.0	5.62
4	62.93	71.13	7.20	70.13	0.19	0.0	660.0	5.62
5	62.93	71.13	7.20	70.13	0.19	0.0	660.0	5.62
6	62.93	71.13	7.20	70.13	0.19	0.0	660.0	5.62
7	62.93	71.13	7.20	70.13	0.19	0.0	660.0	5.62
8	62.94	71.14	7.20	70.13	0.19	0.0	660.0	5.62
9	62.94	71.14	7.20	70.13	0.19	0.0	660.0	5.62
10	62.94	71.14	7.20	70.13	0.19	0.0	660.0	5.62
11	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
12	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
13	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
14	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
15	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
16	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
17	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
18	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
19	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
20	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
21	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.62
22	62.94	71.14	7.19	70.13	0.19	0.0	660.0	5.61
23	62.95	71.15	7.19	70.13	0.19	0.0	660.0	5.61
24	62.95	71.15	7.19	70.13	0.19	0.0	660.0	5.61
25	62.95	71.15	7.19	70.13	0.19	0.0	660.0	5.61
26	62.95	71.15	7.19	70.13	0.19	0.0	660.0	5.61
27	62.95	71.15	7.19	70.13	0.19	0.0	660.0	5.61
28	62.95	71.15	7.19	70.14	0.19	0.0	660.0	5.61
29	62.95	71.15	7.19	70.14	0.19	0.0	660.0	5.61
30	62.95	71.15	7.19	70.14	0.19	0.0	660.0	5.61
31	62.95	71.15	7.19	70.14	0.19	0.0	660.0	5.61
32	62.95	71.15	7.18	70.14	0.19	0.0	660.0	5.61
33	62.95	71.15	7.18	70.14	0.19	0.0	660.0	5.61
34	62.95	71.15	7.18	70.14	0.19	0.0	660.0	5.61
35	62.95	71.15	7.18	70.14	0.19	0.0	660.0	5.61
36	62.95	71.15	7.18	70.14	0.19	0.0	660.0	5.61
37	62.95	71.15	7.18	70.14	0.19	0.0	660.0	5.61
38	62.95	71.15	7.18	70.14	0.19	0.0	660.0	5.61
39	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
40	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
41	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
42	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
43	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
44	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
45	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
46	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
47	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
48	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
49	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
50	62.96	71.16	7.18	70.14	0.19	0.0	660.0	5.61
51	62.96	67.26	7.17	70.14	0.19	9.0	669.0	5.60
52	62.96	67.26	7.17	70.13	0.20	9.0	678.0	5.60
53	62.96	67.26	7.17	70.13	0.20	8.9	686.9	5.60

RESULTADOS DE LOS CALCULOS DEL NIVEL DE AGUA PARA
 Cuadro 6.2 UNA INUNDACION CON PERIODO DE RETORNO DE 10 AÑOS
 BAJO P/M(2/3)

X (m)	Zb MSL	Dh MSL	Depth (m)	Waterlevel MSL	Fr -	Qover (m3/s)	Qttotal (m3/s)	Radius (m)
54	62.97	67.27	7.16	70.13	0.20	8.9	695.8	5.60
55	62.97	67.27	7.16	70.12	0.21	8.9	704.7	5.59
56	62.97	67.27	7.15	70.12	0.21	8.9	713.6	5.59
57	62.97	67.27	7.15	70.12	0.21	8.9	722.5	5.59
58	62.97	67.27	7.15	70.12	0.21	8.8	731.3	5.59
59	62.97	67.27	7.14	70.11	0.22	8.8	740.2	5.58
60	62.97	67.27	7.14	70.11	0.22	8.8	749.0	5.58
61	62.97	67.27	7.14	70.11	0.22	8.8	757.7	5.58
62	62.97	67.27	7.13	70.10	0.22	8.8	766.5	5.58
63	62.97	67.27	7.13	70.10	0.23	8.7	775.2	5.57
64	62.97	67.27	7.12	70.10	0.23	8.7	783.9	5.57
65	62.97	67.27	7.12	70.09	0.23	8.7	792.6	5.57
66	62.97	67.27	7.12	70.09	0.24	8.7	801.3	5.57
67	62.97	67.27	7.11	70.09	0.24	8.6	809.9	5.56
68	62.97	67.27	7.11	70.08	0.24	8.6	818.6	5.56
69	62.98	67.28	7.10	70.08	0.24	8.6	827.2	5.56
70	62.98	67.28	7.10	70.08	0.25	8.6	835.7	5.56
71	62.98	67.28	7.10	70.07	0.25	8.5	844.3	5.55
72	62.98	67.28	7.09	70.07	0.25	8.5	852.8	5.55
73	62.98	67.28	7.09	70.06	0.26	8.5	861.3	5.55
74	62.98	67.28	7.08	70.06	0.26	8.5	869.8	5.55
75	62.98	67.28	7.08	70.06	0.26	8.5	878.2	5.54
76	62.98	67.28	7.07	70.05	0.26	8.4	886.7	5.54
77	62.98	67.28	7.07	70.05	0.27	8.4	895.1	5.54
78	62.98	67.28	7.06	70.05	0.27	8.4	903.5	5.53
79	62.98	67.28	7.06	70.04	0.27	8.4	911.8	5.53
80	62.98	67.28	7.06	70.04	0.27	8.3	920.1	5.53
81	62.98	67.28	7.05	70.03	0.28	8.3	928.5	5.52
82	62.98	67.28	7.05	70.03	0.28	8.3	936.7	5.52
83	62.98	67.28	7.04	70.03	0.28	8.3	945.0	5.52
84	62.99	67.29	7.04	70.02	0.29	8.2	953.2	5.52
85	62.99	67.29	7.03	70.02	0.29	8.2	961.4	5.51
86	62.99	67.29	7.03	70.01	0.29	8.2	969.6	5.51
87	62.99	67.29	7.02	70.01	0.29	8.2	977.8	5.51
88	62.99	67.29	7.02	70.01	0.30	8.1	985.9	5.50
89	62.99	67.29	7.01	70.00	0.30	8.1	994.0	5.50
90	62.99	67.29	7.01	70.00	0.30	8.1	1002.1	5.50
91	62.99	67.29	7.00	69.99	0.31	8.0	1010.1	5.49
92	62.99	67.29	7.00	69.99	0.31	8.0	1018.1	5.49
93	62.99	67.29	6.99	69.99	0.31	8.0	1026.1	5.49
94	62.99	67.29	6.99	69.98	0.31	8.0	1034.1	5.48
95	62.99	67.29	6.98	69.98	0.32	7.9	1042.0	5.48
96	62.99	67.29	6.98	69.97	0.32	7.9	1050.0	5.48
97	62.99	67.29	6.97	69.97	0.32	7.9	1057.9	5.47
98	62.99	67.29	6.97	69.96	0.32	7.9	1065.7	5.47
99	62.99	67.29	6.96	69.96	0.33	7.8	1073.6	5.47
100	63.00	67.30	6.96	69.95	0.33	7.8	1081.4	5.46
101	63.00	67.30	6.95	69.95	0.33	7.8	1089.1	5.46
102	63.00	67.30	6.95	69.95	0.34	7.8	1096.9	5.46
103	63.00	67.30	6.94	69.94	0.34	7.7	1104.6	5.45
104	63.00	67.30	6.94	69.94	0.34	7.7	1112.3	5.45
105	63.00	67.30	6.93	69.93	0.34	7.7	1120.0	5.45
106	63.00	67.30	6.93	69.93	0.35	7.6	1127.6	5.44

RESULTADOS DE LOS CALCULOS DEL NIVEL DE AGUA PARA
 Cuadro 6.2 UNA INUNDACION CON PERIODO DE RETORNO DE 10 AÑOS
 BAJO P/M(3/3)

X (m)	Zb MSL	Dh MSL	Depth (m)	Waterlevel MSL	Fr -	Qover (m3/s)	Qtotal (m3/s)	Radius (m)
107	63.00	67.30	6.92	69.92	0.35	7.6	1135.3	5.44
108	63.00	67.30	6.92	69.92	0.35	7.6	1142.8	5.44
109	63.00	67.30	6.91	69.91	0.36	7.6	1150.4	5.43
110	63.00	67.30	6.91	69.91	0.36	7.5	1157.9	5.43
111	63.00	67.30	6.90	69.90	0.36	7.5	1165.4	5.43
112	63.00	67.30	6.90	69.90	0.36	7.5	1172.9	5.42
113	63.00	71.20	6.90	69.90	0.36	0.0	1172.9	5.42
114	63.00	71.20	6.90	69.90	0.36	0.0	1172.9	5.42
115	63.01	71.21	6.90	69.90	0.36	0.0	1172.9	5.42
116	63.01	71.21	6.90	69.90	0.36	0.0	1172.9	5.42
117	63.01	71.21	6.90	69.90	0.36	0.0	1172.9	5.42
118	63.01	71.21	6.90	69.90	0.36	0.0	1172.9	5.42
119	63.01	71.21	6.90	69.90	0.36	0.0	1172.9	5.42
120	63.01	71.21	6.90	69.90	0.36	0.0	1172.9	5.42
121	63.01	71.21	6.90	69.91	0.36	0.0	1172.9	5.42
122	63.01	71.21	6.90	69.91	0.36	0.0	1172.9	5.42
123	63.01	71.21	6.90	69.91	0.36	0.0	1172.9	5.42

RESULTADOS DE LOS CÁLCULOS DEL NIVEL DE AGUA PARA
 Cuadro 6.3 UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑOS
 BAJO P/P(1/3)

X (m)	Zb MSL	Dh MSL	Depth (m)	Waterlevel MSL	Fr -	Qetu (m ³ /s)	Qtotat (m ³ /s)	Radius (m)
1	62.93	71.13	5.20	68.13	0.18	0.0	360.0	4.27
2	62.93	71.13	5.20	68.13	0.18	0.0	360.0	4.27
3	62.93	71.13	5.20	68.13	0.18	0.0	360.0	4.27
4	62.93	71.13	5.20	68.13	0.18	0.0	360.0	4.27
5	62.93	71.13	5.20	68.13	0.18	0.0	360.0	4.27
6	62.93	71.13	5.20	68.13	0.18	0.0	360.0	4.27
7	62.93	71.13	5.20	68.13	0.18	0.0	360.0	4.27
8	62.94	71.14	5.20	68.13	0.18	0.0	360.0	4.27
9	62.94	71.14	5.20	68.13	0.18	0.0	360.0	4.27
10	62.94	71.14	5.20	68.13	0.18	0.0	360.0	4.27
11	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
12	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
13	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
14	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
15	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
16	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
17	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
18	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
19	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
20	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
21	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
22	62.94	71.14	5.19	68.13	0.18	0.0	360.0	4.27
23	62.95	71.15	5.19	68.13	0.18	0.0	360.0	4.27
24	62.95	71.15	5.19	68.13	0.18	0.0	360.0	4.27
25	62.95	71.15	5.19	68.13	0.18	0.0	360.0	4.27
26	62.95	71.15	5.19	68.13	0.18	0.0	360.0	4.27
27	62.95	71.15	5.19	68.13	0.18	0.0	360.0	4.27
28	62.95	71.15	5.19	68.13	0.18	0.0	360.0	4.27
29	62.95	71.15	5.19	68.13	0.18	0.0	360.0	4.26
30	62.95	71.15	5.19	68.14	0.18	0.0	360.0	4.26
31	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
32	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
33	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
34	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
35	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
36	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
37	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
38	62.95	71.15	5.18	68.14	0.18	0.0	360.0	4.26
39	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
40	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
41	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
42	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
43	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
44	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
45	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
46	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
47	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
48	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
49	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
50	62.96	71.16	5.18	68.14	0.18	0.0	360.0	4.26
51	62.96	66.06	5.17	68.14	0.18	5.5	365.5	4.26

**RESULTADOS DE LOS CALCULOS DEL NIVEL DE AGUA PARA
Cuadro 6.3 UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑOS
BAJO P/P(2/3)**

X (m)	Zb MSL	Dh MSL	Depth (m)	Waterlevel MSL	Fr -	Qetu (m ³ /s)	Qtotal (m ³ /s)	Radius (m)
52	62.96	66.06	5.17	68.13	0.18	5.5	371.0	4.25
53	62.96	66.06	5.17	68.13	0.19	5.5	376.5	4.25
54	62.97	66.07	5.16	68.13	0.19	5.5	382.0	4.25
55	62.97	66.07	5.16	68.13	0.19	5.5	387.4	4.25
56	62.97	66.07	5.16	68.13	0.20	5.4	392.9	4.25
57	62.97	66.07	5.16	68.12	0.20	5.4	398.3	4.24
58	62.97	66.07	5.15	68.12	0.20	5.4	403.7	4.24
59	62.97	66.07	5.15	68.12	0.20	5.4	409.1	4.24
60	62.97	66.07	5.15	68.12	0.21	5.4	414.5	4.24
61	62.97	66.07	5.14	68.11	0.21	5.4	419.9	4.24
62	62.97	66.07	5.14	68.11	0.21	5.4	425.3	4.23
63	62.97	66.07	5.14	68.11	0.22	5.3	430.6	4.23
64	62.97	66.07	5.14	68.11	0.22	5.3	435.9	4.23
65	62.97	66.07	5.13	68.11	0.22	5.3	441.2	4.23
66	62.97	66.07	5.13	68.10	0.22	5.3	446.5	4.23
67	62.97	66.07	5.13	68.10	0.23	5.3	451.8	4.22
68	62.97	66.07	5.12	68.10	0.23	5.3	457.1	4.22
69	62.98	66.08	5.12	68.10	0.23	5.3	462.4	4.22
70	62.98	66.08	5.12	68.09	0.24	5.2	467.6	4.22
71	62.98	66.08	5.11	68.09	0.24	5.2	472.8	4.21
72	62.98	66.08	5.11	68.09	0.24	5.2	478.0	4.21
73	62.98	66.08	5.11	68.08	0.24	5.2	483.2	4.21
74	62.98	66.08	5.10	68.08	0.25	5.2	488.4	4.21
75	62.98	66.08	5.10	68.08	0.25	5.2	493.6	4.20
76	62.98	66.08	5.10	68.08	0.25	5.1	498.7	4.20
77	62.98	66.08	5.09	68.07	0.26	5.1	503.9	4.20
78	62.98	66.08	5.09	68.07	0.26	5.1	509.0	4.20
79	62.98	66.08	5.09	68.07	0.26	5.1	514.1	4.20
80	62.98	66.08	5.08	68.07	0.26	5.1	519.2	4.19
81	62.98	66.08	5.08	68.06	0.27	5.1	524.2	4.19
82	62.98	66.08	5.08	68.06	0.27	5.1	529.3	4.19
83	62.98	66.08	5.07	68.06	0.27	5.0	534.3	4.19
84	62.99	66.09	5.07	68.05	0.28	5.0	539.3	4.18
85	62.99	66.09	5.07	68.05	0.28	5.0	544.3	4.18
86	62.99	66.09	5.06	68.05	0.28	5.0	549.3	4.18
87	62.99	66.09	5.06	68.05	0.28	5.0	554.3	4.18
88	62.99	66.09	5.06	68.04	0.29	5.0	559.3	4.17
89	62.99	66.09	5.05	68.04	0.29	4.9	564.2	4.17
90	62.99	66.09	5.05	68.04	0.29	4.9	569.1	4.17
91	62.99	66.09	5.04	68.03	0.30	4.9	574.0	4.17
92	62.99	66.09	5.04	68.03	0.30	4.9	578.9	4.16
93	62.99	66.09	5.04	68.03	0.30	4.9	583.8	4.16
94	62.99	66.09	5.03	68.02	0.31	4.9	588.6	4.16
95	62.99	66.09	5.03	68.02	0.31	4.8	593.5	4.15
96	62.99	66.09	5.03	68.02	0.31	4.8	598.3	4.15
97	62.99	66.09	5.02	68.02	0.31	4.8	603.1	4.15
98	62.99	66.09	5.02	68.01	0.32	4.8	607.9	4.15
99	62.99	66.09	5.01	68.01	0.32	4.8	612.6	4.14
100	63.00	66.10	5.01	68.01	0.32	4.7	617.4	4.14
101	63.00	66.10	5.01	68.00	0.33	4.7	622.1	4.14
102	63.00	66.10	5.00	68.00	0.33	4.7	626.8	4.14

RESULTADOS DE LOS CALCULOS DEL NIVEL DE AGUA PARA
 Cuadro 6.3 UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑOS
 BAJO P/P(3/3)

X (m)	Zb MSL	Dh MSL	Depth (m)	Waterlevel MSL	Fr -	Qetu (m ³ /s)	Qtotał (m ³ /s)	Radius (m)
103	63.00	66.10	5.00	68.00	0.33	4.7	631.5	4.13
104	63.00	66.10	4.99	67.99	0.33	4.7	636.2	4.13
105	63.00	66.10	4.99	67.99	0.34	4.7	640.8	4.13
106	63.00	66.10	4.99	67.99	0.34	4.6	645.5	4.12
107	63.00	66.10	4.98	67.98	0.34	4.6	650.1	4.12
108	63.00	66.10	4.98	67.98	0.35	4.6	654.7	4.12
109	63.00	66.10	4.97	67.98	0.35	4.6	659.3	4.12
110	63.00	66.10	4.97	67.97	0.35	4.6	663.9	4.11
111	63.00	66.10	4.97	67.97	0.35	4.6	668.4	4.11
112	63.00	66.10	4.96	67.97	0.36	4.5	673.0	4.11
113	63.00	71.20	4.96	67.97	0.36	0.0	673.0	4.11
114	63.00	71.20	4.96	67.97	0.36	0.0	673.0	4.11
115	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
116	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
117	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
118	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
119	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
120	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
121	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
122	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11
123	63.01	71.21	4.96	67.97	0.36	0.0	673.0	4.11

