

E A S T R O U T L E D G E U N I T N O . I

PRESSURE MAINTENANCE PROGRAM

SAMEDAN OIL OF CANADA, INC.

730 ELVEDEN HOUSE
CALGARY, ALBERTA
T2P 0Z3

FEB 21 1973
882 D

February 19th, 1973

J. S. Roper
Deputy Chairman,
The Oil and Natural Gas Conservation
Board of Manitoba
Manitoba, Canada

Gentlemen:

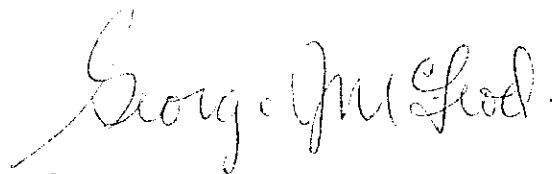
Re: East Routledge Unit No. 1
Pressure Maintenance Program

Enclosed is a report dealing with the injectivity practices currently being applied to the East Routledge Unit No. 1.

This report is being presented to obtain permission to increase the efficiency of the pressure maintenance program.

Yours truly,

SAMEDAN OIL OF CANADA, INC.



George J. McLeod
Vice President

jo.
encl.

INDEX

	<u>PAGE</u>
I. OBJECT	1
II. CONCLUSIONS	1
III. RECOMMENDATIONS	1
DISCUSSION	2

I.

OBJECT

The purpose of this report was to evaluate the performance of the pressure maintenance program currently in effect in the East Routledge Unit No. 1.

II.

CONCLUSIONS

1. Water injection rates from start of injection on Nov. 10, 1973 to Jan. 31, 1973 are lower than expected.
2. The maximum allowable injection pressure of 1175 psig is hindering higher injection rates.

III.

RECOMMENDATIONS

1. To maximize pressure maintenance efficiency, injection rates should be increased by changing the maximum allowable injection pressure from 1175 psig to 1300 psig.

DISCUSSION

Water injection began Nov. 10, 1972 in the East
Routledge Unit No. 1 in

Samedan Routledge Prov. 2-11-9-25
Samedan Routledge Prov. 10-11-9-25
Samedan Routledge Prov. 12-11-9-25
Samedan Routledge Prov. 14-11-9-25
Samedan Routledge Prov. 6-14-9-25

Currently the area has approval to maintain a
maximum pressure of 1175 psig on each of the injection wells.
The highest daily injection rate on a monthly basis that
has been achieved to Jan. 31, 1973 was 1781 barrels per day at
pressures ranging from 1000 psig to 1075 psig.

The Engineering Report of June 1971 indicates an
expected injection rate of 2611 barrels per day from these
wells at 1000 psig. This indicates that current injectivity
is 32 percent below expectation.

Since higher injection rates are required, Samedan
Oil of Canada, Inc. is making application to attain permission
to increase the allowable injectivity pressure to a maximum
of 1300 psig.

SAMEDAN OIL OF CANADA, INC.

730 ELVEDEN HOUSE
CALGARY, ALBERTA
T2P 0Z3

February 19, 1974

Mr. F. S. Gamey
Petroleum Engineering Division
993 Century Street
Winnipeg, Manitoba
R3H 0W4

Dear Sir:

RE: East Routledge Unit No. 1
Manitoba, Canada

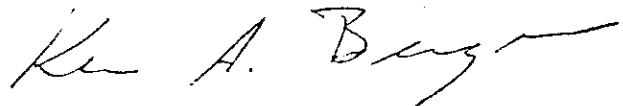
Enclosed is the following:

Report of production and injection operations for 1973, pertaining to the Pressure Maintenance by Water Flooding Project for the EAST ROUTLEDGE UNIT NO. 1.

Copies of this report will be sent to all Working Interest Owners.

Yours very truly,

SAMEDAN OIL OF CANADA, INC.

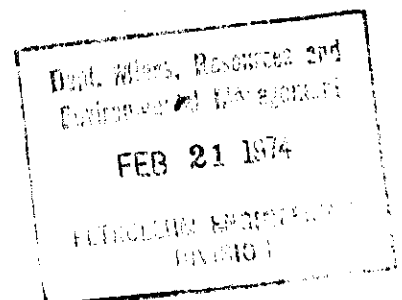


Ken A. Bergen

Enclosures

KAB/caj

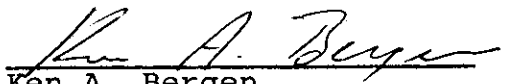
copies: Working Interest Owners
East Routledge Unit No. 1



File UNIT

E A S T R O U T L E D G E U N I T N O . 1

1973 ANNUAL REPORT


Ken A. Bergen

2/19/73

EAST ROUTLEDGE UNIT NO. 1

1973 Annual Report

This report is presented as an annual summary of the production and injection activities for 1973 at the East Routledge Unit No. 1, operated by Samedan Oil of Canada, Inc. The information herein complies with that requested by Order No. PM 20, Rule 8 (2).

Enclosed is the following:

1. Table 1 - 1973 Annual Summary of Unit Operations & Production.
2. Table 2 - 1973 Monthly Summary of Unit Operations & Production.
3. Table 3 - 1973 Treatment & Workover Summary.
4. Figure 1 - East Routledge Unit No. 1 - Production.
5. Figure 2 - East Routledge Unit No. 1 - Injection.
6. Figure 3 through Figure 24 - Individual Well Production.
7. Figure 25 through Figure 29 - Individual Well Injection.

We trust this report will adequately evaluate the progress and performance of the pressure maintenance program at the above area.

TABLE 1

1973 ANNUAL SUMMARY OF UNIT OPERATIONS AND PRODUCTION

Oil Production - BBLS.

1973 Unit Production	113,715
----------------------	---------

Water Production - BBLS.

1973 Unit Production	352,894
----------------------	---------

Supply Water - BBLS.

1973 Water Supply	421,802
-------------------	---------

Water Injection - BBLS.

1973 Injection	774,696
Plant Injection Pressure (December, 1973)	1500#

Net Injection - RSVR BBLS.

1973 Balance	+302,401
--------------	----------

TABLE 2

EAST ROUTLEDGE UNIT NO. 1
1973 MONTHLY SUMMARY OF UNIT OPERATIONS AND PRODUCTION

FIRST HALF: 1973

SECOND HALF:

DATE: JUNE

CUMULATIVE OIL PRODUCTION PRIOR TO UNITIZATION ON 5-15-72 - 1,466,076 BARRELS
CUMULATIVE WATER PRODUCTION PRIOR TO UNITIZATION ON 5-15-72 - 2,388,966 BARRELS

OIL PRODUCTION - BBLs.

	January	February	March	April	May	June
Monthly Production	10,192	8,785	9,553	9,774	9,591	9,074
Daily Average	329	314	329	326	309	302
Cumulative Unit Production	88,792	97,577	107,130	116,904	126,495	135,569
WATER PRODUCTION - BBLs.						
Monthly Production	29,531	27,104	29,139	30,828	30,886	29,021
Daily Average Production	952	968	1,005	1,028	998	967
Per Cent Water Cut	74.34	75.52	75.31	75.93	76.31	76.18
Cumulative Unit Production	266,125	293,229	322,368	353,196	384,082	413,103
SUPPLY WATER - BBLs.						
Monthly Water Supply	25,690	24,591	32,557	29,375	31,227	31,506
Daily Average Supply	829	878	1,050	979	1,007	1,050
Cumulative Water Supply	44,552	69,193	101,700	131,075	162,302	193,808
WATER INJECTION - BBLs.						
Monthly Injection	55,221	51,695	61,696	60,203	62,113	60,527
Daily Average Injection	1,781	1,846	1,990	1,942	2,004	2,017
Cumulative Injection	125,359	177,054	238,750	298,953	361,056	421,593
Plant Injection Pressure	1,030#	1,160#	1,250#	1,260#	1,260#	1,260#
NET INJECTION - RSVR. BBLs.						
Monthly Balance	+14,988	+15,367	+22,526	+19,112	+21,157	+21,978
Daily Average Balance	+ 483	+ 549	+ 727	+ 637	+ 582	+ 733
WELL STATUS						
Producers	22	22	22	22	22	22
Closed In Producers	-	-	-	-	-	-
Injection Wells	5	5	5	5	5	5
Closed In Injection Wells	-	-	-	-	-	-
TOTAL	27	27	27	27	27	27

EAST ROUTLEDGE UNIT NO. 1
1973 MONTHLY SUMMARY OF UNIT OPERATIONS AND PRODUCTION

FIRST HALF:
SECOND HALF: 1973
DATE: DECEMBER

CUMULATIVE OIL PRODUCTION PRIOR TO UNITIZATION ON 5-15-72 - 1,466,076 BARRELS
CUMULATIVE WATER PRODUCTION PRIOR TO UNITIZATION ON 5-15-72 - 2,388,966 BARRELS

	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
OIL PRODUCTION - BBLS.						
Monthly Production	9,049	9,459	9,367	10,193	9,372	9,306
Daily Average	292	305	312	329	312	300
Cumulative Unit Production	144,618	154,077	163,444	173,637	183,009	192,315
WATER PRODUCTION - BBLS.						
Monthly Production	28,735	29,023	26,414	32,233	29,819	30,161
Daily Average Production	927	936	880	1,040	994	973
Per-Cent Water Cut	76.05	75.42	73.82	75.97	76.09	76.4
Cumulative Unit Production	441,838	470,861	497,275	529,508	559,327	589,488
SUPPLY WATER - BBLS.						
Monthly Water Supply	34,361	33,957	39,372	38,669	49,053	51,444
Daily Average Supply	1,108	1,095	1,312	1,247	1,635	1,659
Cumulative Water Supply	228,169	262,126	301,498	340,167	389,220	440,664
WATER INJECTION - BBLS.						
Monthly Injection	63,096	62,980	65,786	70,902	78,872	81,605
Daily Average Injection	2,035	2,032	2,193	2,287	2,629	2,632
Cumulative Injection	484,689	547,669	613,455	684,357	763,229	844,834
Plant Injection Pressure	1,260#	1,320#	1,300#	1,300#	1,500#	1,500#
NET INJECTION - RSVR. BBLS.						
Monthly Balance	+ 24,860	+ 24,025	+ 29,537	+ 27,966	+39,212	+41,683
Daily Average Balance	+ 802	+ 775	+ 985	902	+ 1,307	+1,345
WELL STATUS						
Producers	22	22	22	22	22	22
Closed in Producers	--	--	--	--	--	--
Injection Wells	5	5	5	5	5	5
Closed In Injection Wells	--	--	--	--	--	--
TOTAL	27	27	27	27	27	27

TABLE 3

1973 TREATMENT & WORKOVER SUMMARY

<u>DATE</u>		<u>LOCATION</u>	<u>*TREATMENT - BBLs.</u>
March	5	1-10	2.5
March	5	8-14	2.0
March	22	13-11	2.0
March	22	1-14	2.0
March	23	7-14	2.0
March	23	8-11	2.0
May	22	10-14	Pump Change
May	23	2-14	Pump Change
June	28	11-11	Pump Change
July	6	5-11	Pump Change
July	7	6-11	Pump Change
July	7	7-11	Pump Change
July	7	5-13	Pump Change
July	17	3-11	2.0
July	17	5-11	2.0
July	17	7-11	2.0
July	17	11-14	3.0
September	21	13-11	2.0
September	22	5-13	2.0
September	22	6-11	2.0
December	4	2-14	Pump Change
December	4	13-11	Pump Change

* All treatments used T328 chemical
mixed 1:1 with fresh water.

EAST ROUTLEDGE UNIT #1 - PRODUCTION

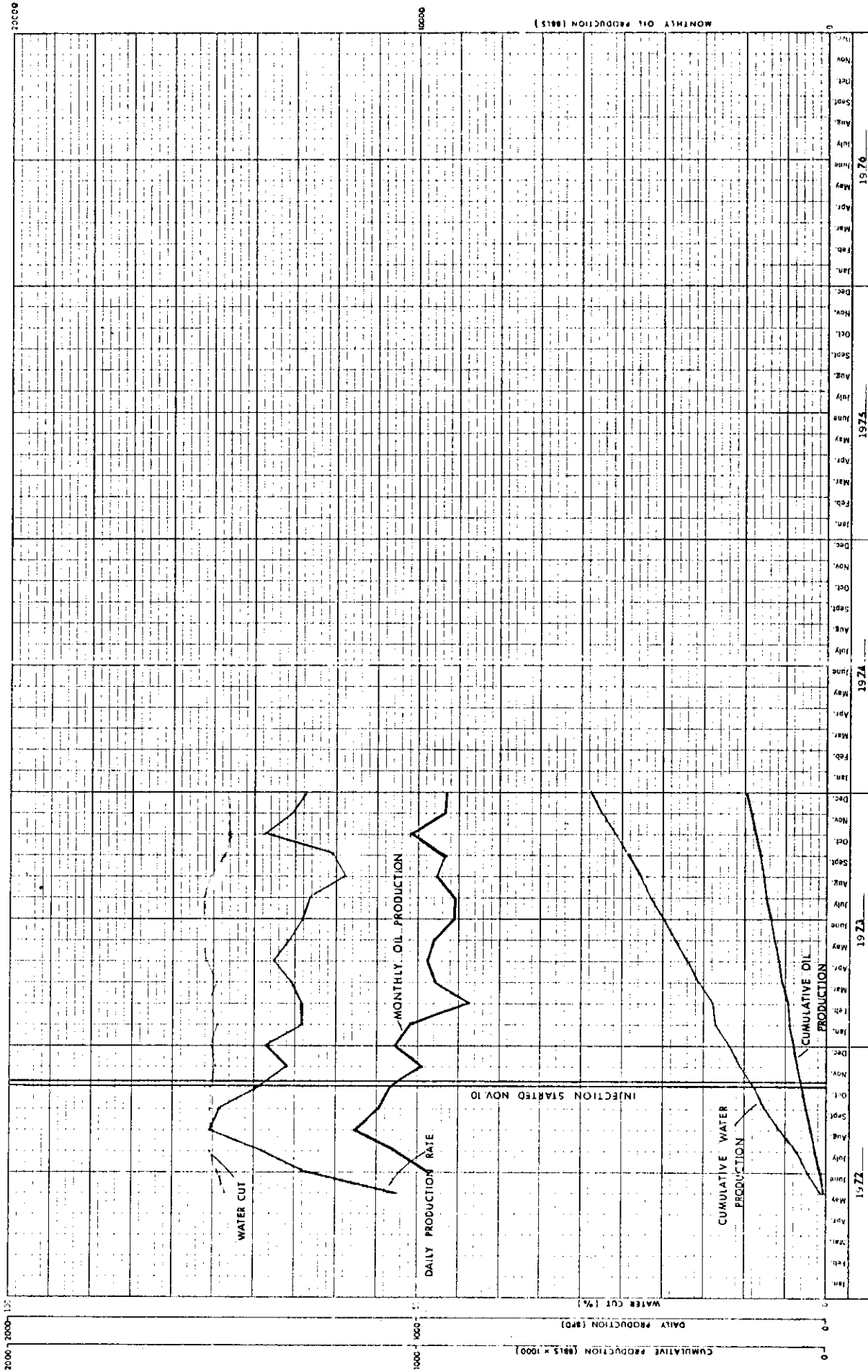


FIGURE 1

EAST ROUTLEDGE UNIT #1 - INJECTION

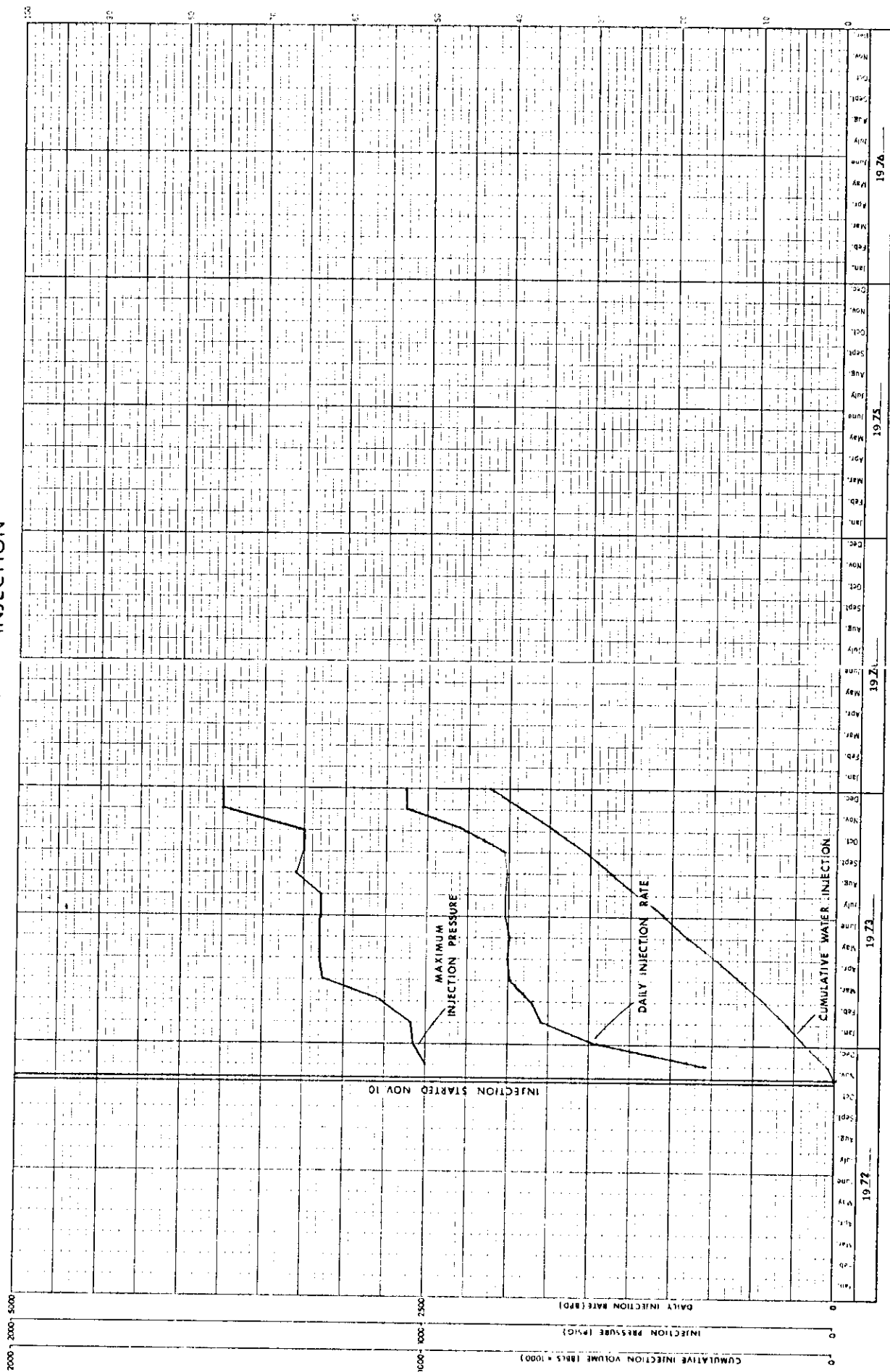


FIGURE 2

SAMEDAN ROUTLEDGE PROV. 3-11-9-25 WPM.

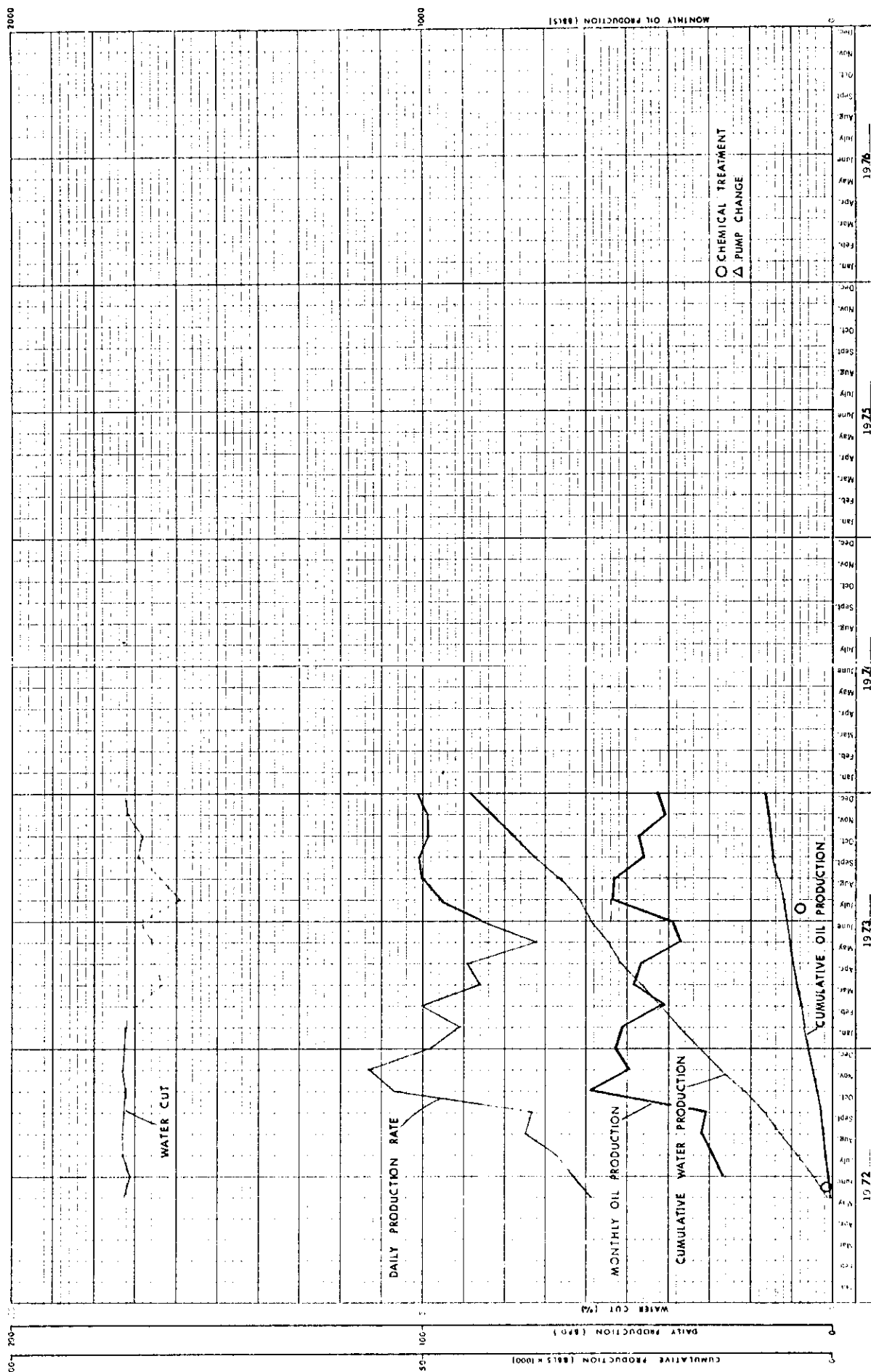


FIGURE 3

SAMEDAN ROUTLEDGE PROV. 4-11-9-25 WPM.

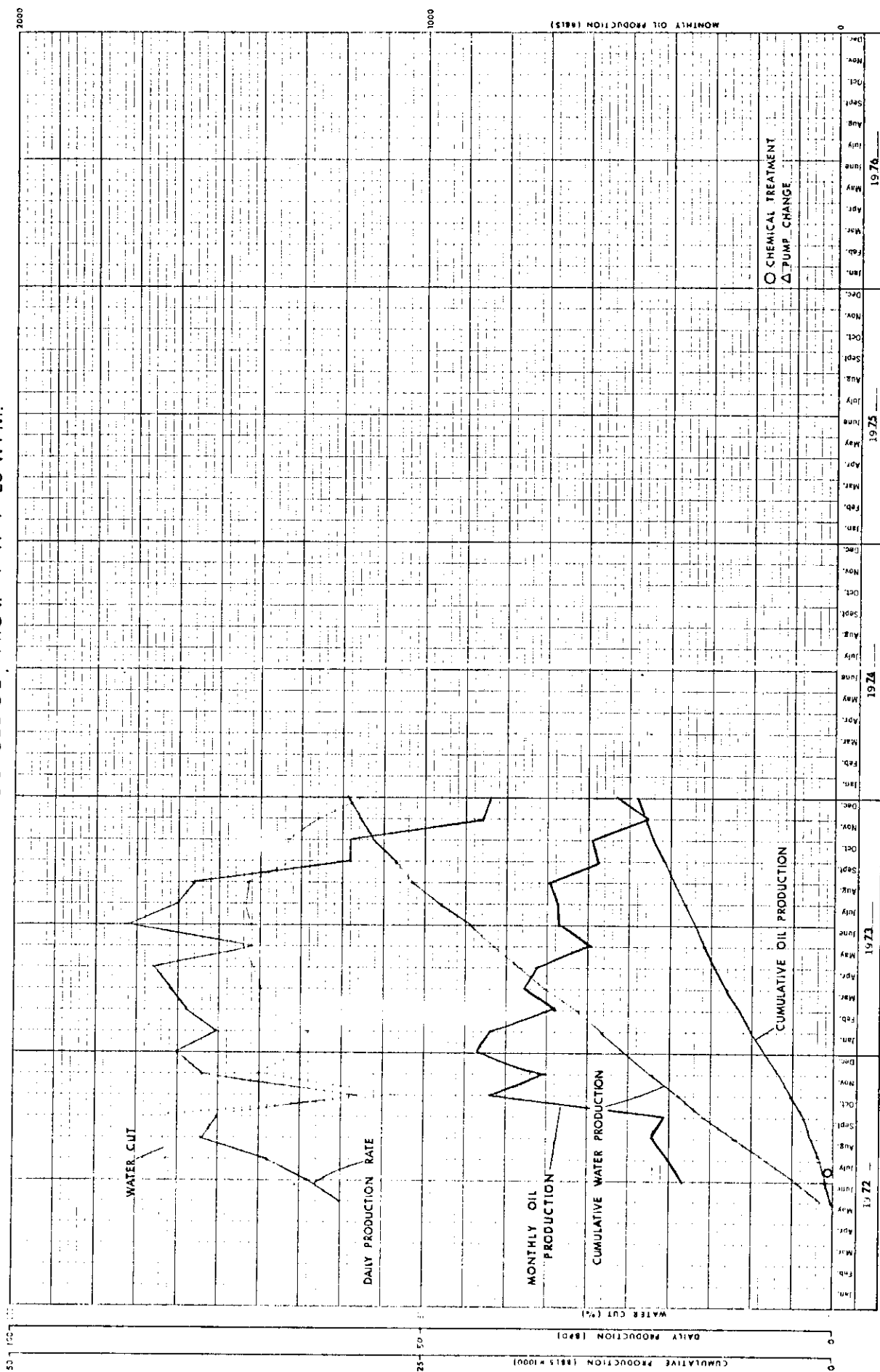


FIGURE 4

SAMEDAN ROUTLEDGE: PROV. 5-11-9-25 WPM.

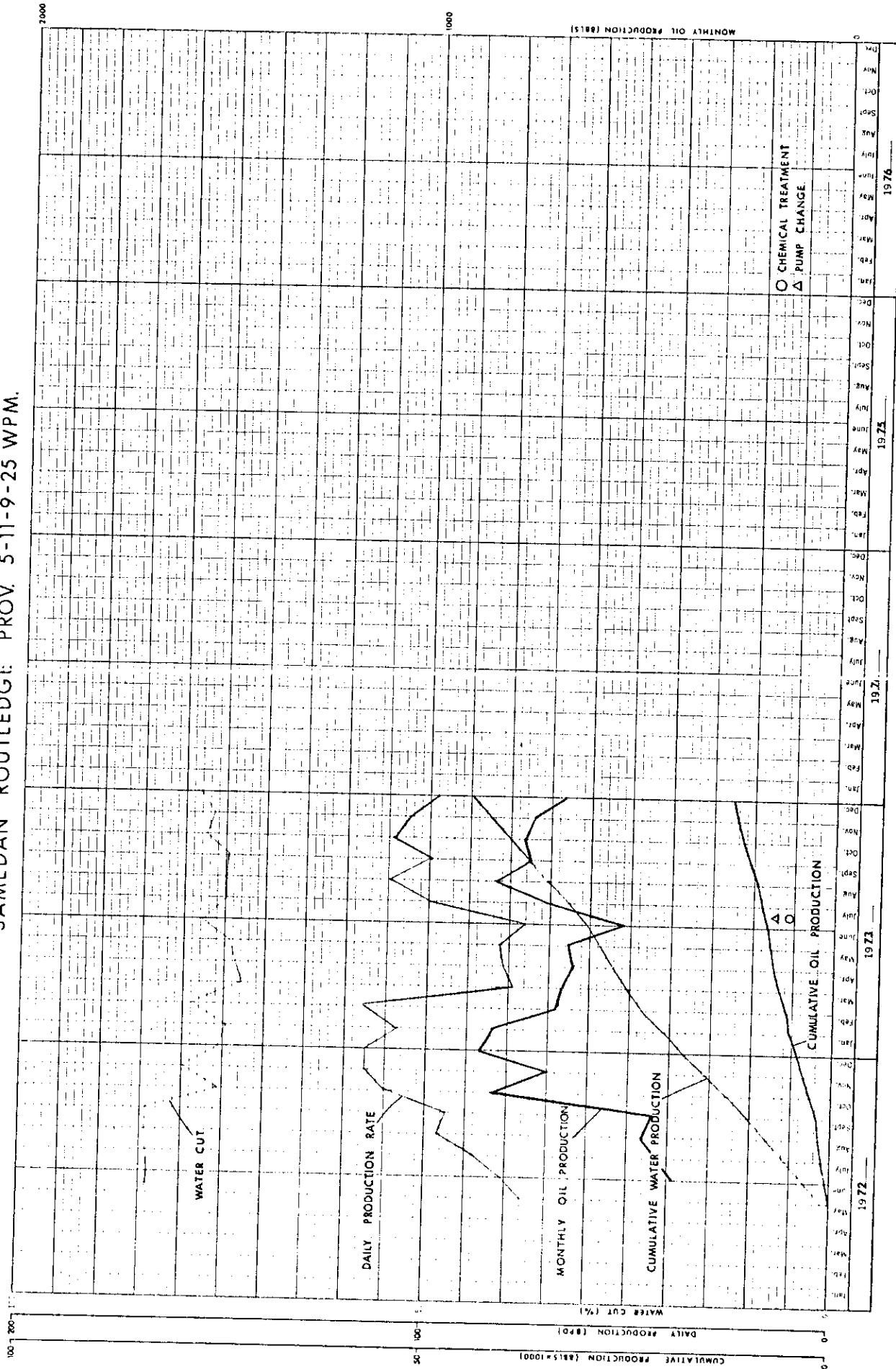


FIGURE 5

SAMEDAN ROUTLEDGE PROV. 6-11-9-25 WPM.

