Folder Title:	Power - Ghana - Volta River Authority [VRA]
Folder ID:	1790936
Subseries:	Early special evaluation studies working files
Series:	Special Evaluation Studies
Dates:	05/01/1964 – 12/01/1970
Fonds:	Records of the Office of Operations Evaluation
ISAD Reference Code:	WB IBRD/IDA OPE-09-01
Digitized:	05/05/2023

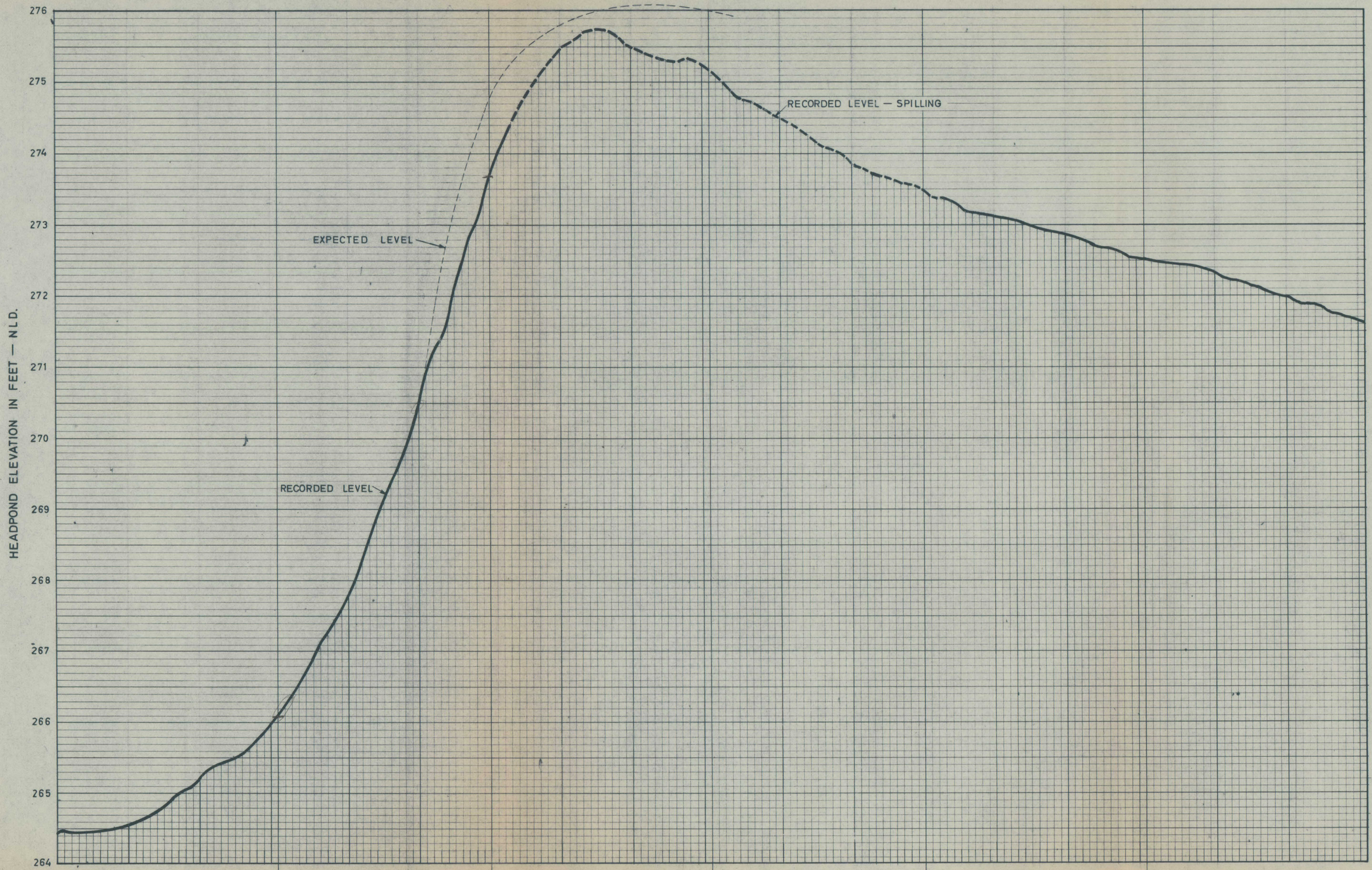
OED SPECIAL STUDIES

85035--003

Power - Ghana - V.R.A.

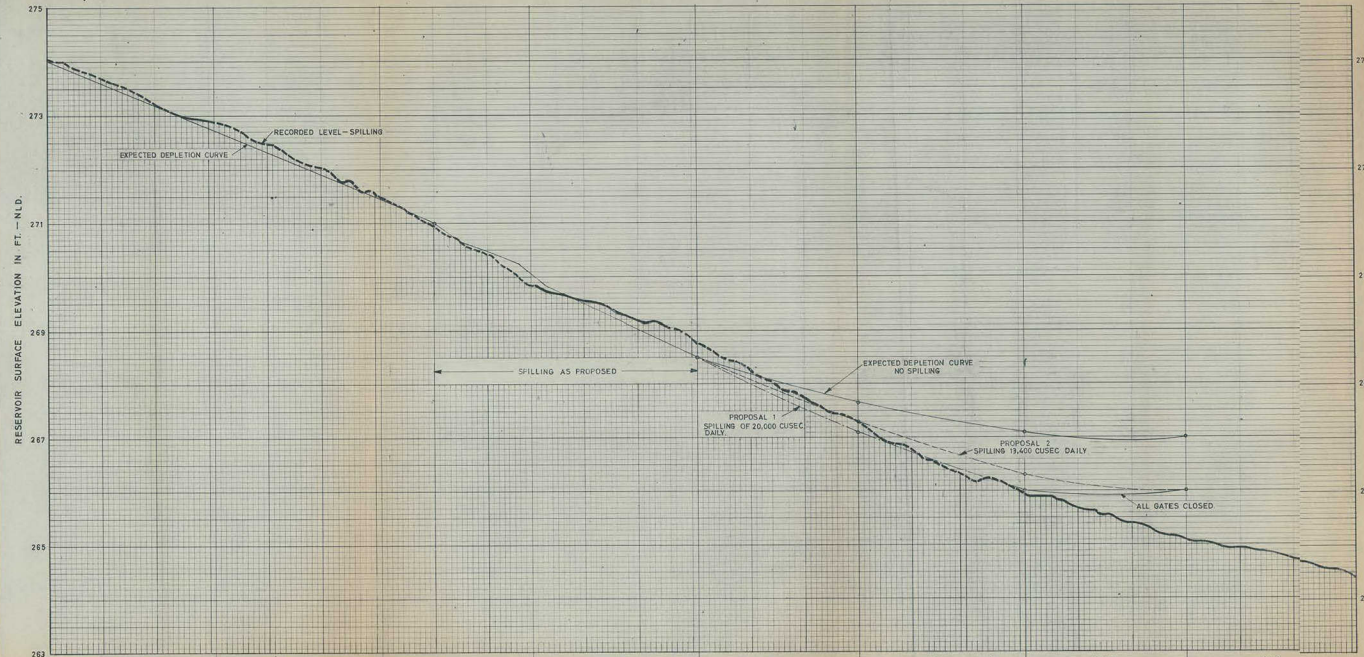
[redacted]

HEADPOND CONTROL CHART — 1970 FLOOD SEASON.