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
 ÑOS BAJO P/M(1/11)

time(hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131 4/219.2)	Runoff from Sub. 15	El Delirio
1	7.23	8.68	0.50	0.00	0.00	0.00	7.23	7.23	63.29	64.50	5.20	4.55	12.43
2	7.23	8.68	1.56	0.00	0.00	0.00	7.23	7.23	63.29	64.50	5.20	4.55	12.44
3	7.24	8.68	2.92	0.00	0.00	0.00	7.24	7.24	63.29	64.50	5.20	4.55	12.44
4	7.24	8.68	4.43	0.00	0.00	0.00	7.24	7.24	63.29	64.50	5.20	4.55	12.44
5	7.24	8.68	6.04	0.00	0.00	0.00	7.24	7.24	63.29	64.50	5.20	4.55	12.44
6	7.24	8.68	7.71	0.00	0.00	0.00	7.24	7.24	63.29	64.50	5.21	4.55	12.45
7	7.24	8.69	9.44	0.00	0.00	0.00	7.24	7.24	63.29	64.50	5.21	4.55	12.45
8	7.25	8.69	11.29	0.00	0.00	0.00	7.25	7.25	63.29	64.50	5.21	4.55	12.45
9	7.25	8.69	13.33	0.87	0.00	0.87	7.25	8.12	63.29	64.50	5.21	4.56	13.33
10	7.25	8.70	15.65	3.19	0.00	3.19	7.25	10.44	63.29	64.50	5.21	4.56	15.65
11	7.25	8.70	18.34	5.87	0.00	5.87	7.25	13.12	63.29	64.50	5.22	4.56	18.34
12	7.26	8.70	21.44	8.97	0.00	8.97	7.26	16.23	63.29	64.50	5.22	4.56	21.44
13	7.26	8.71	24.99	12.51	0.00	12.51	7.26	19.77	63.29	64.50	5.22	4.56	24.99
14	7.26	8.71	28.94	16.46	0.00	16.46	7.26	23.72	63.61	64.50	5.22	4.57	28.94
15	7.26	8.72	33.25	20.77	0.00	20.77	7.26	28.03	63.69	64.50	5.22	4.57	33.25
16	7.27	8.72	37.83	25.34	0.00	25.34	7.27	32.61	63.78	64.50	5.23	4.57	37.83
17	7.27	8.73	42.58	30.08	0.00	30.08	7.27	37.35	63.86	64.50	5.23	4.57	42.58
18	7.27	8.73	47.39	34.88	0.00	34.88	7.27	42.16	63.93	64.50	5.23	4.57	47.39
19	7.28	8.73	52.17	39.65	0.00	39.65	7.28	46.93	64.00	64.50	5.24	4.58	52.17
20	7.28	8.74	56.83	44.31	0.00	44.31	7.28	51.59	64.07	64.50	5.24	4.58	56.83
21	7.28	8.74	61.32	48.80	0.00	48.80	7.28	56.08	64.13	64.50	5.24	4.58	61.32
22	7.29	8.75	65.59	53.05	0.00	53.05	7.29	60.34	64.19	64.50	5.25	4.59	65.59
23	7.29	8.76	69.60	57.06	0.00	57.06	7.29	64.35	64.24	64.50	5.25	4.59	69.60
24	7.30	8.76	73.33	60.79	0.00	60.79	7.30	68.08	64.29	64.50	5.25	4.59	73.33
25	7.30	8.77	76.79	64.24	0.00	64.24	7.30	71.54	64.33	64.50	5.25	4.59	76.79
26	7.32	8.77	79.97	67.39	0.00	67.39	7.32	74.71	64.37	64.50	5.26	4.62	79.97
27	7.35	8.81	82.90	70.27	0.00	70.27	7.35	77.62	64.40	64.50	5.28	4.69	82.90
28	7.37	8.84	85.59	72.91	0.00	72.91	7.37	80.28	64.43	64.50	5.30	4.77	85.59
29	7.40	8.88	88.07	75.34	0.00	75.34	7.40	82.74	64.46	64.50	5.33	4.87	88.07
30	7.43	8.93	90.37	77.58	0.00	77.58	7.43	85.01	64.48	64.50	5.35	4.99	90.37
31	7.47	8.97	92.51	79.67	0.00	79.67	7.47	87.13	64.50	64.50	5.38	5.11	92.51
32	7.50	9.02	94.53	81.62	0.00	81.62	7.50	89.12	64.53	64.50	5.41	5.25	94.53
33	7.54	9.07	96.43	83.46	0.00	83.46	7.54	90.99	64.55	64.50	5.44	5.39	96.43

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
 ÑOS BAJO PM(2/11)

time(hour)	Runoff from Sub.13	Runoff from Sub.14	Runoff at Pt.41	Pt.41- Sub.13- Sub.14*(131 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Water-level in MSL	Lake Waterlevel in MSL	Sub.14*(131 4/219.2)	Runoff from Sub.15	El Delirio
34	7.57	9.12	98.23	85.19	0.00	85.19	7.57	92.76	64.56	64.50	5.47	5.54	98.23
35	7.61	9.17	99.94	86.83	0.00	86.83	7.61	94.44	64.58	64.50	5.50	5.70	99.94
36	7.65	9.23	101.56	88.37	0.00	88.37	7.65	96.03	64.60	64.50	5.53	5.86	101.56
37	7.69	9.28	103.08	89.83	0.00	89.83	7.69	97.52	64.61	64.50	5.56	6.03	103.08
38	7.73	9.34	104.52	91.19	0.00	91.19	7.73	98.93	64.63	64.50	5.60	6.20	104.52
39	7.78	9.39	105.88	92.47	0.00	92.47	7.78	100.24	64.64	64.50	5.63	6.38	105.88
40	7.82	9.45	107.14	93.66	0.00	93.66	7.82	101.48	64.65	64.50	5.67	6.55	107.14
41	7.86	9.51	108.33	94.76	0.00	94.76	7.86	102.63	64.66	64.50	5.70	6.73	108.33
42	7.91	9.57	109.43	95.79	0.00	95.79	7.91	103.70	64.67	64.50	5.74	6.91	109.43
43	7.95	9.63	110.46	96.74	0.00	96.74	7.95	104.69	64.68	64.50	5.77	7.08	110.46
44	8.00	9.69	111.41	97.61	0.00	97.61	8.00	105.61	64.69	64.50	5.81	7.26	111.41
45	8.04	9.75	112.30	98.41	0.00	98.41	8.04	106.45	64.70	64.50	5.84	7.44	112.30
46	8.09	9.81	113.12	99.15	0.00	99.15	8.09	107.24	64.71	64.50	5.88	7.61	113.12
47	8.13	9.86	113.87	99.83	0.00	99.83	8.13	107.96	64.72	64.50	5.91	7.79	113.87
48	8.18	9.92	114.58	100.45	0.00	100.45	8.18	108.63	64.72	64.50	5.95	7.96	114.58
49	8.22	9.98	115.22	101.02	0.00	101.02	8.22	109.24	64.73	64.50	5.98	8.12	115.22
50	8.37	10.06	115.85	101.45	0.00	101.45	8.37	109.82	64.73	64.50	6.03	8.28	115.85
51	8.54	10.28	116.55	101.84	0.00	101.84	8.54	110.38	64.74	64.50	6.17	8.43	116.55
52	8.72	10.52	117.38	102.36	0.00	102.36	8.72	111.08	64.74	64.50	6.30	8.57	117.38
53	8.89	10.75	118.45	103.11	0.00	103.11	8.89	112.01	64.75	64.50	6.45	8.70	118.45
54	9.08	11.00	119.92	104.25	0.00	104.25	9.08	113.33	64.76	64.50	6.59	8.84	119.92
55	9.26	11.24	121.92	105.92	0.00	105.92	9.26	115.18	64.78	64.50	6.74	8.97	121.92
56	9.45	11.49	124.57	108.24	0.00	108.24	9.45	117.69	64.80	64.50	6.88	9.09	124.57
57	9.64	11.73	128.07	111.40	0.00	111.40	9.64	121.04	64.83	64.50	7.03	9.22	128.07
58	9.83	11.97	132.62	115.61	0.00	115.61	9.83	125.44	64.87	64.50	7.18	9.34	132.62
59	10.02	12.22	138.33	120.99	0.00	120.99	10.02	131.00	64.92	64.50	7.32	9.45	138.33
60	10.21	12.46	145.16	127.48	0.00	127.48	10.21	137.69	64.98	64.50	7.47	9.57	145.16
61	10.39	12.69	152.91	134.91	0.00	134.91	10.39	145.30	65.04	64.50	7.61	9.68	152.91
62	10.58	12.93	161.29	142.96	0.00	142.96	10.58	153.54	65.11	64.50	7.75	9.78	161.29
63	10.77	13.15	169.94	151.29	0.00	151.29	10.77	162.05	65.18	64.50	7.88	9.88	169.94
64	10.95	13.38	178.52	159.55	0.00	159.55	10.95	170.50	65.25	64.50	8.02	9.98	178.52
65	11.13	13.59	186.74	167.46	0.00	167.46	11.13	178.59	65.32	64.50	8.15	10.08	186.74
66	11.31	13.81	194.39	174.80	0.00	174.80	11.31	186.11	65.38	64.50	8.28	10.17	194.39

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
 ÑOS BAJO PM(3/11)

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131/4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131/4/219.2)	Runoff from Sub. 15	El Delirio
67	11.49	14.01	201.34	181.45	0.00	181.45	11.49	192.94	65.43	64.50	8.40	10.26	201.34
68	11.66	14.21	207.54	187.36	0.00	187.36	11.66	199.02	65.47	64.50	8.52	10.34	207.54
69	11.83	14.41	212.98	192.52	0.00	192.52	11.83	204.34	65.51	64.50	8.64	10.42	212.98
70	11.99	14.59	217.71	196.97	0.00	196.97	11.99	208.96	65.55	64.50	8.75	10.50	217.71
71	12.15	14.77	221.78	200.77	0.00	200.77	12.15	212.92	65.57	64.50	8.86	10.58	221.78
72	12.31	14.95	225.26	203.99	0.00	203.99	12.31	216.30	65.60	64.50	8.96	10.65	225.26
73	12.47	15.12	228.24	206.72	0.00	206.72	12.47	219.18	65.62	64.50	9.06	10.72	228.24
74	12.61	15.28	230.78	209.02	0.00	209.02	12.61	221.62	65.64	64.50	9.16	10.77	230.78
75	12.75	15.42	232.94	210.95	0.00	210.95	12.75	223.69	65.65	64.50	9.24	10.79	232.94
76	12.88	15.56	234.74	212.53	0.00	212.53	12.88	225.41	65.66	64.50	9.33	10.82	234.74
77	13.01	15.69	236.18	213.76	0.00	213.76	13.01	226.77	65.67	64.50	9.41	10.84	236.18
78	13.14	15.82	237.26	214.64	0.00	214.64	13.14	227.78	65.68	64.50	9.48	10.86	237.26
79	13.26	15.94	238.00	215.19	0.00	215.19	13.26	228.45	65.68	64.50	9.55	10.88	238.00
80	13.38	16.06	238.42	215.42	0.00	215.42	13.38	228.80	65.68	64.50	9.62	10.89	238.42
81	13.49	16.17	238.54	215.36	0.00	215.36	13.49	228.85	65.68	64.50	9.69	10.91	238.54
82	13.60	16.27	238.36	215.01	0.00	215.01	13.60	228.61	65.68	64.50	9.75	10.93	238.36
83	13.71	16.37	237.94	214.42	0.00	214.42	13.71	228.13	65.67	64.50	9.81	10.94	237.94
84	13.81	16.47	237.36	213.67	0.00	213.67	13.81	227.49	65.67	64.50	9.87	10.96	237.36
85	13.91	16.56	236.68	212.84	0.00	212.84	13.91	226.76	65.66	64.50	9.93	10.97	236.68
86	14.01	16.65	235.98	211.99	0.00	211.99	14.01	226.00	65.66	64.50	9.98	10.99	235.98
87	14.10	16.73	235.30	211.17	0.00	211.17	14.10	225.27	65.65	64.50	10.03	11.00	235.30
88	14.19	16.81	234.67	210.40	0.00	210.40	14.19	224.59	65.65	64.50	10.08	11.02	234.67
89	14.28	16.89	234.11	209.71	0.00	209.71	14.28	223.99	65.64	64.50	10.12	11.03	234.11
90	14.36	16.96	233.63	209.10	0.00	209.10	14.36	223.46	65.64	64.50	10.17	11.04	233.63
91	14.44	17.03	233.22	208.58	0.00	208.58	14.44	223.02	65.63	64.50	10.21	11.05	233.22
92	14.52	17.09	232.89	208.13	0.00	208.13	14.52	222.65	65.63	64.50	10.24	11.06	232.89
93	14.59	17.15	232.63	207.76	0.00	207.76	14.59	222.35	65.63	64.50	10.28	11.07	232.63
94	14.66	17.21	232.42	207.44	0.00	207.44	14.66	222.11	65.62	64.50	10.32	11.08	232.42
95	14.73	17.27	232.27	207.19	0.00	207.19	14.73	221.92	65.62	64.50	10.35	11.09	232.27
96	14.80	17.32	232.16	206.98	0.00	206.98	14.80	221.77	65.62	64.50	10.38	11.10	232.16
97	14.86	17.37	232.08	206.81	0.00	206.81	14.86	221.67	65.62	64.50	10.41	11.11	232.08
98	14.69	17.37	231.95	206.85	0.00	206.85	14.69	221.54	65.62	64.50	10.41	11.05	231.95
99	14.49	17.07	231.56	206.84	0.00	206.84	14.49	221.33	65.62	64.50	10.23	10.88	231.56

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
ÑOS BAJO P/M(4/11)**

Cuadro 6.4

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131 4/219.2)	Runoff from Sub. 15	El Delirio
100	14.31	16.78	230.79	206.42	0.00	206.42	14.31	220.73	65.62	64.50	10.06	10.72	230.79
101	14.13	16.52	229.51	205.48	0.00	205.48	14.13	219.61	65.61	64.50	9.90	10.57	229.51
102	13.96	16.27	227.63	203.92	0.00	203.92	13.96	217.88	65.60	64.50	9.75	10.42	227.63
103	13.80	16.03	225.17	201.76	0.00	201.76	13.80	215.56	65.58	64.50	9.61	10.29	225.17
104	13.65	15.82	222.12	198.98	0.00	198.98	13.65	212.64	65.56	64.50	9.48	10.16	222.12
105	13.51	15.61	218.37	195.50	0.00	195.50	13.51	209.01	65.54	64.50	9.36	10.04	218.37
106	13.37	15.42	213.87	191.25	0.00	191.25	13.37	204.63	65.50	64.50	9.24	9.92	213.87
107	13.24	15.24	208.74	186.36	0.00	186.36	13.24	199.60	65.47	64.50	9.13	9.81	208.74
108	13.12	15.07	203.20	181.05	0.00	181.05	13.12	194.17	65.42	64.50	9.03	9.71	203.20
109	13.00	14.91	197.51	175.57	0.00	175.57	13.00	188.57	65.38	64.50	8.94	9.61	197.51
110	12.89	14.75	191.88	170.15	0.00	170.15	12.89	183.04	65.34	64.50	8.84	9.51	191.88
111	12.78	14.61	186.48	164.94	0.00	164.94	12.78	177.72	65.30	64.50	8.76	9.42	186.48
112	12.68	14.48	181.42	160.07	0.00	160.07	12.68	172.75	65.26	64.50	8.68	9.33	181.42
113	12.58	14.35	176.76	155.58	0.00	155.58	12.58	168.16	65.22	64.50	8.60	9.25	176.76
114	12.49	14.23	172.51	151.49	0.00	151.49	12.49	163.98	65.19	64.50	8.53	9.17	172.51
115	12.40	14.11	168.68	147.82	0.00	147.82	12.40	160.22	65.15	64.50	8.46	9.10	168.68
116	12.31	14.00	165.24	144.54	0.00	144.54	12.31	156.85	65.13	64.50	8.40	9.03	165.24
117	12.23	13.90	162.18	141.62	0.00	141.62	12.23	153.85	65.10	64.50	8.33	8.96	162.18
118	12.15	13.80	159.46	139.03	0.00	139.03	12.15	151.18	65.08	64.50	8.28	8.89	159.46
119	12.08	13.71	157.04	136.74	0.00	136.74	12.08	148.82	65.06	64.50	8.22	8.83	157.04
120	12.01	13.62	154.90	134.73	0.00	134.73	12.01	146.73	65.04	64.50	8.17	8.77	154.90
121	11.94	13.54	153.00	132.95	0.00	132.95	11.94	144.89	65.03	64.50	8.12	8.71	153.00
122	12.79	13.63	151.56	130.61	0.00	130.61	12.79	143.40	65.01	64.50	8.17	8.97	151.56
123	13.80	14.90	151.23	128.49	0.00	128.49	13.80	142.29	64.99	64.50	8.93	9.76	151.23
124	14.84	16.23	152.17	127.61	0.00	127.61	14.84	142.44	64.98	64.50	9.73	10.56	152.17
125	15.89	17.58	154.43	128.01	0.00	128.01	15.89	143.89	64.98	64.50	10.54	11.38	154.43
126	16.94	18.94	158.06	129.76	0.00	129.76	16.94	146.70	65.00	64.50	11.35	12.19	158.06
127	17.99	20.29	163.03	132.87	0.00	132.87	17.99	150.86	65.03	64.50	12.17	13.01	163.03
128	19.03	21.63	169.23	137.24	0.00	137.24	19.03	156.27	65.06	64.50	12.97	13.81	169.23
129	20.05	22.94	176.53	142.73	0.00	142.73	20.05	162.79	65.11	64.50	13.75	14.60	176.53
130	21.05	24.20	184.73	149.18	0.00	149.18	21.05	170.22	65.17	64.50	14.51	15.37	184.73
131	22.02	25.42	193.58	156.32	0.00	156.32	22.02	178.34	65.23	64.50	15.24	16.12	193.58
132	22.97	26.59	202.77	163.86	0.00	163.86	22.97	186.83	65.29	64.50	15.94	16.85	202.77