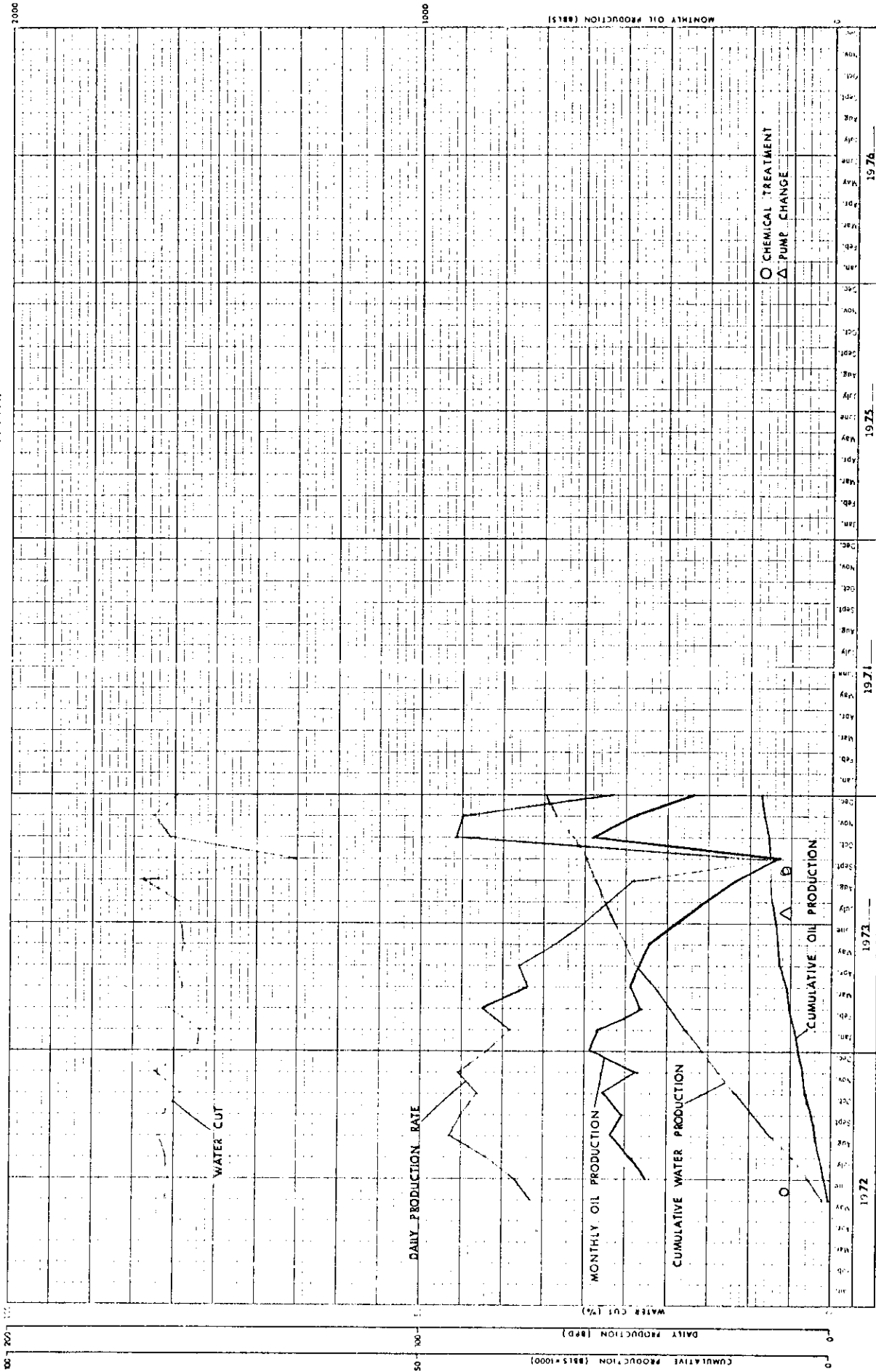


FIGURE 6

SAMEDAN ROUTLEDGE PROV. 7-11-9-25WPM.

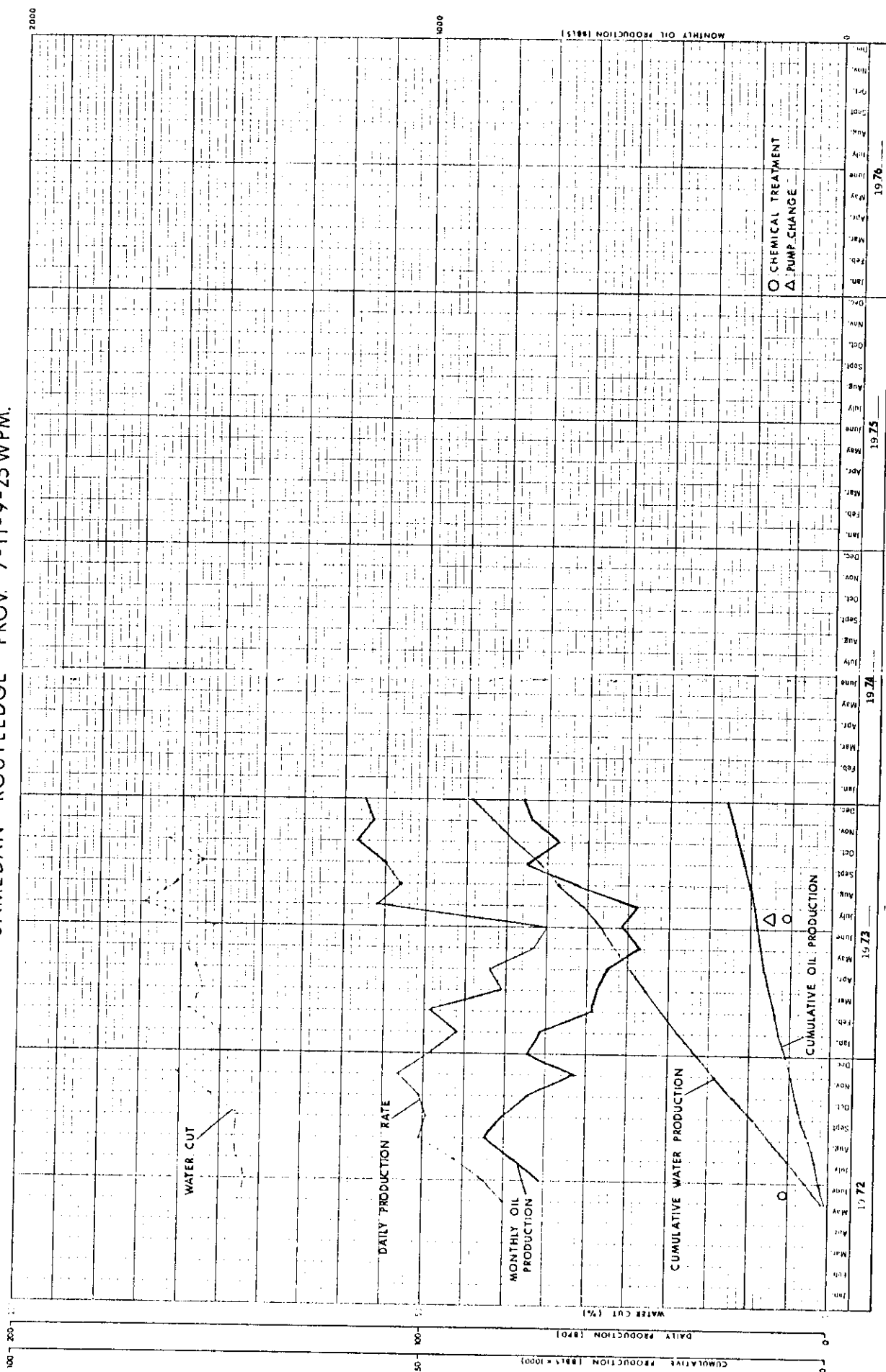


FIGURE 7

SAMEDAN ROUTLEDGE PROV. 8-11-9-25 WPM.

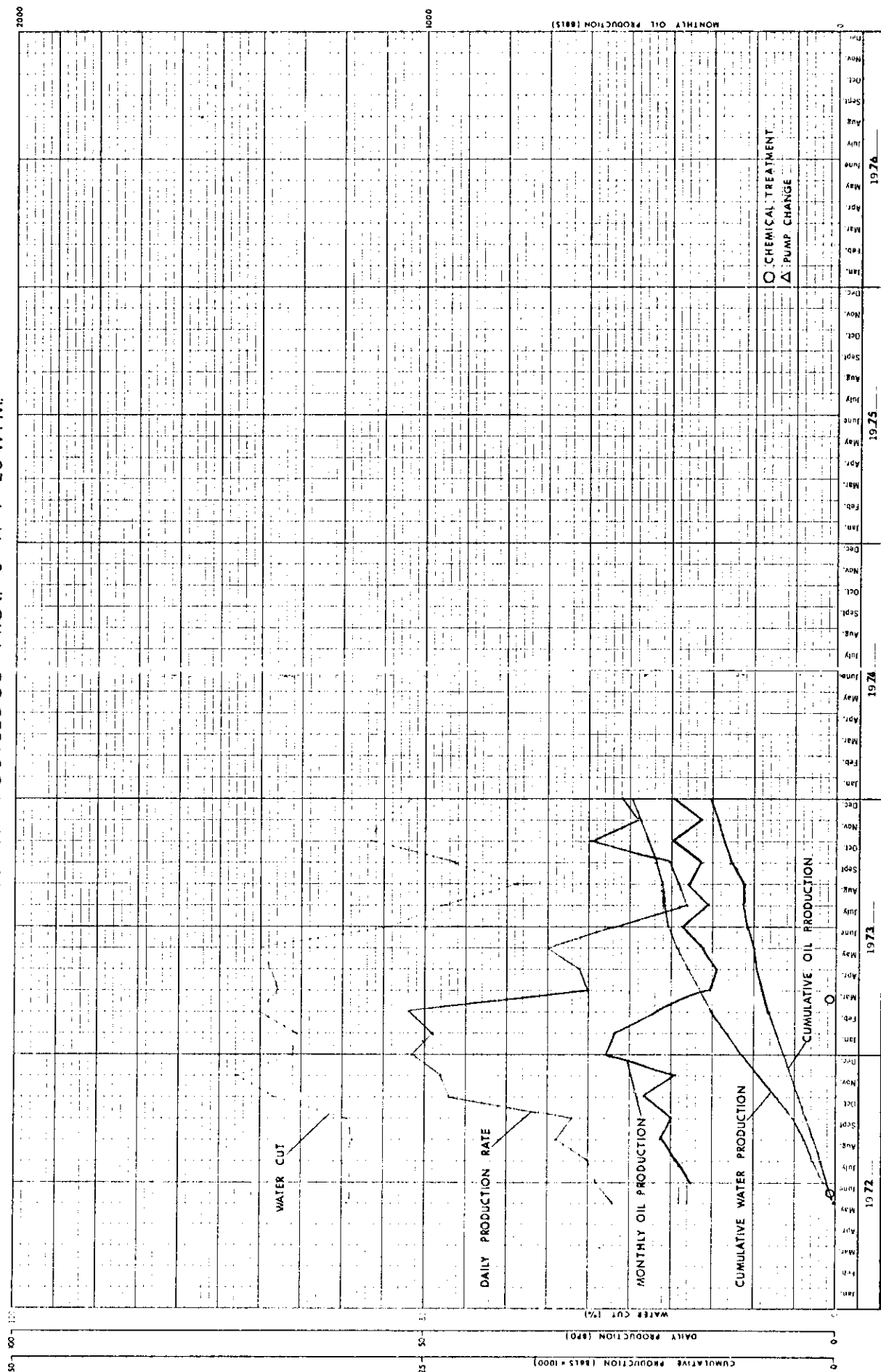


FIGURE 8

SAMEDAN ROUTLEDGE PROV. 11-11-9-25WPM.



FIGURE 9

SAMEDAN ROUTLEDGE PROV. 13-11-9-25WPM.

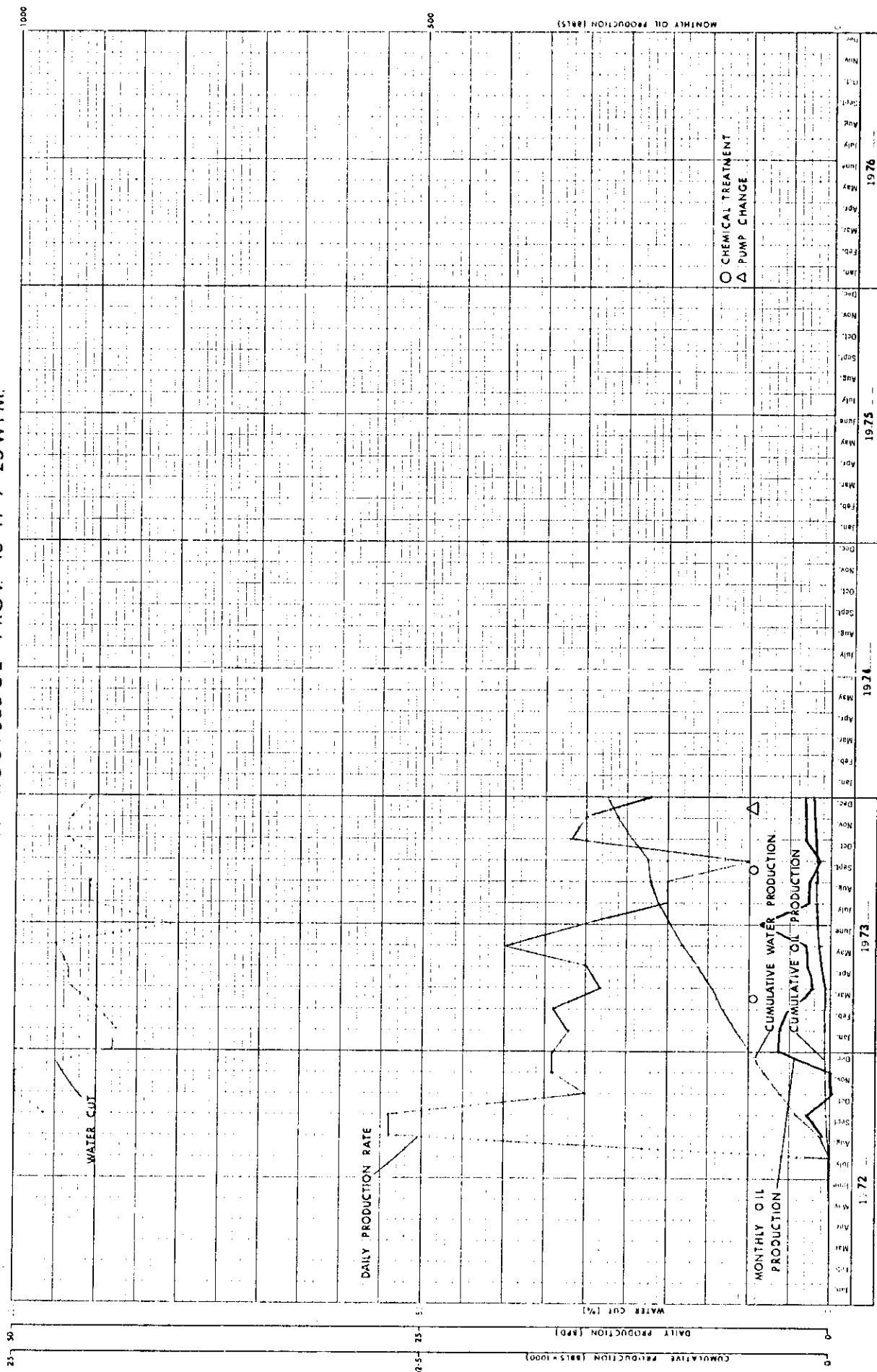


FIGURE 10

SAMEDAN ROUTLEDGE PROV 15-11-9-25 WPM

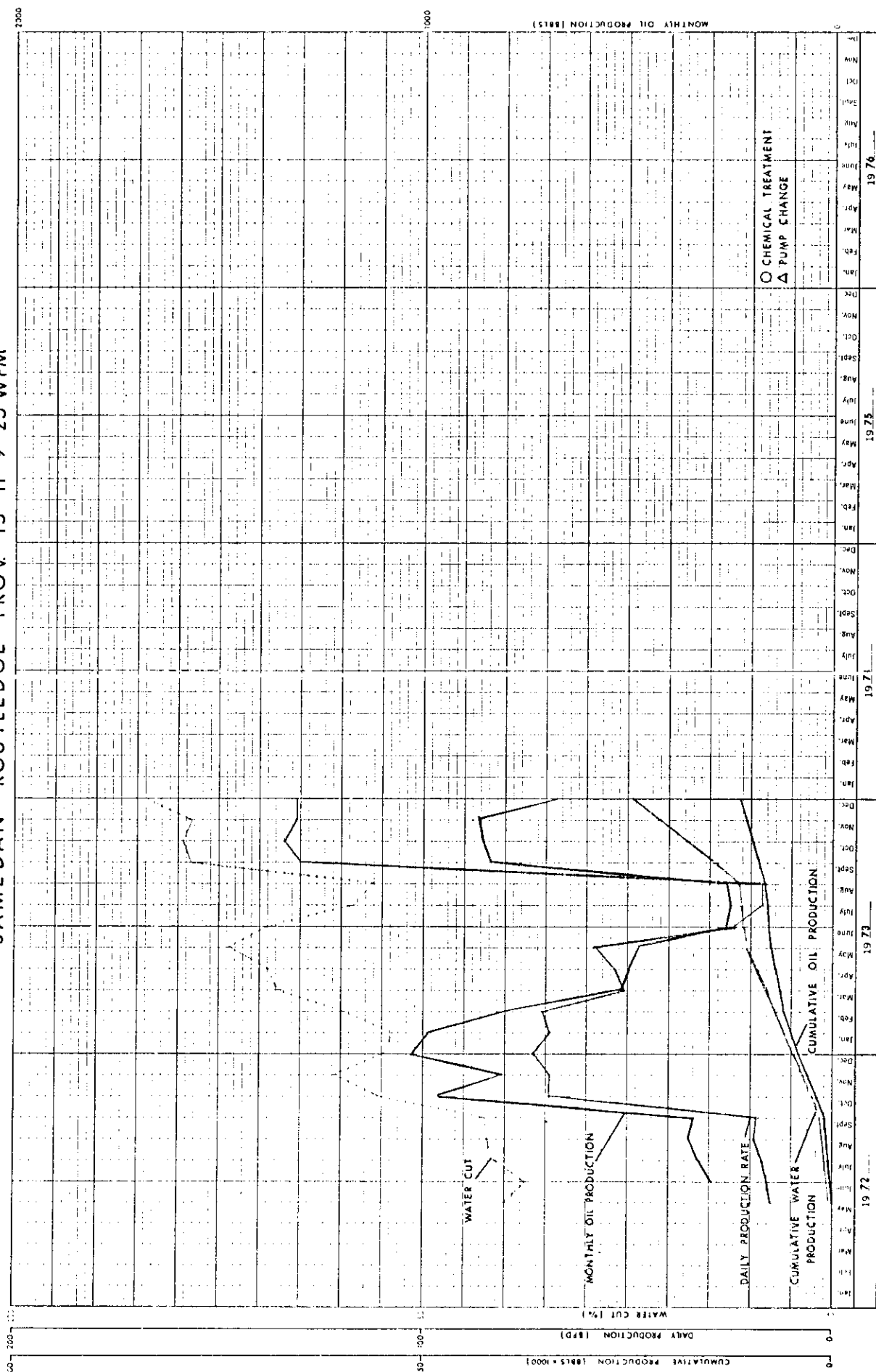


FIGURE 11

SAMEDAN ROUTLEDGE PROV. 3-14-9-25WPM.

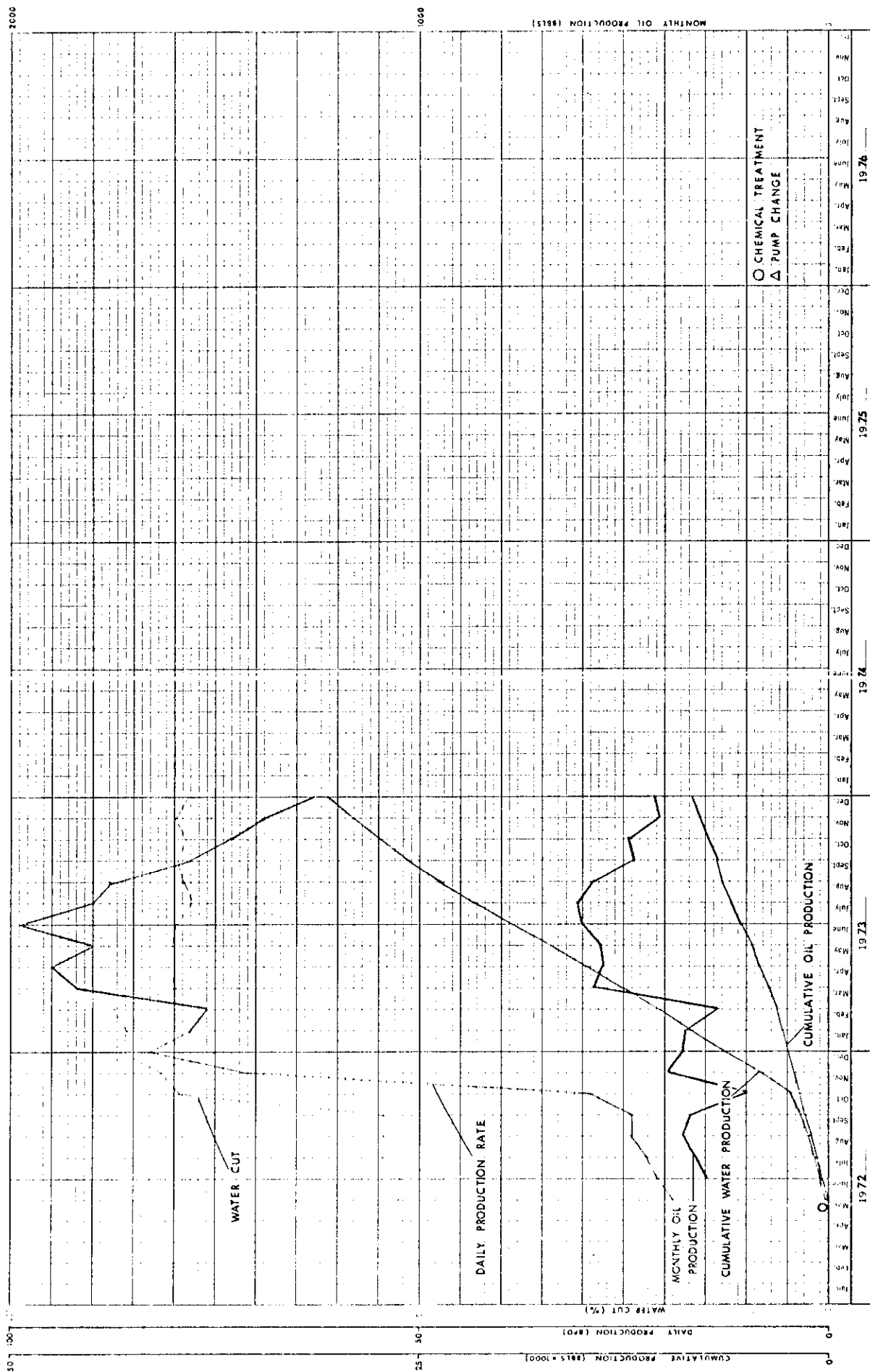


FIGURE 12

SAMEDAN ROUTLEDGE 5-12-9-25WPM.

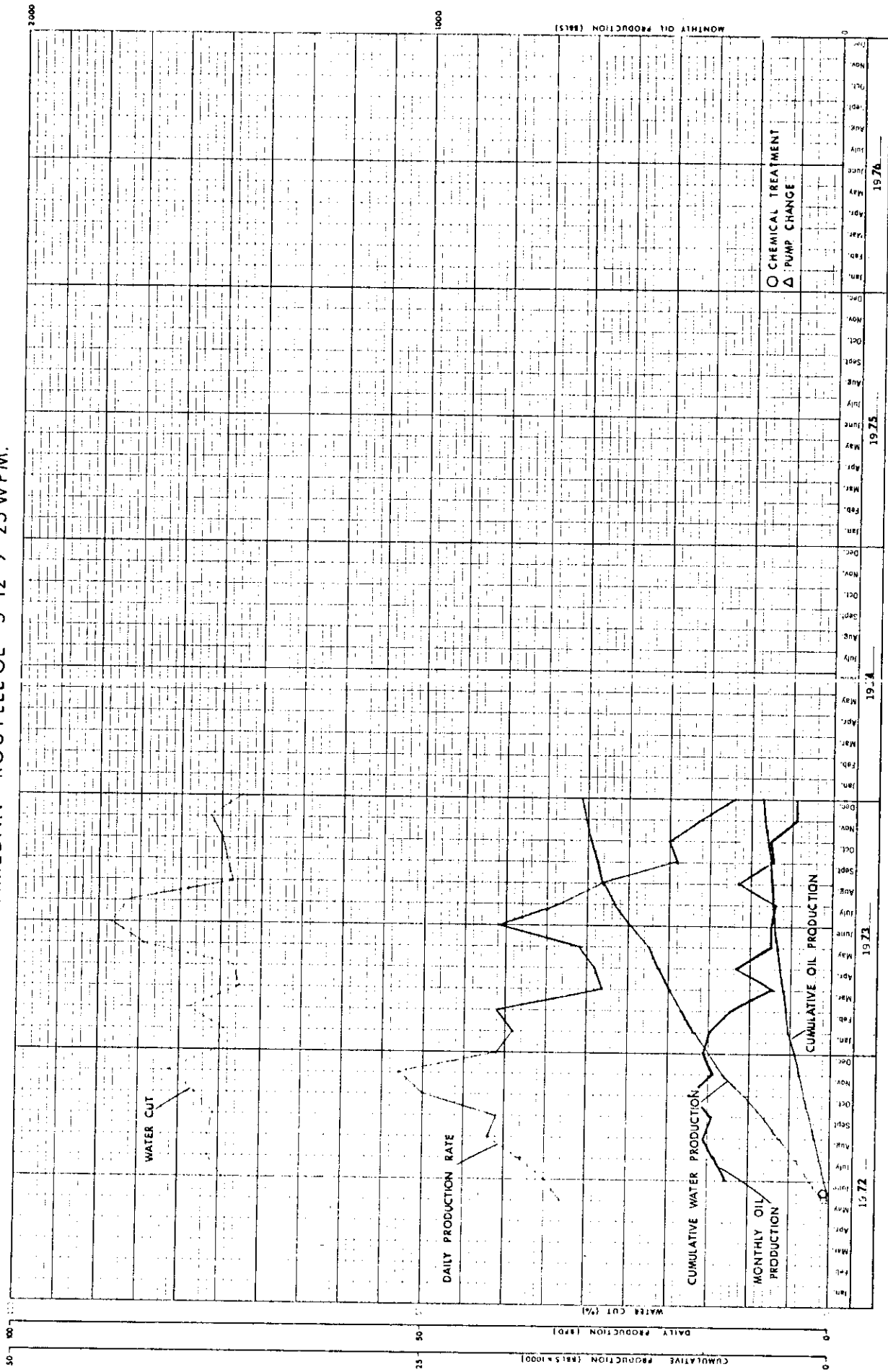


FIGURE 13

SAMEDAN ROUTLEDGE 5-13-9-25 WPM.