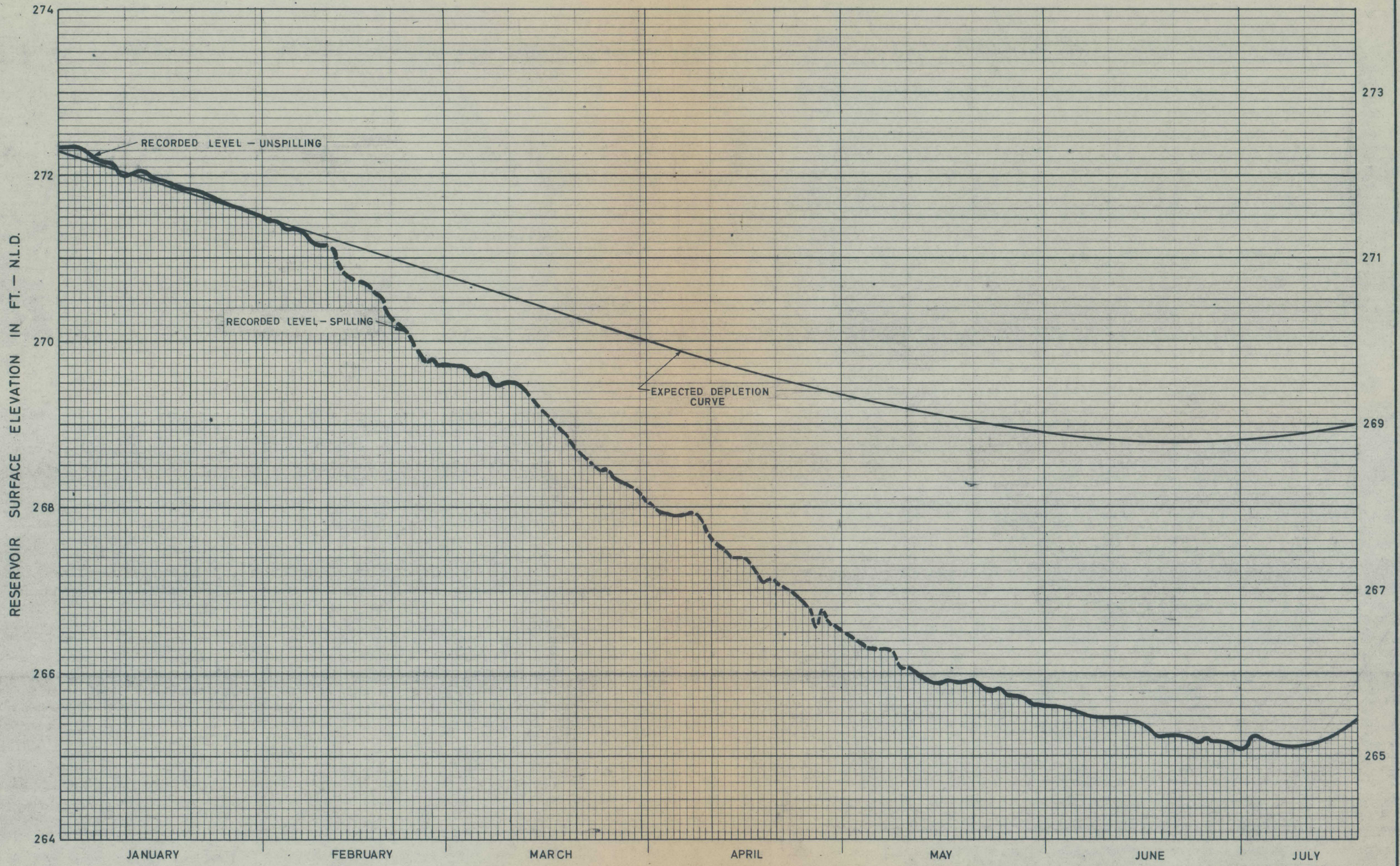
BY E. N. KUMI
19 : 9 : 70

EXPECTED RESERVOIR DEPLETION CURVE WITH SPILLING PROPOSALS INCORPORATED
DECEMBER, 1969 — JULY, 1970.



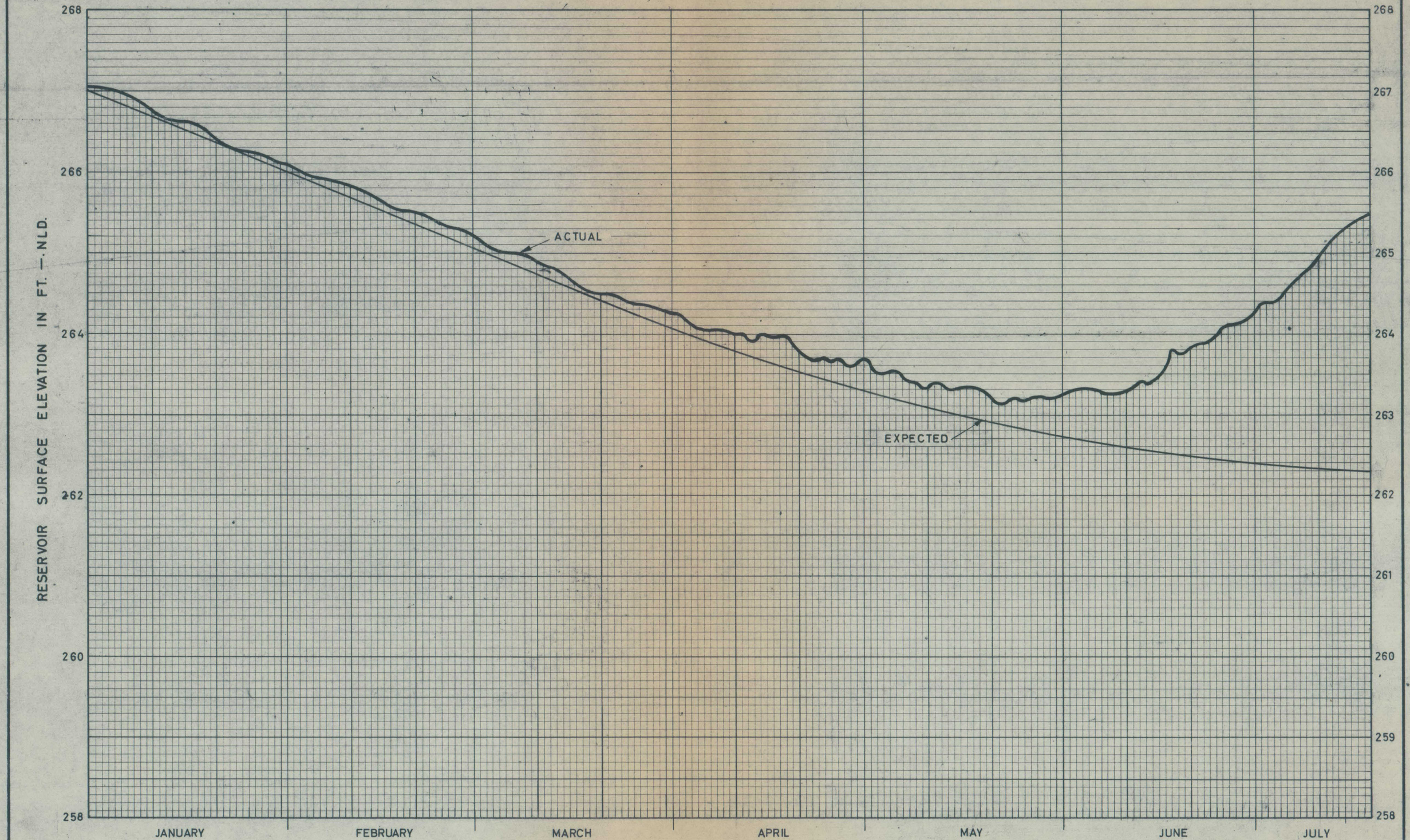
BY E. N. KUMI
Senior Civil Engineer
5 : 2 : 70