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
 ÑOS BAJO PM(5/11)

Cuadro 6.4

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131.4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131.4/219.2)	Runoff from Sub. 15	El Delirio
133	23.88	27.71	212.00	171.51	0.00	171.51	23.88	195.39	65.35	64.50	16.61	17.55	212.00
134	24.75	28.77	220.98	178.99	0.00	178.99	24.75	203.74	65.41	64.50	17.24	18.22	220.98
135	25.59	29.77	229.52	186.08	0.00	186.08	25.59	211.67	65.46	64.50	17.84	18.87	229.52
136	26.40	30.71	237.45	192.64	0.00	192.64	26.40	219.04	65.51	64.50	18.41	19.49	237.45
137	27.17	31.59	244.69	198.58	0.00	198.58	27.17	225.75	65.56	64.50	18.94	20.08	244.69
138	27.90	32.42	251.22	203.88	0.00	203.88	27.90	231.78	65.60	64.50	19.43	20.64	251.22
139	28.59	33.19	257.04	208.55	0.00	208.55	28.59	237.14	65.63	64.50	19.90	21.18	257.04
140	29.25	33.91	262.21	212.63	0.00	212.63	29.25	241.88	65.66	64.50	20.33	21.68	262.21
141	29.87	34.58	266.77	216.17	0.00	216.17	29.87	246.04	65.69	64.50	20.73	22.16	266.77
142	30.46	35.20	270.79	219.22	0.00	219.22	30.46	249.69	65.71	64.50	21.10	22.61	270.79
143	31.02	35.77	274.32	221.86	0.00	221.86	31.02	252.88	65.73	64.50	21.45	23.04	274.32
144	31.54	36.31	277.44	224.13	0.00	224.13	31.54	255.67	65.74	64.50	21.76	23.44	277.44
145	32.03	36.79	280.20	226.11	0.00	226.11	32.03	258.14	65.76	64.50	22.06	23.82	280.20
146	49.78	40.25	288.96	215.05	0.00	215.05	49.78	264.83	65.68	64.50	24.13	31.71	288.96
147	72.37	68.07	323.89	210.71	0.00	210.71	72.37	283.08	65.65	64.50	40.81	55.48	323.89
148	95.92	98.33	398.11	243.25	0.00	243.25	95.92	339.17	65.88	64.50	58.95	81.73	398.11
149	119.23	128.53	525.45	329.16	0.00	329.16	119.23	448.40	66.43	64.50	77.05	108.45	525.45
150	141.50	157.04	714.01	478.37	0.00	478.37	141.50	619.87	67.25	64.50	94.14	134.25	714.01
151	162.18	182.90	946.43	674.61	76.98	597.64	0.00	597.64	68.18	64.51	109.64	158.22	707.28
152	153.96	200.19	1172.55	898.58	247.76	650.83	0.00	650.83	69.09	64.55	120.00	165.04	770.83
153	143.57	179.91	1319.88	1068.47	419.43	649.04	0.00	649.04	69.72	64.61	107.85	148.65	756.88
154	134.78	163.71	1373.45	1140.53	500.14	640.38	0.00	640.38	69.97	64.68	98.14	135.22	738.52
155	127.31	150.57	1353.03	1135.46	493.42	642.04	0.00	642.04	69.95	64.77	90.26	124.11	732.30
156	120.92	139.85	1299.21	1094.45	447.65	646.80	0.00	646.80	69.81	64.85	83.83	114.86	730.64
157	115.43	131.03	1235.47	1041.50	389.17	652.33	0.00	652.33	69.62	64.92	78.55	107.07	730.87
158	110.68	123.71	1154.25	969.41	315.85	653.56	0.00	653.56	69.36	64.99	74.16	100.49	727.71
159	106.57	117.59	1053.65	876.59	229.13	647.45	0.00	647.45	69.01	65.04	70.49	94.88	717.94
160	102.99	112.45	949.13	778.74	148.37	630.37	0.00	630.37	68.62	65.08	67.41	90.07	697.78
161	99.86	108.10	853.42	688.76	85.49	603.27	0.00	603.27	68.24	65.11	64.80	85.93	668.07
162	97.12	104.41	771.40	611.69	42.46	569.23	0.00	569.23	67.90	65.14	62.59	82.36	631.83
163	94.71	101.27	703.26	547.86	15.33	532.52	0.00	532.52	67.60	65.15	60.70	79.25	593.22
164	92.59	98.57	647.33	495.65	1.43	494.22	0.00	494.22	67.34	65.17	59.09	76.54	553.30
165	90.72	96.26	601.52	453.10	0.00	453.10	90.72	543.82	67.12	65.17	57.70	74.17	601.52

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
 ÑOS BAJO PM(6/11)

Cuadro 6.4

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131.4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131.4/219.2)	Runoff from Sub. 15	El Delirio
166	89.07	94.27	563.92	418.35	0.00	418.35	89.07	507.42	66.94	65.17	56.51	72.10	563.92
167	87.61	92.55	532.93	389.84	0.00	389.84	87.61	477.45	66.78	65.17	55.48	70.27	532.93
168	86.31	91.06	507.23	366.34	0.00	366.34	86.31	452.65	66.65	65.17	54.59	68.66	507.23
169	85.15	89.77	485.82	346.85	0.00	346.85	85.15	432.00	66.53	65.17	53.81	67.24	485.82
170	77.90	87.46	465.22	334.90	0.00	334.90	77.90	412.79	66.46	65.17	52.43	63.89	465.22
171	70.83	77.78	439.37	321.92	0.00	321.92	70.83	392.75	66.39	65.17	46.63	57.76	439.37
172	64.71	69.70	409.89	303.41	0.00	303.41	64.71	368.11	66.27	65.17	41.78	52.48	409.89
173	59.38	62.88	379.62	282.54	0.00	282.54	59.38	341.92	66.14	65.17	37.69	47.91	379.62
174	54.72	57.08	350.20	261.26	0.00	261.26	54.72	315.98	66.00	65.17	34.22	43.93	350.20
175	50.63	52.12	322.62	240.75	0.00	240.75	50.63	291.37	65.86	65.17	31.24	40.44	322.62
176	47.01	47.84	297.34	221.65	0.00	221.65	47.01	268.66	65.73	65.17	28.68	37.37	297.34
177	43.80	44.13	274.58	204.27	0.00	204.27	43.80	248.07	65.60	65.17	26.45	34.66	274.58
178	40.95	40.89	254.13	188.67	0.00	188.67	40.95	229.61	65.48	65.17	24.51	32.25	254.13
179	38.39	38.06	235.99	174.78	0.00	174.78	38.39	213.17	65.38	65.17	22.81	30.10	235.99
180	36.10	35.56	219.88	162.47	0.00	162.47	36.10	198.57	65.28	65.17	21.32	28.18	219.88
181	34.04	33.35	205.60	151.57	0.00	151.57	34.04	185.61	65.19	65.17	19.99	26.46	205.60
182	32.18	31.39	192.93	141.93	0.00	141.93	32.18	174.11	65.10	65.17	18.81	24.90	192.93
183	30.49	29.63	181.66	133.40	0.00	133.40	30.49	163.89	65.03	65.17	17.76	23.50	181.66
184	28.96	28.07	171.62	125.83	0.00	125.83	28.96	154.79	64.96	65.17	16.82	22.23	171.62
185	27.57	26.66	162.65	119.09	0.00	119.09	27.57	146.67	64.90	65.17	15.98	21.07	162.65
186	26.30	25.39	154.62	113.09	0.00	113.09	26.30	139.40	64.84	65.17	15.22	20.02	154.62
187	25.14	24.24	147.40	107.73	0.00	107.73	25.14	132.87	64.79	65.17	14.53	19.06	147.40
188	24.08	23.20	140.91	102.93	0.00	102.93	24.08	127.00	64.75	65.17	13.91	18.18	140.91
189	23.10	22.26	135.05	98.61	0.00	98.61	23.10	121.71	64.70	65.17	13.34	17.37	135.05
190	22.20	21.40	129.75	94.72	0.00	94.72	22.20	116.92	64.66	65.17	12.83	16.63	129.75
191	21.37	20.61	124.93	91.21	0.00	91.21	21.37	112.58	64.63	65.17	12.35	15.95	124.93
192	20.60	19.89	120.56	88.03	0.00	88.03	20.60	108.63	64.59	65.17	11.92	15.32	120.56
193	19.89	19.23	116.56	85.15	0.00	85.15	19.89	105.04	64.56	65.17	11.53	14.74	116.56
194	19.23	18.62	112.92	82.53	0.00	82.53	19.23	101.76	64.54	65.17	11.16	14.20	112.92
195	18.62	18.06	109.58	80.14	0.00	80.14	18.62	98.75	64.51	65.17	10.83	13.70	109.58
196	18.05	17.55	106.52	77.95	0.00	77.95	18.05	96.00	64.49	65.17	10.52	13.24	106.52
197	17.52	17.07	103.70	75.95	0.00	75.95	17.52	93.47	64.46	65.17	10.23	12.80	103.70
198	17.03	16.63	101.11	74.12	0.00	74.12	17.03	91.15	64.44	65.17	9.97	12.40	101.11

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
ÑOS BAJO PM(7/11)**

Cuadro 6.4

time(hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131 4/219.2)	Runoff from Sub. 15	El Delirio
	Sub. 13	Sub. 14	Pt. 41	Sub. 13- Sub. 14*(131 4/219.2)	at weir	at weir	at drainage		in MSL	in MSL		Sub. 15	
199	16.56	16.22	98.72	72.44	0.00	72.44	16.56	89.00	64.42	65.17	9.72	12.03	98.72
200	16.13	15.84	96.51	70.89	0.00	70.89	16.13	87.02	64.41	65.17	9.49	11.68	96.51
201	15.73	15.48	94.47	69.46	0.00	69.46	15.73	85.19	64.39	65.17	9.28	11.35	94.47
202	15.35	15.15	92.58	68.14	0.00	68.14	15.35	83.49	64.37	65.17	9.08	11.04	92.58
203	14.99	14.84	90.82	66.93	0.00	66.93	14.99	81.92	64.36	65.17	8.90	10.75	90.82
204	14.66	14.55	89.18	65.80	0.00	65.80	14.66	80.46	64.35	65.17	8.72	10.48	89.18
205	14.35	14.28	87.66	64.75	0.00	64.75	14.35	79.10	64.33	65.17	8.56	10.23	87.66
206	14.05	14.03	86.24	63.78	0.00	63.78	14.05	77.83	64.32	65.17	8.41	9.99	86.24
207	13.77	13.79	84.92	62.88	0.00	62.88	13.77	76.65	64.31	65.17	8.27	9.76	84.92
208	13.51	13.57	83.68	62.04	0.00	62.04	13.51	75.55	64.30	65.17	8.14	9.55	83.68
209	13.26	13.36	82.53	61.26	0.00	61.26	13.26	74.52	64.29	65.17	8.01	9.35	82.53
210	13.02	13.16	81.45	60.53	0.00	60.53	13.02	73.55	64.28	65.17	7.89	9.16	81.45
211	12.80	12.98	80.43	59.85	0.00	59.85	12.80	72.65	64.27	65.17	7.78	8.98	80.43
212	12.59	12.80	79.48	59.21	0.00	59.21	12.59	71.80	64.27	65.17	7.68	8.81	79.48
213	12.39	12.64	78.58	58.61	0.00	58.61	12.39	71.00	64.26	65.17	7.58	8.65	78.58
214	12.20	12.48	77.74	58.05	0.00	58.05	12.20	70.26	64.25	65.17	7.48	8.50	77.74
215	12.02	12.34	76.94	57.53	0.00	57.53	12.02	69.55	64.25	65.17	7.39	8.35	76.94
216	11.85	12.20	76.20	57.04	0.00	57.04	11.85	68.89	64.24	65.17	7.31	8.21	76.20
217	11.69	12.06	75.49	56.57	0.00	56.57	11.69	68.26	64.23	65.17	7.23	8.08	75.49
218	11.53	11.94	74.83	56.14	0.00	56.14	11.53	67.67	64.23	65.17	7.16	7.96	74.83
219	11.39	11.82	74.20	55.73	0.00	55.73	11.39	67.11	64.22	65.17	7.08	7.84	74.20
220	11.25	11.71	73.60	55.34	0.00	55.34	11.25	66.59	64.22	65.17	7.02	7.73	73.60
221	11.11	11.60	73.04	54.98	0.00	54.98	11.11	66.09	64.21	65.17	6.95	7.62	73.04
222	10.99	11.50	72.51	54.63	0.00	54.63	10.99	65.62	64.21	65.17	6.89	7.52	72.51
223	10.86	11.40	72.00	54.31	0.00	54.31	10.86	65.17	64.20	65.17	6.83	7.42	72.00
224	10.75	11.31	71.52	54.00	0.00	54.00	10.75	64.74	64.20	65.17	6.78	7.33	71.52
225	10.64	11.22	71.07	53.71	0.00	53.71	10.64	64.34	64.20	65.17	6.72	7.24	71.07
226	10.53	11.13	70.63	53.43	0.00	53.43	10.53	63.96	64.19	65.17	6.67	7.16	70.63
227	10.43	11.05	70.22	53.17	0.00	53.17	10.43	63.60	64.19	65.17	6.63	7.07	70.22
228	10.33	10.98	69.83	52.92	0.00	52.92	10.33	63.25	64.19	65.17	6.58	7.00	69.83
229	10.24	10.90	69.46	52.69	0.00	52.69	10.24	62.92	64.18	65.17	6.54	6.92	69.46
230	10.15	10.83	69.10	52.46	0.00	52.46	10.15	62.61	64.18	65.17	6.49	6.85	69.10
231	10.06	10.77	68.77	52.25	0.00	52.25	10.06	62.31	64.18	65.17	6.45	6.78	68.77

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
ÑOS BAJO P/M(8/11)**

Cuadro 6.4

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131.4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131.4/219.2)	Runoff from Sub. 15	El Delirio
232	9.98	10.70	68.44	52.05	0.00	52.05	9.98	62.03	64.18	65.17	6.42	6.72	68.44
233	9.90	10.64	68.13	51.85	0.00	51.85	9.90	61.76	64.17	65.17	6.38	6.65	68.13
234	9.83	10.58	67.84	51.67	0.00	51.67	9.83	61.50	64.17	65.17	6.34	6.59	67.84
235	9.75	10.53	67.56	51.50	0.00	51.50	9.75	61.25	64.17	65.17	6.31	6.54	67.56
236	9.68	10.47	67.29	51.33	0.00	51.33	9.68	61.01	64.17	65.17	6.28	6.48	67.29
237	9.62	10.42	67.03	51.17	0.00	51.17	9.62	60.79	64.16	65.17	6.25	6.43	67.03
238	9.55	10.37	66.79	51.02	0.00	51.02	9.55	60.57	64.16	65.17	6.22	6.37	66.79
239	9.49	10.32	66.55	50.87	0.00	50.87	9.49	60.36	64.16	65.17	6.19	6.33	66.55
240	9.43	10.28	66.32	50.73	0.00	50.73	9.43	60.16	64.16	65.17	6.16	6.28	66.32
241	9.37	10.23	66.11	50.60	0.00	50.60	9.37	59.97	64.16	65.17	6.13	6.23	66.11
242	9.32	10.19	65.90	50.48	0.00	50.48	9.32	59.79	64.15	65.17	6.11	6.19	65.90
243	9.26	10.15	65.70	50.35	0.00	50.35	9.26	59.62	64.15	65.17	6.08	6.14	65.70
244	9.21	10.11	65.51	50.24	0.00	50.24	9.21	59.45	64.15	65.17	6.06	6.10	65.51
245	9.16	10.07	65.32	50.13	0.00	50.13	9.16	59.29	64.15	65.17	6.04	6.06	65.32
246	9.11	10.03	65.15	50.02	0.00	50.02	9.11	59.13	64.15	65.17	6.02	6.03	65.15
247	9.07	10.00	64.98	49.92	0.00	49.92	9.07	58.98	64.15	65.17	5.99	5.99	64.98
248	9.02	9.97	64.81	49.82	0.00	49.82	9.02	58.84	64.15	65.17	5.97	5.95	64.81
249	8.98	9.93	64.66	49.72	0.00	49.72	8.98	58.70	64.14	65.17	5.95	5.92	64.66
250	8.94	9.90	64.50	49.63	0.00	49.63	8.94	58.57	64.14	65.17	5.94	5.89	64.50
251	8.90	9.87	64.36	49.55	0.00	49.55	8.90	58.44	64.14	65.17	5.92	5.85	64.36
252	8.86	9.84	64.22	49.46	0.00	49.46	8.86	58.32	64.14	65.17	5.90	5.82	64.22
253	8.82	9.81	64.08	49.38	0.00	49.38	8.82	58.20	64.14	65.17	5.88	5.79	64.08
254	8.78	9.79	63.95	49.30	0.00	49.30	8.78	58.09	64.14	65.17	5.87	5.76	63.95
255	8.75	9.76	63.83	49.23	0.00	49.23	8.75	57.98	64.14	65.17	5.85	5.74	63.83
256	8.71	9.73	63.70	49.16	0.00	49.16	8.71	57.87	64.14	65.17	5.83	5.71	63.70
257	8.68	9.71	63.59	49.09	0.00	49.09	8.68	57.77	64.14	65.17	5.82	5.68	63.59
258	8.65	9.68	63.47	49.02	0.00	49.02	8.65	57.67	64.14	65.17	5.81	5.66	63.47
259	8.62	9.66	63.36	48.96	0.00	48.96	8.62	57.57	64.13	65.17	5.79	5.63	63.36
260	8.58	9.64	63.26	48.90	0.00	48.90	8.58	57.48	64.13	65.17	5.78	5.61	63.26
261	8.56	9.62	63.16	48.84	0.00	48.84	8.56	57.39	64.13	65.17	5.76	5.58	63.16
262	8.53	9.60	63.06	48.78	0.00	48.78	8.53	57.30	64.13	65.17	5.75	5.56	63.06
263	8.50	9.57	62.96	48.72	0.00	48.72	8.50	57.22	64.13	65.17	5.74	5.54	62.96
264	8.47	9.56	62.87	48.67	0.00	48.67	8.47	57.14	64.13	65.17	5.73	5.52	62.87