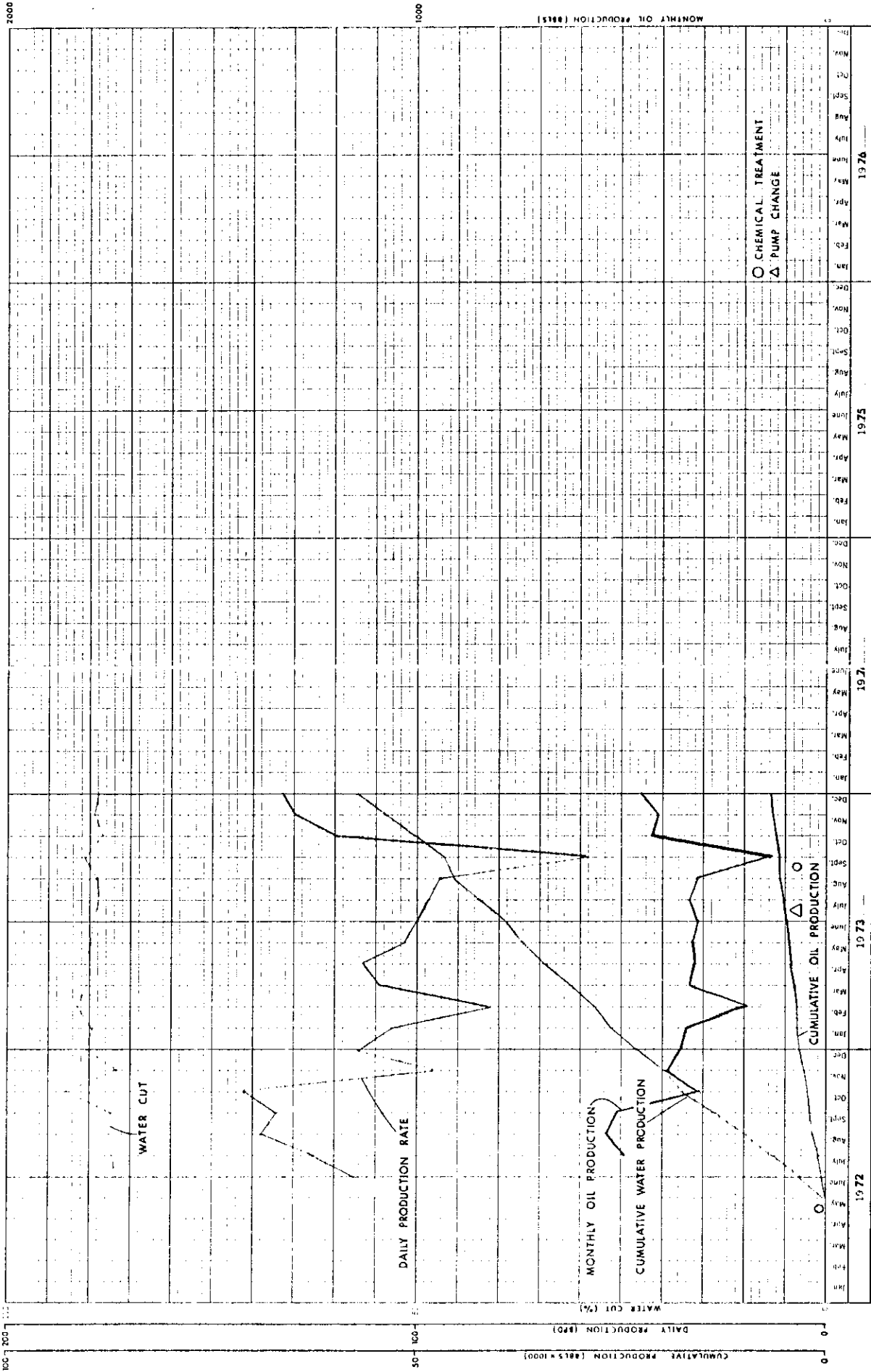


FIGURE 14

SAMEDAN ROUTLEDGE 1-10-9-25WPM.

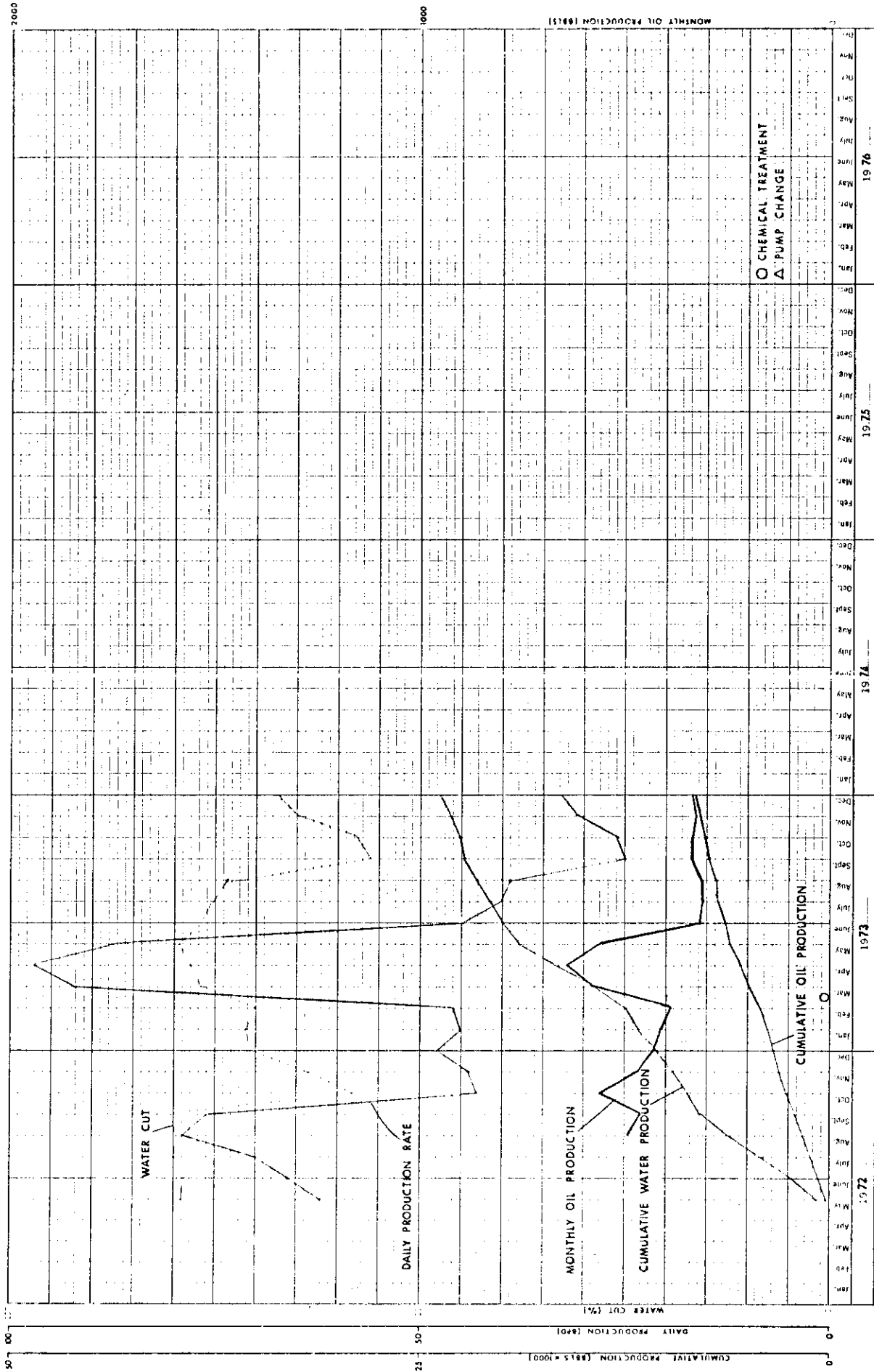


FIGURE 15

SAMEDAN ROUTLEDGE 8-10-9-25 WPM.

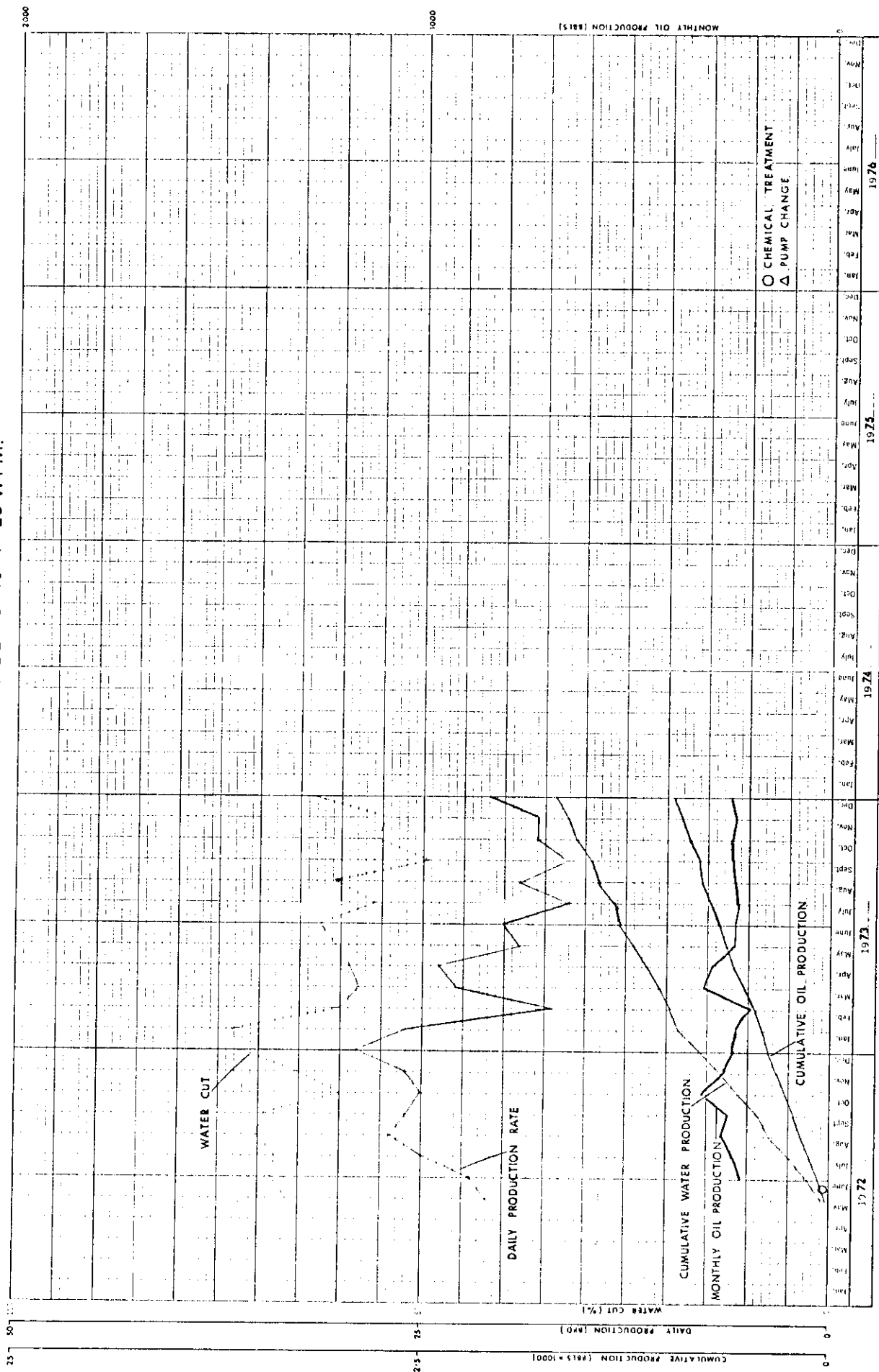


FIGURE 16

SAMEDAN ROUTLEDGE 9-10-9-25WPM.

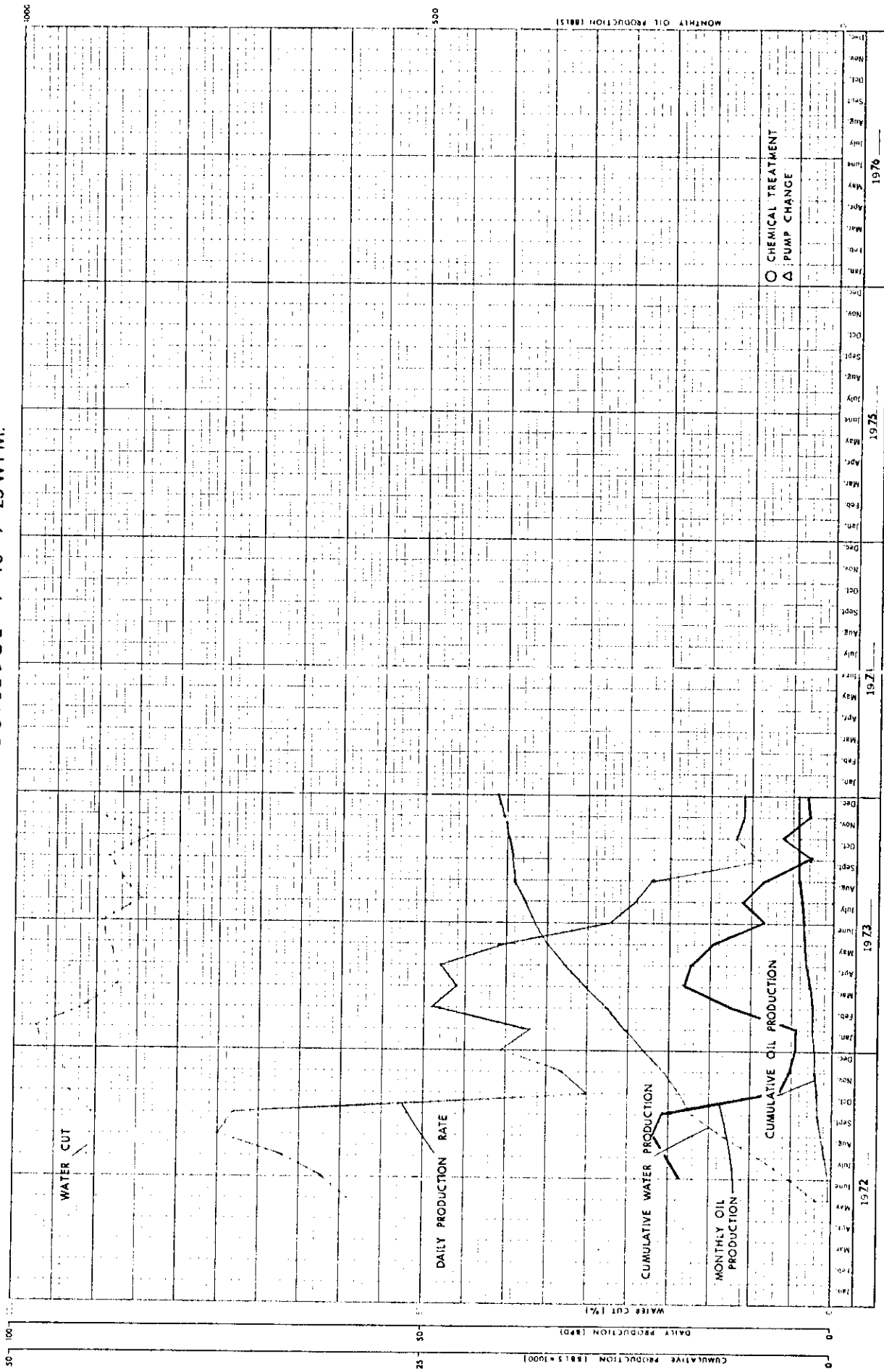


FIGURE 17

SAMEDAN ROUTLEDGE 1-14-9-25 WPM.

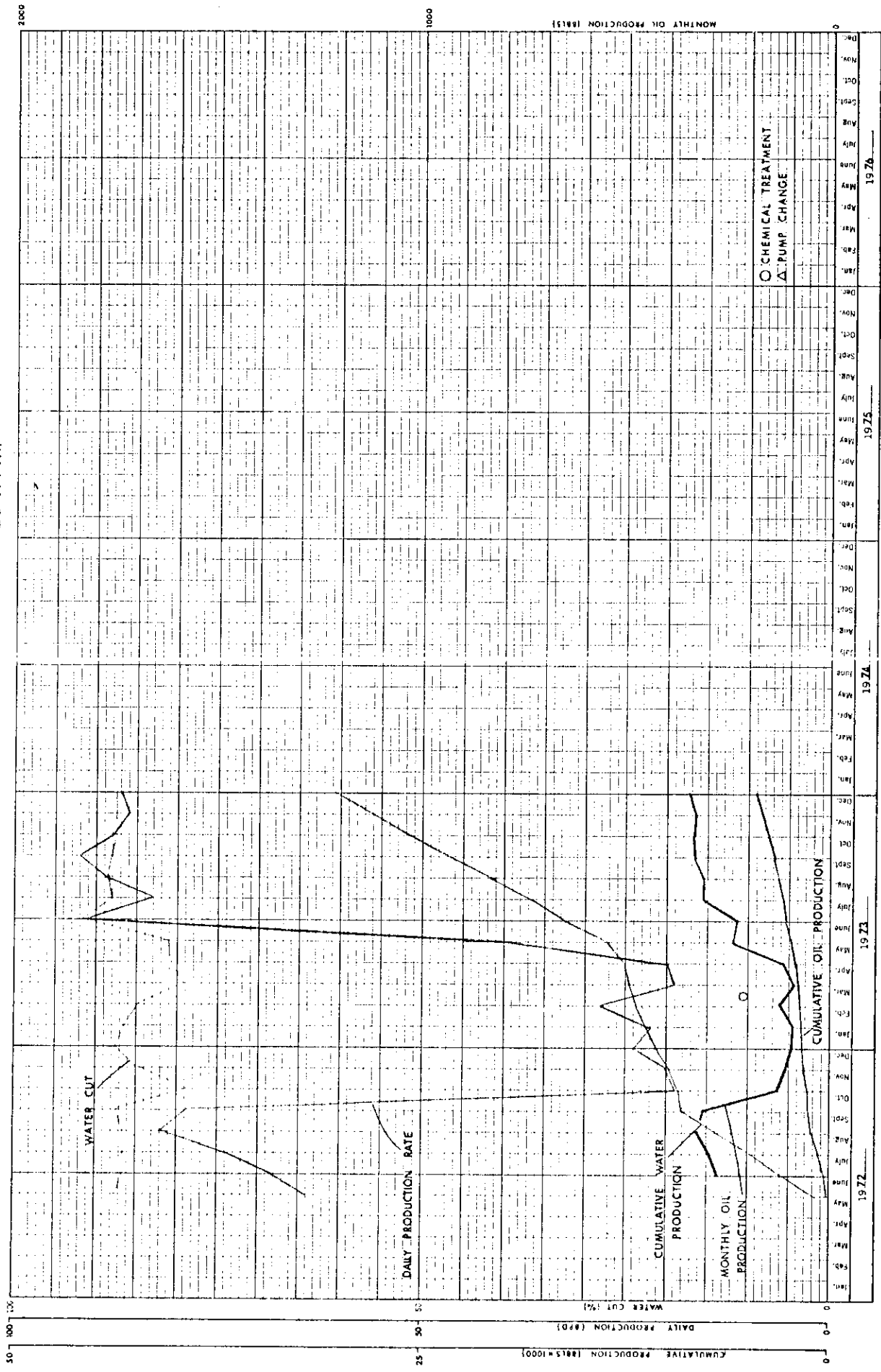


FIGURE 18

SAMEDAN ROUTLEDGE 2-14-9-25 WPM.

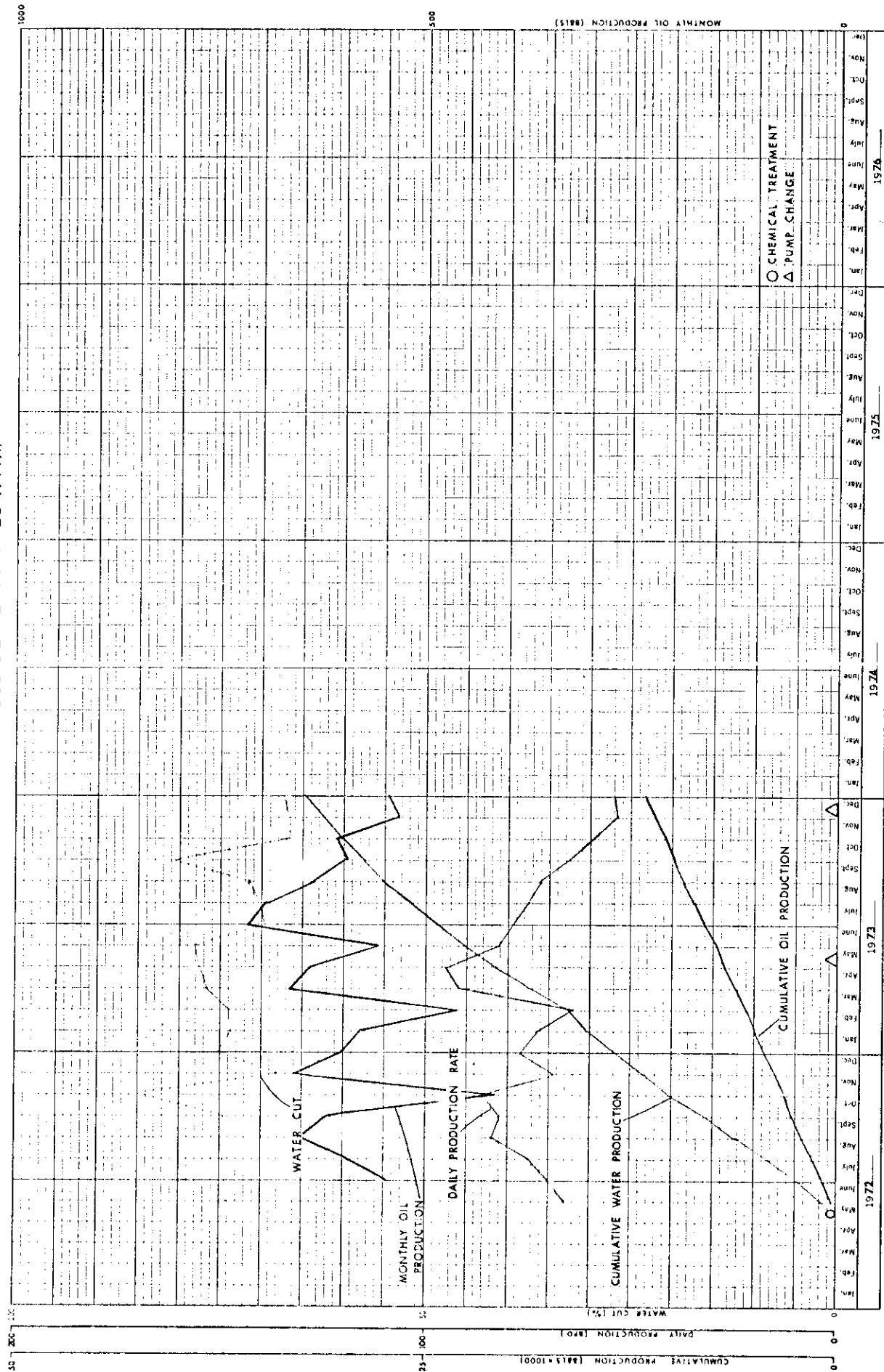


FIGURE 19

SAMEDAN ROUTLEDGE 7-14-9-25WPM.

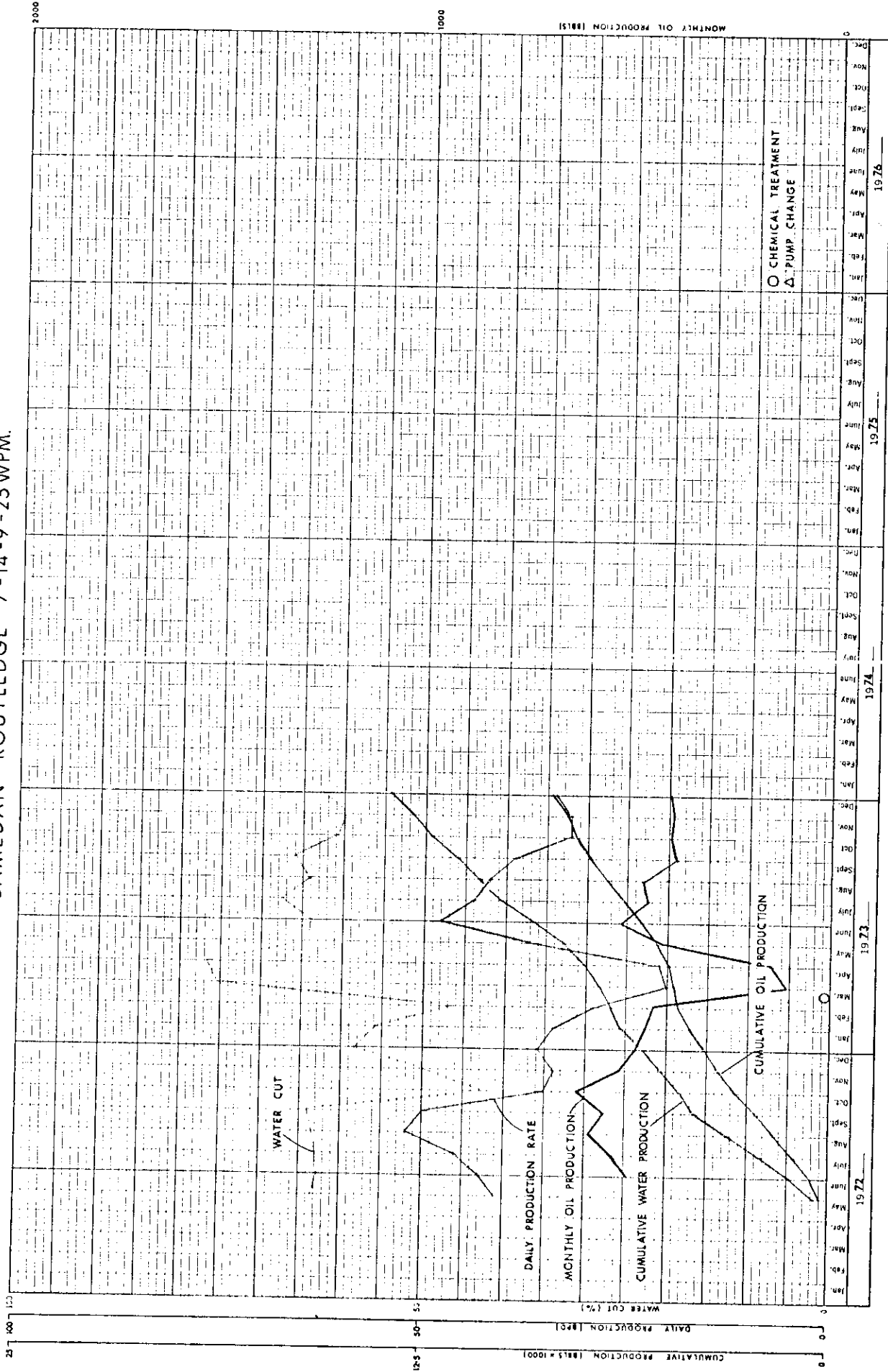


FIGURE 20

SAMEDAN ROUTLEDGE 8-14-9-25 WPM.

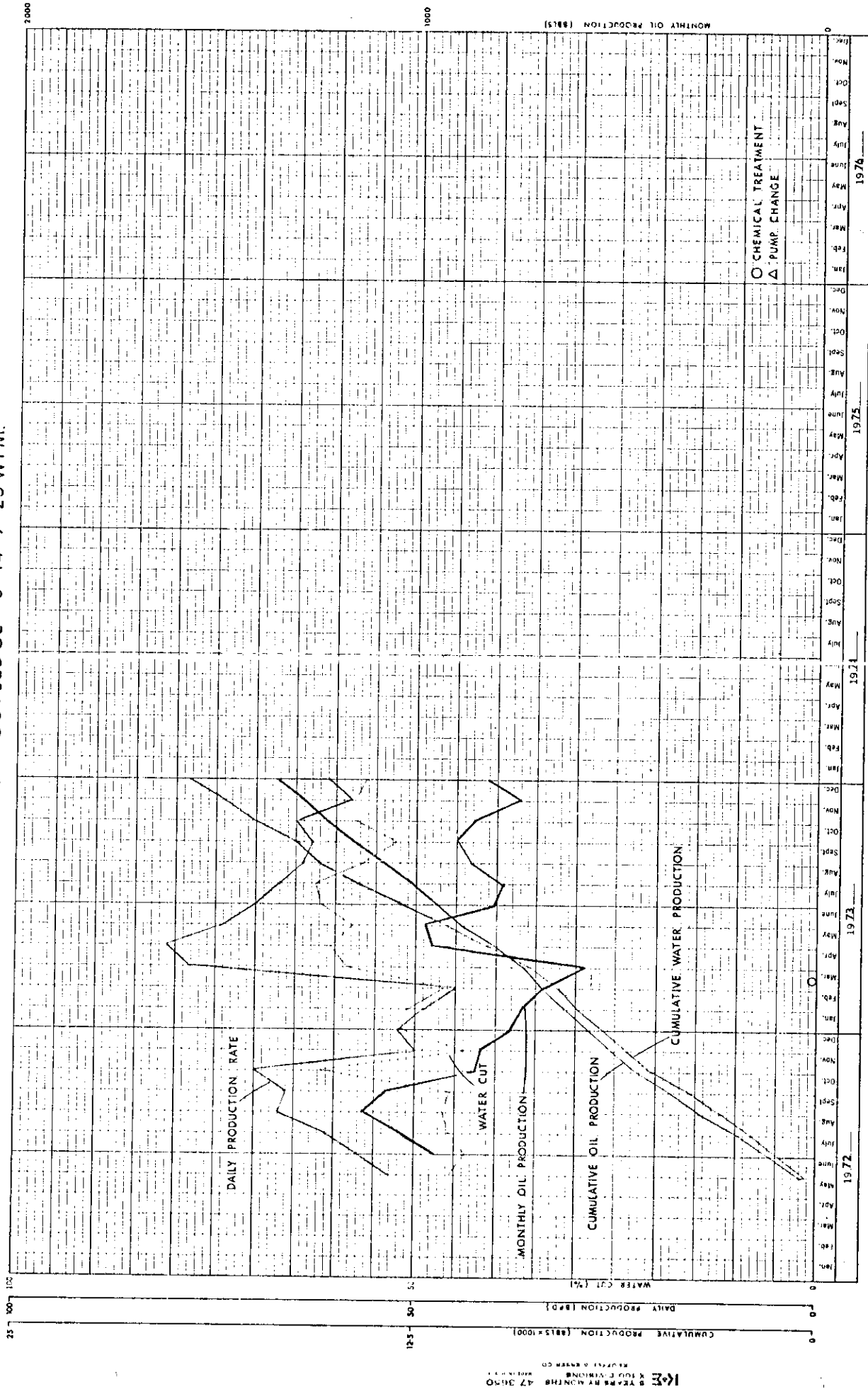


FIGURE 21

SAMEDAN ROUTLEDGE 9-14-9-25 WPM.