EXPECTED RESERVOIR DEPLETION CURVE
WITHOUT SPILLING FOR 1969



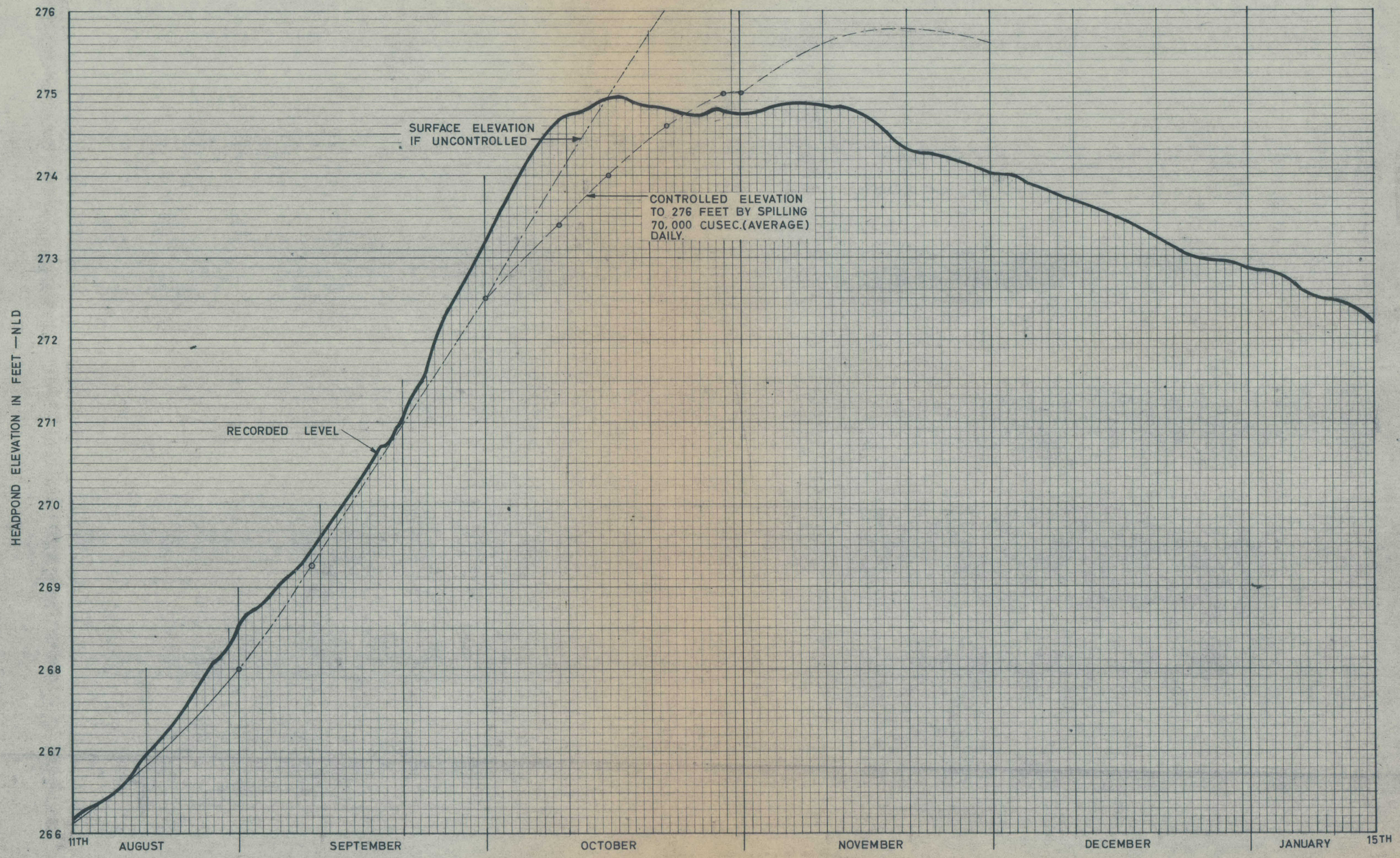
BY E. N. KUMI
Design & Hydrology Engineer
6:1:69

EXPECTED RESERVOIR DEPLETION CURVE FOR 1968



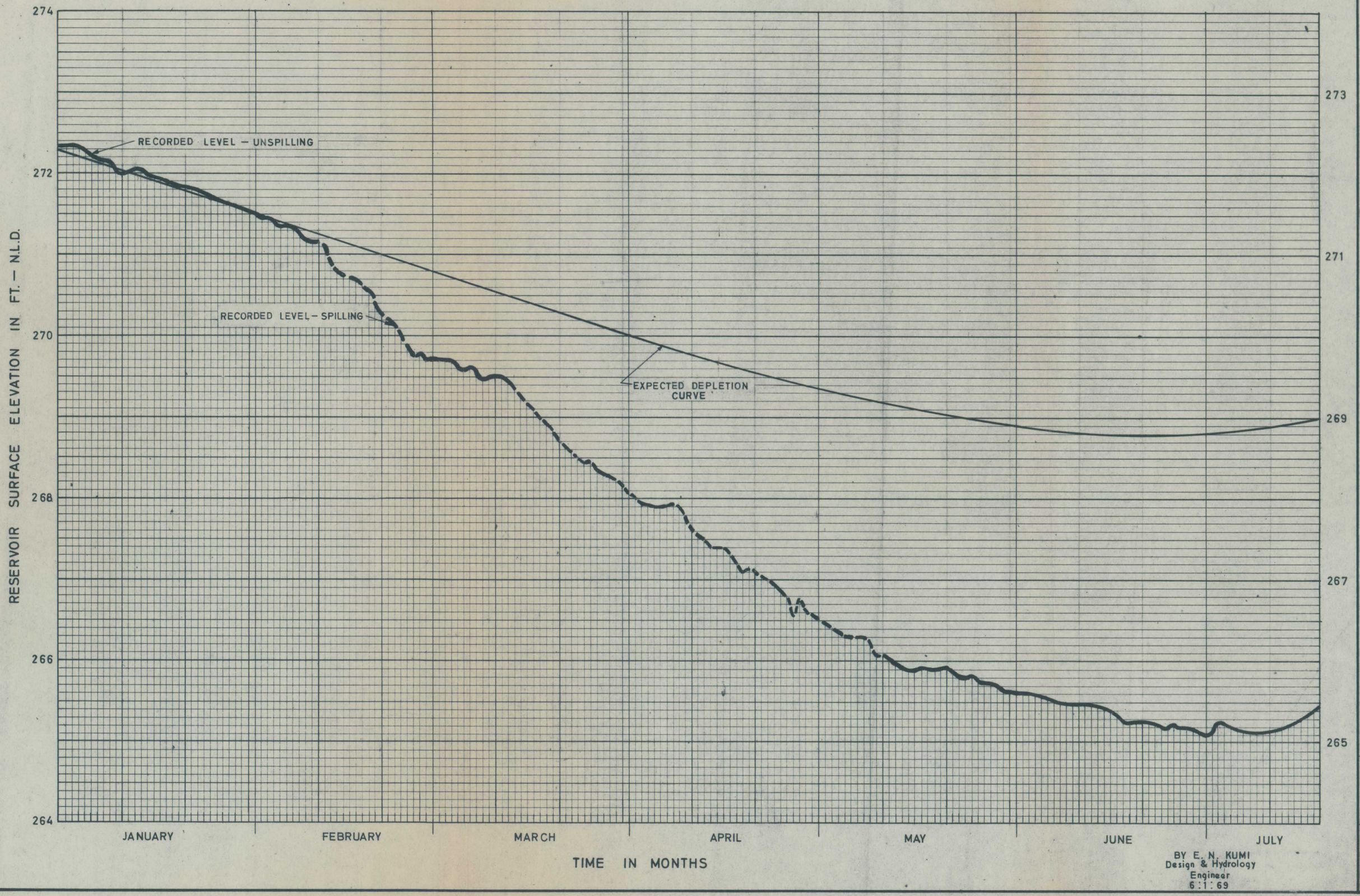
BY. E. N. KUMI
Design Engineer
11 : 1 : 68