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
 ÑOS BAJO P/M(9/11)

time (hour)	Runoff from Sub.13	Runoff from Sub.14	Runoff at Pt. 41	Pt. 41- Sub.13- Sub.14*(131 .4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub.14*(131 .4/219.2)	Runoff from Sub.15	El Delirio
	8.45	9.54	62.78	48.62	0.00	48.62	8.45	57.06	64.13	65.17	5.72	5.50	62.78
266	8.42	9.52	62.69	48.57	0.00	48.57	8.42	56.99	64.13	65.17	5.71	5.48	62.69
267	8.40	9.50	62.61	48.52	0.00	48.52	8.40	56.91	64.13	65.17	5.69	5.46	62.61
268	8.37	9.48	62.53	48.47	0.00	48.47	8.37	56.84	64.13	65.17	5.68	5.44	62.53
269	8.35	9.46	62.45	48.42	0.00	48.42	8.35	56.77	64.13	65.17	5.67	5.42	62.45
270	8.33	9.45	62.37	48.38	0.00	48.38	8.33	56.71	64.13	65.17	5.66	5.40	62.37
271	8.31	9.43	62.30	48.34	0.00	48.34	8.31	56.64	64.13	65.17	5.65	5.39	62.30
272	8.28	9.42	62.23	48.30	0.00	48.30	8.28	56.58	64.13	65.17	5.64	5.37	62.23
273	8.26	9.40	62.16	48.26	0.00	48.26	8.26	56.52	64.13	65.17	5.64	5.35	62.16
274	8.24	9.39	62.09	48.22	0.00	48.22	8.24	56.46	64.12	65.17	5.63	5.34	62.09
275	8.22	9.37	62.02	48.18	0.00	48.18	8.22	56.40	64.12	65.17	5.62	5.32	62.02
276	8.20	9.36	61.96	48.14	0.00	48.14	8.20	56.35	64.12	65.17	5.61	5.31	61.96
277	8.19	9.34	61.90	48.11	0.00	48.11	8.19	56.30	64.12	65.17	5.60	5.29	61.90
278	8.17	9.33	61.84	48.07	0.00	48.07	8.17	56.24	64.12	65.17	5.59	5.28	61.84
279	8.15	9.32	61.78	48.04	0.00	48.04	8.15	56.19	64.12	65.17	5.59	5.26	61.78
280	8.13	9.31	61.72	48.01	0.00	48.01	8.13	56.14	64.12	65.17	5.58	5.25	61.72
281	8.12	9.29	61.67	47.98	0.00	47.98	8.12	56.09	64.12	65.17	5.57	5.24	61.67
282	8.10	9.28	61.61	47.95	0.00	47.95	8.10	56.05	64.12	65.17	5.56	5.22	61.61
283	8.08	9.27	61.56	47.92	0.00	47.92	8.08	56.00	64.12	65.17	5.56	5.21	61.56
284	8.07	9.26	61.51	47.89	0.00	47.89	8.07	55.96	64.12	65.17	5.55	5.20	61.51
285	8.05	9.25	61.46	47.86	0.00	47.86	8.05	55.92	64.12	65.17	5.54	5.19	61.46
286	8.04	9.24	61.41	47.84	0.00	47.84	8.04	55.87	64.12	65.17	5.54	5.18	61.41
287	8.03	9.23	61.37	47.81	0.00	47.81	8.03	55.83	64.12	65.17	5.53	5.17	61.37
288	8.01	9.22	61.32	47.78	0.00	47.78	8.01	55.79	64.12	65.17	5.53	5.15	61.32
289	8.00	9.21	61.28	47.76	0.00	47.76	8.00	55.76	64.12	65.17	5.52	5.14	61.28
290	7.98	9.20	61.23	47.73	0.00	47.73	7.98	55.72	64.12	65.17	5.51	5.13	61.23
291	7.97	9.19	61.19	47.71	0.00	47.71	7.97	55.68	64.12	65.17	5.51	5.12	61.19
292	7.96	9.18	61.15	47.69	0.00	47.69	7.96	55.65	64.12	65.17	5.50	5.11	61.15
293	7.95	9.17	61.11	47.67	0.00	47.67	7.95	55.61	64.12	65.17	5.50	5.10	61.11
294	7.93	9.16	61.07	47.64	0.00	47.64	7.93	55.58	64.12	65.17	5.49	5.09	61.07
295	7.92	9.15	61.03	47.62	0.00	47.62	7.92	55.55	64.12	65.17	5.49	5.08	61.03
296	7.91	9.15	61.00	47.60	0.00	47.60	7.91	55.51	64.12	65.17	5.48	5.08	61.00
297	7.90	9.14	60.96	47.58	0.00	47.58	7.90	55.48	64.12	65.17	5.48	5.07	60.96

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
ÑOS BAJO P/M(10/11)**

Cuadro 6.4

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(13) /4(219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(13) /4(219.2)	Runoff from Sub. 15	El Delirio
298	7.89	9.13	60.93	47.56	0.00	47.56	7.89	55.45	64.12	65.17	5.47	5.06	60.93
299	7.88	9.12	60.89	47.54	0.00	47.54	7.88	55.42	64.12	65.17	5.47	5.05	60.89
300	7.87	9.12	60.86	47.53	0.00	47.53	7.87	55.39	64.12	65.17	5.46	5.04	60.86
301	7.86	9.11	60.82	47.51	0.00	47.51	7.86	55.37	64.12	65.17	5.46	5.03	60.82
302	7.85	9.10	60.79	47.49	0.00	47.49	7.85	55.34	64.11	65.17	5.46	5.03	60.79
303	7.84	9.09	60.76	47.47	0.00	47.47	7.84	55.31	64.11	65.17	5.45	5.02	60.76
304	7.83	9.09	60.73	47.46	0.00	47.46	7.83	55.28	64.11	65.17	5.45	5.01	60.73
305	7.82	9.08	60.70	47.44	0.00	47.44	7.82	55.26	64.11	65.17	5.44	5.00	60.70
306	7.81	9.07	60.67	47.42	0.00	47.42	7.81	55.23	64.11	65.17	5.44	5.00	60.67
307	7.80	9.07	60.64	47.41	0.00	47.41	7.80	55.21	64.11	65.17	5.44	4.99	60.64
308	7.79	9.06	60.62	47.39	0.00	47.39	7.79	55.19	64.11	65.17	5.43	4.98	60.62
309	7.78	9.06	60.59	47.38	0.00	47.38	7.78	55.16	64.11	65.17	5.43	4.97	60.59
310	7.77	9.05	60.56	47.36	0.00	47.36	7.77	55.14	64.11	65.17	5.42	4.97	60.56
311	7.77	9.04	60.54	47.35	0.00	47.35	7.77	55.12	64.11	65.17	5.42	4.96	60.54
312	7.76	9.04	60.51	47.34	0.00	47.34	7.76	55.09	64.11	65.17	5.42	4.96	60.51
313	7.75	9.03	60.49	47.32	0.00	47.32	7.75	55.07	64.11	65.17	5.41	4.95	60.49
314	7.74	9.03	60.46	47.31	0.00	47.31	7.74	55.05	64.11	65.17	5.41	4.94	60.46
315	7.74	9.02	60.44	47.30	0.00	47.30	7.74	55.03	64.11	65.17	5.41	4.94	60.44
316	7.73	9.02	60.42	47.28	0.00	47.28	7.73	55.01	64.11	65.17	5.40	4.93	60.42
317	7.72	9.01	60.39	47.27	0.00	47.27	7.72	54.99	64.11	65.17	5.40	4.93	60.39
318	7.71	9.01	60.37	47.26	0.00	47.26	7.71	54.97	64.11	65.17	5.40	4.92	60.37
319	7.71	9.00	60.35	47.25	0.00	47.25	7.71	54.96	64.11	65.17	5.40	4.91	60.35
320	7.70	9.00	60.33	47.24	0.00	47.24	7.70	54.94	64.11	65.17	5.39	4.91	60.33
321	7.69	8.99	60.31	47.23	0.00	47.23	7.69	54.92	64.11	65.17	5.39	4.90	60.31
322	7.69	8.99	60.29	47.21	0.00	47.21	7.69	54.90	64.11	65.17	5.39	4.90	60.29
323	7.68	8.98	60.27	47.20	0.00	47.20	7.68	54.88	64.11	65.17	5.38	4.89	60.27
324	7.67	8.98	60.25	47.19	0.00	47.19	7.67	54.87	64.11	65.17	5.38	4.89	60.25
325	7.67	8.97	60.23	47.18	0.00	47.18	7.67	54.85	64.11	65.17	5.38	4.88	60.23
326	7.66	8.97	60.21	47.17	0.00	47.17	7.66	54.83	64.11	65.17	5.38	4.88	60.21
327	7.66	8.97	60.19	47.16	0.00	47.16	7.66	54.82	64.11	65.17	5.37	4.87	60.19
328	7.65	8.96	60.18	47.15	0.00	47.15	7.65	54.80	64.11	65.17	5.37	4.87	60.18
329	7.64	8.96	60.16	47.14	0.00	47.14	7.64	54.79	64.11	65.17	5.37	4.87	60.16
330	7.64	8.95	60.14	47.13	0.00	47.13	7.64	54.77	64.11	65.17	5.37	4.86	60.14

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 A
 ÑOS BAJO P/M(11/11)

Cuadro 6.4

time(hour)	Runoff from Sub.13	Runoff from Sub.14	Runoff at Pt.41	Pt.41- Sub.13- Sub.14*(131 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub.14*(131 4/219.2)	Runoff from Sub.15	El Delirio
331	7.63	8.95	60.12	47.13	0.00	47.13	7.63	54.76	64.11	65.17	5.36	4.86	60.12
332	7.63	8.95	60.11	47.12	0.00	47.12	7.63	54.75	64.11	65.17	5.36	4.85	60.11
333	7.62	8.94	60.09	47.11	0.00	47.11	7.62	54.73	64.11	65.17	5.36	4.85	60.09
334	7.62	8.94	60.08	47.10	0.00	47.10	7.62	54.72	64.11	65.17	5.36	4.84	60.08
335	7.61	8.93	60.06	47.09	0.00	47.09	7.61	54.70	64.11	65.17	5.36	4.84	60.06
336	7.61	8.93	60.04	47.08	0.00	47.08	7.61	54.69	64.11	65.17	5.35	4.84	60.04
Max	162.18	200.19	1373.45	1140.53	500.14	653.56	141.50	653.56	69.97	65.17	120.00	165.04	770.83

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
OS BAJO P/P(1/11)**

Quadro 6.5

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(13:4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(13:1.4/219.2)	Runoff from Sub. 15	El Delirio
1	7.23	8.68	0.50	0.00	0.00	0.00	7.23	7.23	63.31	64.50	5.20	4.55	12.43
2	7.23	8.68	1.56	0.00	0.00	0.00	7.23	7.23	63.31	64.50	5.20	4.55	12.44
3	7.24	8.68	2.92	0.00	0.00	0.00	7.24	7.24	63.31	64.50	5.20	4.56	12.44
4	7.24	8.68	4.43	0.00	0.00	0.00	7.24	7.24	63.31	64.50	5.20	4.58	12.44
5	7.24	8.68	6.04	0.00	0.00	0.00	7.24	7.24	63.31	64.50	5.20	4.61	12.44
6	7.24	8.68	7.70	0.00	0.00	0.00	7.24	7.24	63.31	64.50	5.20	4.64	12.44
7	7.24	8.68	9.44	0.00	0.00	0.00	7.24	7.24	63.31	64.50	5.21	4.68	12.44
8	7.24	8.69	11.28	0.00	0.00	0.00	7.24	7.24	63.31	64.50	5.21	4.72	12.45
9	7.24	8.69	13.30	0.85	0.00	0.85	7.24	8.10	63.31	64.50	5.21	4.76	13.30
10	7.24	8.69	15.59	3.14	0.00	3.14	7.24	10.38	63.31	64.50	5.21	4.81	15.59
11	7.25	8.69	18.21	5.76	0.00	5.76	7.25	13.00	63.31	64.50	5.21	4.86	18.21
12	7.25	8.69	21.20	8.74	0.00	8.74	7.25	15.99	63.31	64.50	5.21	4.91	21.20
13	7.25	8.70	24.55	12.09	0.00	12.09	7.25	19.34	63.31	64.50	5.21	4.96	24.55
14	7.25	8.70	28.23	15.77	0.00	15.77	7.25	23.02	63.61	64.50	5.21	5.02	28.23
15	7.25	8.70	32.15	19.68	0.00	19.68	7.25	26.93	63.69	64.50	5.22	5.08	32.15
16	7.25	8.70	36.22	23.75	0.00	23.75	7.25	31.00	63.76	64.50	5.22	5.14	36.22
17	7.26	8.71	40.33	27.86	0.00	27.86	7.26	35.11	63.84	64.50	5.22	5.20	40.33
18	7.26	8.71	44.40	31.92	0.00	31.92	7.26	39.18	63.90	64.50	5.22	5.26	44.40
19	7.26	8.71	48.35	35.87	0.00	35.87	7.26	43.13	63.96	64.50	5.22	5.33	48.35
20	7.26	8.71	52.11	39.63	0.00	39.63	7.26	46.89	64.02	64.50	5.22	5.39	52.11
21	7.26	8.72	55.66	43.17	0.00	43.17	7.26	50.43	64.07	64.50	5.23	5.46	55.66
22	7.27	8.72	58.96	46.47	0.00	46.47	7.27	53.74	64.11	64.50	5.23	5.52	58.96
23	7.27	8.72	62.02	49.52	0.00	49.52	7.27	56.79	64.16	64.50	5.23	5.59	62.02
24	7.27	8.73	64.84	52.34	0.00	52.34	7.27	59.61	64.19	64.50	5.23	5.66	64.84
25	7.27	8.73	67.42	54.92	0.00	54.92	7.27	62.19	64.23	64.50	5.23	5.72	67.42
26	7.28	8.73	69.79	57.27	0.00	57.27	7.28	64.55	64.25	64.50	5.24	5.77	69.79
27	7.30	8.75	71.96	59.41	0.00	59.41	7.30	66.71	64.28	64.50	5.25	5.79	71.96
28	7.31	8.77	73.96	61.38	0.00	61.38	7.31	68.70	64.31	64.50	5.26	5.81	73.96
29	7.33	8.80	75.80	63.20	0.00	63.20	7.33	70.53	64.33	64.50	5.27	5.82	75.80
30	7.35	8.82	77.51	64.87	0.00	64.87	7.35	72.22	64.35	64.50	5.29	5.84	77.51
31	7.37	8.85	79.11	66.44	0.00	66.44	7.37	73.80	64.37	64.50	5.30	5.85	79.11
32	7.39	8.88	80.61	67.90	0.00	67.90	7.39	75.29	64.38	64.50	5.32	5.87	80.61
33	7.41	8.90	82.03	69.28	0.00	69.28	7.41	76.69	64.40	64.50	5.34	5.89	82.03