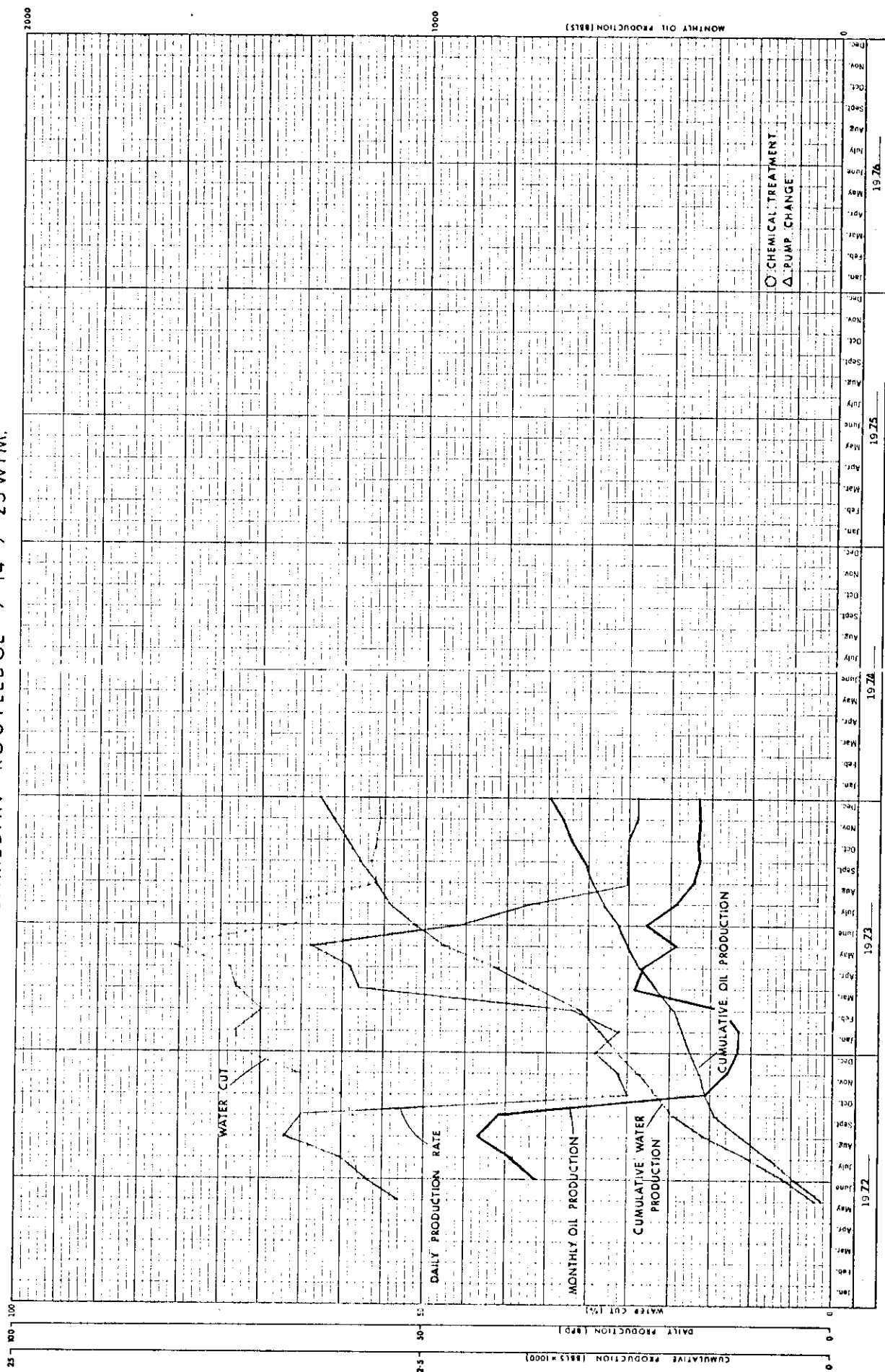


FIGURE 22

SAMEDAN ROUTLEDGE 10-14-9-25WPM.

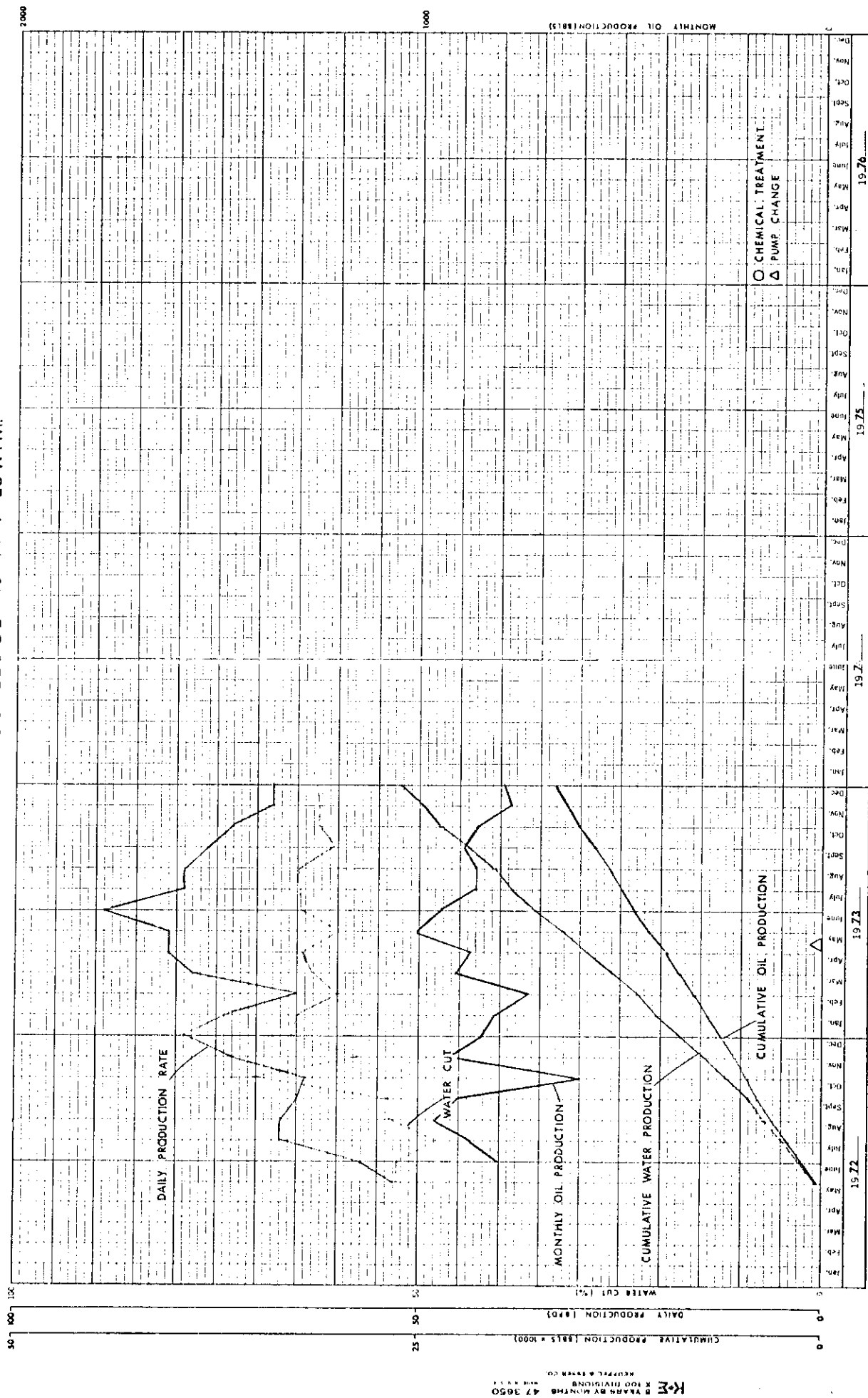


FIGURE 23

SAMEDAN ROUTLEDGE 11-14-9-25 WPM.

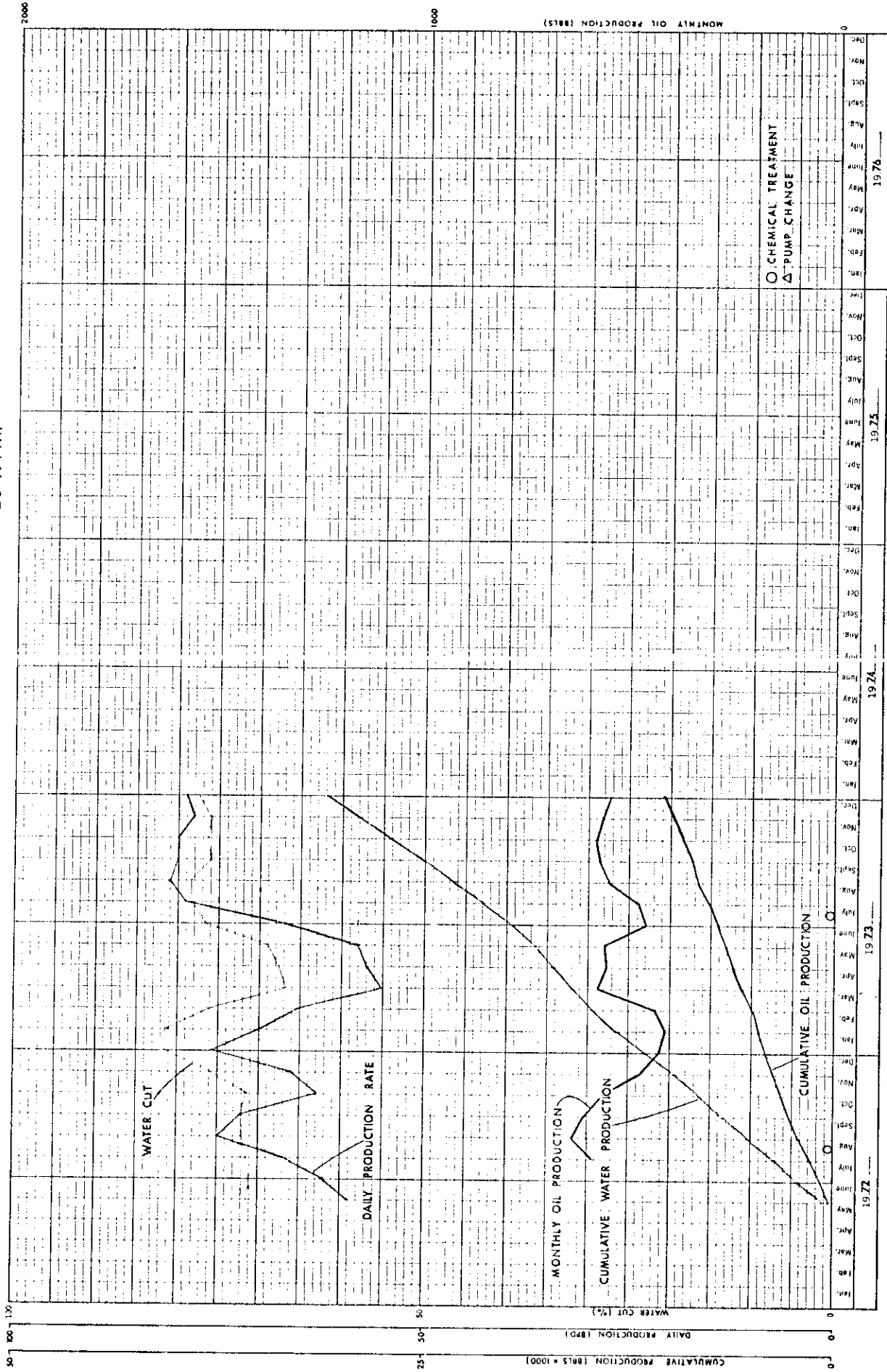


FIGURE 24

SAMEDAN ROUTLEDGE PROV. 2-11-9-25 WPM.

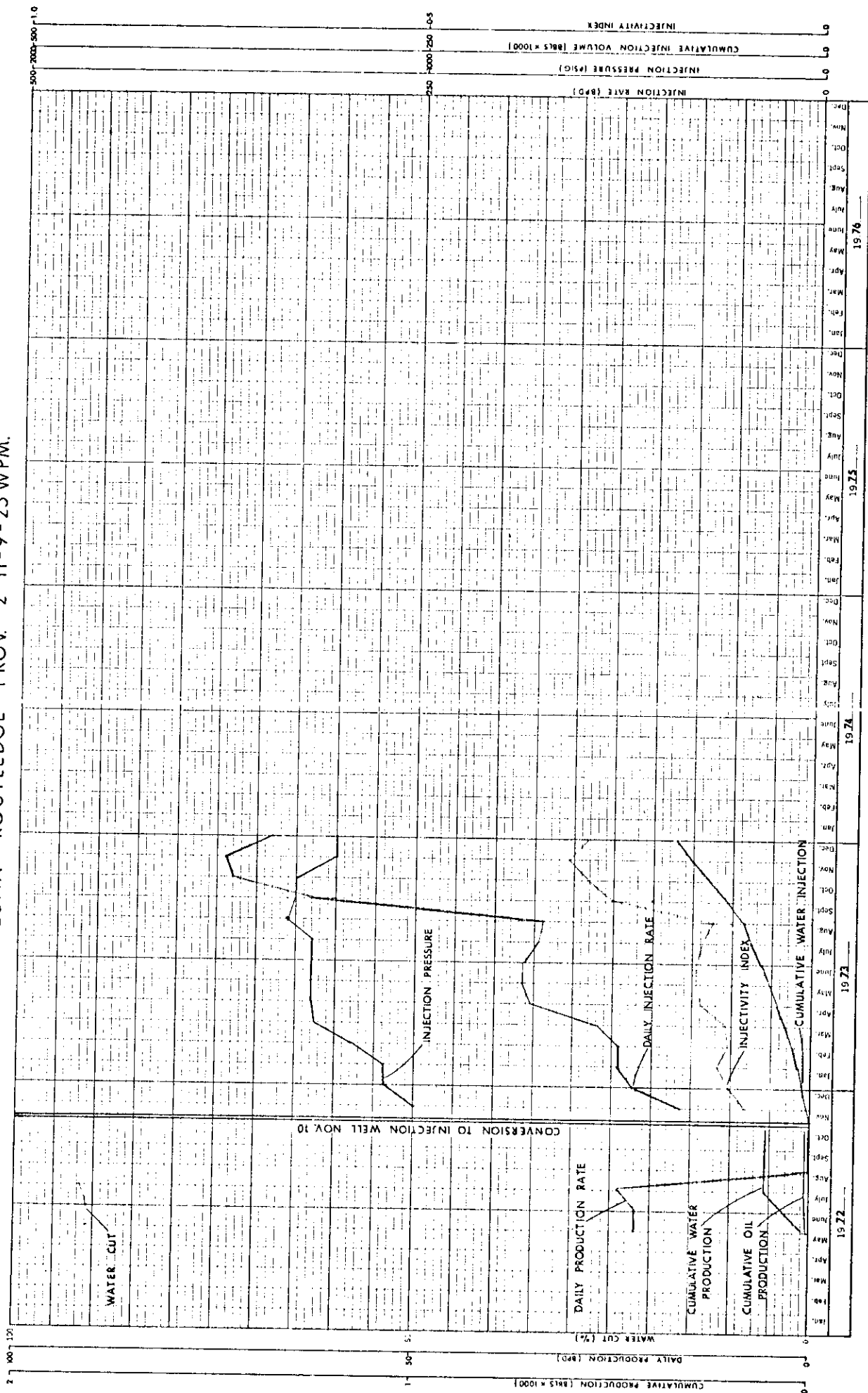


FIGURE 25

SAMEDAN ROUTLEDGE PROV. 10-11-9-25WPM.

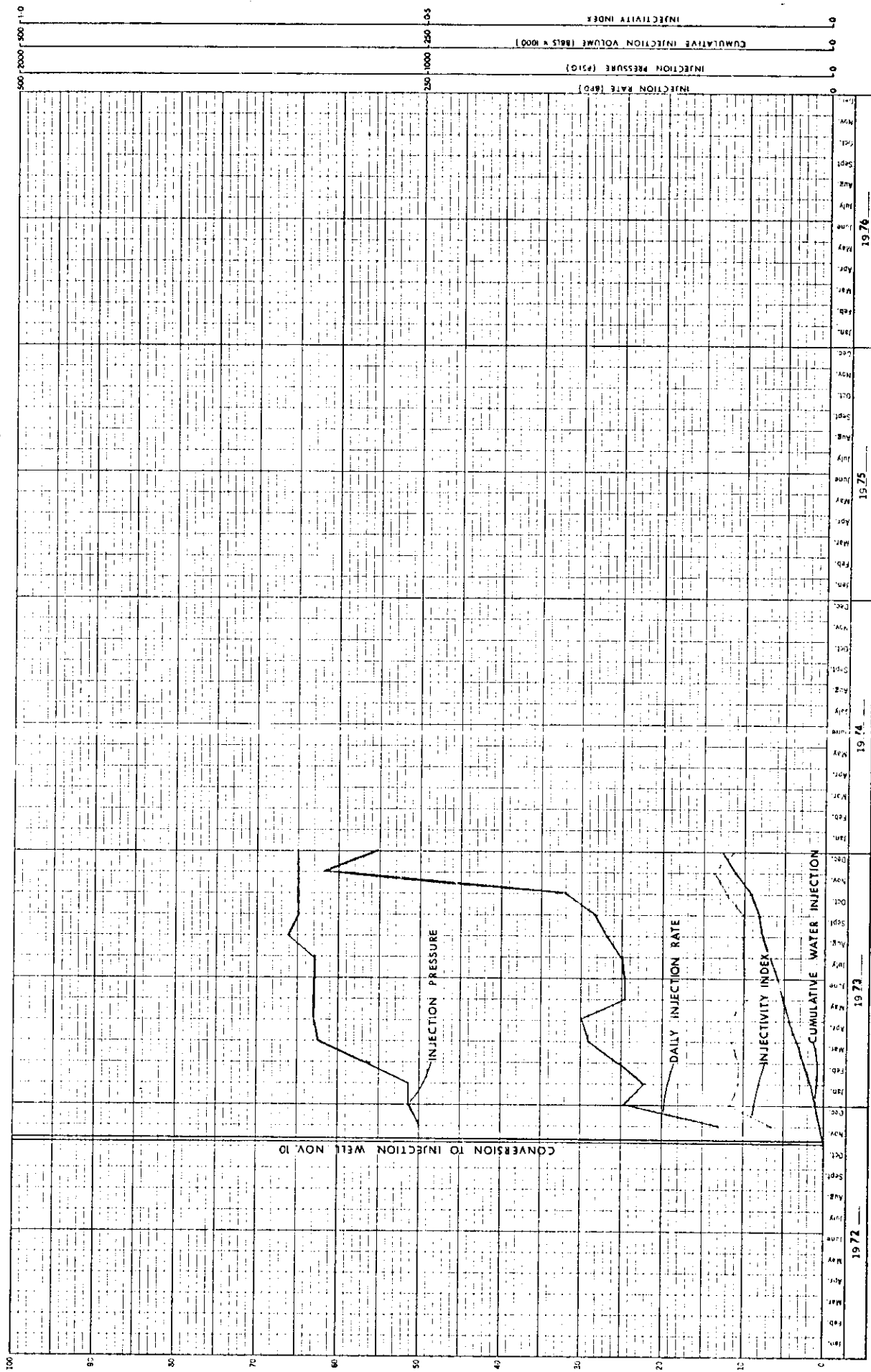


FIGURE 26

SAMEDAN ROUTLEDGE PROV. 12-11-9-25WPM.

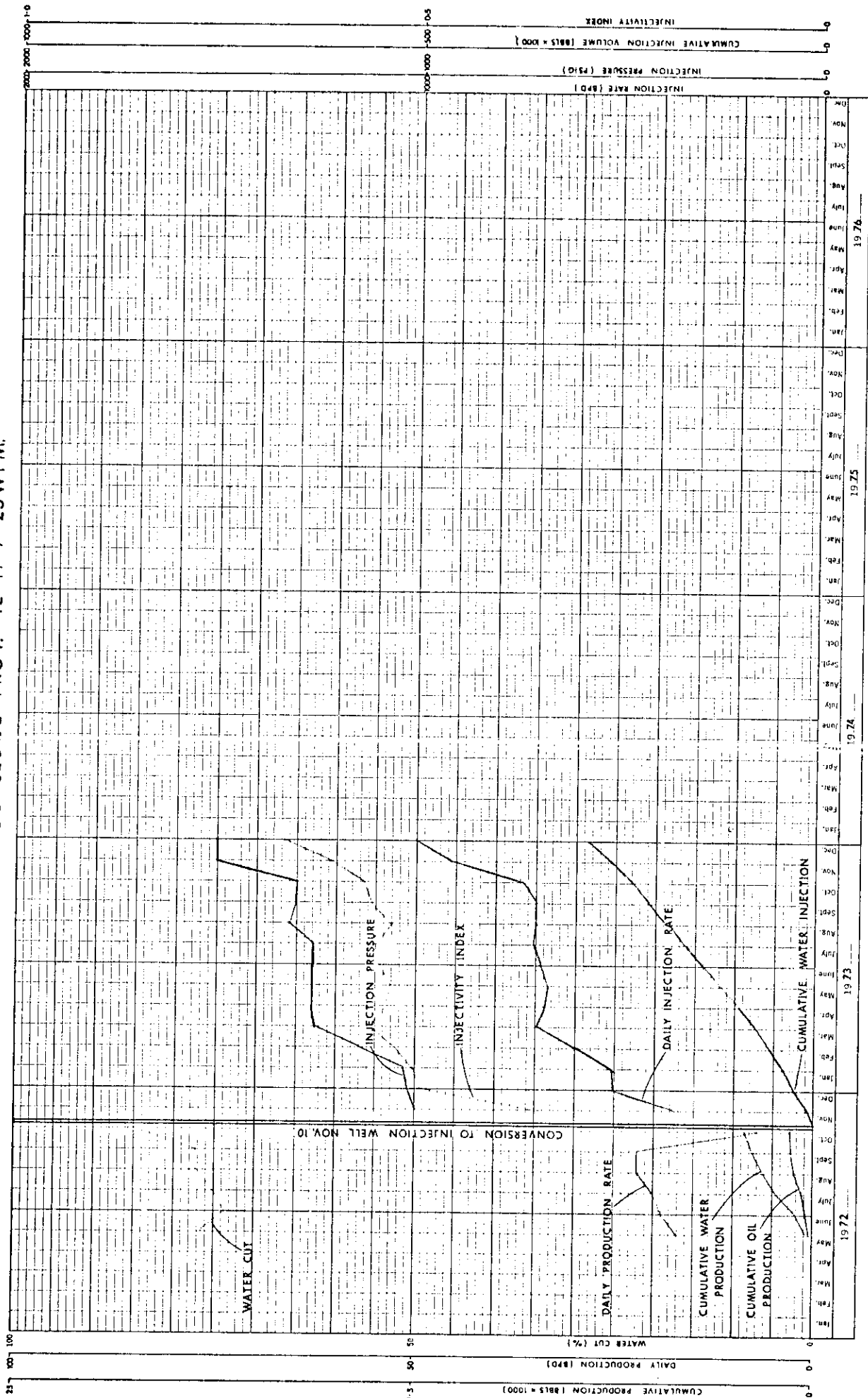


FIGURE 27

SAMEDAN ROUTLEDGE PROV. 14-11-9-25WPM.

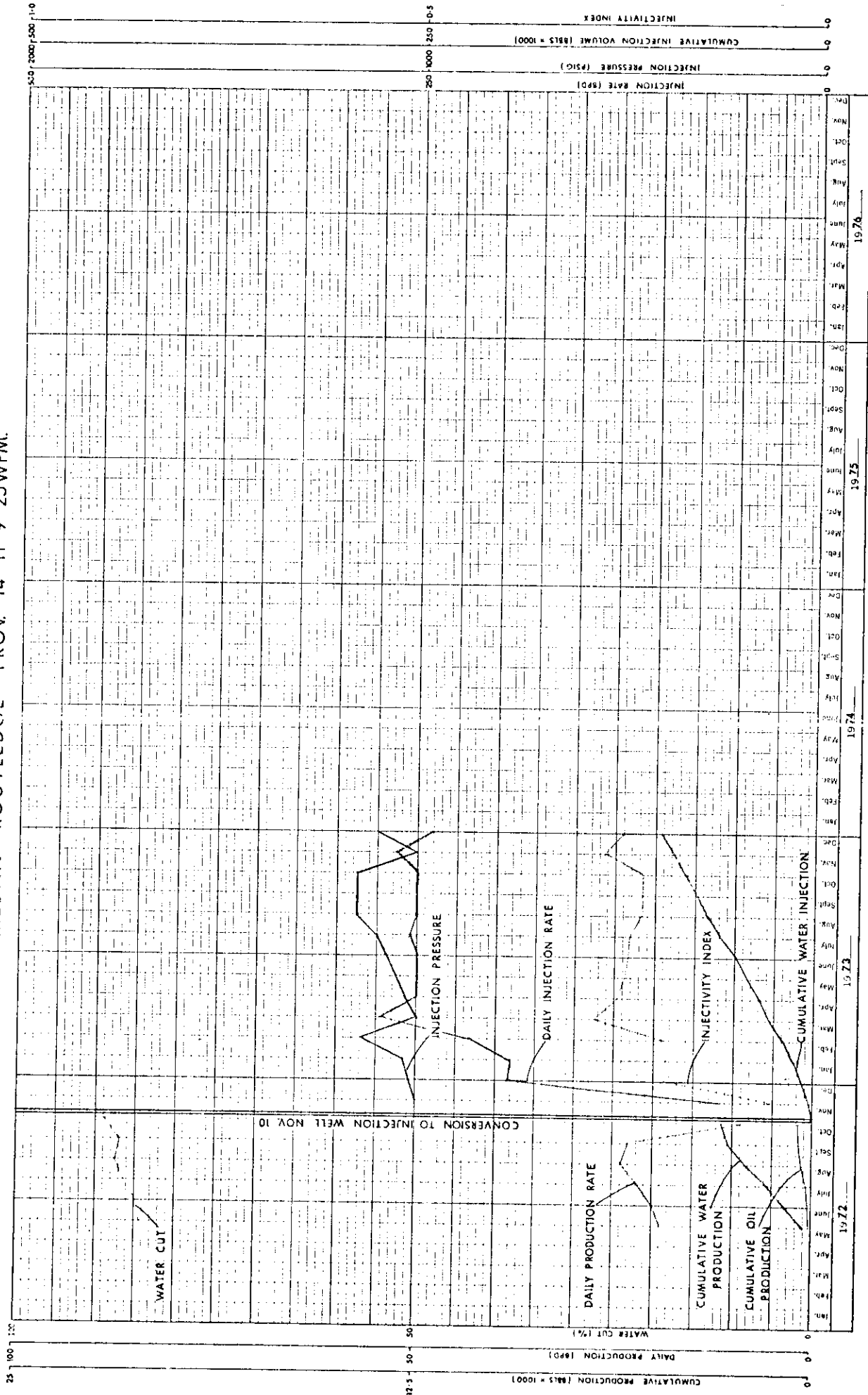


FIGURE 28

SAMEDAN ROUTLEDGE PROV. 6-14-9-25 WPM.