HEADPOND CONTROL CHART — 1969 FLOOD SEASON



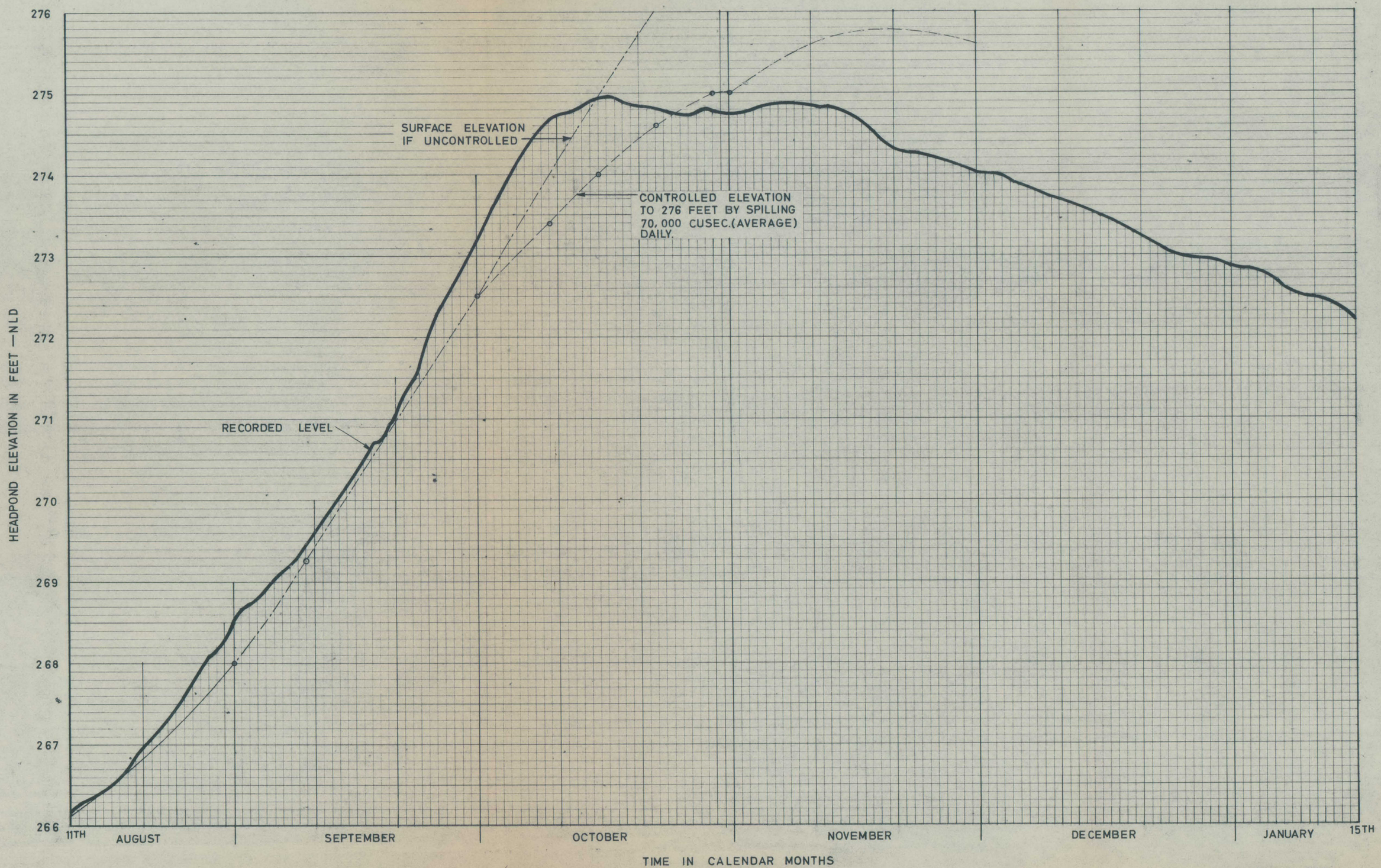
BY E. N. KUMI
Design & Hydrology Engineer
13 : 8 : 68

EXPECTED RESERVOIR DEPLETION CURVE
WITHOUT SPILLING FOR 1969



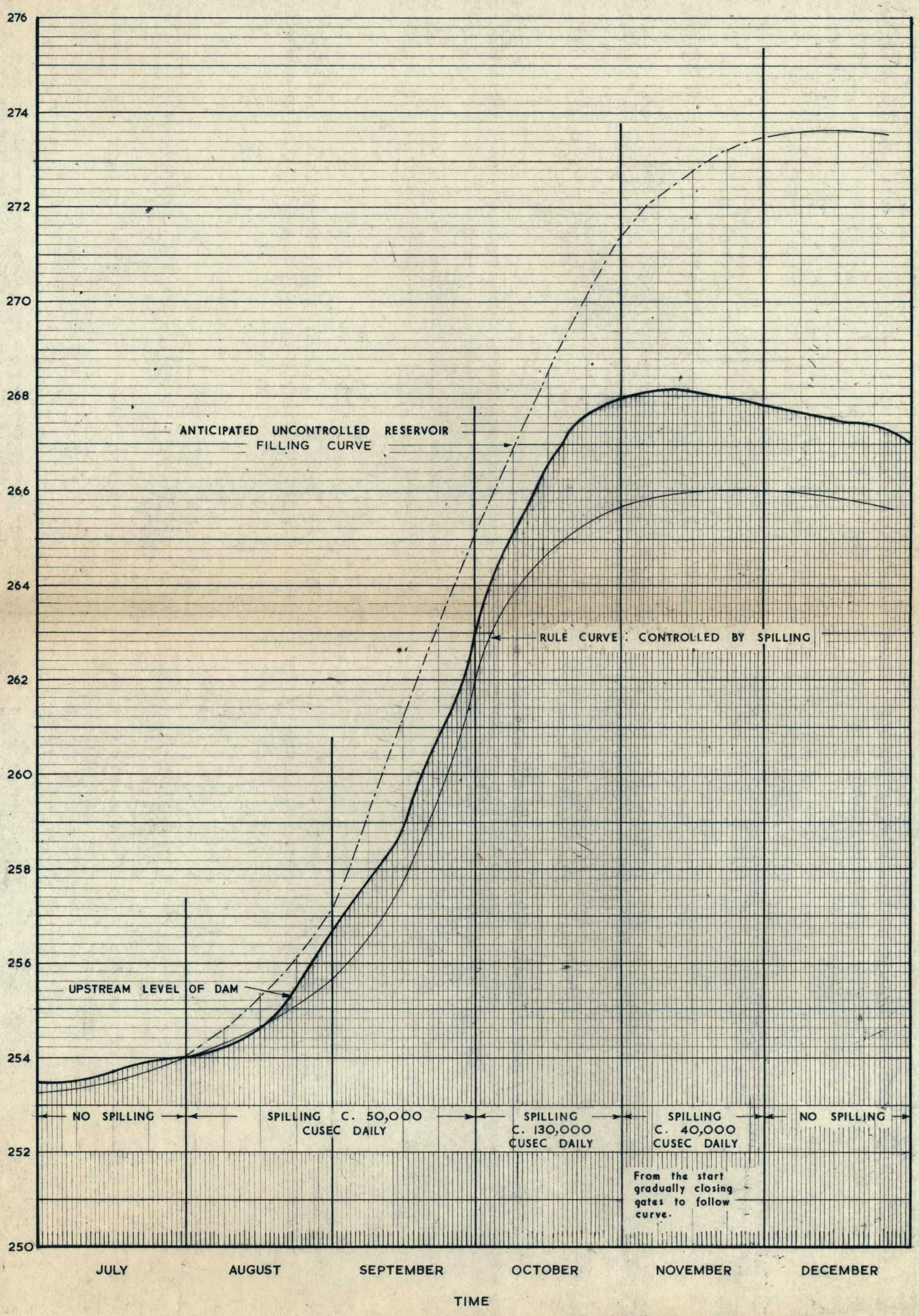
BY E. N. KUMI
Design & Hydrology Engineer
6:1:69