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
OS BAJO P/P(2/11)**

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41 - Sub. 13 - Sub. 14 (131, 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14* (13 1.4/219.2)	Runoff from Sub. 15	El Delirio
34	7.43	8.93	83.37	70.59	0.00	70.59	7.43	78.02	64.41	64.50	5.36	5.90	83.37
35	7.45	8.96	84.65	71.82	0.00	71.82	7.45	79.28	64.43	64.50	5.37	5.92	84.65
36	7.48	9.00	85.87	73.00	0.00	73.00	7.48	80.47	64.44	64.50	5.39	5.93	85.87
37	7.50	9.03	87.02	74.11	0.00	74.11	7.50	81.61	64.45	64.50	5.41	5.94	87.02
38	7.52	9.06	88.12	75.16	0.00	75.16	7.52	82.69	64.47	64.50	5.43	5.96	88.12
39	7.55	9.10	89.16	76.15	0.00	76.15	7.55	83.70	64.48	64.50	5.45	5.97	89.16
40	7.57	9.13	90.14	77.09	0.00	77.09	7.57	84.66	64.49	64.50	5.47	5.98	90.14
41	7.60	9.16	91.06	77.97	0.00	77.97	7.60	85.57	64.50	64.50	5.49	6.00	91.06
42	7.63	9.20	91.93	78.79	0.00	78.79	7.63	86.42	64.51	64.50	5.51	6.01	91.93
43	7.65	9.24	92.75	79.56	0.00	79.56	7.65	87.21	64.51	64.50	5.54	6.02	92.75
44	7.68	9.27	93.51	80.28	0.00	80.28	7.68	87.96	64.52	64.50	5.56	6.03	93.51
45	7.71	9.31	94.23	80.94	0.00	80.94	7.71	88.65	64.53	64.50	5.58	6.05	94.23
46	7.73	9.34	94.90	81.57	0.00	81.57	7.73	89.30	64.54	64.50	5.60	6.06	94.90
47	7.76	9.38	95.53	82.14	0.00	82.14	7.76	89.90	64.54	64.50	5.62	6.07	95.53
48	7.79	9.42	96.11	82.68	0.00	82.68	7.79	90.46	64.55	64.50	5.64	6.08	96.11
49	7.82	9.45	96.65	83.17	0.00	83.17	7.82	90.99	64.55	64.50	5.67	6.09	96.65
50	7.90	9.50	97.17	83.58	0.00	83.58	7.90	91.48	64.56	64.50	5.69	6.13	97.17
51	8.00	9.63	97.72	83.95	0.00	83.95	8.00	91.95	64.56	64.50	5.77	6.22	97.72
52	8.10	9.77	98.33	84.37	0.00	84.37	8.10	92.47	64.57	64.50	5.86	6.31	98.33
53	8.21	9.91	99.05	84.90	0.00	84.90	8.21	93.11	64.57	64.50	5.94	6.39	99.05
54	8.32	10.06	99.96	85.62	0.00	85.62	8.32	93.93	64.58	64.50	6.03	6.48	99.96
55	8.43	10.20	101.14	86.60	0.00	86.60	8.43	95.03	64.59	64.50	6.12	6.57	101.14
56	8.54	10.35	102.68	87.93	0.00	87.93	8.54	96.47	64.60	64.50	6.20	6.65	102.68
57	8.65	10.50	104.66	89.72	0.00	89.72	8.65	98.37	64.62	64.50	6.29	6.73	104.66
58	8.77	10.65	107.22	92.07	0.00	92.07	8.77	100.83	64.65	64.50	6.38	6.82	107.22
59	8.88	10.80	110.42	95.07	0.00	95.07	8.88	103.95	64.68	64.50	6.47	6.90	110.42
60	9.00	10.95	114.30	98.74	0.00	98.74	9.00	107.74	64.71	64.50	6.56	6.98	114.30
61	9.11	11.10	118.79	103.02	0.00	103.02	9.11	112.13	64.76	64.50	6.65	7.05	118.79
62	9.23	11.25	123.76	107.79	0.00	107.79	9.23	117.02	64.80	64.50	6.74	7.13	123.76
63	9.35	11.39	129.06	112.88	0.00	112.88	9.35	122.23	64.85	64.50	6.83	7.21	129.06
64	9.46	11.54	134.51	118.13	0.00	118.13	9.46	127.59	64.90	64.50	6.92	7.28	134.51
65	9.58	11.68	139.93	123.36	0.00	123.36	9.58	132.93	64.95	64.50	7.00	7.35	139.93
66	9.69	11.82	145.20	128.42	0.00	128.42	9.69	138.11	64.99	64.50	7.08	7.42	145.20

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
OS BAJO P/R(3/11)**

Cuadro 6.5

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(13/4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(13/4/219.2)	Runoff from Sub. 15	El Delirio
	Sub. 13	Sub. 14	Pt. 41	Sub. 13- Sub. 14*(13/4/219.2)	at weir	at weir	at drainage	Outflow	Waterlevel in MSL	Waterlevel in MSL	Sub. 14*(13/4/219.2)	Sub. 15	
67	9.80	11.96	150.18	133.21	0.00	133.21	9.80	143.01	65.04	64.50	7.17	7.49	150.18
68	9.91	12.09	154.80	137.64	0.00	137.64	9.91	147.56	65.07	64.50	7.25	7.56	154.80
69	10.02	12.22	159.03	141.68	0.00	141.68	10.02	151.70	65.11	64.50	7.33	7.63	159.03
70	10.13	12.35	162.84	145.30	0.00	145.30	10.13	155.43	65.14	64.50	7.40	7.69	162.84
71	10.24	12.47	166.23	148.51	0.00	148.51	10.24	158.75	65.17	64.50	7.48	7.75	166.23
72	10.35	12.60	169.24	151.34	0.00	151.34	10.35	161.69	65.19	64.50	7.55	7.81	169.24
73	10.45	12.71	171.88	153.81	0.00	153.81	10.45	164.26	65.21	64.50	7.62	7.87	171.88
74	10.55	12.83	174.19	155.96	0.00	155.96	10.55	166.50	65.23	64.50	7.69	7.93	174.19
75	10.64	12.93	176.21	157.82	0.00	157.82	10.64	168.46	65.24	64.50	7.75	7.97	176.21
76	10.74	13.03	177.95	159.40	0.00	159.40	10.74	170.14	65.26	64.50	7.81	8.02	177.95
77	10.83	13.13	179.42	160.72	0.00	160.72	10.83	171.55	65.27	64.50	7.87	8.06	179.42
78	10.92	13.23	180.63	161.78	0.00	161.78	10.92	172.70	65.28	64.50	7.93	8.11	180.63
79	11.00	13.32	181.58	162.59	0.00	162.59	11.00	173.59	65.28	64.50	7.98	8.15	181.58
80	11.09	13.41	182.29	163.16	0.00	163.16	11.09	174.25	65.29	64.50	8.04	8.19	182.29
81	11.17	13.49	182.77	163.51	0.00	163.51	11.17	174.68	65.29	64.50	8.09	8.23	182.77
82	11.25	13.58	183.03	163.64	0.00	163.64	11.25	174.89	65.29	64.50	8.14	8.27	183.03
83	11.33	13.66	183.09	163.57	0.00	163.57	11.33	174.90	65.29	64.50	8.19	8.31	183.09
84	11.41	13.73	182.99	163.36	0.00	163.36	11.41	174.76	65.29	64.50	8.23	8.34	182.99
85	11.48	13.81	182.79	163.03	0.00	163.03	11.48	174.51	65.29	64.50	8.28	8.38	182.79
86	11.55	13.88	182.51	162.64	0.00	162.64	11.55	174.19	65.28	64.50	8.32	8.41	182.51
87	11.62	13.94	182.20	162.22	0.00	162.22	11.62	173.84	65.28	64.50	8.36	8.44	182.20
88	11.69	14.01	181.89	161.80	0.00	161.80	11.69	173.49	65.28	64.50	8.40	8.47	181.89
89	11.76	14.07	181.59	161.39	0.00	161.39	11.76	173.15	65.27	64.50	8.44	8.50	181.59
90	11.82	14.13	181.31	161.01	0.00	161.01	11.82	172.84	65.27	64.50	8.47	8.53	181.31
91	11.89	14.19	181.06	160.67	0.00	160.67	11.89	172.56	65.27	64.50	8.51	8.56	181.06
92	11.95	14.25	180.85	160.37	0.00	160.37	11.95	172.32	65.27	64.50	8.54	8.59	180.85
93	12.01	14.30	180.68	160.10	0.00	160.10	12.01	172.11	65.26	64.50	8.57	8.61	180.68
94	12.06	14.35	180.54	159.88	0.00	159.88	12.06	171.94	65.26	64.50	8.60	8.64	180.54
95	12.12	14.40	180.43	159.68	0.00	159.68	12.12	171.80	65.26	64.50	8.63	8.66	180.43
96	12.17	14.44	180.35	159.52	0.00	159.52	12.17	171.69	65.26	64.50	8.66	8.69	180.35
97	12.22	14.49	180.29	159.38	0.00	159.38	12.22	171.60	65.26	64.50	8.69	8.71	180.29
98	12.13	14.50	180.21	159.38	0.00	159.38	12.13	171.52	65.26	64.50	8.69	8.69	180.21
99	12.03	14.33	179.99	159.37	0.00	159.37	12.03	171.40	65.26	64.50	8.59	8.60	179.99

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
OS BAJO P/P(4/11)**

Cuadro 6.5

time(hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(13 1.4/219.2)	Runoff from Sub. 15	E1 Delirio
	Sub. 13	Sub. 14	Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131 4/219.2)	at weir	at weir	at drainage	Outflow	Waterlevel in MSL	Waterlevel in MSL	1.4/219.2)	Sub. 15	
100	11.93	14.17	179.58	159.15	0.00	159.15	11.93	171.08	65.26	64.50	8.50	8.51	179.58
101	11.83	14.02	178.91	158.67	0.00	158.67	11.83	170.50	65.25	64.50	8.41	8.42	178.91
102	11.74	13.88	177.91	157.85	0.00	157.85	11.74	169.59	65.25	64.50	8.32	8.34	177.91
103	11.65	13.74	176.57	156.68	0.00	156.68	11.65	168.34	65.24	64.50	8.24	8.26	176.57
104	11.57	13.62	174.87	155.14	0.00	155.14	11.57	166.71	65.22	64.50	8.16	8.19	174.87
105	11.49	13.50	172.75	153.17	0.00	153.17	11.49	164.66	65.21	64.50	8.09	8.12	172.75
106	11.41	13.38	170.16	150.73	0.00	150.73	11.41	162.14	65.19	64.50	8.02	8.05	170.16
107	11.34	13.27	167.14	147.84	0.00	147.84	11.34	159.18	65.16	64.50	7.96	7.99	167.14
108	11.27	13.17	163.78	144.62	0.00	144.62	11.27	155.88	65.13	64.50	7.89	7.92	163.78
109	11.20	13.07	160.22	141.18	0.00	141.18	11.20	152.38	65.11	64.50	7.83	7.86	160.22
110	11.14	12.98	156.59	137.68	0.00	137.68	11.14	148.82	65.08	64.50	7.78	7.81	156.59
111	11.07	12.89	153.01	134.22	0.00	134.22	11.07	145.29	65.04	64.50	7.73	7.75	153.01
112	11.01	12.80	149.57	130.88	0.00	130.88	11.01	141.89	65.02	64.50	7.67	7.70	149.57
113	10.95	12.72	146.30	127.72	0.00	127.72	10.95	138.68	64.99	64.50	7.63	7.65	146.30
114	10.90	12.65	143.26	124.78	0.00	124.78	10.90	135.68	64.96	64.50	7.58	7.60	143.26
115	10.85	12.57	140.46	122.08	0.00	122.08	10.85	132.92	64.94	64.50	7.54	7.55	140.46
116	10.79	12.50	137.90	119.61	0.00	119.61	10.79	130.40	64.91	64.50	7.49	7.51	137.90
117	10.74	12.44	135.57	117.37	0.00	117.37	10.74	128.11	64.89	64.50	7.45	7.47	135.57
118	10.70	12.37	133.46	115.35	0.00	115.35	10.70	126.04	64.87	64.50	7.42	7.42	133.46
119	10.65	12.31	131.56	113.53	0.00	113.53	10.65	124.18	64.86	64.50	7.38	7.38	131.56
120	10.61	12.25	129.85	111.90	0.00	111.90	10.61	122.51	64.84	64.50	7.35	7.35	129.85
121	10.56	12.20	128.32	110.44	0.00	110.44	10.56	121.00	64.83	64.50	7.31	7.31	128.32
122	11.08	12.25	127.07	108.65	0.00	108.65	11.08	119.73	64.81	64.50	7.34	7.47	127.07
123	11.70	13.03	126.49	106.98	0.00	106.98	11.70	118.68	64.79	64.50	7.81	7.96	126.49
124	12.34	13.84	126.67	106.04	0.00	106.04	12.34	118.38	64.79	64.50	8.30	8.47	126.67
125	12.98	14.67	127.64	105.87	0.00	105.87	12.98	118.84	64.78	64.50	8.79	8.98	127.64
126	13.62	15.50	129.44	106.52	0.00	106.52	13.62	120.14	64.79	64.50	9.29	9.50	129.44
127	14.27	16.33	132.10	108.04	0.00	108.04	14.27	122.30	64.80	64.50	9.79	10.02	132.10
128	14.91	17.16	135.60	110.41	0.00	110.41	14.91	125.31	64.83	64.50	10.29	10.54	135.60
129	15.55	17.98	139.90	113.58	0.00	113.58	15.55	129.12	64.86	64.50	10.78	11.05	139.90
130	16.17	18.77	144.90	117.48	0.00	117.48	16.17	133.65	64.89	64.50	11.25	11.56	144.90
131	16.79	19.55	150.48	121.98	0.00	121.98	16.79	138.76	64.94	64.50	11.72	12.06	150.48
132	17.39	20.30	156.47	126.91	0.00	126.91	17.39	144.30	64.98	64.50	12.17	12.54	156.47

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑO
OS BAJO PP(5/11)**

Cuadro 6.5

time(hour)	Runoff	Runoff	Runoff at	Pt. 4i-	Overflow	Outflow	Outflow	Total	Channel	Lake	Sub. 14*(13	Runoff	El Delirio
	from	from	Pt. 4i	Sub. 13- Sub. 14*(131 4/219.2)	at weir	at weir	at drainage	Outflow	Waterlevel in MSL	Waterlevel in MSL	1.4/219.2)	from	
	Sub. 13	Sub. 14										Sub. 15	
133	17.97	21.03	162.67	132.09	0.00	132.09	17.97	150.07	65.03	64.50	12.60	13.02	162.67
134	18.54	21.72	168.91	137.35	0.00	137.35	18.54	155.89	65.07	64.50	13.02	13.48	168.91
135	19.10	22.39	175.02	142.50	0.00	142.50	19.10	161.60	65.12	64.50	13.42	13.92	175.02
136	19.63	23.03	180.87	147.44	0.00	147.44	19.63	167.07	65.16	64.50	13.80	14.35	180.87
137	20.14	23.63	186.37	152.06	0.00	152.06	20.14	172.21	65.20	64.50	14.17	14.77	186.37
138	20.64	24.21	191.47	156.32	0.00	156.32	20.64	176.96	65.23	64.50	14.51	15.17	191.47
139	21.11	24.75	196.12	160.17	0.00	160.17	21.11	181.29	65.26	64.50	14.84	15.56	196.12
140	21.57	25.26	200.35	163.63	0.00	163.63	21.57	185.20	65.29	64.50	15.14	15.92	200.35
141	22.01	25.75	204.15	166.71	0.00	166.71	22.01	188.71	65.32	64.50	15.43	16.28	204.15
142	22.42	26.20	207.55	169.42	0.00	169.42	22.42	191.85	65.34	64.50	15.71	16.61	207.55
143	22.82	26.63	210.60	171.81	0.00	171.81	22.82	194.63	65.36	64.50	15.96	16.94	210.60
144	23.20	27.03	213.31	173.91	0.00	173.91	23.20	197.11	65.37	64.50	16.20	17.24	213.31
145	23.56	27.40	215.73	175.75	0.00	175.75	23.56	199.31	65.39	64.50	16.43	17.53	215.73
146	30.51	28.97	220.05	172.18	0.00	172.18	30.51	202.69	65.36	64.50	17.37	21.18	220.05
147	38.98	39.60	232.84	170.12	0.00	170.12	38.98	209.10	65.34	64.50	23.74	31.46	232.84
148	47.77	50.89	257.48	179.21	0.00	179.21	47.77	226.98	65.42	64.50	30.50	42.72	257.48
149	56.61	62.29	297.38	203.43	0.00	203.43	56.61	260.04	65.60	64.50	37.34	54.39	297.38
150	65.28	73.41	356.50	247.21	0.00	247.21	65.28	312.49	65.91	64.50	44.00	66.00	356.50
151	73.64	83.95	435.56	311.59	8.31	303.28	0.00	303.28	66.32	64.50	50.32	77.22	353.61
152	74.69	92.37	528.40	398.33	56.19	342.14	0.00	342.14	66.83	64.52	55.37	82.64	397.51
153	74.72	90.85	620.44	491.26	131.85	359.40	0.00	359.40	67.31	64.54	54.46	79.47	413.87
154	74.75	89.54	698.59	570.16	215.24	354.92	0.00	354.92	67.70	64.57	53.67	76.71	408.59
155	74.78	88.40	750.98	623.21	276.64	346.57	0.00	346.57	67.94	64.61	52.99	74.29	399.56
156	74.80	87.40	777.57	650.38	310.30	340.08	0.00	340.08	68.06	64.66	52.39	72.17	392.48
157	74.82	86.54	785.26	658.56	321.96	336.61	0.00	336.61	68.10	64.71	51.87	70.31	388.48
158	74.84	85.78	774.91	648.65	307.42	341.24	0.00	341.24	68.05	64.76	51.42	68.67	392.66
159	74.86	85.12	746.18	620.30	273.93	346.37	0.00	346.37	67.93	64.81	51.03	67.22	397.40
160	74.87	84.55	705.64	580.09	224.93	355.16	0.00	355.16	67.74	64.85	50.68	65.93	405.84
161	74.88	84.05	661.52	536.26	176.43	359.83	0.00	359.83	67.53	64.89	50.38	64.80	410.21
162	74.90	83.61	619.34	494.32	135.65	358.68	0.00	358.68	67.33	64.92	50.12	63.79	408.80
163	74.91	83.22	581.66	456.86	101.70	355.17	0.00	355.17	67.14	64.95	49.89	62.89	405.05
164	74.92	82.89	549.20	424.60	75.23	349.37	0.00	349.37	66.97	64.97	49.69	62.09	399.05
165	74.93	82.59	521.77	397.33	54.93	342.41	0.00	342.41	66.82	64.99	49.51	61.38	391.92