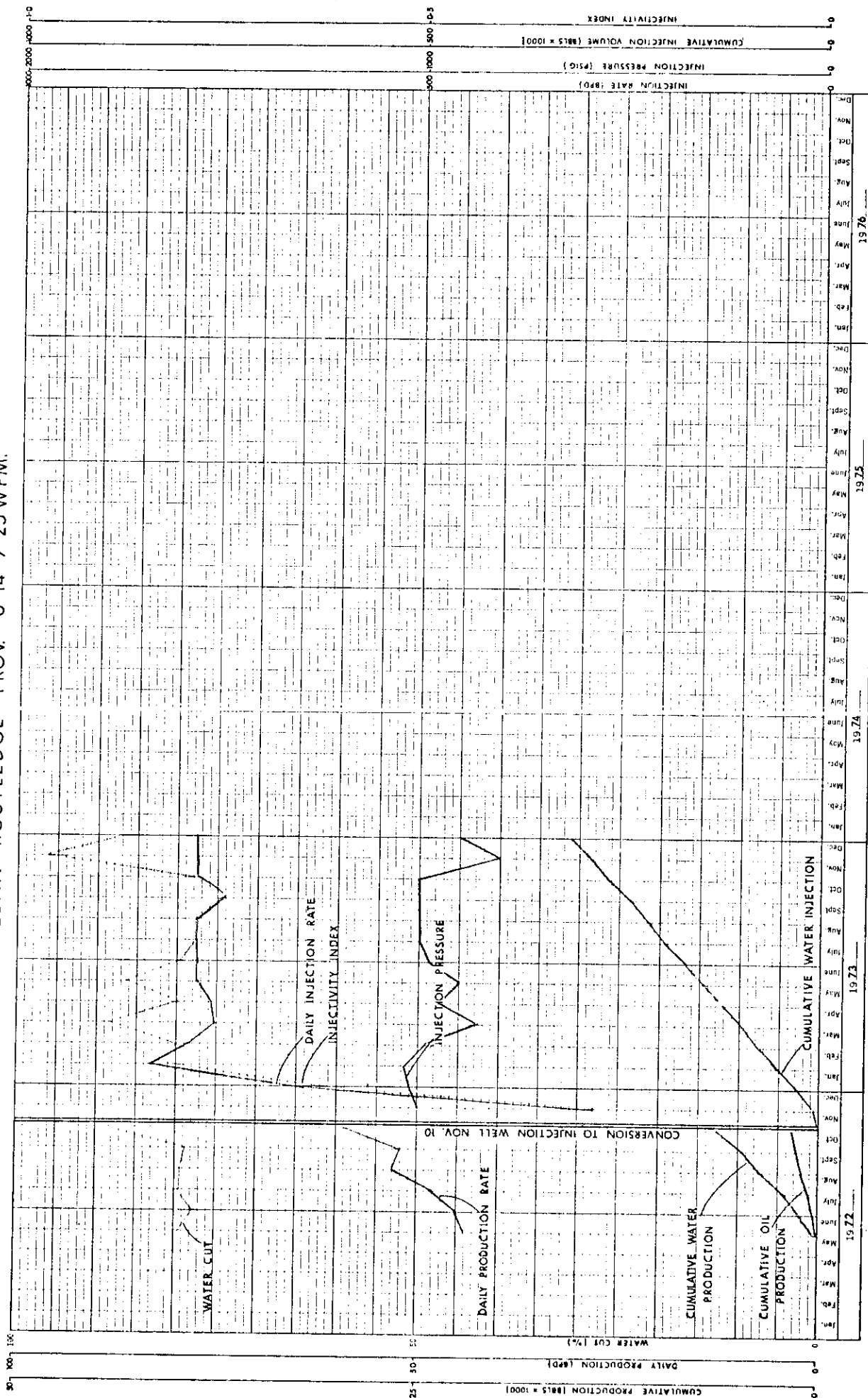


FIGURE 29

EAST ROUTLEDGE UNIT NO. 1

WORKING INTEREST OWNERS

ADDRESS LIST

Bueno Oils, Ltd.
Post Office Box 150
Calgary 1, Alberta (1)

Bueno Oils, Ltd.
Post Office Box 1321
Midland, Texas 79701
Attention: Mr. Lloyd Ugland (1)

Canadian Reserve Oil and Gas Ltd.
1600 - 639 Fifth Avenue S. W.
Calgary, Alberta
Attention: Mr. G. Czeman (2)

Chevron Standard Limited
400 - 5th. Avenue S. W.
Calgary, Alberta
Attention: Mr. Allan Hamberg,
Information Centre (5)

Mr. Joseph H. Hirshhorn
Suite 1601
8 King Street East
Toronto 1, Ontario (1)

Prairie Oil Royalties Company, Ltd.
640 - 8th. Avenue S. W.
Calgary, Alberta
Attention: Mr. V. F. Maxwell (2)

Ranchmen's Minerals Ltd.
6th. Floor,
630 - 6th. Avenue S. W.
Calgary, Alberta
Attention: Mr. A. G. Savage (1)

Samedan Oil Corporation
P. O. Box 909
Ardmore, Oklahoma 73401
Attention: Mr. H. Leon Veeder (1)

Samedan Oil of Canada, Inc.
730 Elveden House
717 - 7th. Avenue S. W.
Calgary, Alberta
Attention: Mr. Fred W. Kelly (1)

United Reef Petroleum Ltd.
Suite 1601
8 King Street East
Toronto 1, Ontario
Attention: Mr. John S. Adams (1)

TABLE 2

CALCULATED FLOOD FRONT - AUGUST 1, 1973

<u>LOCATION</u>	<u>CUMULATIVE INJECTION VOLUME (BBLs.)</u>	<u>CALCULATED FLOOD FRONT (Feet from Wellbore)</u>
2-11-9-25	38530	80
10-11-9-25	33308	74
12-11-9-25	161984	116
14-44-9-25	58493	104
6-14-9-25	192374	153

TABLE 3

JOB TYPE - SANDWATER FRACTURING PROCESS

SATEDAN 2-11

WATER

INJECTION RATE - BBL/MIN	0.2
ASSUMED FRACTURE HEIGHT - FT	14.0
NET FORMATION THICKNESS - FT	14.0
ELASTIC MODULUS - PSI	0.40E+07
FORMATION PERMEABILITY - MD	43.40
FORMATION POROSITY	0.13
EHFP - PSI	2170.
RESERVOIR PRESSURE - PSI	978.
RESERVOIR FLUID VISC - CP	1.50

TYPE & CONC NO 1 PROP 40-60 SAND 0.00 LB/GAL AVG

DESIGN NO	PROD INCREASE (T) (M-S)	TOTAL VOL GAL/1000	PAD VOL FT	PROPPED FRAC LN FT	PROPPED FRAC HT FT	VIS CPS	FRAC WIDTH IN	PROP 1ST 2ND SX SX	
--------------	-------------------------------	--------------------------	------------------	--------------------------	--------------------------	------------	---------------------	--------------------------	--

DESIGN NO.	1 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	2 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	3 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	4 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	5 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	6 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	7 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	8 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	9 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	10 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP

[illegible]

JOB TYPE - SANDWATER FRACTURING PROCESS

SANEDAN 2-11

WATER

INJECTION RATE - BBL/MIN	1.0
ASSUMED FRACTURE HEIGHT - FT	14.0
NET FORMATION THICKNESS - FT	14.0
ELASTIC MODULUS - PSI	0.40E+07
FORMATION PERMEABILITY - MD	43.43
FORMATION POROSITY	0.14
CHIP - PSI	1575.
RESERVOIR PRESSURE - PSI	978.
RESERVOIR FLUID VIS - CP	5.60

TYPE & CONC NO 1 PROP	20-40 SAND	1.00 LB/GAL AVG
-----------------------	------------	-----------------

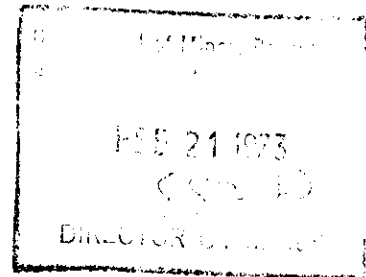
DESIGN NO	PROD INCREASE (T) (M-S)	TOTAL VOL GAL/1000	PAD VOL	PROPPED FRAC LN FT	PROPPED FRAC HT FT	VIS CPS	FRAC WIDTH IN	PROP 1ST SX	PROP 2ND SX
-----------	-------------------------	--------------------	---------	--------------------	--------------------	---------	---------------	-------------	-------------

DESIGN NO.	1 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	2 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	3 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	4 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	5 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	6 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	7 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	8 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	9 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP
DESIGN NO.	10 DELETED, PAD VOLUME > 50% - WIDTH TOO SMALL FOR PROP

CREATED LENGTH	H2O	RELATIVE CAP (T) (M-S)	HF/HI	C-EFF
0.	0.	0.	0.	0.003434
0.	0.	0.	0.	0.003434
0.	0.	0.	0.	0.003434
1.	0.	0.	0.	0.003434
1.	0.	0.	0.	0.003434
2.	0.	0.	0.	0.003434
2.	0.	0.	0.	0.003434
3.	0.	0.	0.	0.003434
4.	0.	0.	0.	0.003434
6.	0.	0.	0.	0.003434

SAMEDAN OIL OF CANADA, INC.

730 ELVEDEN HOUSE
CALGARY, ALBERTA
T2P 0Z3



February 19th, 1973

J. S. Roper
Director of Mines
901 Norquay Building
Winnipeg 1, Manitoba

Gentlemen:

Re: East Routledge Unit No. 1,
Manitoba, Canada.

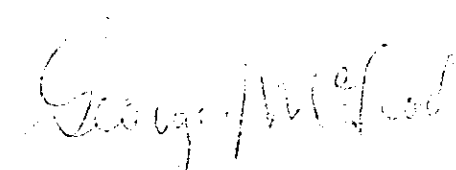
Enclosed is the following:

Report of production and injection
activities pertaining to the Pressure
Maintenance by Waterflooding Project
commencing on May 15th, 1972.

This report is being presented as requested by
Order No. PM 20, Pressure Maintenance Rule No. 8.

Yours truly,

SAMEDAN OIL OF CANADA, INC.


George J. McLeod
Vice President

jo.
encl.

E A S T R O U T L E D G E U N I T N O. 1.

PRESSURE MAINTENANCE

BY

WATER FLOOD REPORT

(1972 - 1973)

INDEX

	<u>PAGE</u>
I. OBJECT	1
II. CONCLUSIONS	1
DISCUSSION	
A. PRODUCTION	2
B. INJECTION	2
APPENDIX	

I.

OBJECT

The purpose of this report was to evaluate adequately the progress and performance of the pressure maintenance program which was effective May 15th, 1972 in the East Routledge Unit No. 1.

II.

CONCLUSIONS

1. East Routledge Unit No. 1 produced 88792 barrels of oil from May 15th, 1972 to Jan. 31st, 1973.
2. Water injection began Nov. 10th, 1972 in five wells. Cumulative injection to Jan. 31st, 1973 was 119635 barrels at pressures ranging from 1000 psig to 1075 psig.

DISCUSSION

A. PRODUCTION

The East Routledge Unit No. 1 produced 354917 barrels of fluid (88792 barrels of oil) from unitization on May 15th, 1972 to January 31st, 1973. These unit production quotes along with water cut and daily production values are summarized in Figure 1.

From the commencement of the pressure maintenance program, Figure 3 to Figure 24 illustrate graphically for each producing well

- a. the daily average rate during each month of oil production;
- b. the average water-cut during each month;
- c. the monthly cumulative oil and water production; and
- d. the date and type of any well treatment or workover.

B. INJECTION

Water injection began on Nov. 10th, 1972 in the wells

Samedan Routledge Prov. 2-11-9-25
Samedan Routledge Prov. 10-11-9-25
Samedan Routledge Prov. 12-11-9-25
Samedan Routledge Prov. 14-11-9-25
Samedan Routledge Prov. 6-14-9-25

To January 31st, 1973 cumulative water injection was 119635 barrels at pressures ranging from 1000 psig to 1075 psig as indicated in Figure 2.

Injection water was attained through one closed system fed by produced water from the Cherty Zone commingled with supplied water from LSD. 16, Sec. 17, Twp. 9, Rge. 25 WPM in West Routledge Unit No. 1. Since the supplied water was compatible with the produced water, treatment of the supplied water was not required.

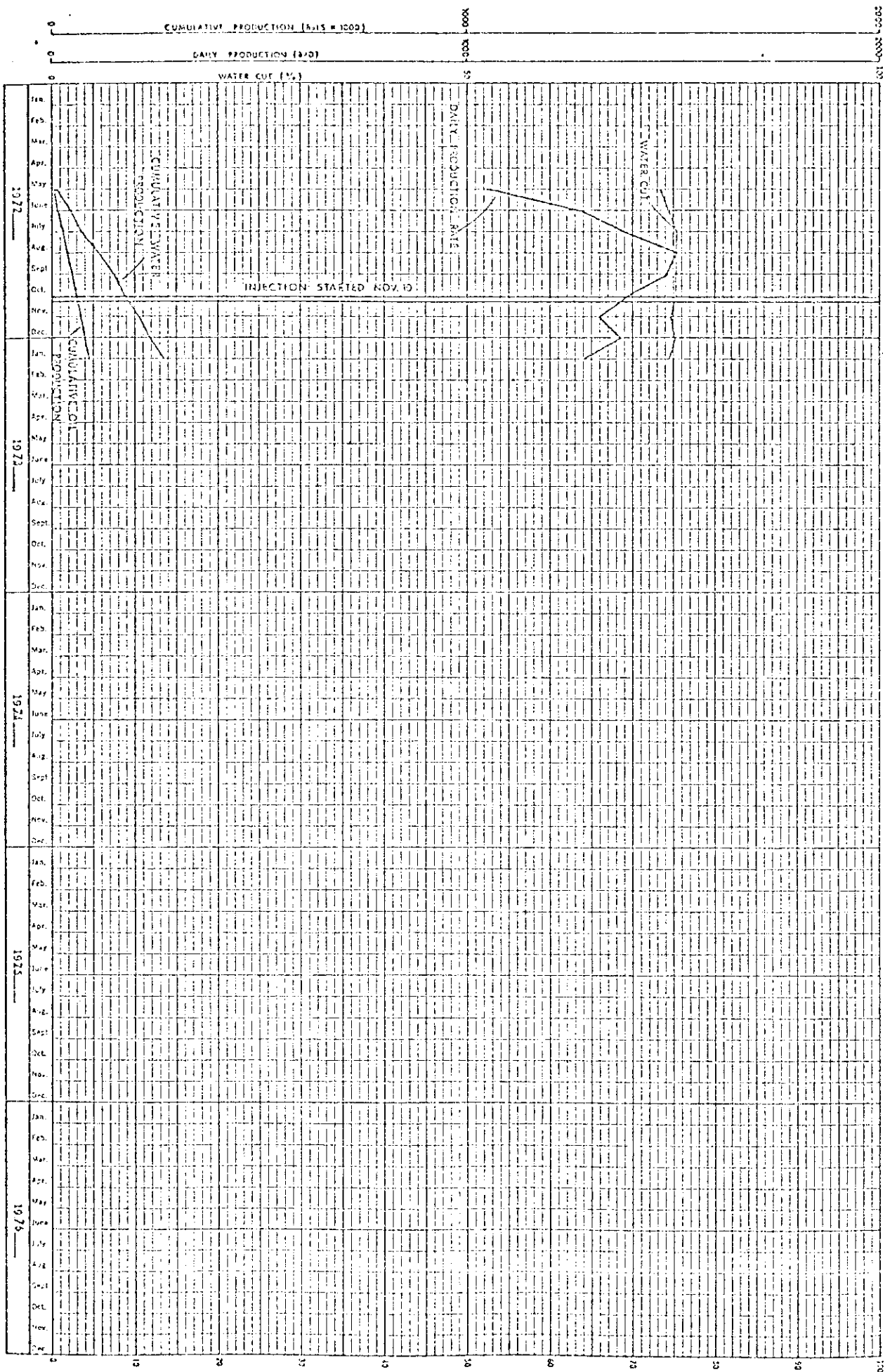
Injection wells are documented graphically in Figure 25 to Figure 29 to portray

- a. the daily average rate during each month of water injection;
- b. the daily average water injection pressure during each month;
- c. the monthly cumulative volume of water injected;
- d. the average injectivity index during each month; and
- e. the date and type of any well treatment or workover.

Water injection and fluid production rates applying to the Cherty Zone are balanced in Table I on a monthly basis for the East Routledge Unit No. 1.

TABLE I

	<u>Injection Volume (BBLs.)</u>	<u>Oil Production (BBLs.)</u>	<u>Water Production (BBLs.)</u>	<u>Total Production (BBLs.)</u>	<u>Difference (Production Base) (BBLs.)</u>
Nov.	15726	9912	29658	29570	-13808
Dec.	48652	10569	31940	42509	+6143
Jan.	55221	10192	29531	39723	+15498

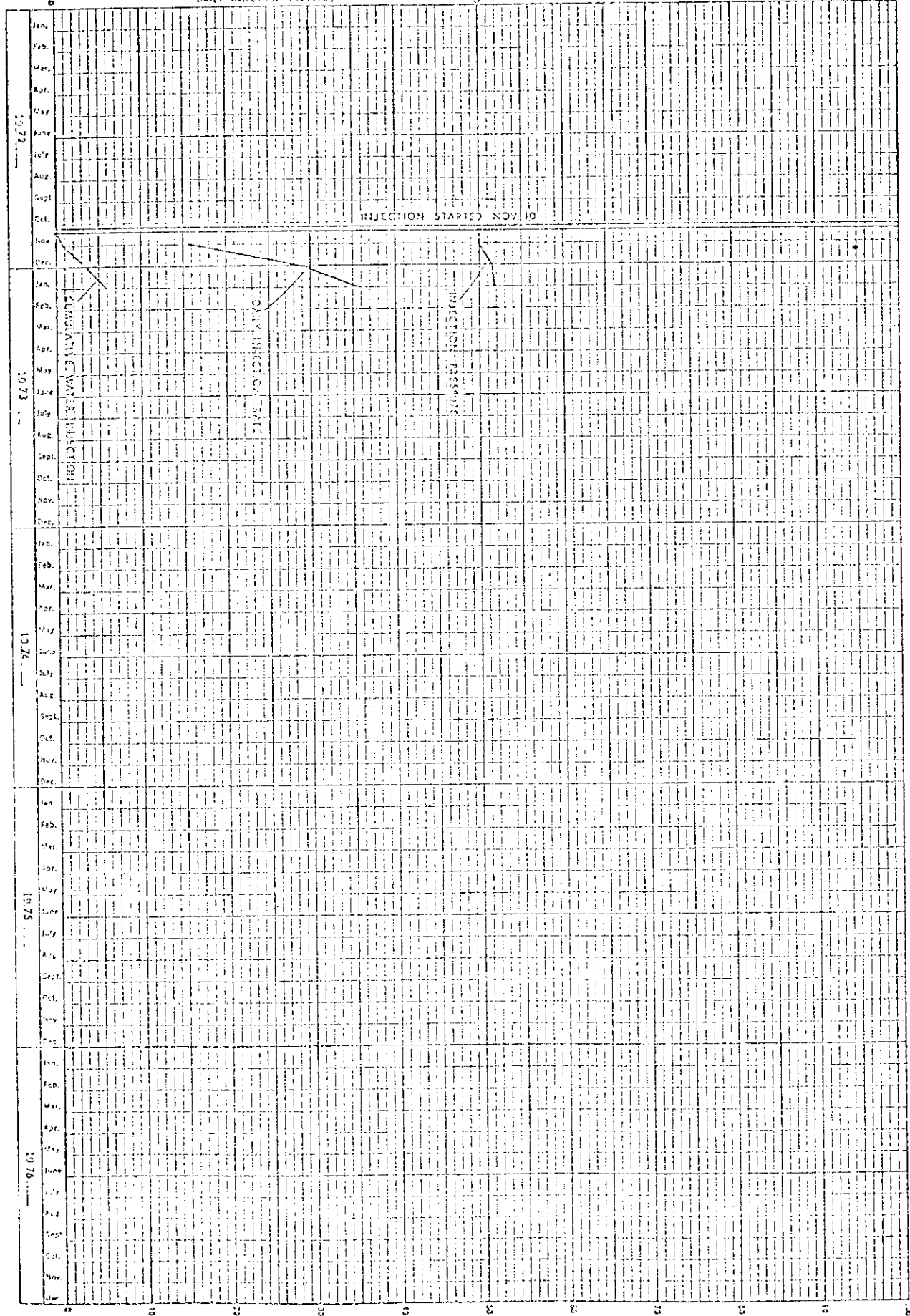


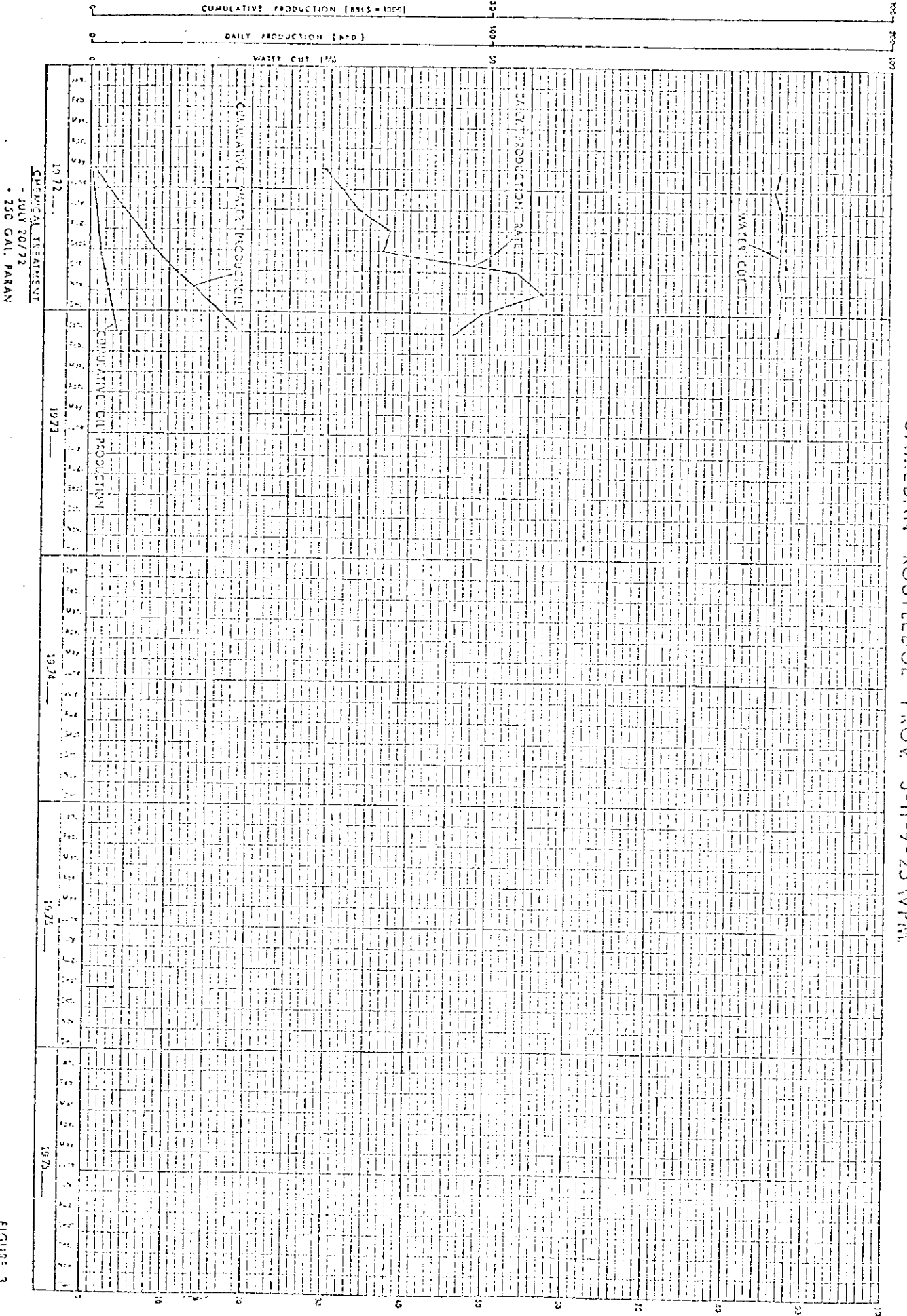
EAST ROUTLEDGE UNIT #1 - PRODUCTION

FIGURE 1

DAILY INJECTION DATE (B20)

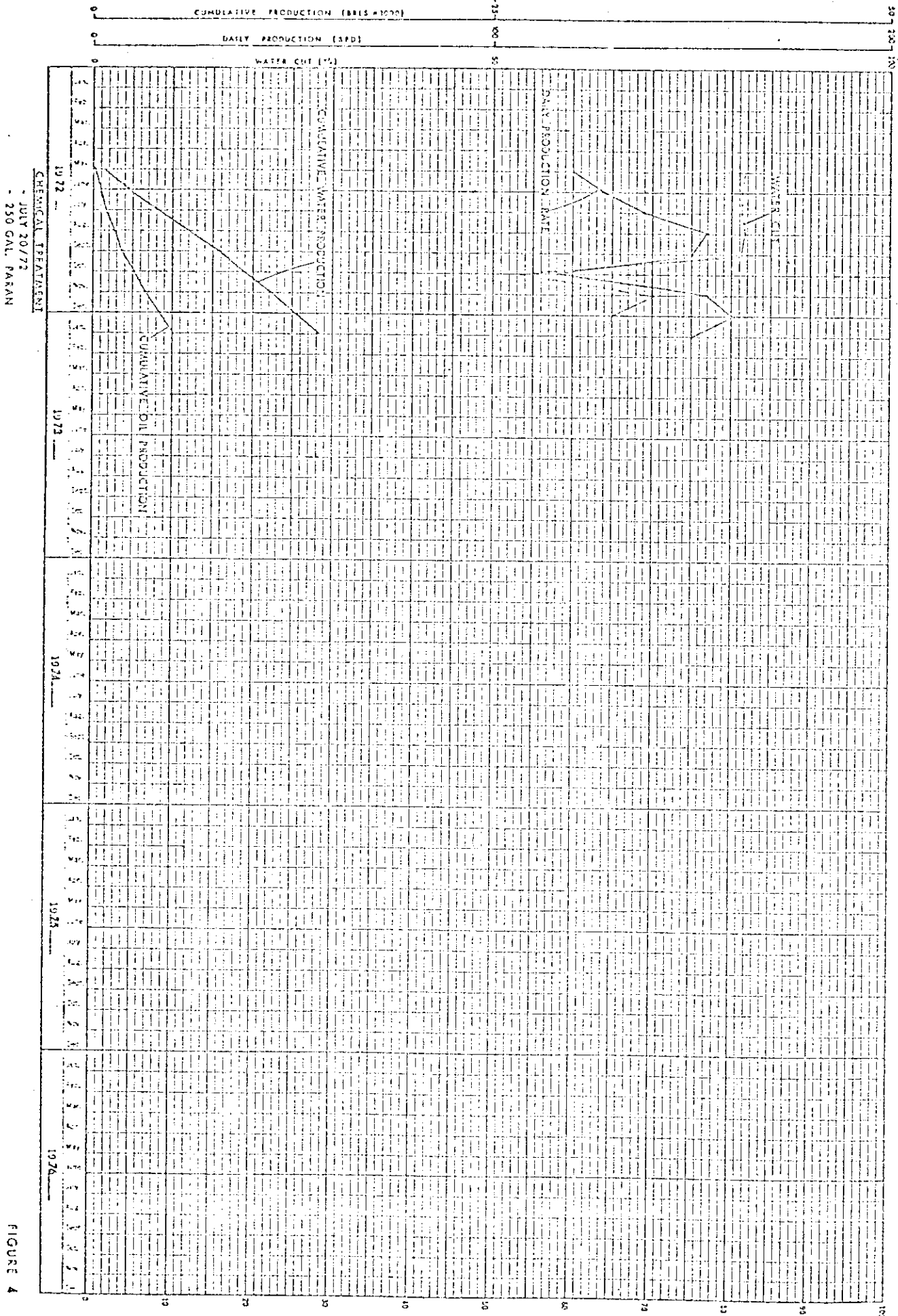
EAST ROUTLEDGE UNIT #1 - INJECTION





SAMEDAN ROUTLEDGE PROV. 3-11-9-25 WPM

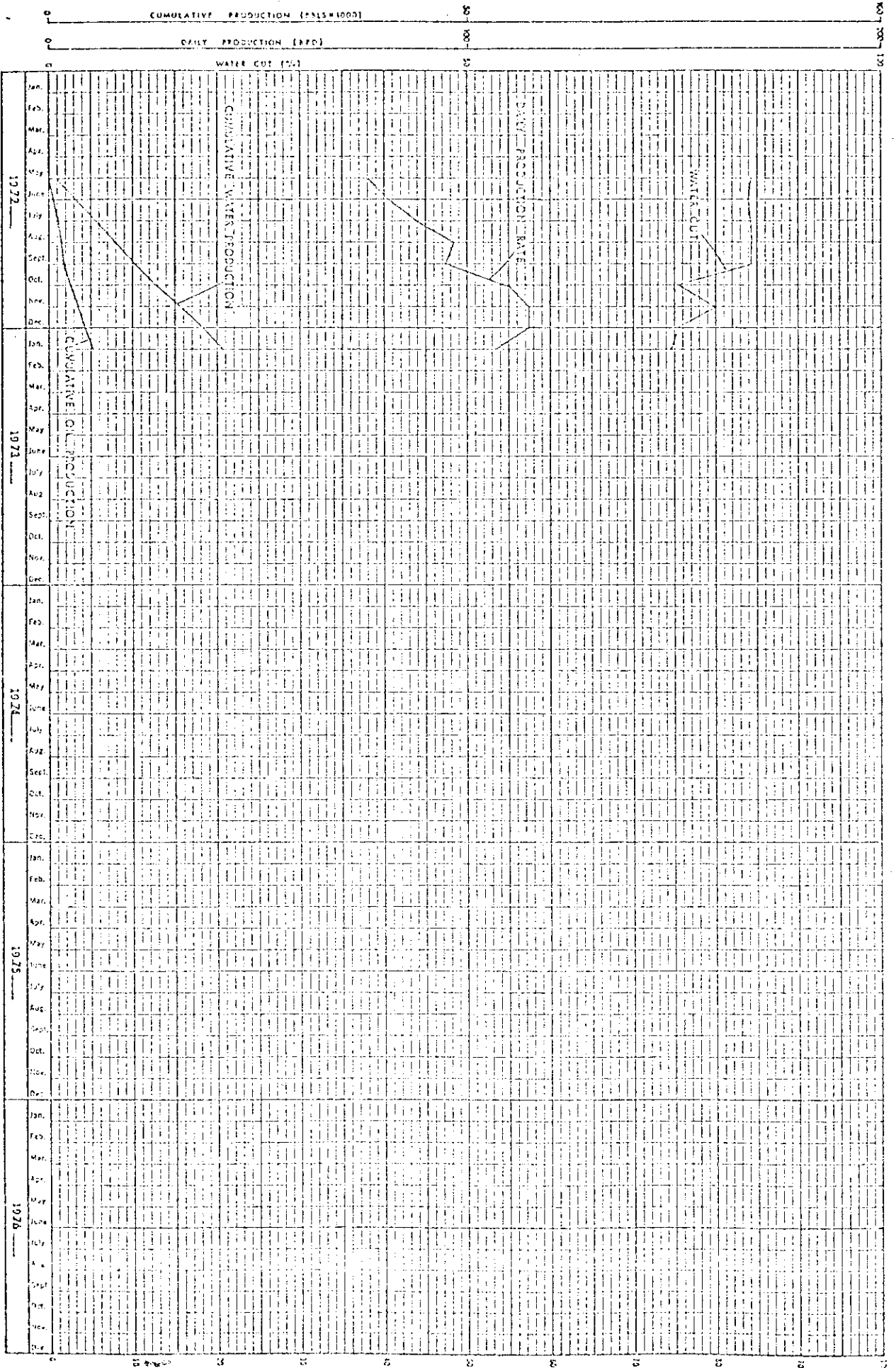
FIGURE 3



SAMEDAN ROUTLEDGE PROV. 4-11-9-25 WPM.

FIGURE 4

SAMEDAN ROUTLEDGE PROV. 5-11-9-25 V.P.M.