HEADPOND CONTROL CHART — 1969 FLOOD SEASON



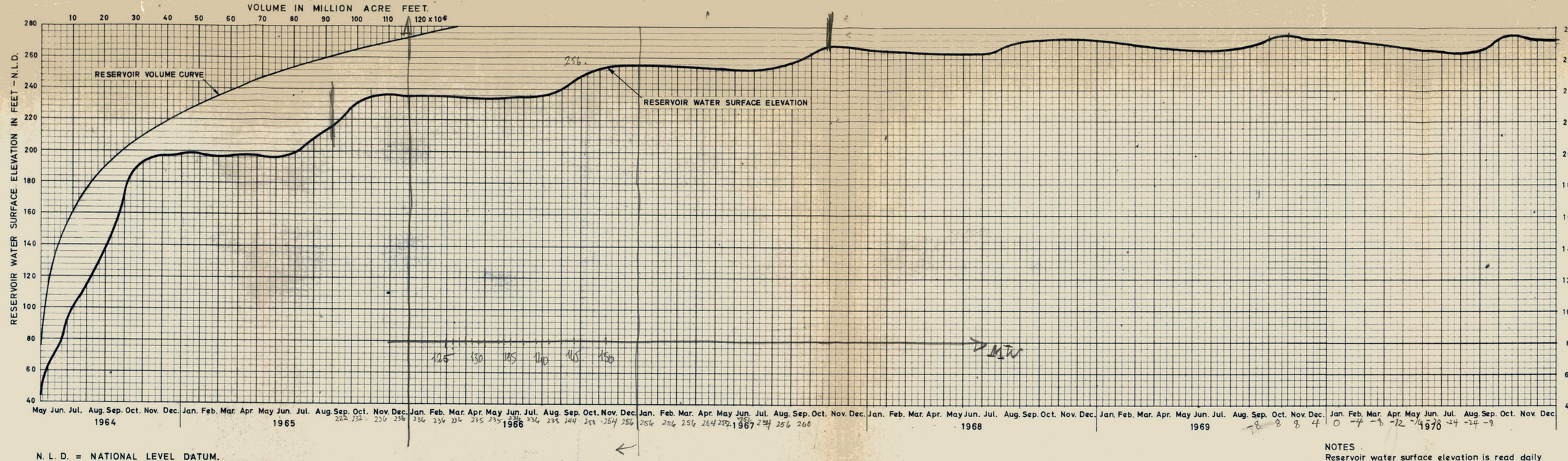
BY E. N. KUMI
Design & Hydrology Engineer
13 : 8 : 68

RESERVOIR REGULATION CHART
FOR 1967



RESERVOIR REGULATION CHART
FOR 1968

BY E. N. KUMI
Design & Hydrology
Engineer.
5 : 7 : 68



N. L. D. = NATIONAL LEVEL DATUM.

NOTES
Reservoir water surface elevation is read daily at 6·30 a.m. Reservoir volume curve is taken from volume III of A3 contract documents.

No.	DATE	REVISION	BY	APP.	APP.	REFERENCE DRAWINGS	NUMBER

CONSTRUCTION APPROVAL

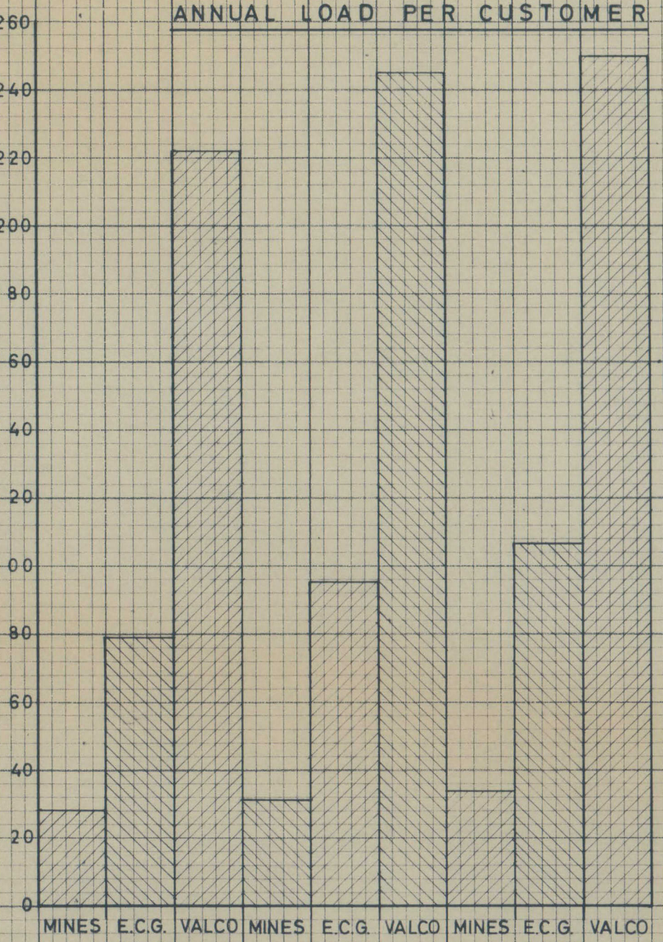
		DATE
SCALE		
DRAWN	P.T. Lawal	10/6/70
TRACED	do	12/6/70
CHECKED	Laborhey	11/11/71
DESIGNED		
ARCHITECT		
ENGINEER		
APPROVED		

VOLTA RIVER AUTHORITY

RESERVOIR FILLING CHART
MAY, 1964 — DECEMBER, 1970

JOB No. D-VRA/64/41 | DWG. No. 9 | REVISION R—

ANNUAL LOAD PER CUSTOMER



SYSTEM DEMAND 1968—1970

L.F. = 89%.

Average load factor (or utilisation factor = $\frac{\text{Base load}}{\text{Peak load}}$) = 90%.

SPEED LEVEL - SPEED DROOP - LOAD TESTS

GROSS HEAD: 226.90ft (273.80ft - 46.90ft)

UNIT: 1G1

DATE: 1-12-69

2% DROOP					3% DROOP					4% DROOP					5% DROOP					GATE INDICATORS COMPARISON AT 5% DROOP	
S.L	M.W	M.X	P.F	G.O	S.L	M.W	M.X	P.F	G.O	S.L	M.W	M.X	P.F	G.O	S.L	M.W	M.X	P.F	G.O	ACT.	C.R.
																0	0		10.0		
																30	15T		22.0		
																52	20T		30.0		
																73	23T		40.0		
																92	25T		48.0		
																110	27T		57.0		
																123	27T		65.0		
																134	27T		74.0		
																142	27T		85.0		
																146	28T		89.5		
																151	29T		102.0		