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
 OS BAJO PP(6/11)

Cuadro 6.5

time(hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(1.4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(1.3 1.4/219.2)	Runoff from Sub. 15	El Delirio
166	74.93	82.33	498.80	374.51	39.64	334.87	0.00	334.87	66.69	65.01	49.35	60.74	384.22
167	74.94	82.11	479.63	355.47	28.41	327.07	0.00	327.07	66.58	65.02	49.22	60.17	376.28
168	74.95	81.91	463.65	339.60	20.39	319.21	0.00	319.21	66.49	65.04	49.10	59.66	368.31
169	74.95	81.73	450.29	326.34	14.19	312.14	0.00	312.14	66.41	65.05	48.99	59.21	361.14
170	69.07	80.43	436.61	319.33	11.43	307.89	0.00	307.89	66.37	65.06	48.22	56.82	356.11
171	63.18	71.92	416.96	310.67	8.31	302.36	0.00	302.36	66.32	65.07	48.11	51.67	345.47
172	58.05	64.76	392.78	295.91	3.27	292.64	0.00	292.64	66.22	65.08	38.82	47.21	331.46
173	53.55	58.69	366.82	278.09	0.08	278.01	0.00	278.01	66.11	65.09	35.18	43.32	313.19
174	49.60	53.50	340.83	259.17	0.00	259.17	49.60	308.77	65.99	65.09	32.07	39.90	340.83
175	46.10	49.03	315.94	240.45	0.00	240.45	46.10	286.54	65.86	65.09	29.39	36.90	315.94
176	42.99	45.16	292.75	222.69	0.00	222.69	42.99	265.68	65.74	65.09	27.07	34.24	292.75
177	40.22	41.80	271.55	206.27	0.00	206.27	40.22	246.49	65.62	65.09	25.06	31.87	271.55
178	37.74	38.85	252.35	191.32	0.00	191.32	37.74	229.06	65.51	65.09	23.29	29.77	252.35
179	35.52	36.26	235.07	177.81	0.00	177.81	35.52	213.33	65.40	65.09	21.74	27.88	235.07
180	33.51	33.97	219.57	165.69	0.00	165.69	33.51	199.21	65.31	65.09	20.36	26.18	219.57
181	31.70	31.94	205.69	154.84	0.00	154.84	31.70	186.55	65.22	65.09	19.15	24.66	205.69
182	30.06	30.13	193.27	145.15	0.00	145.15	30.06	175.21	65.14	65.09	18.06	23.28	193.27
183	28.57	28.51	182.16	136.49	0.00	136.49	28.57	165.07	65.06	65.09	17.09	22.03	182.16
184	27.22	27.06	172.19	128.76	0.00	128.76	27.22	155.98	65.00	65.09	16.22	20.89	172.19
185	25.98	25.75	163.26	121.85	0.00	121.85	25.98	147.82	64.93	65.09	15.43	19.85	163.26
186	24.84	24.57	155.23	115.66	0.00	115.66	24.84	140.50	64.88	65.09	14.73	18.91	155.23
187	23.80	23.50	147.99	110.11	0.00	110.11	23.80	133.91	64.82	65.09	14.09	18.04	147.99
188	22.84	22.53	141.47	105.12	0.00	105.12	22.84	127.97	64.78	65.09	13.50	17.25	141.47
189	21.96	21.64	135.57	100.63	0.00	100.63	21.96	122.59	64.73	65.09	12.97	16.51	135.57
190	21.15	20.83	130.22	96.58	0.00	96.58	21.15	117.73	64.69	65.09	12.49	15.84	130.22
191	20.40	20.09	125.36	92.92	0.00	92.92	20.40	113.31	64.66	65.09	12.05	15.22	125.36
192	19.70	19.42	120.94	89.60	0.00	89.60	19.70	109.30	64.62	65.09	11.64	14.65	120.94
193	19.06	18.79	116.91	86.58	0.00	86.58	19.06	105.64	64.59	65.09	11.27	14.11	116.91
194	18.46	18.22	113.22	83.84	0.00	83.84	18.46	102.30	64.56	65.09	10.92	13.62	113.22
195	17.90	17.69	109.85	81.34	0.00	81.34	17.90	99.24	64.53	65.09	10.61	13.16	109.85
196	17.38	17.21	106.76	79.06	0.00	79.06	17.38	96.44	64.51	65.09	10.31	12.73	106.76
197	16.90	16.75	103.91	76.97	0.00	76.97	16.90	93.87	64.49	65.09	10.04	12.34	103.91
198	16.44	16.33	101.29	75.06	0.00	75.06	16.44	91.50	64.46	65.09	9.79	11.97	101.29

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
OS BAJO P/P(7/11)**

Cuadro 6.5

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131.4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131.4/219.2)	Runoff from Sub. 15	El Delirio
199	16.02	15.94	98.88	73.30	0.00	73.30	16.02	89.32	64.44	65.09	9.56	11.62	98.88
200	15.62	15.58	96.65	71.68	0.00	71.68	15.62	87.31	64.43	65.09	9.34	11.29	96.65
201	15.25	15.24	94.58	70.19	0.00	70.19	15.25	85.45	64.41	65.09	9.14	10.99	94.58
202	14.90	14.93	92.67	68.82	0.00	68.82	14.90	83.72	64.39	65.09	8.95	10.70	92.67
203	14.57	14.64	90.90	67.55	0.00	67.55	14.57	82.12	64.38	65.09	8.77	10.44	90.90
204	14.26	14.36	89.25	66.38	0.00	66.38	14.26	80.64	64.37	65.09	8.61	10.18	89.25
205	13.97	14.10	87.72	65.29	0.00	65.29	13.97	79.26	64.35	65.09	8.45	9.95	87.72
206	13.70	13.86	86.29	64.28	0.00	64.28	13.70	77.98	64.34	65.09	8.31	9.72	86.29
207	13.44	13.63	84.95	63.34	0.00	63.34	13.44	76.78	64.33	65.09	8.17	9.51	84.95
208	13.19	13.42	83.71	62.47	0.00	62.47	13.19	75.66	64.32	65.09	8.05	9.31	83.71
209	12.96	13.22	82.54	61.66	0.00	61.66	12.96	74.62	64.31	65.09	7.93	9.13	82.54
210	12.74	13.03	81.45	60.90	0.00	60.90	12.74	73.64	64.30	65.09	7.81	8.95	81.45
211	12.54	12.85	80.43	60.19	0.00	60.19	12.54	72.73	64.29	65.09	7.71	8.78	80.43
212	12.34	12.69	79.47	59.53	0.00	59.53	12.34	71.87	64.28	65.09	7.60	8.62	79.47
213	12.15	12.53	78.57	58.91	0.00	58.91	12.15	71.06	64.28	65.09	7.51	8.47	78.57
214	11.97	12.38	77.73	58.33	0.00	58.33	11.97	70.31	64.27	65.09	7.42	8.33	77.73
215	11.81	12.24	76.93	57.79	0.00	57.79	11.81	69.60	64.26	65.09	7.33	8.19	76.93
216	11.65	12.10	76.18	57.28	0.00	57.28	11.65	68.93	64.26	65.09	7.25	8.06	76.18
217	11.49	11.97	75.47	56.80	0.00	56.80	11.49	68.30	64.25	65.09	7.18	7.94	75.47
218	11.35	11.85	74.81	56.35	0.00	56.35	11.35	67.70	64.24	65.09	7.11	7.82	74.81
219	11.21	11.74	74.18	55.93	0.00	55.93	11.21	67.14	64.24	65.09	7.04	7.71	74.18
220	11.08	11.63	73.58	55.53	0.00	55.53	11.08	66.61	64.23	65.09	6.97	7.60	73.58
221	10.95	11.53	73.01	55.15	0.00	55.15	10.95	66.11	64.23	65.09	6.91	7.50	73.01
222	10.83	11.43	72.48	54.80	0.00	54.80	10.83	65.63	64.22	65.09	6.85	7.41	72.48
223	10.72	11.33	71.97	54.46	0.00	54.46	10.72	65.18	64.22	65.09	6.79	7.31	71.97
224	10.61	11.24	71.49	54.15	0.00	54.15	10.61	64.75	64.22	65.09	6.74	7.23	71.49
225	10.50	11.16	71.04	53.85	0.00	53.85	10.50	64.35	64.21	65.09	6.69	7.14	71.04
226	10.40	11.08	70.61	53.56	0.00	53.56	10.40	63.97	64.21	65.09	6.64	7.06	70.61
227	10.31	11.00	70.19	53.29	0.00	53.29	10.31	63.60	64.20	65.09	6.59	6.98	70.19
228	10.21	10.92	69.80	53.04	0.00	53.04	10.21	63.25	64.20	65.09	6.55	6.91	69.80
229	10.13	10.85	69.43	52.80	0.00	52.80	10.13	62.92	64.20	65.09	6.51	6.84	69.43
230	10.04	10.79	69.07	52.57	0.00	52.57	10.04	62.61	64.20	65.09	6.47	6.77	69.07
231	9.96	10.72	68.74	52.35	0.00	52.35	9.96	62.31	64.19	65.09	6.43	6.71	68.74

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
OS BAJO PP(8/11)

Cuadro 6.5

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131.4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(131.4/219.2)	Runoff from Sub. 15	El Delirio
232	9.88	10.66	68.41	52.14	0.00	52.14	9.88	62.02	64.19	65.09	6.39	6.64	68.41
233	9.81	10.60	68.11	51.95	0.00	51.95	9.81	61.75	64.19	65.09	6.35	6.58	68.11
234	9.73	10.54	67.81	51.76	0.00	51.76	9.73	61.49	64.18	65.09	6.32	6.53	67.81
235	9.66	10.49	67.53	51.58	0.00	51.58	9.66	61.24	64.18	65.09	6.29	6.47	67.53
236	9.60	10.43	67.26	51.41	0.00	51.41	9.60	61.01	64.18	65.09	6.25	6.42	67.26
237	9.53	10.38	67.00	51.25	0.00	51.25	9.53	60.78	64.18	65.09	6.22	6.37	67.00
238	9.47	10.34	66.76	51.09	0.00	51.09	9.47	60.56	64.18	65.09	6.20	6.32	66.76
239	9.41	10.29	66.52	50.94	0.00	50.94	9.41	60.36	64.17	65.09	6.17	6.27	66.52
240	9.36	10.24	66.30	50.80	0.00	50.80	9.36	60.16	64.17	65.09	6.14	6.22	66.30
241	9.30	10.20	66.08	50.66	0.00	50.66	9.30	59.97	64.17	65.09	6.12	6.18	66.08
242	9.25	10.16	65.87	50.53	0.00	50.53	9.25	59.78	64.17	65.09	6.09	6.14	65.87
243	9.20	10.12	65.67	50.41	0.00	50.41	9.20	59.61	64.17	65.09	6.07	6.10	65.67
244	9.15	10.08	65.48	50.29	0.00	50.29	9.15	59.44	64.17	65.09	6.04	6.06	65.48
245	9.10	10.04	65.30	50.18	0.00	50.18	9.10	59.28	64.16	65.09	6.02	6.02	65.30
246	9.05	10.01	65.12	50.07	0.00	50.07	9.05	59.12	64.16	65.09	6.00	5.98	65.12
247	9.01	9.97	64.95	49.96	0.00	49.96	9.01	58.97	64.16	65.09	5.98	5.95	64.95
248	8.97	9.94	64.79	49.86	0.00	49.86	8.97	58.83	64.16	65.09	5.96	5.91	64.79
249	8.92	9.91	64.63	49.77	0.00	49.77	8.92	58.69	64.16	65.09	5.94	5.88	64.63
250	8.88	9.88	64.48	49.68	0.00	49.68	8.88	58.56	64.16	65.09	5.92	5.85	64.48
251	8.85	9.85	64.34	49.59	0.00	49.59	8.85	58.43	64.16	65.09	5.90	5.82	64.34
252	8.81	9.82	64.20	49.50	0.00	49.50	8.81	58.31	64.16	65.09	5.89	5.79	64.20
253	8.77	9.79	64.06	49.42	0.00	49.42	8.77	58.19	64.15	65.09	5.87	5.76	64.06
254	8.74	9.77	63.93	49.34	0.00	49.34	8.74	58.08	64.15	65.09	5.85	5.73	63.93
255	8.70	9.74	63.81	49.26	0.00	49.26	8.70	57.97	64.15	65.09	5.84	5.70	63.81
256	8.67	9.72	63.68	49.19	0.00	49.19	8.67	57.86	64.15	65.09	5.82	5.68	63.68
257	8.64	9.69	63.57	49.12	0.00	49.12	8.64	57.76	64.15	65.09	5.81	5.65	63.57
258	8.61	9.67	63.45	49.05	0.00	49.05	8.61	57.66	64.15	65.09	5.80	5.63	63.45
259	8.58	9.64	63.35	48.99	0.00	48.99	8.58	57.56	64.15	65.09	5.78	5.60	63.35
260	8.55	9.62	63.24	48.92	0.00	48.92	8.55	57.47	64.15	65.09	5.77	5.58	63.24
261	8.52	9.60	63.14	48.86	0.00	48.86	8.52	57.38	64.15	65.09	5.76	5.56	63.14
262	8.49	9.58	63.04	48.80	0.00	48.80	8.49	57.30	64.15	65.09	5.74	5.54	63.04
263	8.47	9.56	62.94	48.75	0.00	48.75	8.47	57.21	64.15	65.09	5.73	5.51	62.94
264	8.44	9.54	62.85	48.69	0.00	48.69	8.44	57.13	64.14	65.09	5.72	5.49	62.85

**RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
OS BAJO P/P(9/11)**

Cuadro 6.5

time (hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(13) / (4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(13) / (4/219.2)	Runoff from Sub. 15	El Delirio
265	8.41	9.52	62.76	48.64	0.00	48.64	8.41	57.05	64.14	65.09	5.71	5.47	62.76
266	8.39	9.50	62.68	48.59	0.00	48.59	8.39	56.98	64.14	65.09	5.70	5.46	62.68
267	8.37	9.49	62.59	48.54	0.00	48.54	8.37	56.91	64.14	65.09	5.69	5.44	62.59
268	8.34	9.47	62.51	48.49	0.00	48.49	8.34	56.84	64.14	65.09	5.68	5.42	62.51
269	8.32	9.45	62.43	48.45	0.00	48.45	8.32	56.77	64.14	65.09	5.67	5.40	62.43
270	8.30	9.44	62.36	48.40	0.00	48.40	8.30	56.70	64.14	65.09	5.66	5.38	62.36
271	8.28	9.42	62.28	48.36	0.00	48.36	8.28	56.64	64.14	65.09	5.65	5.37	62.28
272	8.26	9.41	62.21	48.32	0.00	48.32	8.26	56.57	64.14	65.09	5.64	5.35	62.21
273	8.24	9.39	62.14	48.27	0.00	48.27	8.24	56.51	64.14	65.09	5.63	5.33	62.14
274	8.22	9.38	62.07	48.24	0.00	48.24	8.22	56.45	64.14	65.09	5.62	5.32	62.07
275	8.20	9.36	62.01	48.20	0.00	48.20	8.20	56.40	64.14	65.09	5.61	5.30	62.01
276	8.18	9.35	61.95	48.16	0.00	48.16	8.18	56.34	64.14	65.09	5.60	5.29	61.95
277	8.16	9.34	61.88	48.13	0.00	48.13	8.16	56.29	64.14	65.09	5.60	5.28	61.88
278	8.15	9.32	61.82	48.09	0.00	48.09	8.15	56.24	64.14	65.09	5.59	5.26	61.82
279	8.13	9.31	61.77	48.06	0.00	48.06	8.13	56.19	64.14	65.09	5.58	5.25	61.77
280	8.11	9.30	61.71	48.02	0.00	48.02	8.11	56.14	64.14	65.09	5.57	5.24	61.71
281	8.10	9.29	61.66	47.99	0.00	47.99	8.10	56.09	64.14	65.09	5.57	5.22	61.66
282	8.08	9.27	61.60	47.96	0.00	47.96	8.08	56.04	64.13	65.09	5.56	5.21	61.60
283	8.07	9.26	61.55	47.93	0.00	47.93	8.07	56.00	64.13	65.09	5.55	5.20	61.55
284	8.05	9.25	61.50	47.90	0.00	47.90	8.05	55.95	64.13	65.09	5.55	5.19	61.50
285	8.04	9.24	61.45	47.87	0.00	47.87	8.04	55.91	64.13	65.09	5.54	5.17	61.45
286	8.02	9.23	61.40	47.85	0.00	47.85	8.02	55.87	64.13	65.09	5.53	5.16	61.40
287	8.01	9.22	61.36	47.82	0.00	47.82	8.01	55.83	64.13	65.09	5.53	5.15	61.36
288	7.99	9.21	61.31	47.79	0.00	47.79	7.99	55.79	64.13	65.09	5.52	5.14	61.31
289	7.98	9.20	61.27	47.77	0.00	47.77	7.98	55.75	64.13	65.09	5.52	5.13	61.27
290	7.97	9.19	61.22	47.75	0.00	47.75	7.97	55.71	64.13	65.09	5.51	5.12	61.22
291	7.96	9.18	61.18	47.72	0.00	47.72	7.96	55.68	64.13	65.09	5.50	5.11	61.18
292	7.94	9.17	61.14	47.70	0.00	47.70	7.94	55.64	64.13	65.09	5.50	5.10	61.14
293	7.93	9.17	61.10	47.68	0.00	47.68	7.93	55.61	64.13	65.09	5.49	5.09	61.10
294	7.92	9.16	61.06	47.65	0.00	47.65	7.92	55.57	64.13	65.09	5.49	5.08	61.06
295	7.91	9.15	61.02	47.63	0.00	47.63	7.91	55.54	64.13	65.09	5.48	5.07	61.02
296	7.90	9.14	60.99	47.61	0.00	47.61	7.90	55.51	64.13	65.09	5.48	5.07	60.99
297	7.89	9.13	60.95	47.59	0.00	47.59	7.89	55.48	64.13	65.09	5.47	5.06	60.95