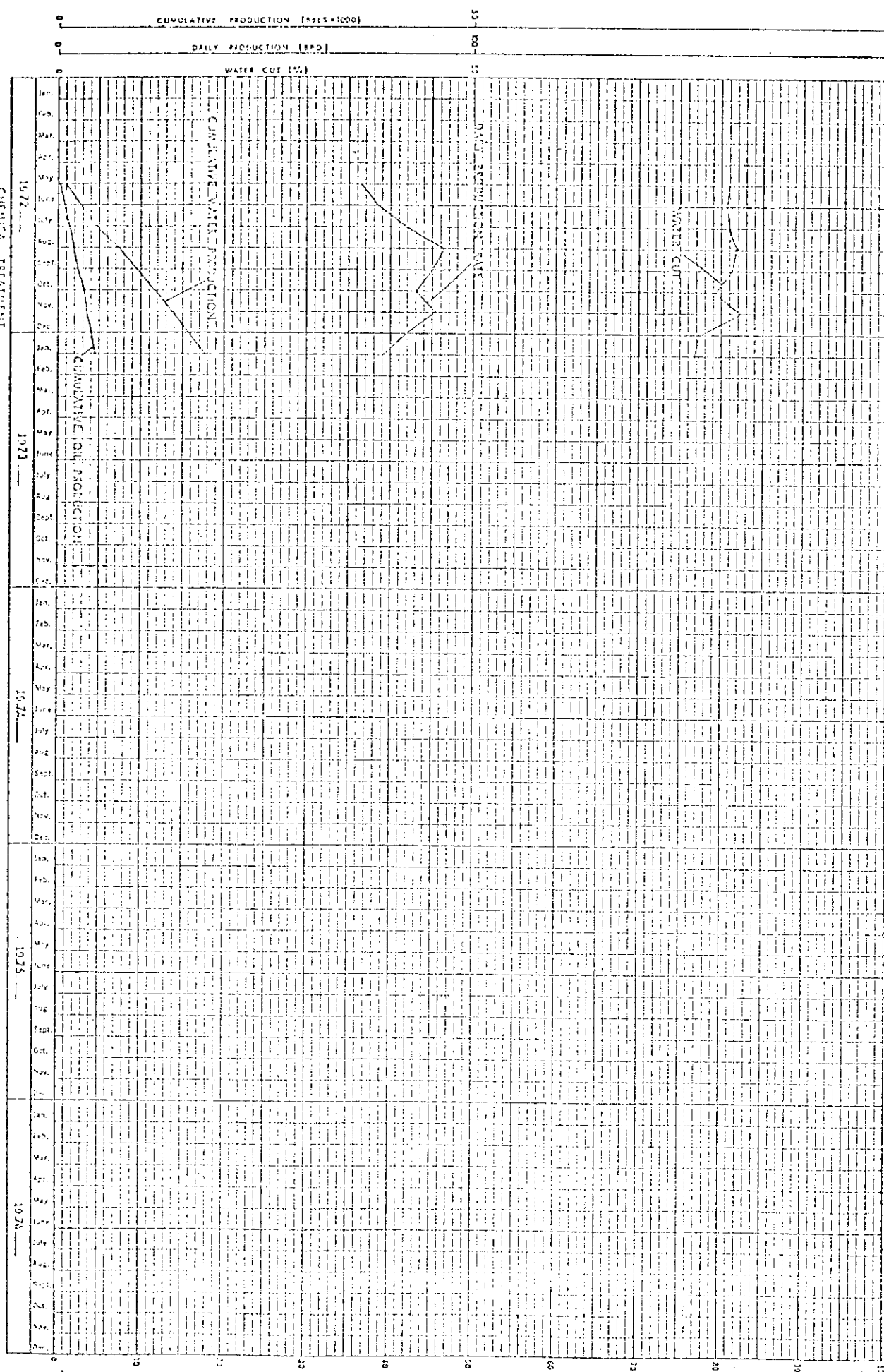


CHEMICAL TREATMENT

- JUNE 5/72
- 250 GAL. PARAN
- 165 GAL. VERSENE

FIGURE 5

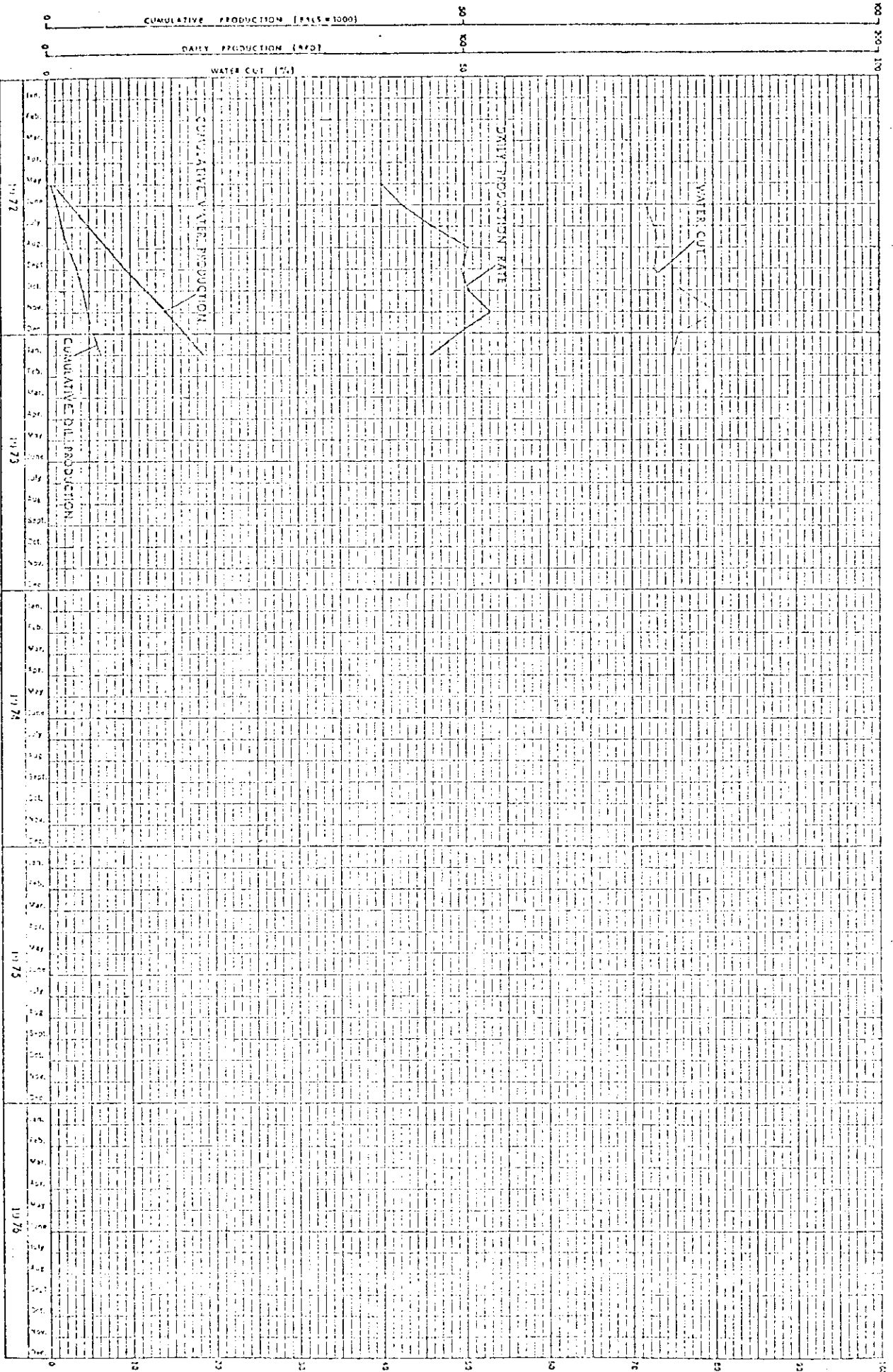
SAMEDAN ROUTLEDGE PROV. 6-11-9-25 V.P.M.



CHEMICAL TREATMENT
 - JUNE 21/72
 - 250 GAL. PARAN
 - 165 GAL. VESICNE

FIGURE 6

SAMEDAN ROUTLEDGE PROV. 7-11-9-25WPM.

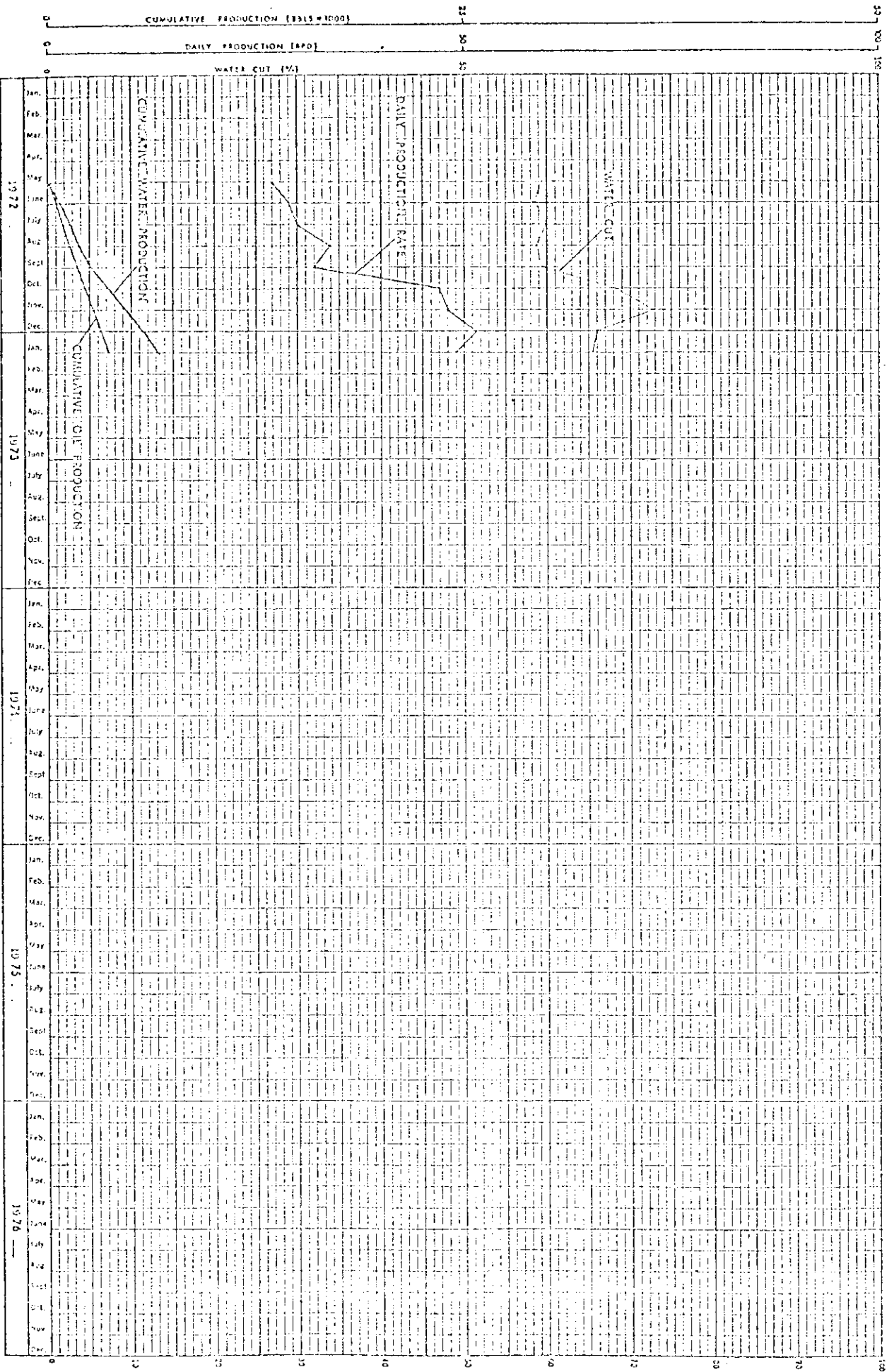


CHEMICAL TREATMENT

- JUNE 5/72
 - 250 GAL. PARAN
 - 105 GAL. VERSENE

FIGURE 7

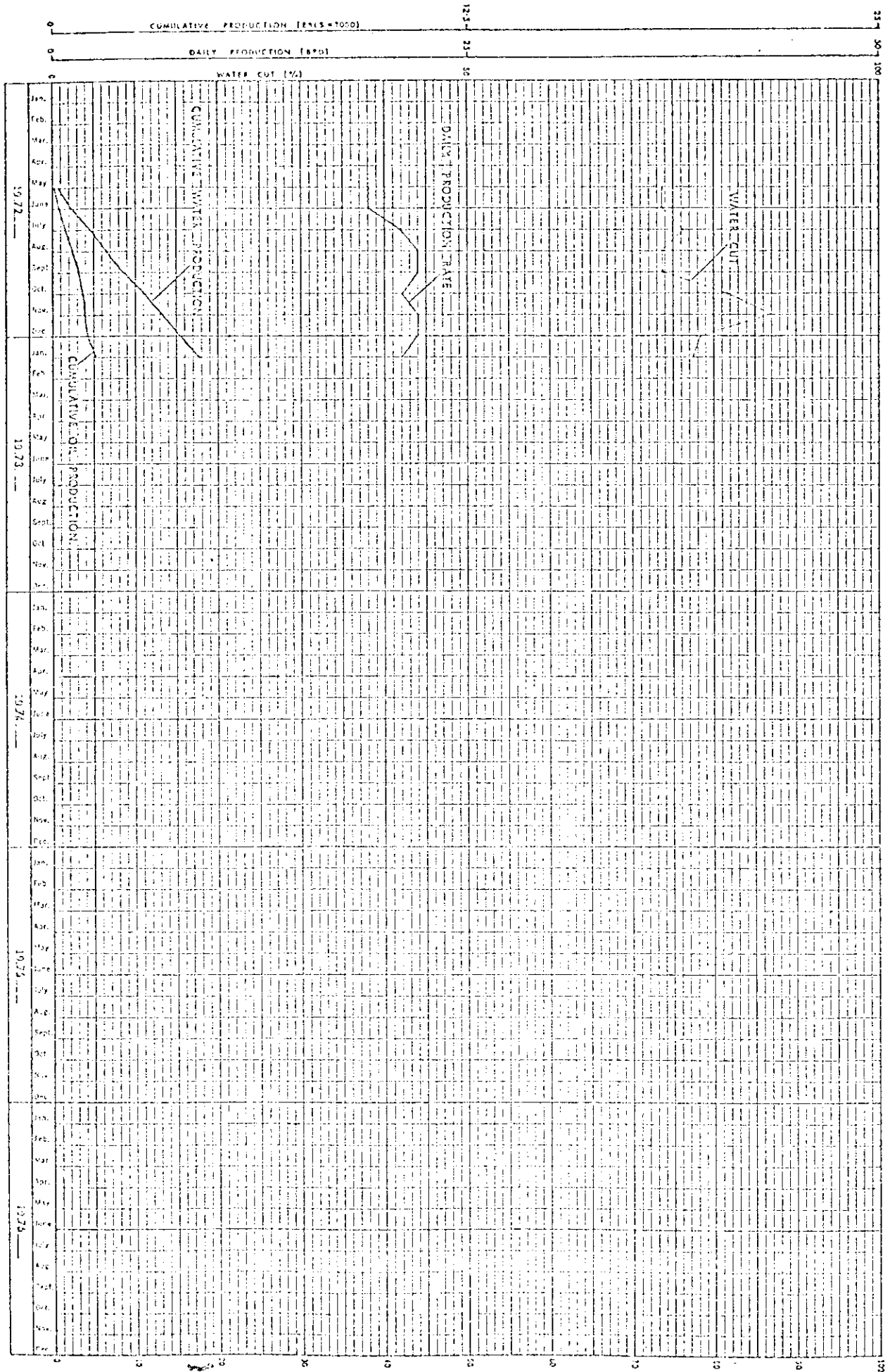
SAMEDAN ROUTLEDGE PROV. 8-11-9-25 WPM.



CHEMICAL TREATMENT

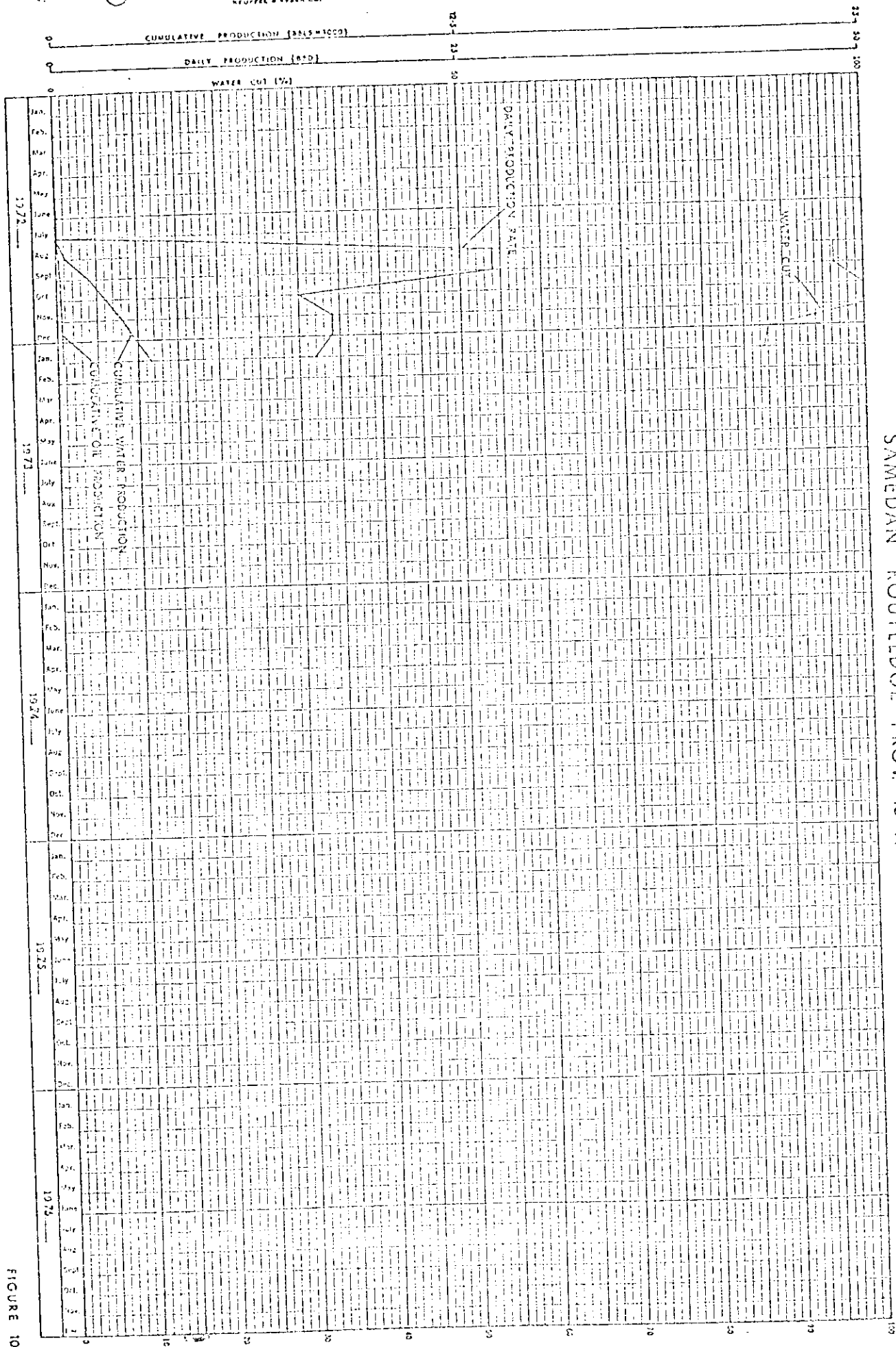
- JUNE 6 / 72
- 250 GAL. PARAN
- 165 GAL. VESPERINE

FIGURE 8



SAMEDAN ROUTLEDGE PROV. 11-11-9-25 WPM.

FIGURE 9



SAMEDAN ROUTLEDGE PROV 13-11-9-25W/P.M.

FIGURE 10

SAMEDAN ROUTLEDGE PROV. 15-11-9-25WPM.

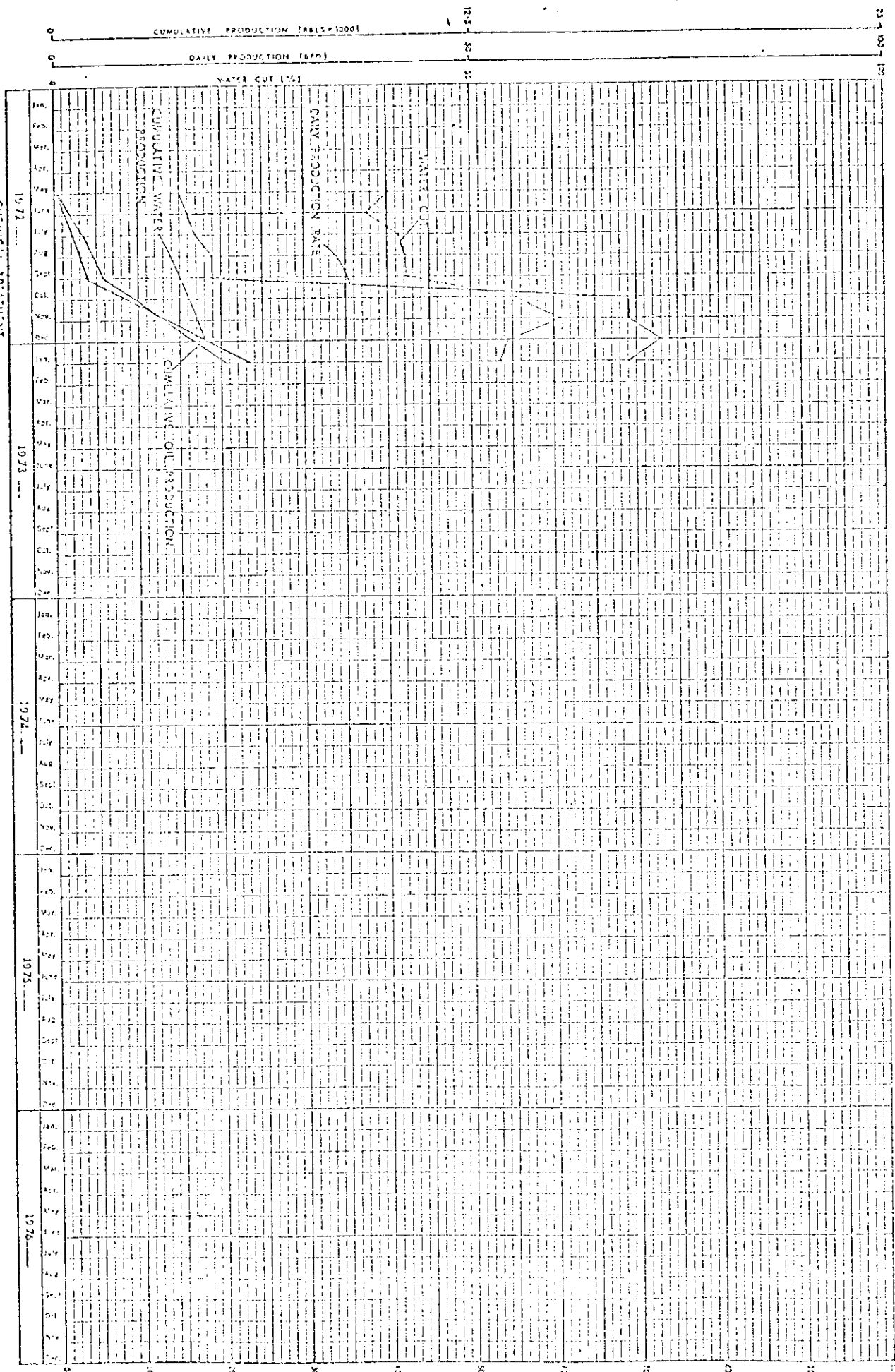


FIGURE 11

CHEMICAL TREATMENT
- JULY 20/72
- 250 GAL. PARAN
- 105 GAL. VERSENE

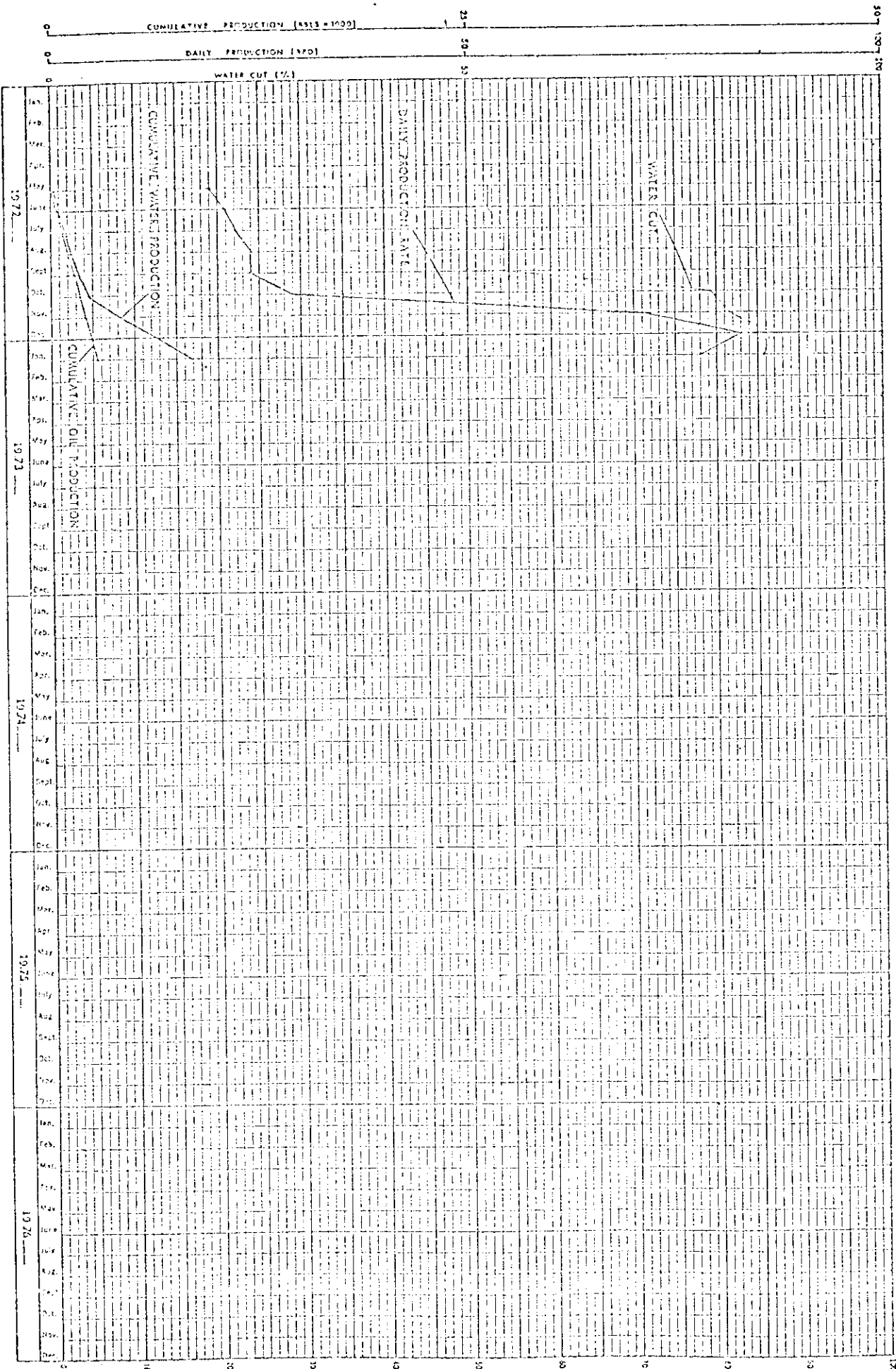
RE 3 YEARS BY MONTHS 47 3050
X 100 DIVISIONS
SHUFFEL & BASSER CO.

CUMULATIVE PRODUCTION (BBL'S X 1000)

DAILY PRODUCTION (BPD)

WATER CUT (%)

SAMEDAN ROUTLEDGE PROV. 3-14-9-25WPM.

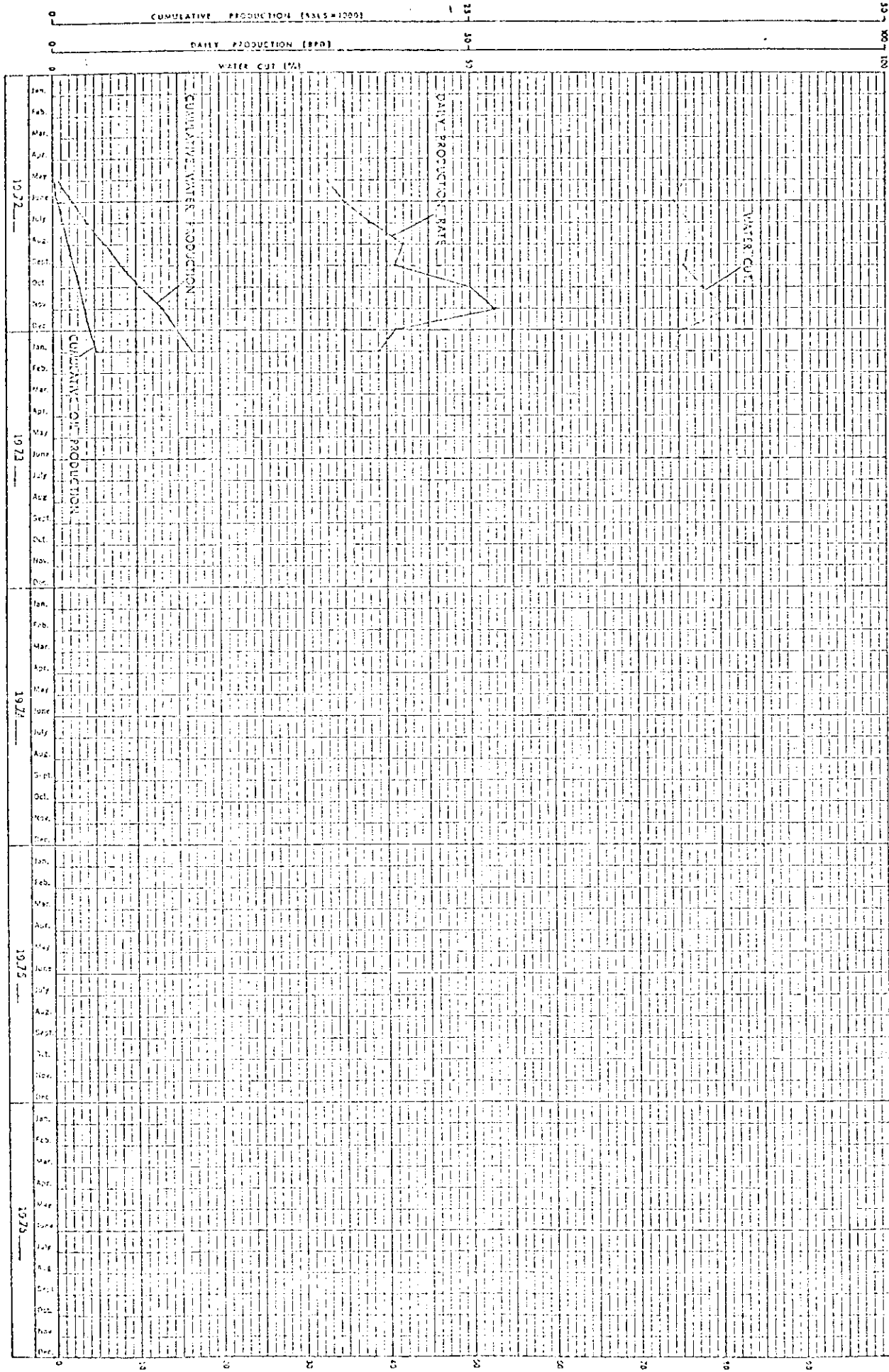


CHEMICAL TREATMENT

- MAY 19/72
- 120 GAL PARAN
- 165 GAL VASINIF

FIGURE 12

SAMEDAN ROUTLEDGE 5-12-9-25 WPM.