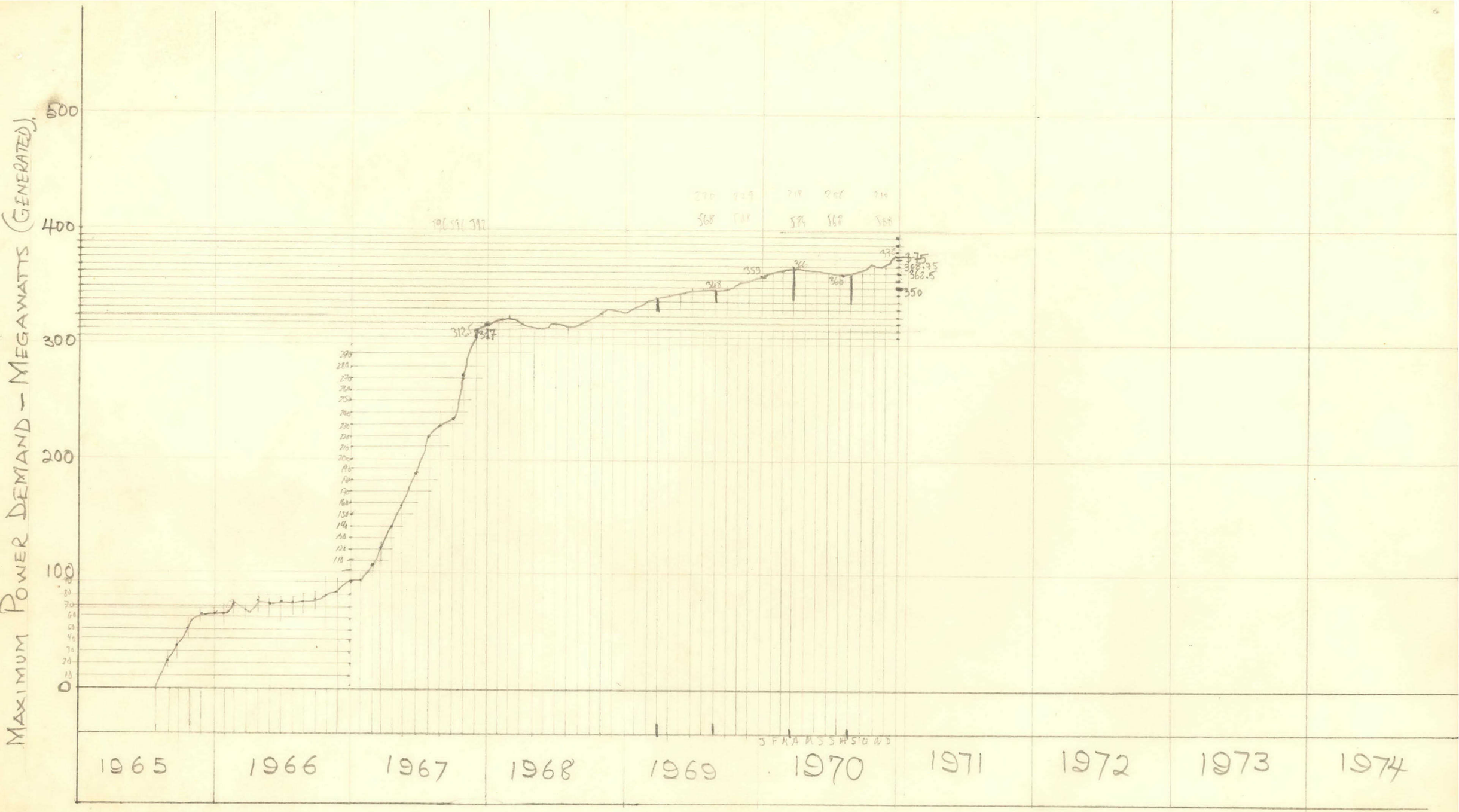
LEGEND

S.L. - SPEED LEVEL
G.O. - GATE OPENING TURBINE PIT
ACT. - ACTUATOR
C.R. - CONTROL ROOM
S.N.L - SPEED-NO-LOAD

DASHPOT HOLE .....

TEMPORARY SPEED DROP.....

JKD:


MAXIMUM POWER DEMAND – MEGAWATTS (GENERATED).
500
400
300
200
100
0
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
J F M A M J S S M S T G W D

VOLTA RIVER AUTHORITY
DEPARTMENT OF POWER OPERATIONS
AKOSOMBO

REPORT ON CAPABILITY TESTS CARRIED OUT ON AKOSOMBO GENERATORS

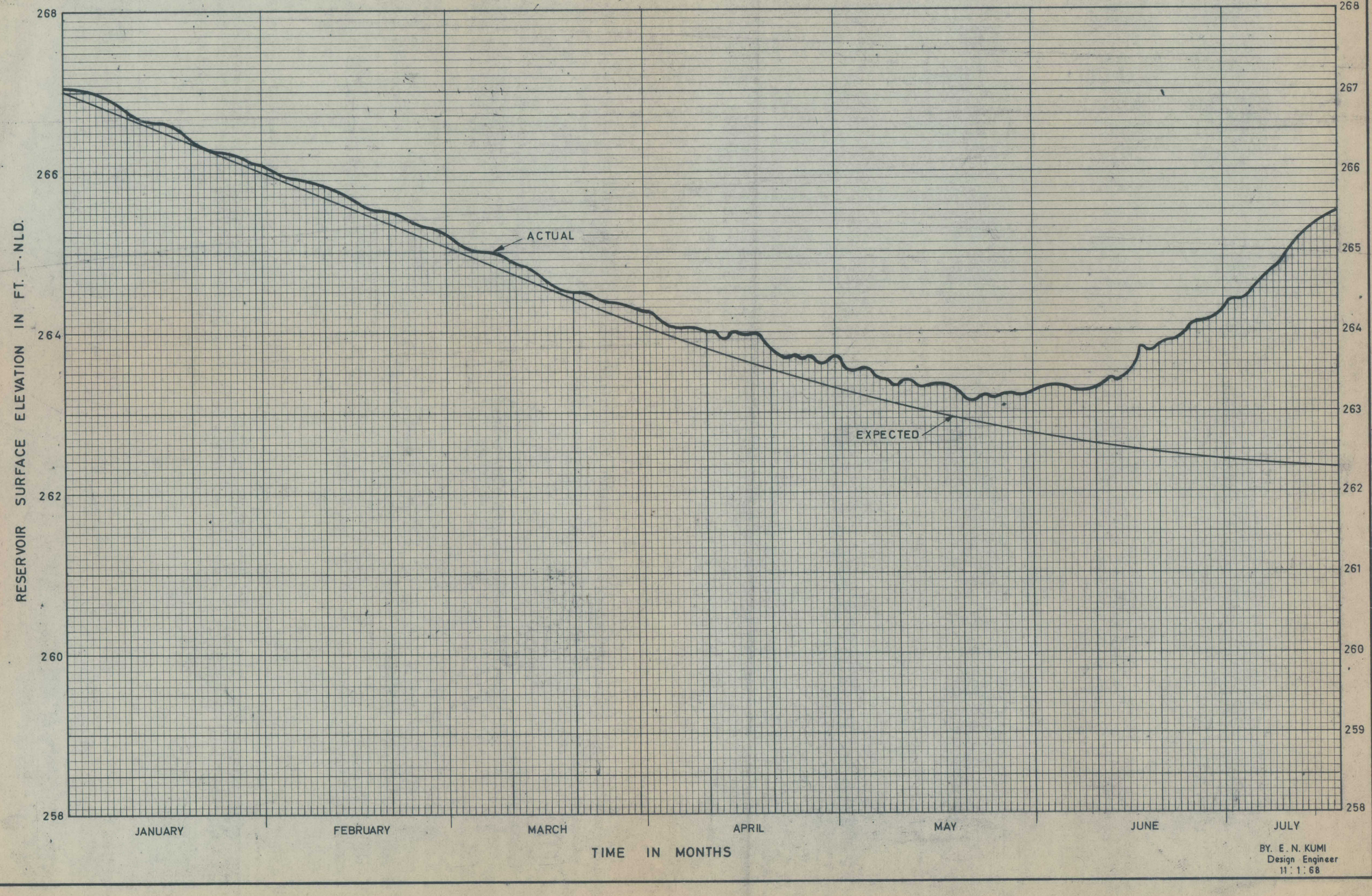
The following are results of capability tests carried out on Akosombo generators at varying head and tailwater elevations:-

Date	Unit	Full load	Gate Opening	Av.Head Water Elevation (GROSS HEADS.)	Av.Tail Water Elevation	Gross Av. Head	Remarks
17-9-67	1G1	138MW	98%	259.00'	45.70'	213.30'	
18-9-67	1G1	138MW	98%	259.60'	45.70'	213.90'	
"	1G2	138MW	99%	259.60'	45.70'	213.90'	
"	1G3	139MW	100%	259.60'	45.70'	213.90'	
"	1G4	130MW	88%	259.60'	45.70'	213.90'	Gate could not be opened beyond 88
25-9-67	1G1	141MW	98%	261.30'	45.70'	215.60'	
"	1G2	141MW	99%	261.30'	45.70'	215.60'	
"	1G3	142MW	100%	261.30'	45.70'	215.60'	
"	1G4	136MW	98%	261.30'	45.70'	215.60'	
2-11-67	1G2	149MW	99%	267.90'	45.80'	222.10'	
10-11-67	1G1	149MW	99%	268.00'	45.80'	222.20'	
"	1G2	149MW	98%	268.00'	45.80'	222.20'	
"	1G3	152MW	101%	268.00'	45.80'	222.20'	
"	1G4	148MW	96%	268.00'	45.80'	222.20'	Gate could not be opened beyond 98
27-4-68	1G1	142MW	102%	263.60'	46.00'	217.60'	
"	1G3	142MW	102%	263.60'	46.00'	217.60'	
"	1G4	142MW	102%	263.60'	46.00'	217.60'	
4-9-68	1G1	136MW	100%	270.75'	59.00'	211.75'	
"	1G2	125MW	80%	270.75'	59.00'	211.75'	Governor started hunting.
"	1G3	132MW	97%	270.75'	59.00'	211.75'	Governor started hunting
27-9-68	1G1	140MW	100%	271.68'	58.00'	213.68'	Stable
16-12-70	1G1	151MW	100%	272.97'	46.26'	226.71'	Stable

161 : 8
162,3 : 5
164 : 4

J.S. Okpoti
OPERATING ENGINEER.