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
 OS BAJO P/P(10/11)

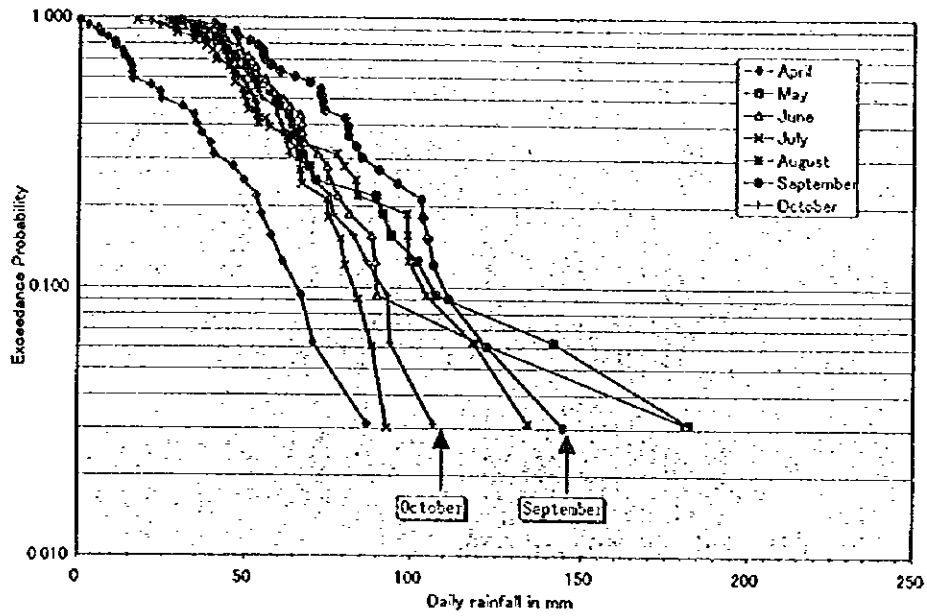
time(hour)	Runoff from Sub. 13	Runoff from Sub. 14	Runoff at Pt. 41	Pt. 41- Sub. 13- Sub. 14*(131.4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub. 14*(1.3 1.4/219.2)	Runoff from Sub. 15	El Delirio
298	7.88	9.12	60.92	47.57	0.00	47.57	7.88	55.45	64.13	65.09	5.47	5.05	60.92
299	7.86	9.12	60.88	47.55	0.00	47.55	7.86	55.42	64.13	65.09	5.47	5.04	60.88
300	7.85	9.11	60.85	47.53	0.00	47.53	7.85	55.39	64.13	65.09	5.46	5.03	60.85
301	7.84	9.10	60.82	47.52	0.00	47.52	7.84	55.36	64.13	65.09	5.46	5.02	60.82
302	7.84	9.10	60.79	47.50	0.00	47.50	7.84	55.33	64.13	65.09	5.45	5.02	60.79
303	7.83	9.09	60.75	47.48	0.00	47.48	7.83	55.31	64.13	65.09	5.45	5.01	60.75
304	7.82	9.08	60.72	47.46	0.00	47.46	7.82	55.28	64.13	65.09	5.44	5.00	60.72
305	7.81	9.08	60.69	47.45	0.00	47.45	7.81	55.25	64.13	65.09	5.44	4.99	60.69
306	7.80	9.07	60.67	47.43	0.00	47.43	7.80	55.23	64.13	65.09	5.44	4.99	60.67
307	7.79	9.06	60.64	47.42	0.00	47.42	7.79	55.20	64.13	65.09	5.43	4.98	60.64
308	7.78	9.06	60.61	47.40	0.00	47.40	7.78	55.18	64.13	65.09	5.43	4.97	60.61
309	7.77	9.05	60.58	47.39	0.00	47.39	7.77	55.16	64.13	65.09	5.43	4.97	60.58
310	7.76	9.05	60.56	47.37	0.00	47.37	7.76	55.13	64.13	65.09	5.42	4.96	60.56
311	7.76	9.04	60.53	47.36	0.00	47.36	7.76	55.11	64.13	65.09	5.42	4.95	60.53
312	7.75	9.03	60.51	47.34	0.00	47.34	7.75	55.09	64.13	65.09	5.42	4.95	60.51
313	7.74	9.03	60.48	47.33	0.00	47.33	7.74	55.07	64.13	65.09	5.41	4.94	60.48
314	7.73	9.02	60.46	47.32	0.00	47.32	7.73	55.05	64.13	65.09	5.41	4.94	60.46
315	7.73	9.02	60.43	47.30	0.00	47.30	7.73	55.03	64.13	65.09	5.41	4.93	60.43
316	7.72	9.01	60.41	47.29	0.00	47.29	7.72	55.01	64.13	65.09	5.40	4.92	60.41
317	7.71	9.01	60.39	47.28	0.00	47.28	7.71	54.99	64.13	65.09	5.40	4.92	60.39
318	7.70	9.00	60.37	47.27	0.00	47.27	7.70	54.97	64.13	65.09	5.40	4.91	60.37
319	7.70	9.00	60.35	47.25	0.00	47.25	7.70	54.95	64.13	65.09	5.39	4.91	60.35
320	7.69	8.99	60.32	47.24	0.00	47.24	7.69	54.93	64.12	65.09	5.39	4.90	60.32
321	7.68	8.99	60.30	47.23	0.00	47.23	7.68	54.92	64.12	65.09	5.39	4.90	60.30
322	7.68	8.98	60.28	47.22	0.00	47.22	7.68	54.90	64.12	65.09	5.39	4.89	60.28
323	7.67	8.98	60.26	47.21	0.00	47.21	7.67	54.88	64.12	65.09	5.38	4.89	60.26
324	7.67	8.97	60.24	47.20	0.00	47.20	7.67	54.86	64.12	65.09	5.38	4.88	60.24
325	7.66	8.97	60.23	47.19	0.00	47.19	7.66	54.85	64.12	65.09	5.38	4.88	60.23
326	7.65	8.97	60.21	47.18	0.00	47.18	7.65	54.83	64.12	65.09	5.37	4.87	60.21
327	7.65	8.96	60.19	47.17	0.00	47.17	7.65	54.82	64.12	65.09	5.37	4.87	60.19
328	7.64	8.96	60.17	47.16	0.00	47.16	7.64	54.80	64.12	65.09	5.37	4.87	60.17
329	7.64	8.95	60.15	47.15	0.00	47.15	7.64	54.79	64.12	65.09	5.37	4.86	60.15
330	7.63	8.95	60.14	47.14	0.00	47.14	7.63	54.77	64.12	65.09	5.37	4.86	60.14

RESULTADOS DE LA SIMULACION DE DESBORDAMIENTO
 PARA UNA INUNDACION CON PERIODO DE RETORNO DE 2 AÑ
 OS BAJO P/P(11/11)

Cuadro 6.5

time(hour)	Runoff from Sub.13	Runoff from Sub.14	Runoff at Pt.41	Pt.41- Sub.13- Sub.14*(131 4/219.2)	Overflow at weir	Outflow at weir	Outflow at drainage	Total Outflow	Channel Waterlevel in MSL	Lake Waterlevel in MSL	Sub.14*(13 1.4/219.2)	Runoff from Sub.15	El Delirio
331	7.63	8.95	60.12	47.13	0.00	47.13	7.63	54.76	64.12	65.09	5.36	4.85	60.12
332	7.62	8.94	60.10	47.12	0.00	47.12	7.62	54.74	64.12	65.09	5.36	4.85	60.10
333	7.62	8.94	60.09	47.11	0.00	47.11	7.62	54.73	64.12	65.09	5.36	4.84	60.09
334	7.61	8.94	60.07	47.10	0.00	47.10	7.61	54.71	64.12	65.09	5.36	4.84	60.07
335	7.61	8.93	60.06	47.10	0.00	47.10	7.61	54.70	64.12	65.09	5.35	4.84	60.06
336	7.60	8.93	60.04	47.09	0.00	47.09	7.60	54.69	64.12	65.09	5.35	4.83	60.04
Max	74.95	92.37	785.26	658.56	321.96	359.83	65.28	359.83	68.10	65.09	55.37	82.64	413.87
Volume	5.8E+06				9.4E+06	34387.57	3755.46						

Exceedance Probability of Daily Rainfall by Month(San Francisco Gotera,1964-1995)



Exceedance Probability of Daily Rainfall by Month (El Papa'on,1964-1995)

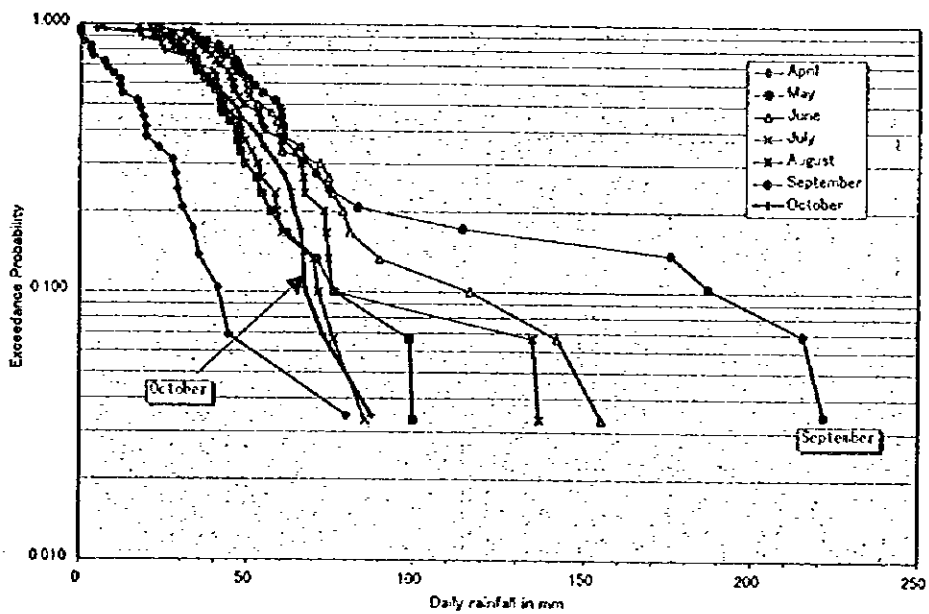


Figura 6.1 PROBABILIDAD DEL EXCESO DE LA PRECIPITACION DIARIA POR MES

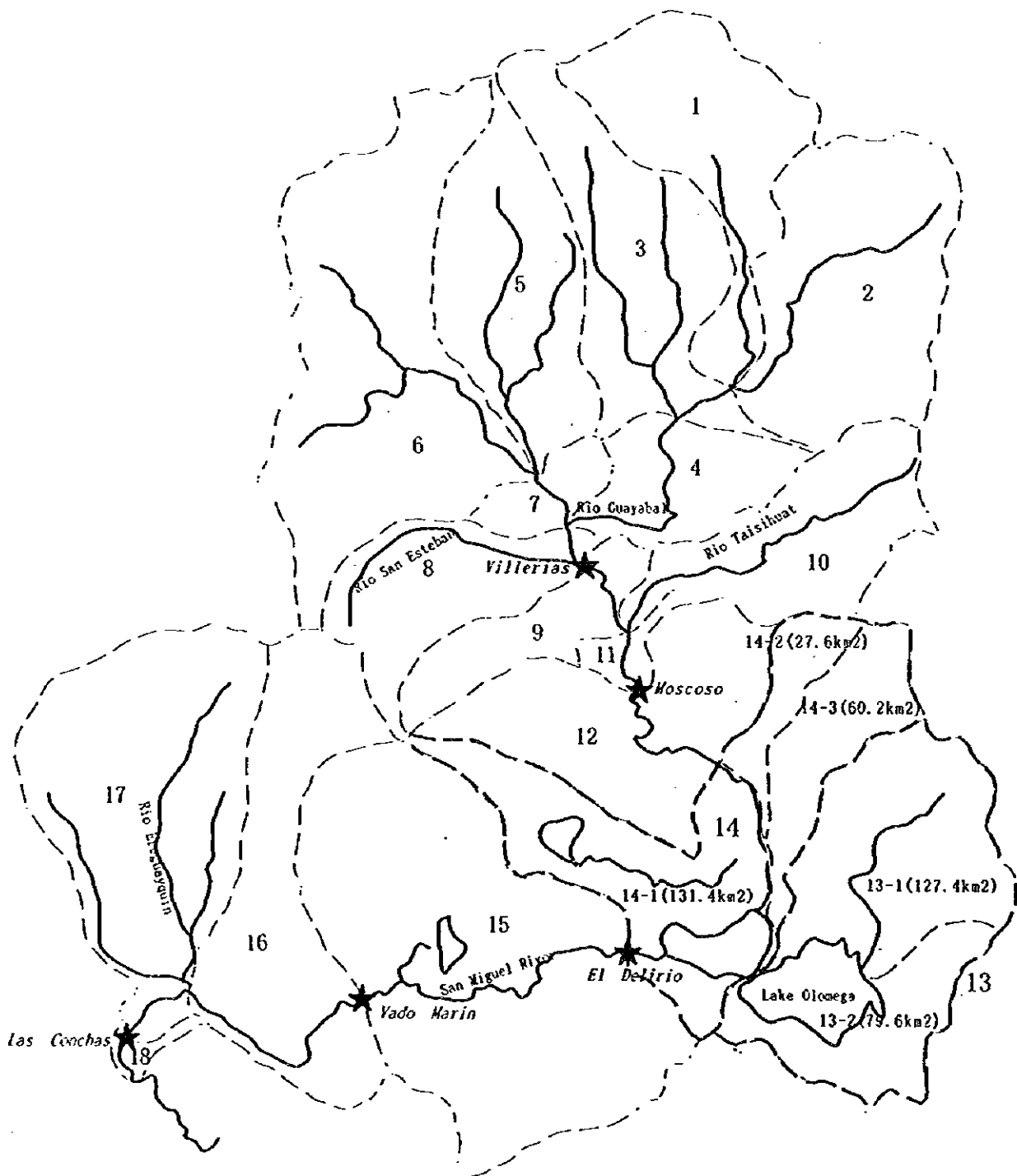
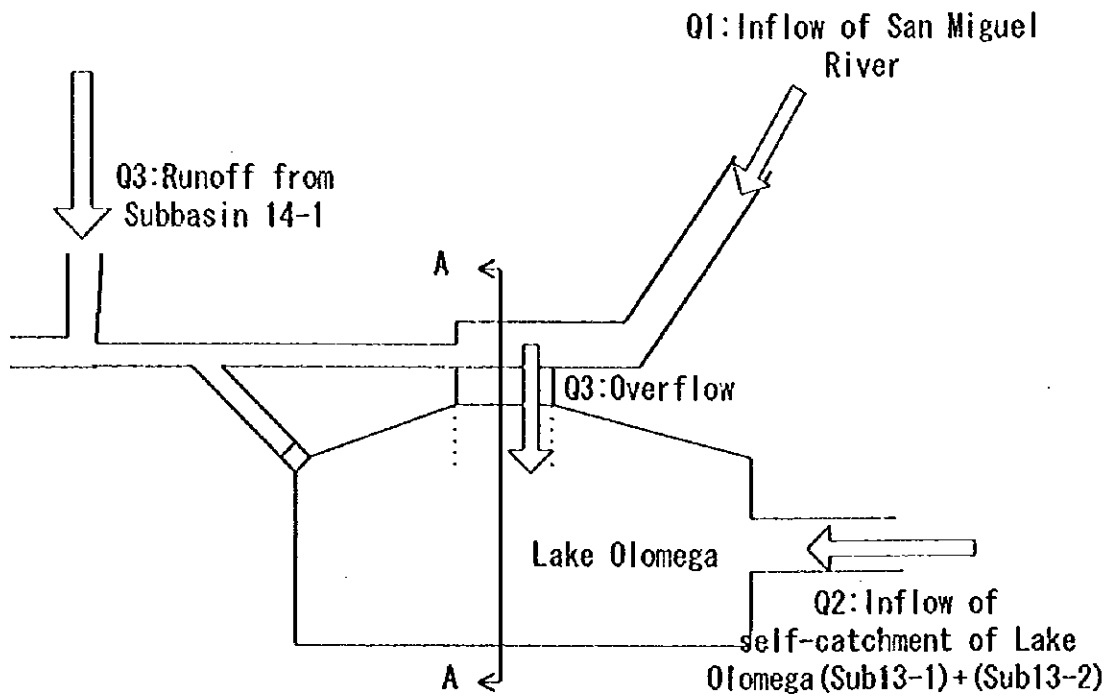
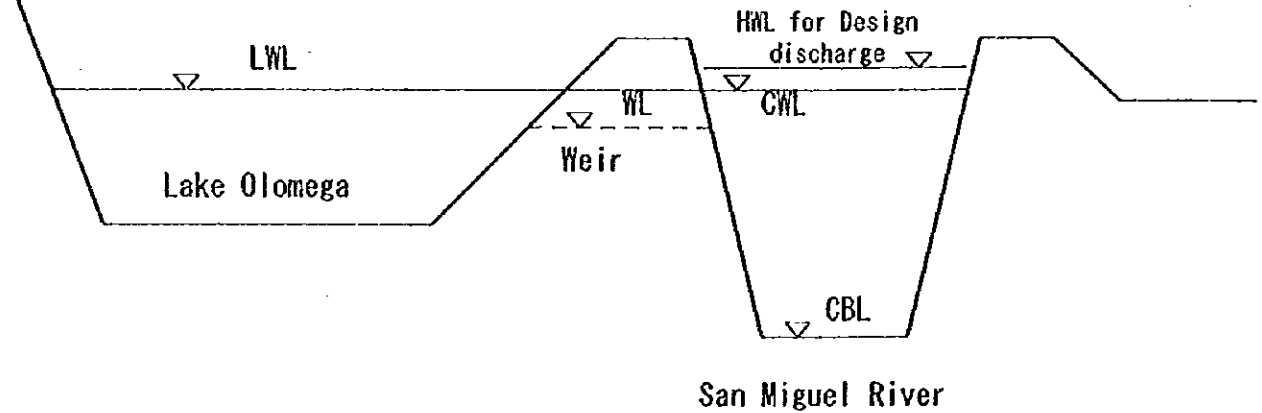