CHEMICAL TREATMENT
 - JUNE 21/72
 - 250 GAL. PASAN
 - 105 GAL. VERSENE

FIGURE 13

SAMEDAN ROUTLEDGE 5-13-9-25 WPM.

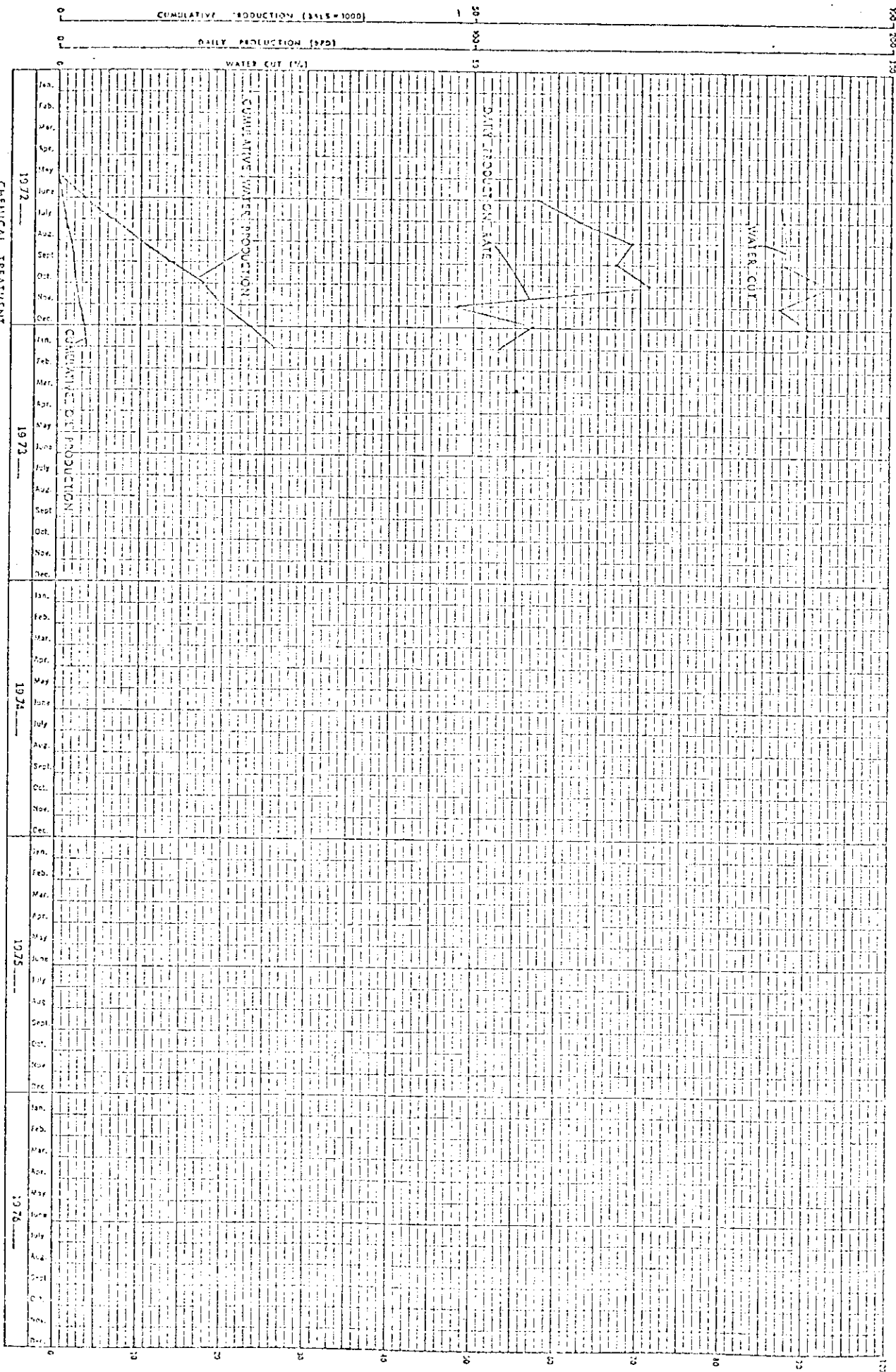


FIGURE 14

CHEMICAL TREATMENT
- MAY 18/72
- 120 GAL. PARAN
- 165 GAL. VERSINE

SAMEDAN ROUTLEDGE 1-10-9-25W/PM.

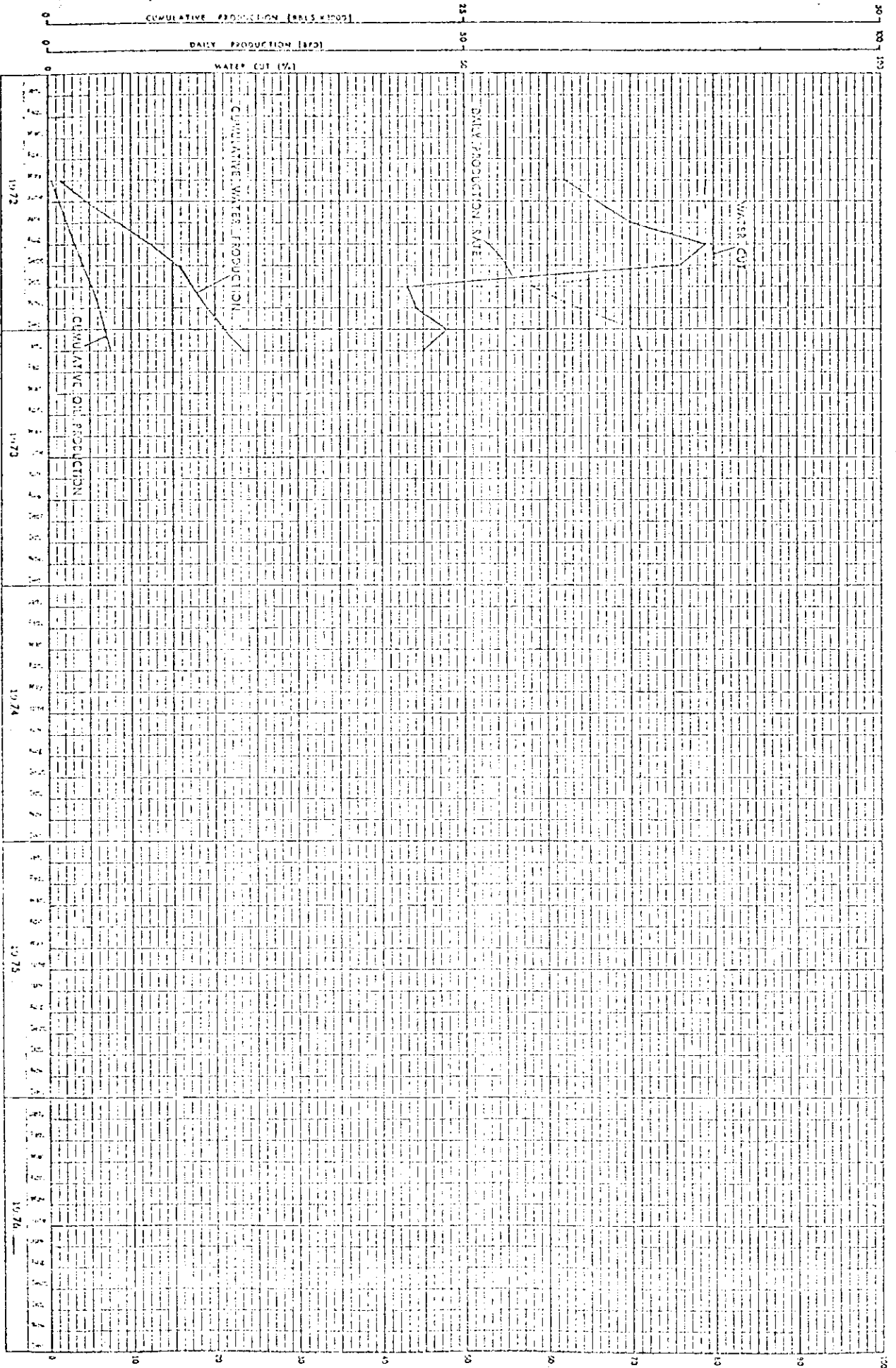
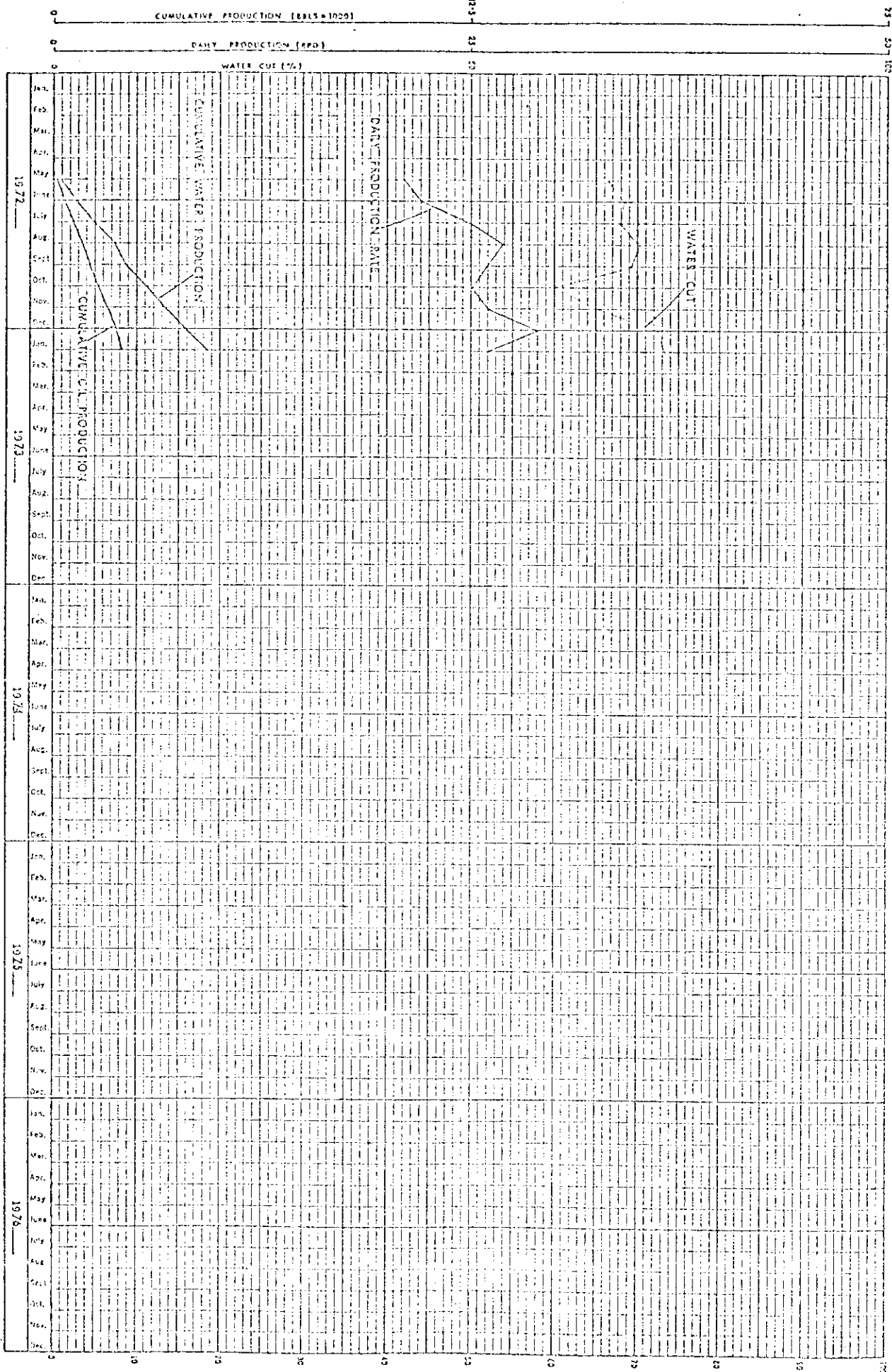


FIGURE 15

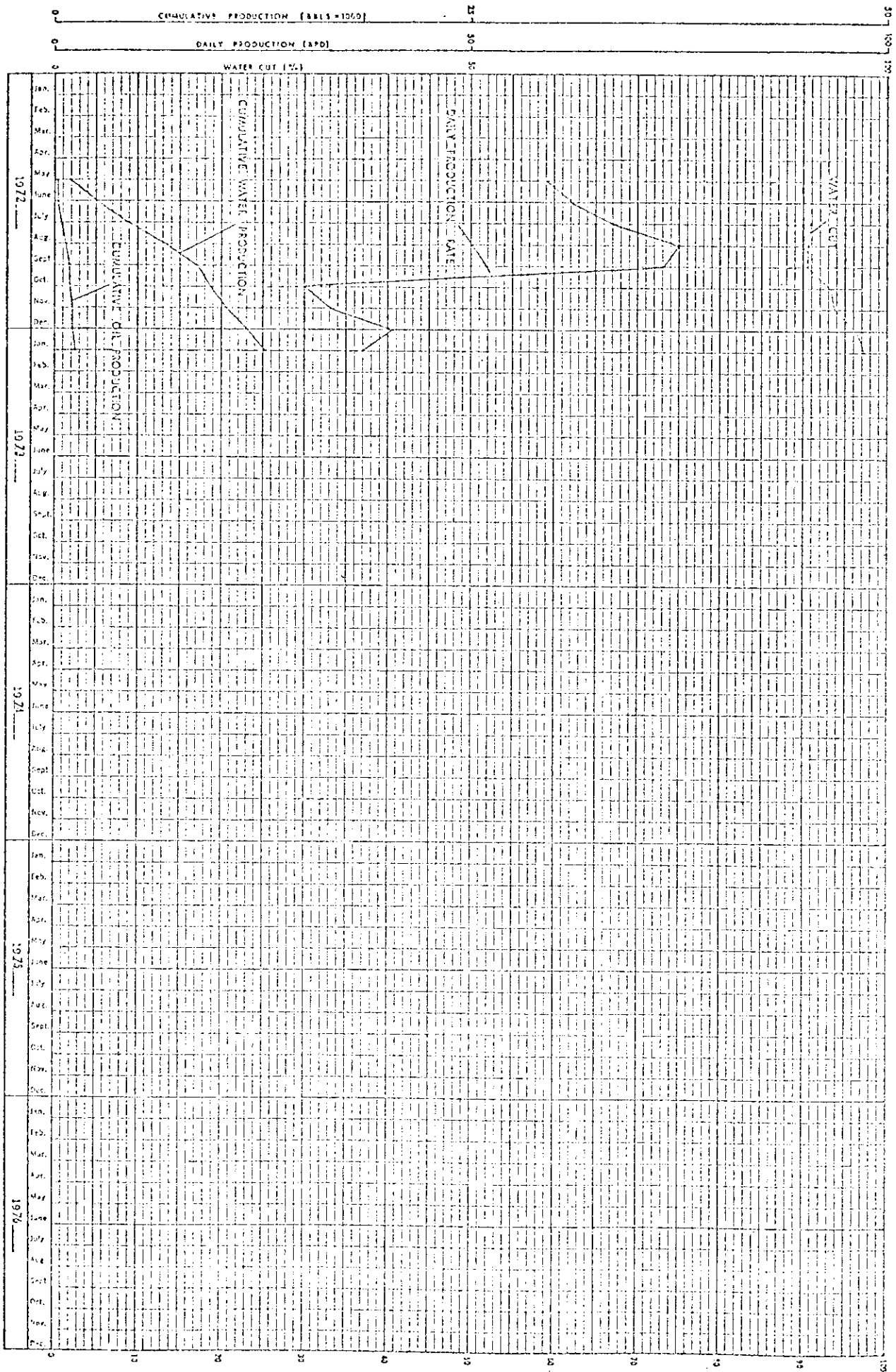
SAMEDAN ROUTLEDGE 3-10-9-25 WPM.



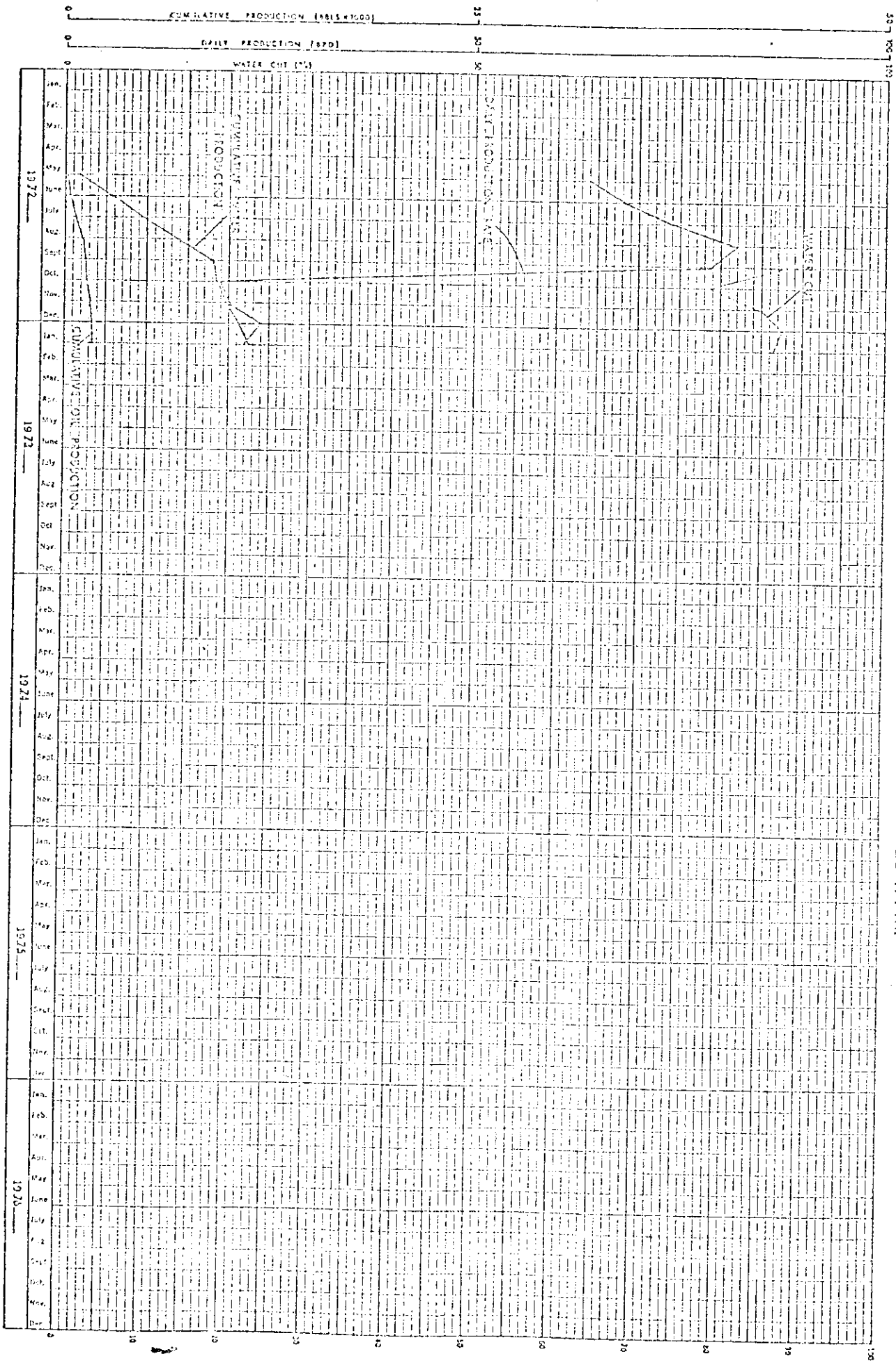
CHEMICAL TREATMENT

- JUNE 6/72
 - 250 GAL. PARAN
 - 165 GAL. VERSINE

FIGURE 16



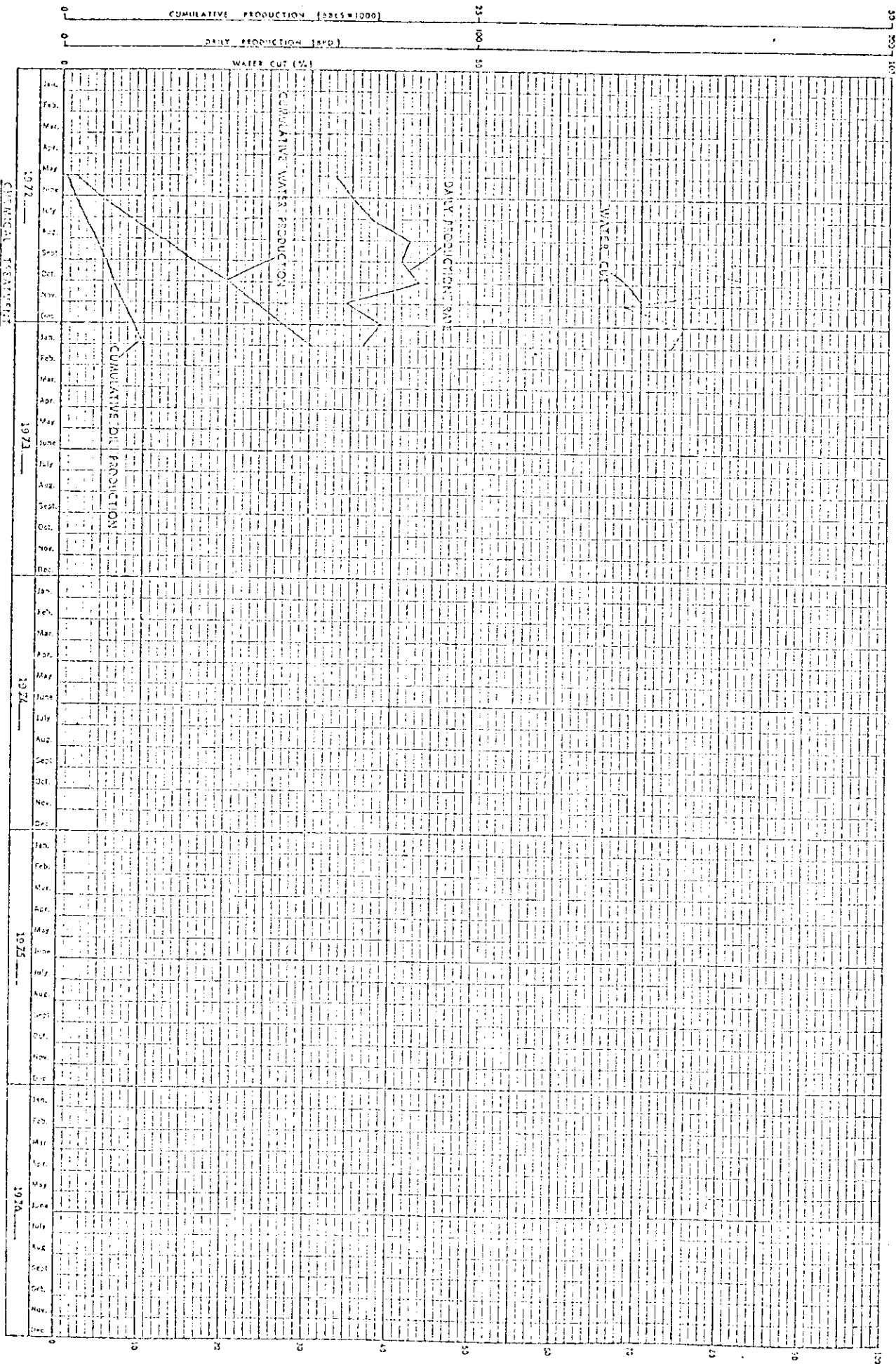
SAMEDAN ROUTLEDGE 9-10-9-25WPM.



SAMEDAN ROUTLEDGE 1-14-9-25 WPM.

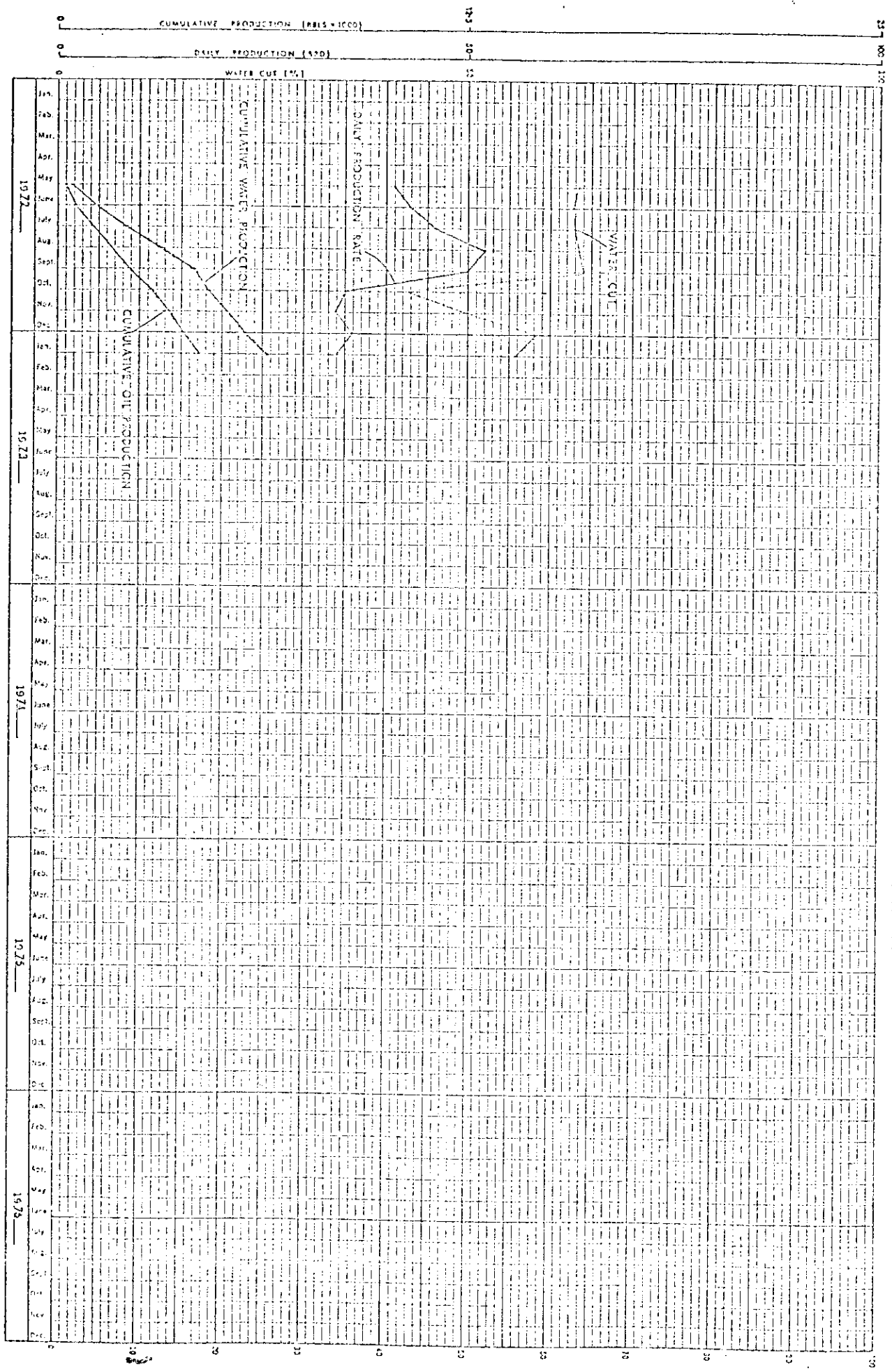
FIGURE 18

SAMEDAN ROUTLEDGE 2-14-9-25 WPM.