EXPECTED RESERVOIR DEPLETION CURVE FOR 1968



BY. E. N. KUMI
Design Engineer
11 : 1 : 68

RESERVOIR REGULATION CHART
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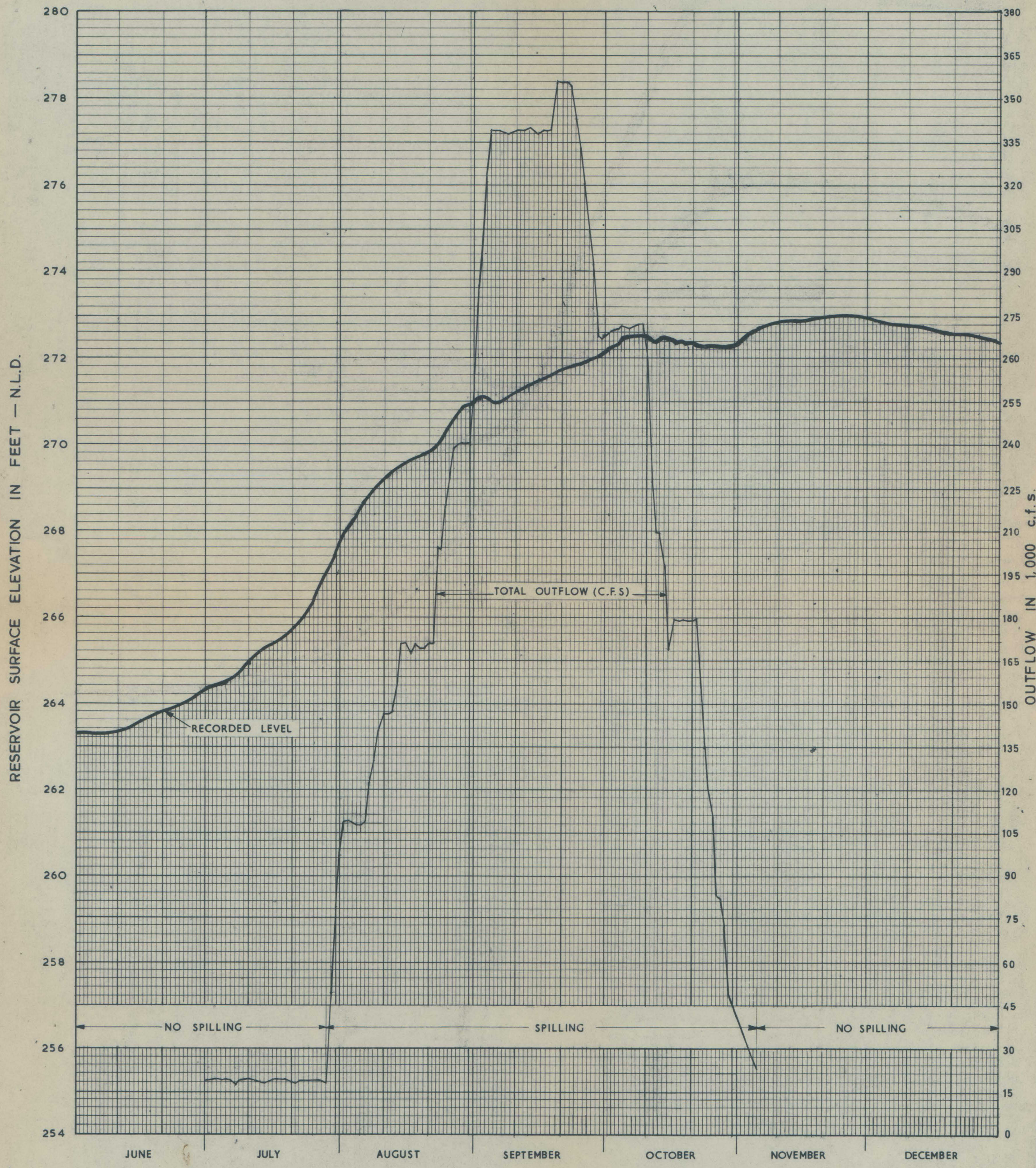

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5:7:68

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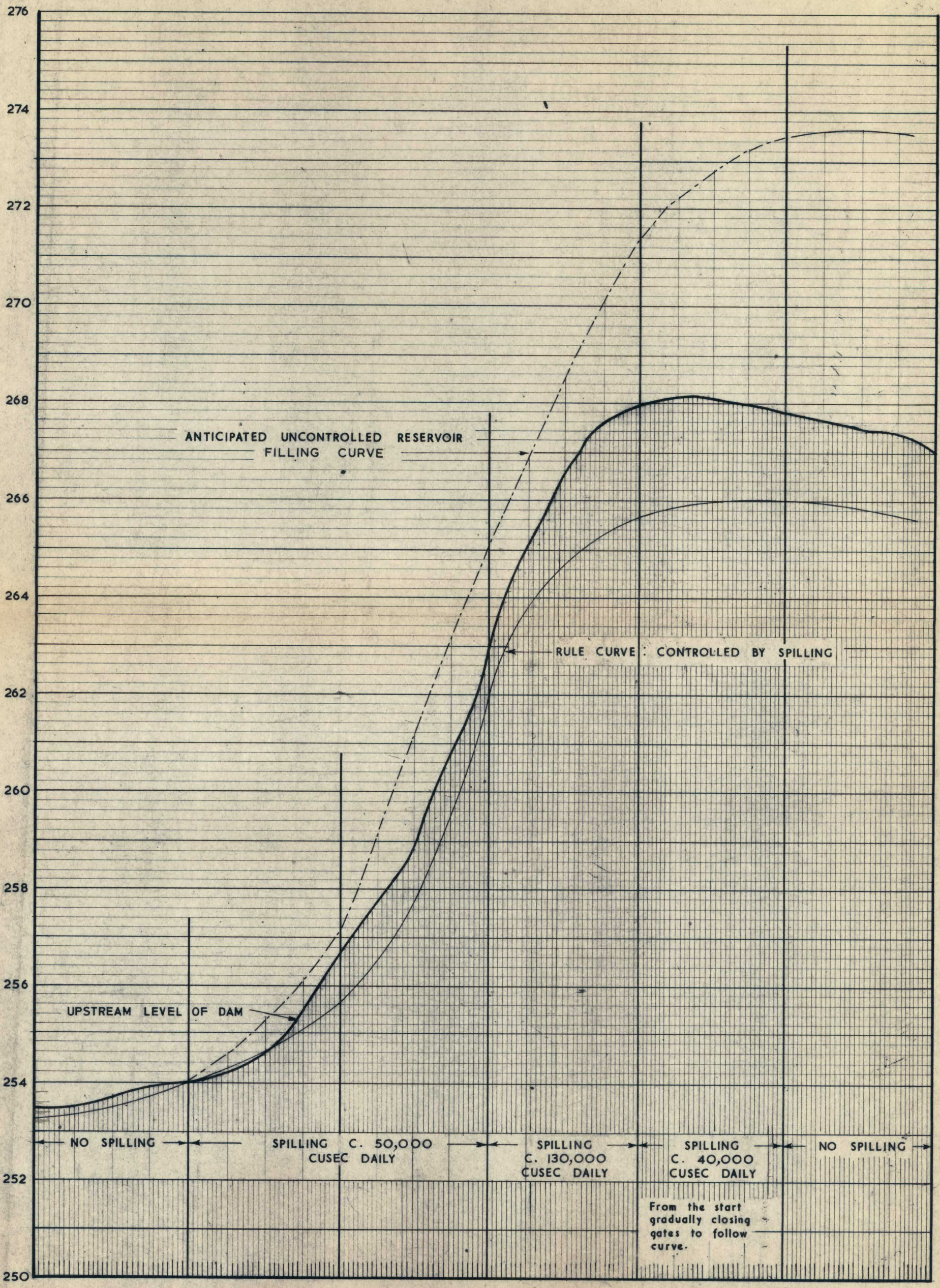