Figura 6.2 DIVISION DE SUBCUENCAS 14 Y 13



LWL: Waterlevel of Lake Olomega
 WL: Weir height
 CWL: Waterlevel in channel
 CBL: Channel bed elevation
 HWL: Design high waterlevel



Cross section of A-A

Figura 6.3 ESQUEMA DE SIMULACION DE LA DESVIACION DE OLOMEGA

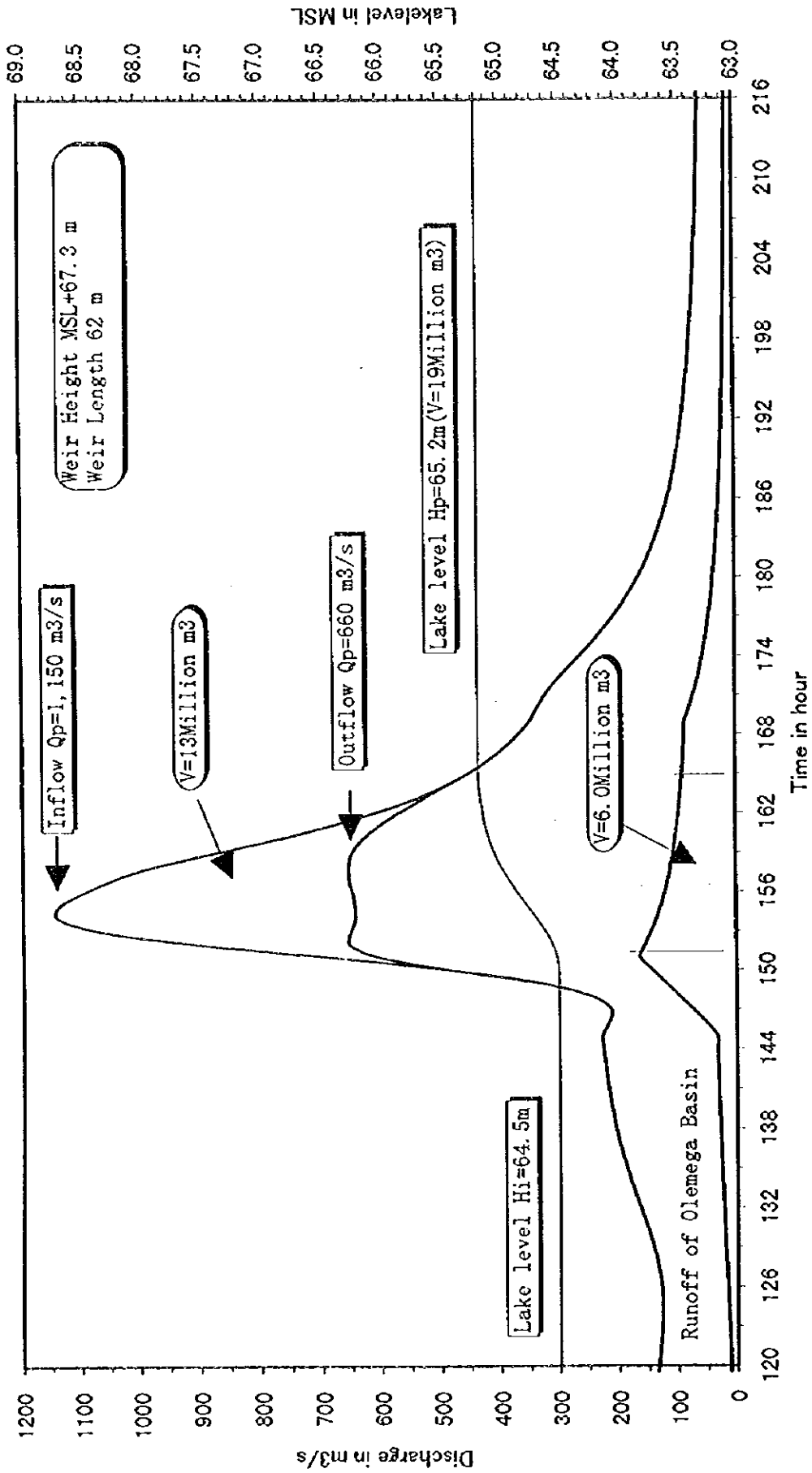


Figura 6.4 HIDROGRAMA DE LA DESVIACION EN OMEGA PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 AÑOS

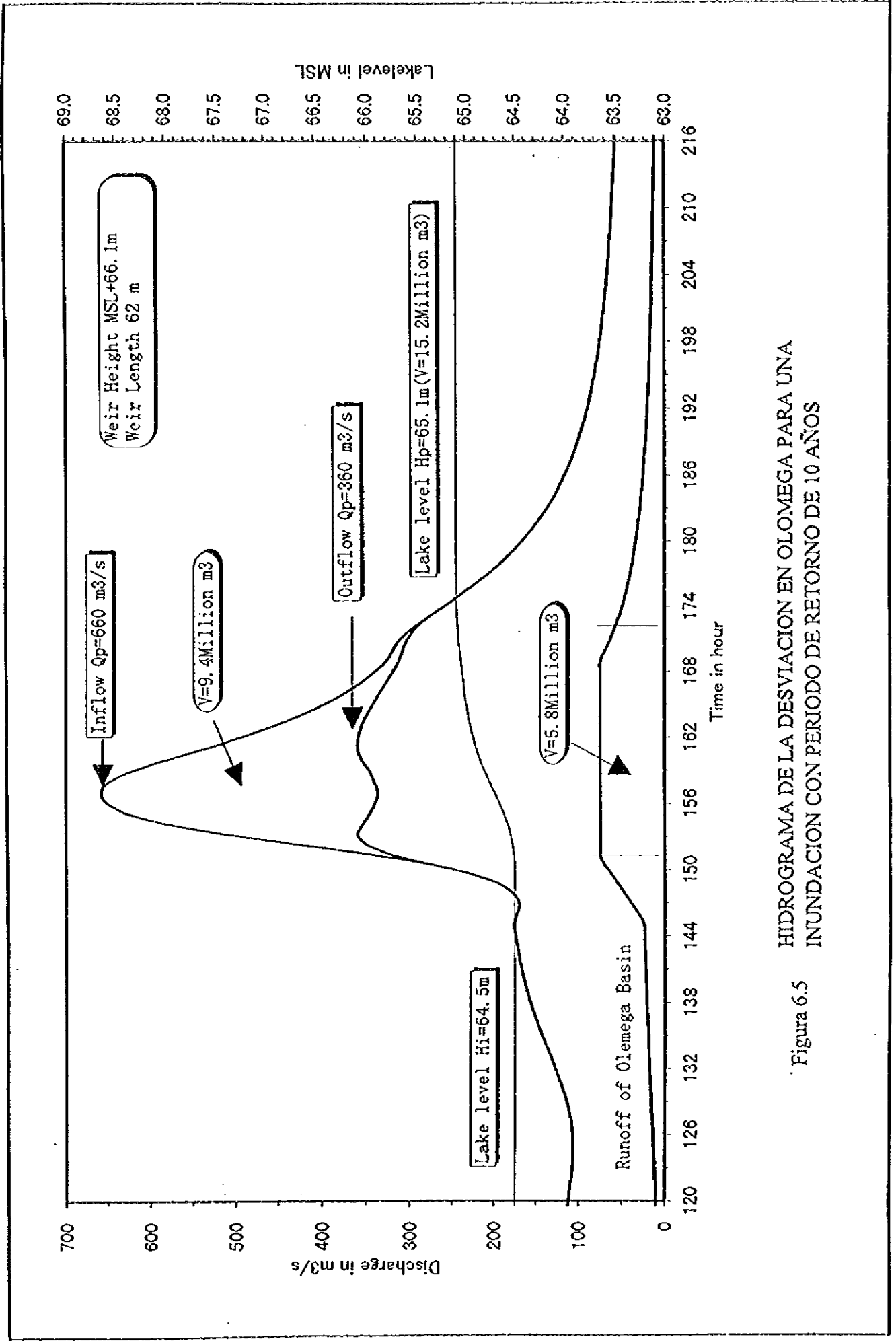


Figura 6.5 HIDROGRAMA DE LA DESVIACION EN OMEGA PARA UNA INUNDACION CON PERIODO DE RETORNO DE 10 AÑOS

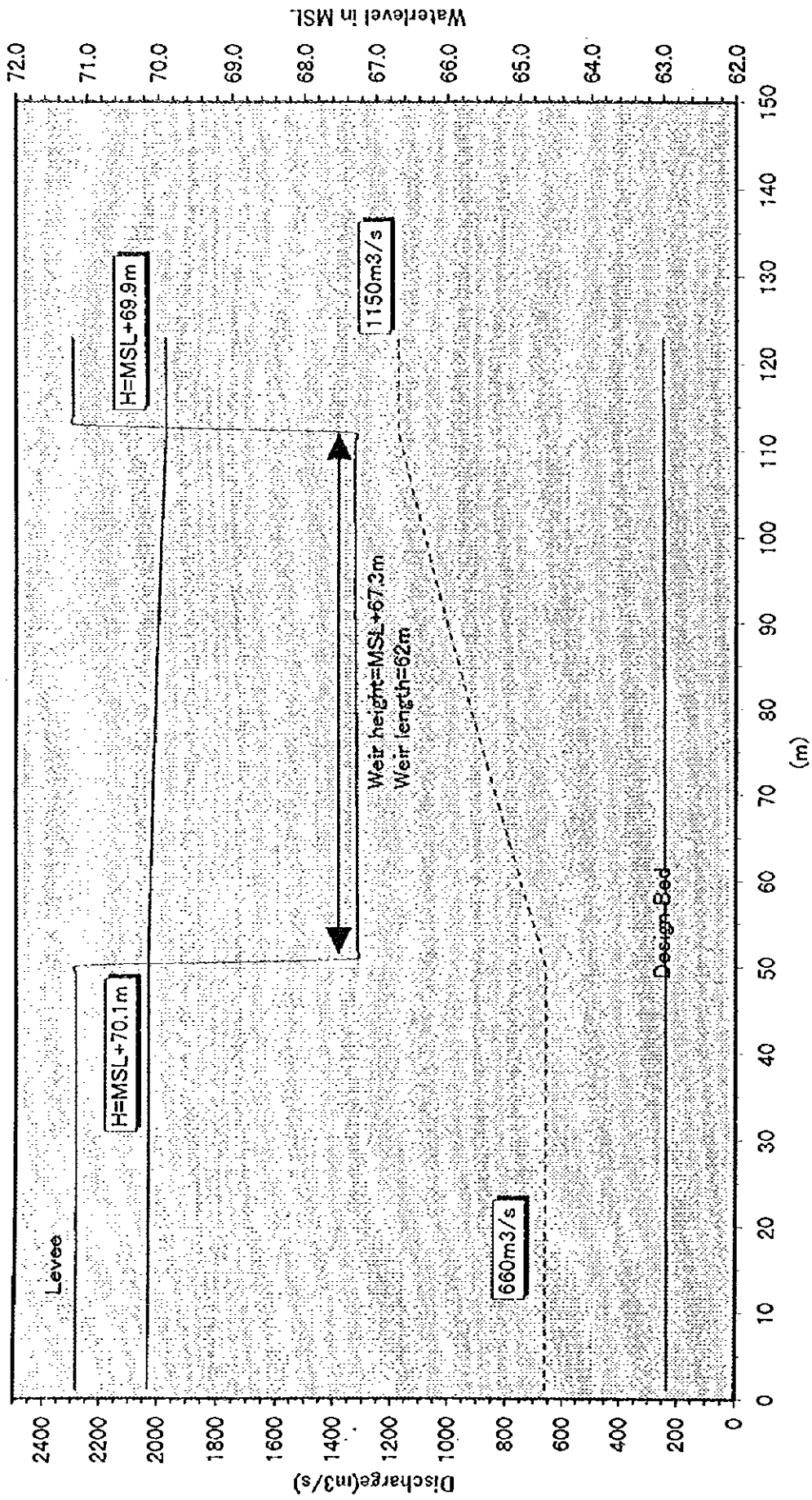


Figura 6.6 PERFIL DEL NIVEL DEL AGUA PARA UNA INUNDACION CON UN PERIODO DE INUNDACION DE 10 AÑOS BAJO P/M

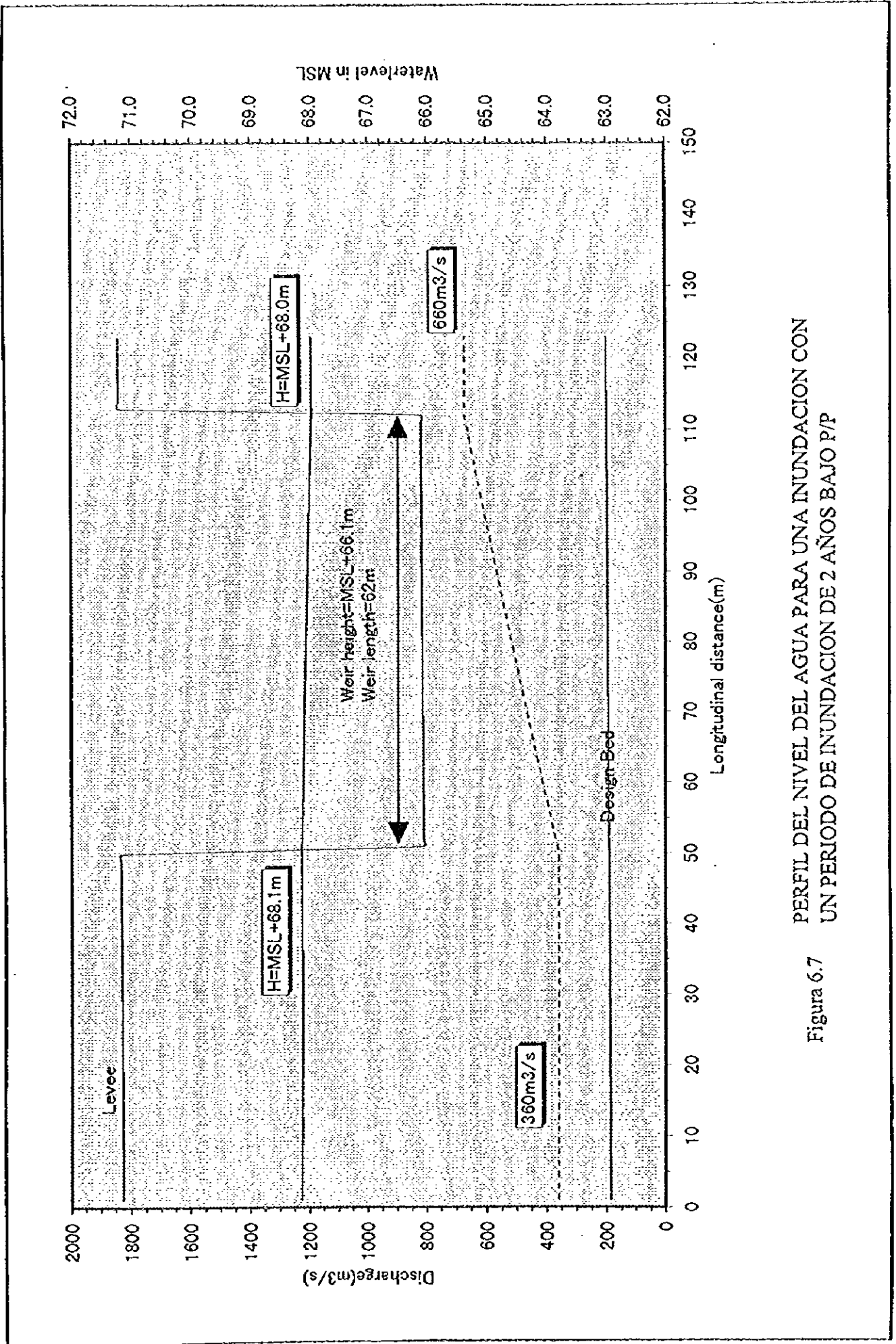


Figura 6.7 PERFIL DEL NIVEL DEL AGUA PARA UNA INUNDACION CON UN PERIODO DE INUNDACION DE 2 AÑOS BAJO P/P