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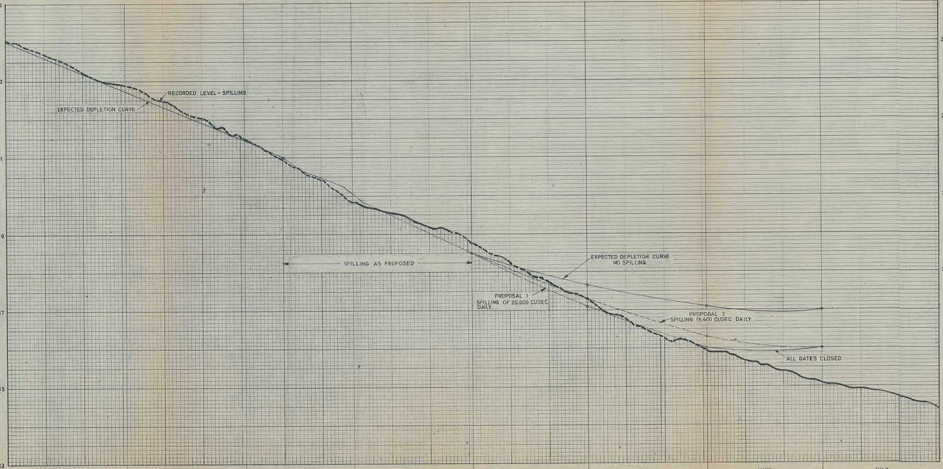

BY E.N. KUNE
Senior Civil Engineer
5 / 2 / 70

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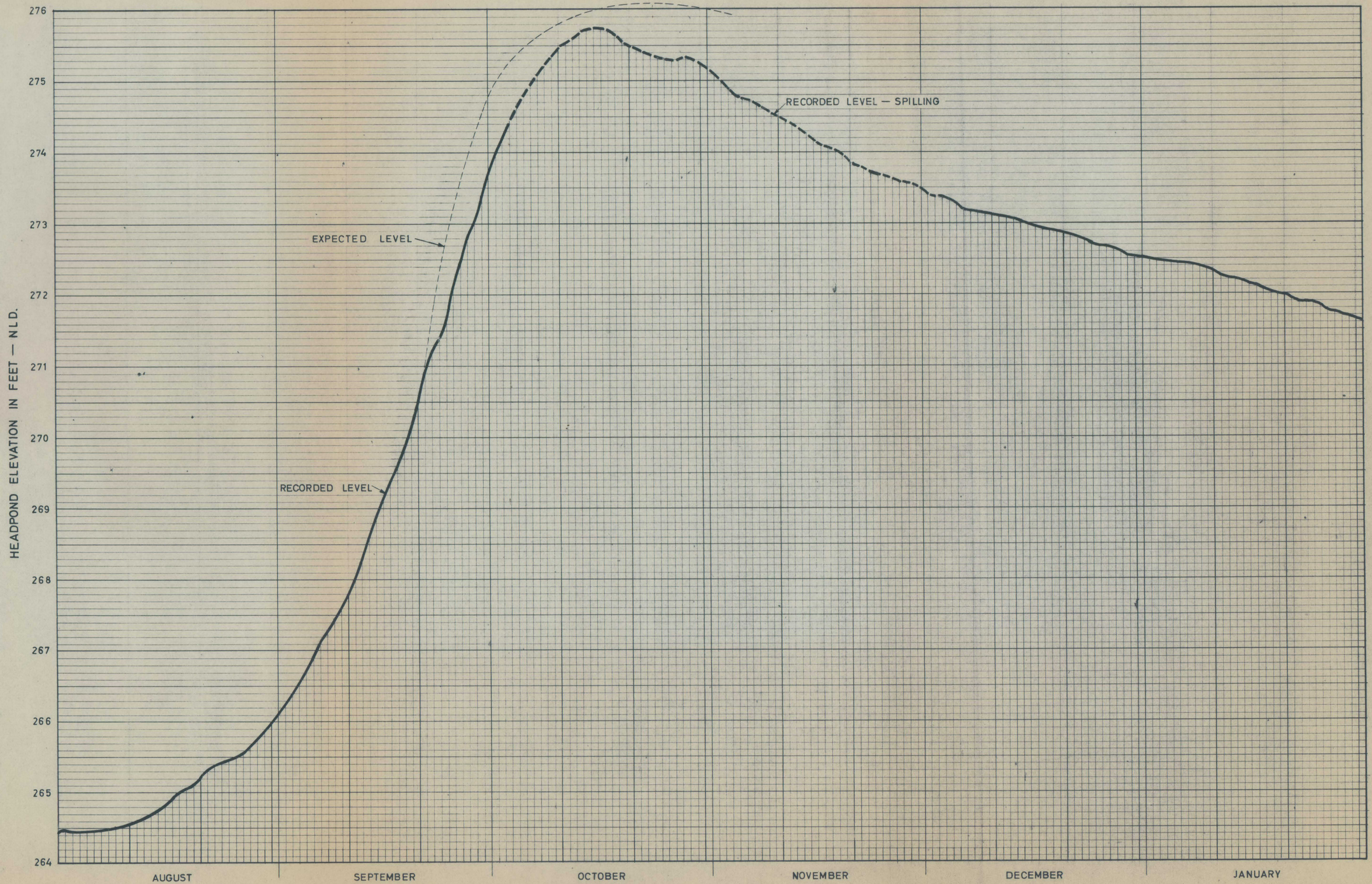
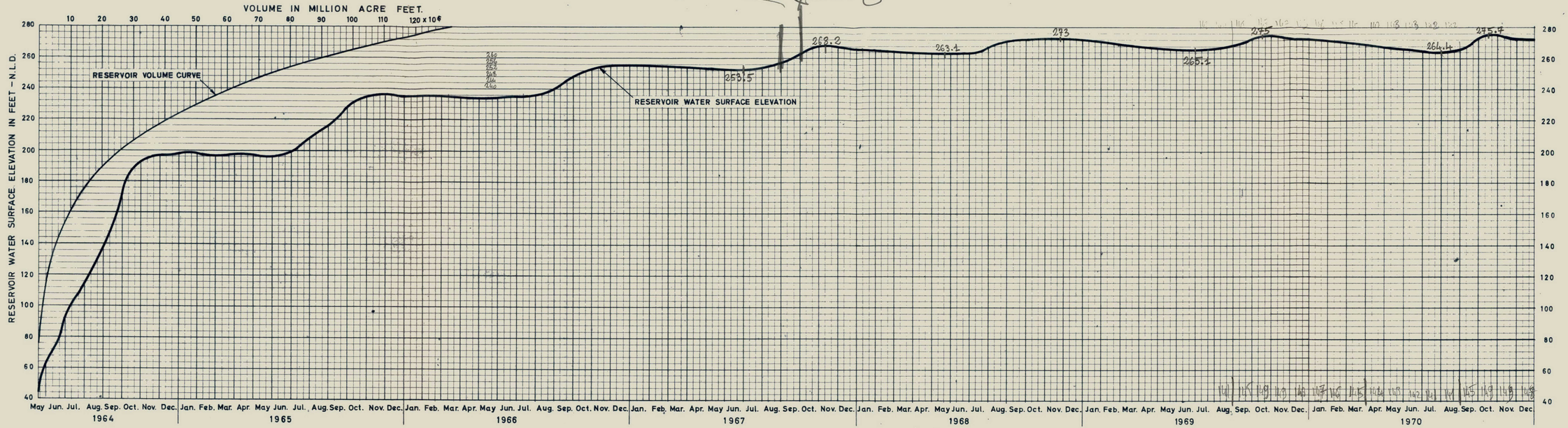


BY E. N. KUMI
19 : 9 : 70



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VOLTA RIVER AUTHORITY

RESERVOIR FILLING CHART MAY, 1964 — DECEMBER, 1970

JOB No. D-VRA/64/41 | DWG. No. 9 | REVISION R—

ANNUAL LOAD PER CUSTOMER

SYSTEM DEMAND 1968—1970