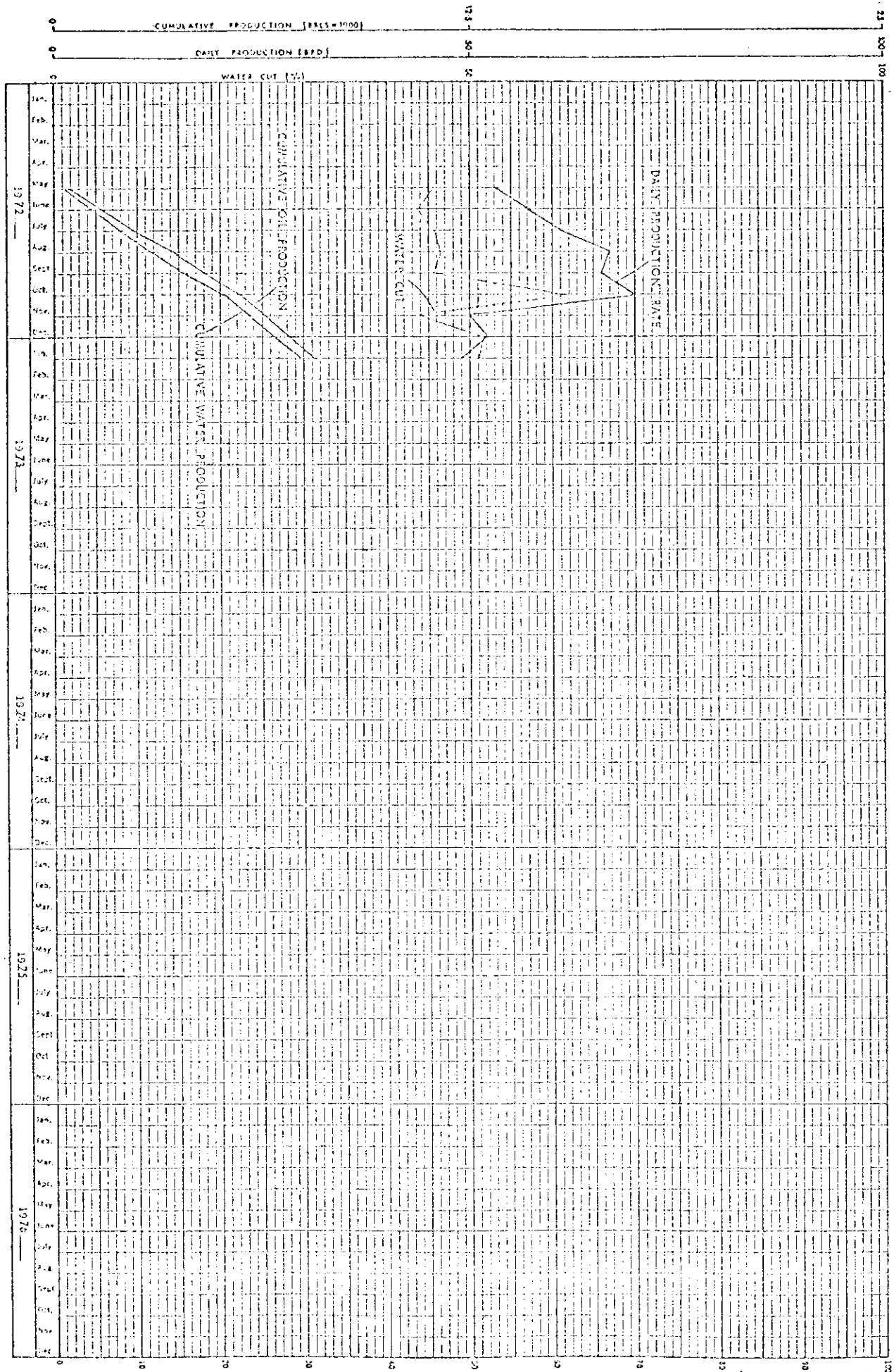
- MAY 18/72
 - 126 GAL. PAPAN
 - 165 GAL. VERGESE

FIGURE 19



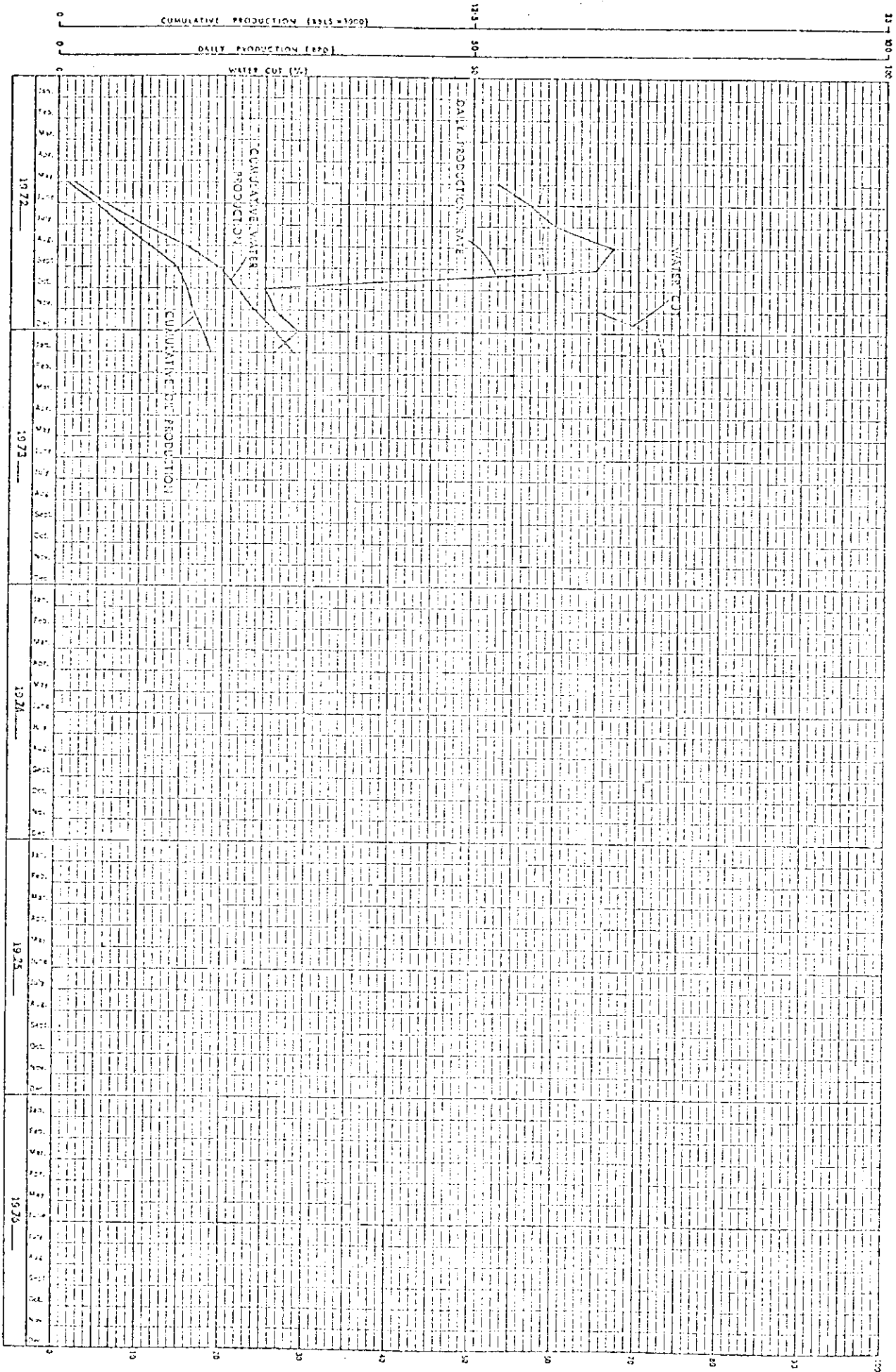
SAMEDAN ROUTLEDGE 7-14-9-25WPM

FIGURE 20



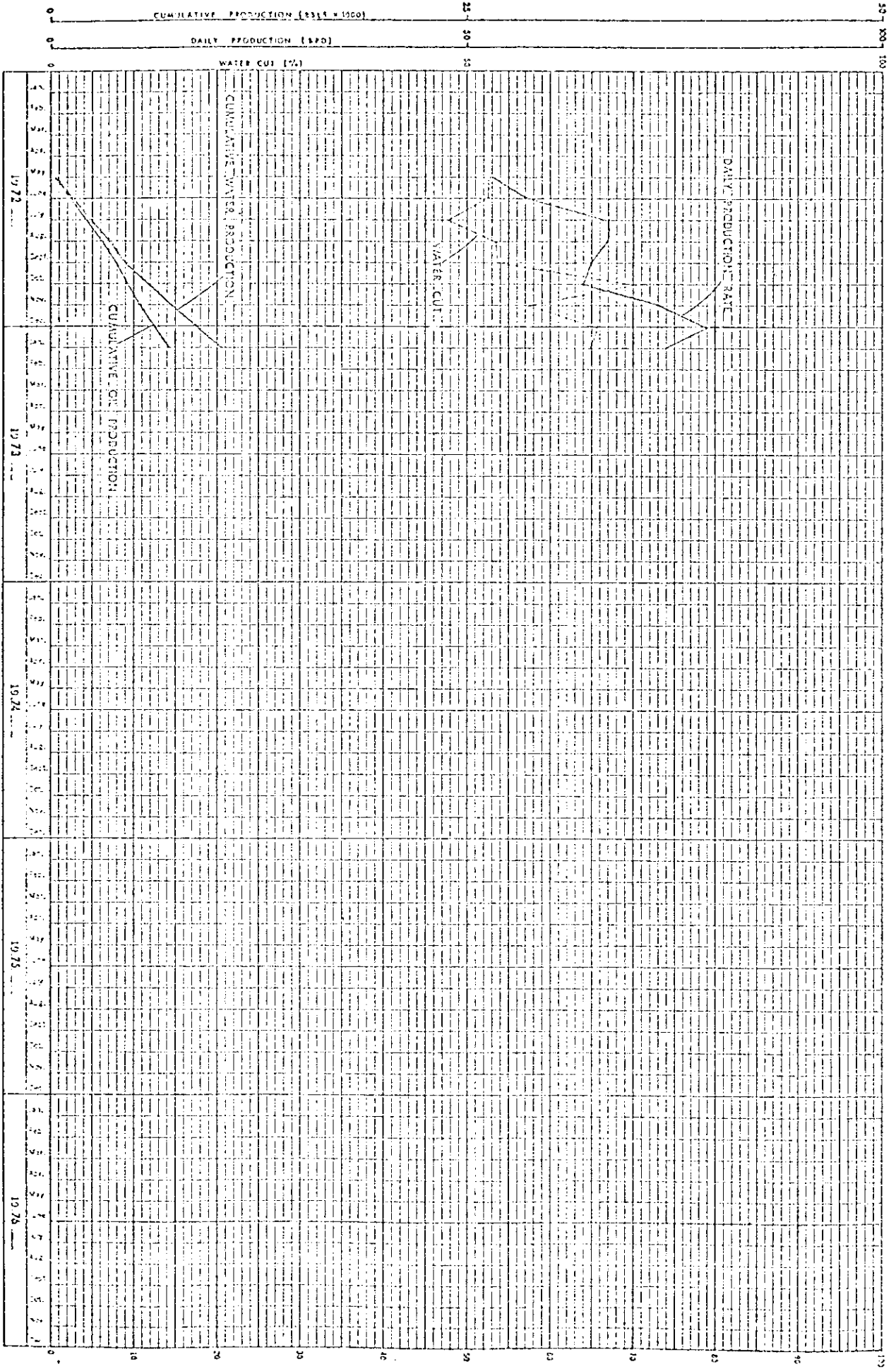
SAMEDAN ROUTLEDGE 8-14-9-25 WPM

FIGURE 2:



SAMEDAN ROUTLEDGE 9-14-9-25W/PM.

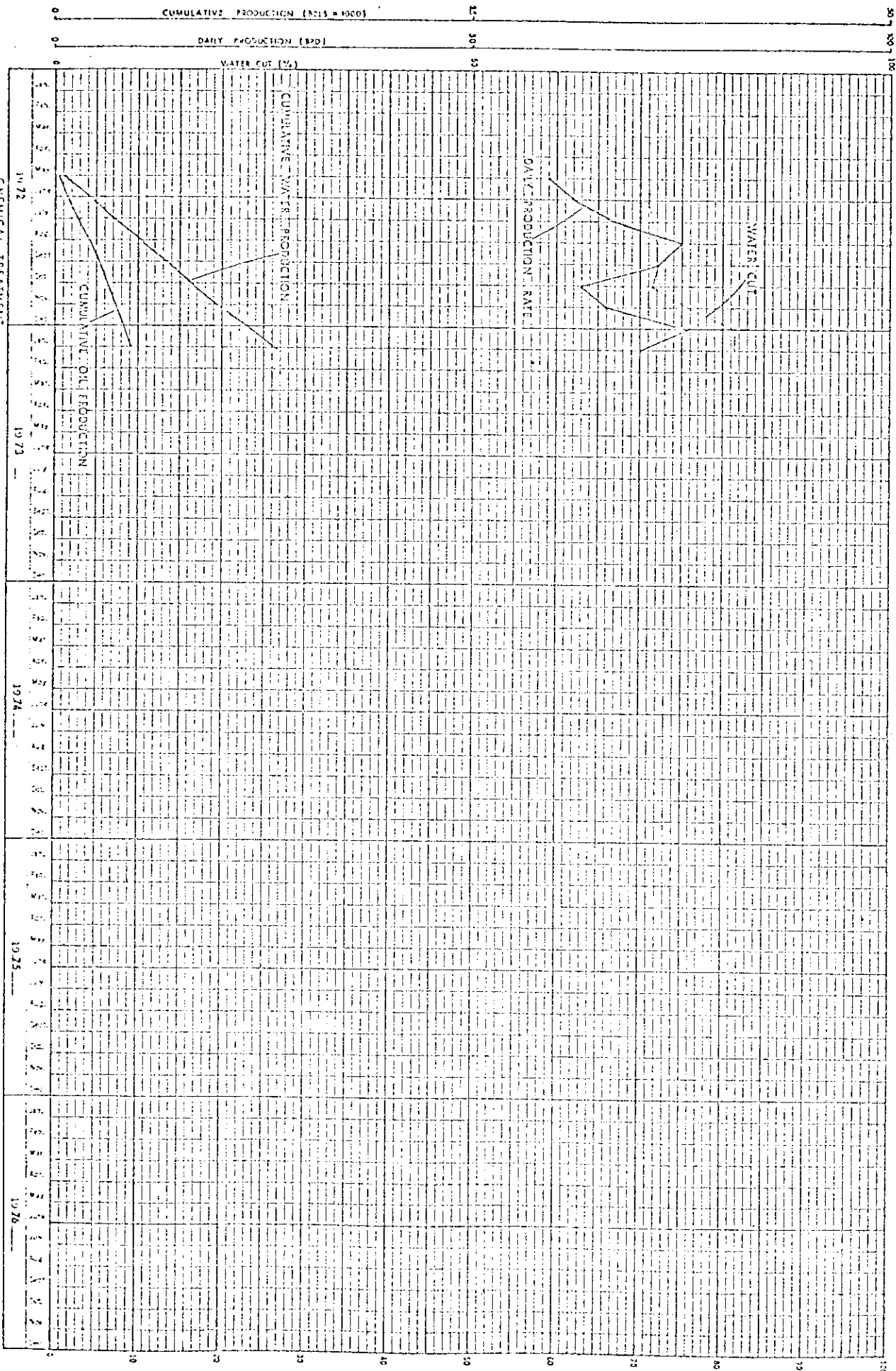
FIGURE 22



SAMEDAN ROUTLEDGE 10-14-9-25W/FM.

FIGURE 23

SAMEDAN ROUTLEDGE 11-14-9-25 W.P.M.



SEVERAL TREATMENT
 - AUG. 23/72
 - 126 GAL. PARAN

FIGURE 24

SAMEDAN ROUTLEDGE PROV. 2-11-9-25 WPM.

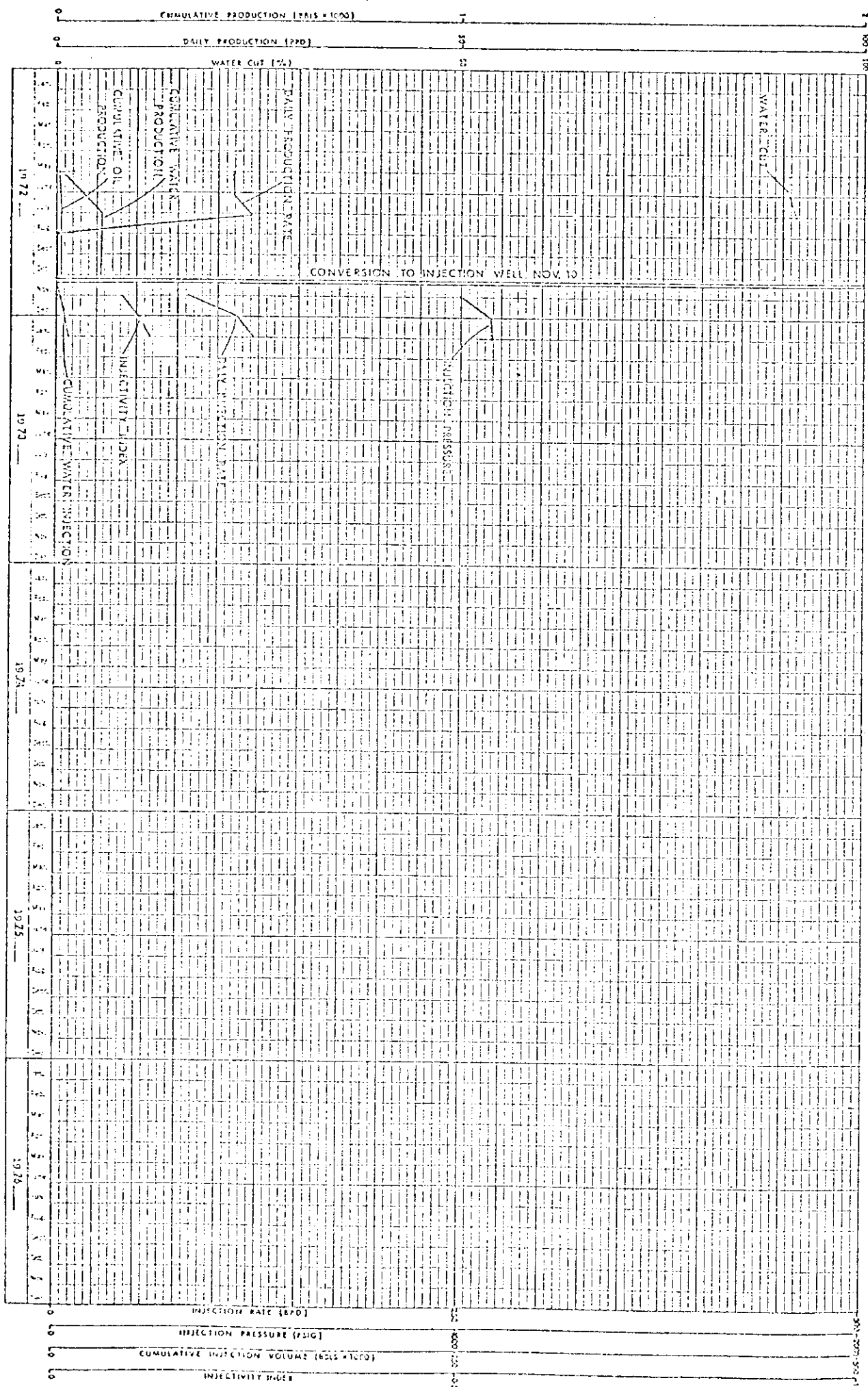


FIGURE 25

SAMEDAN ROUTLEDGE PROV. 10-11-9-25V/PM.

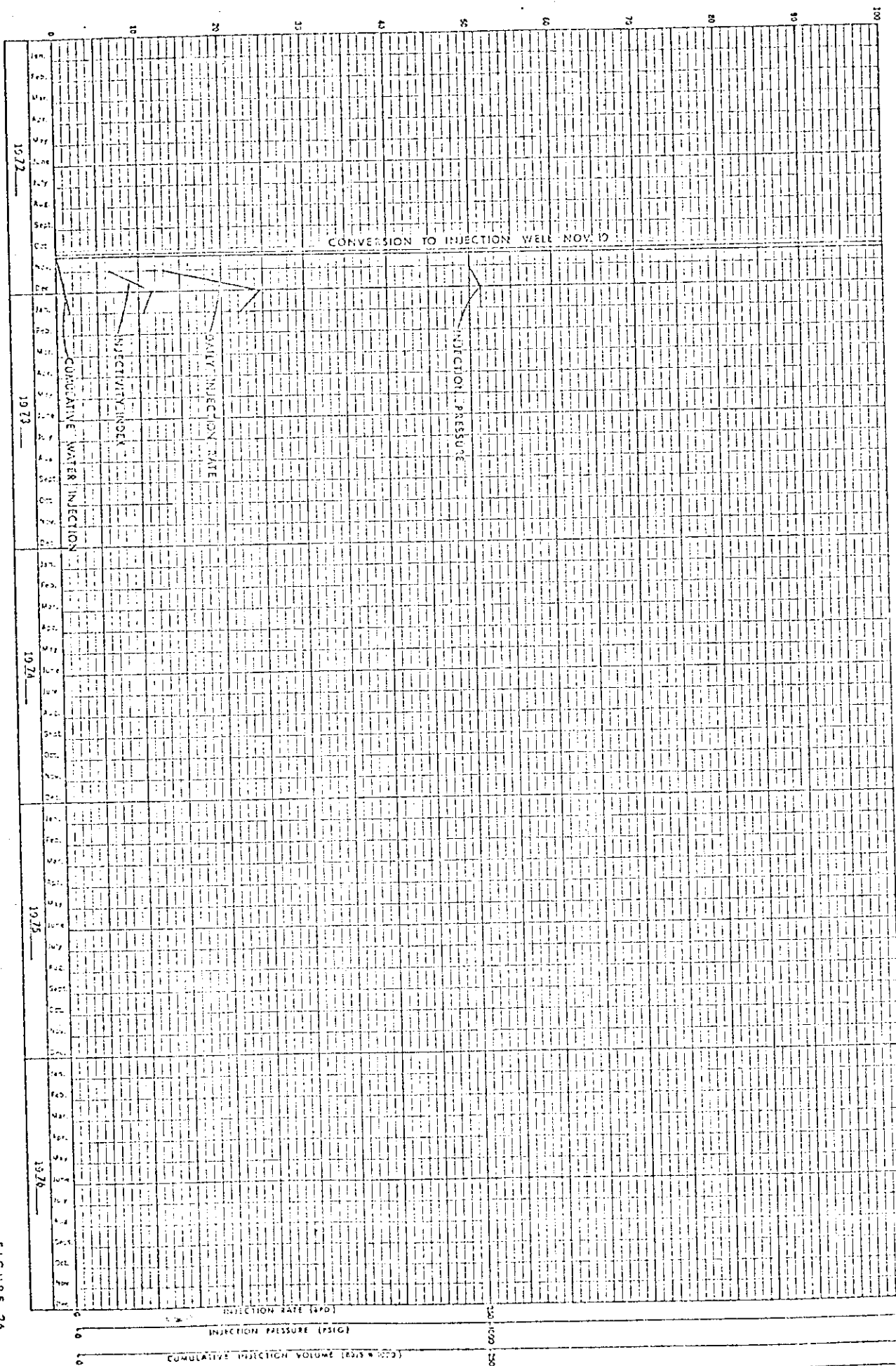
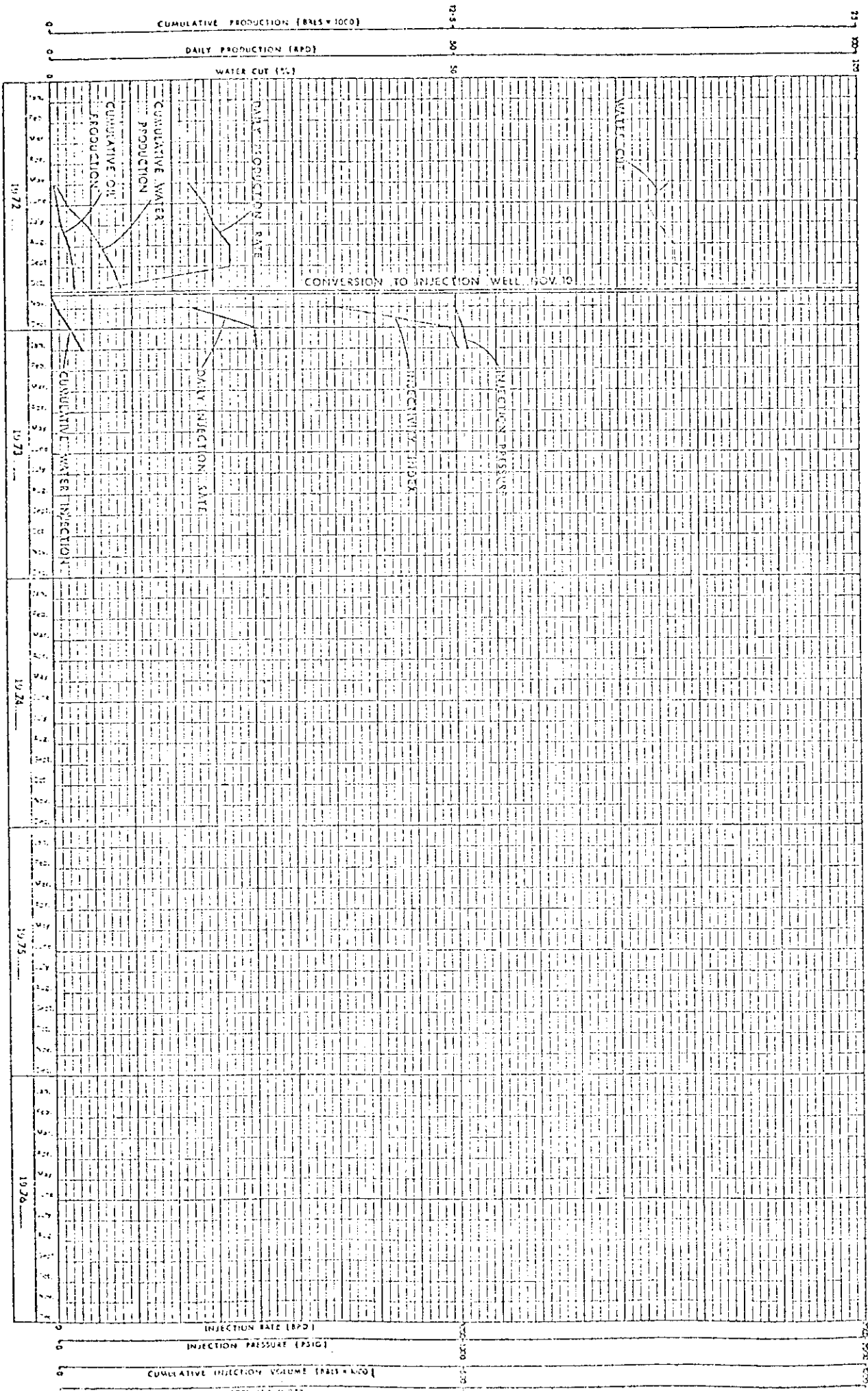
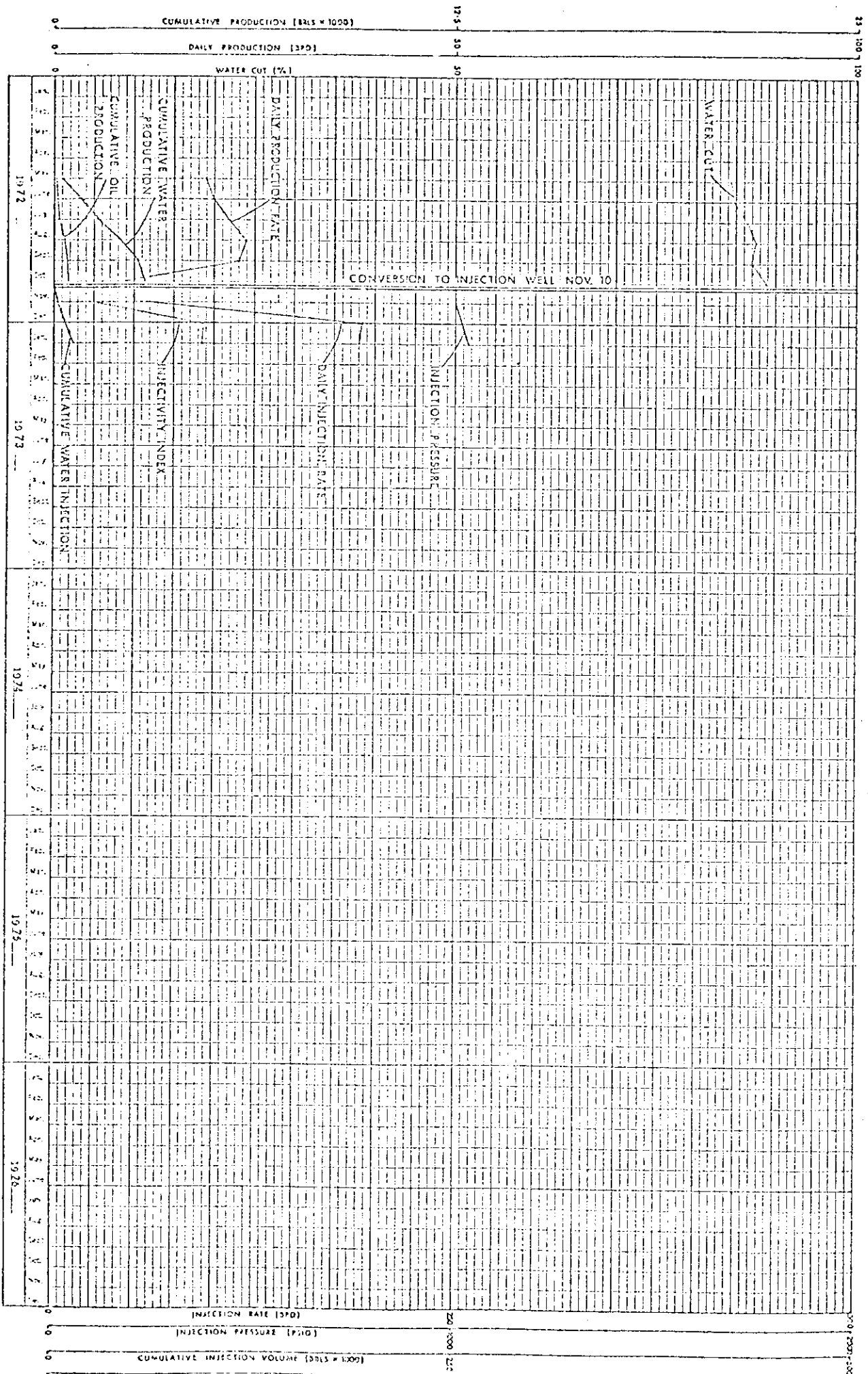


FIGURE 26



SAMEDAN ROUTLEDGE PROV. 12-11-9-25WPM.

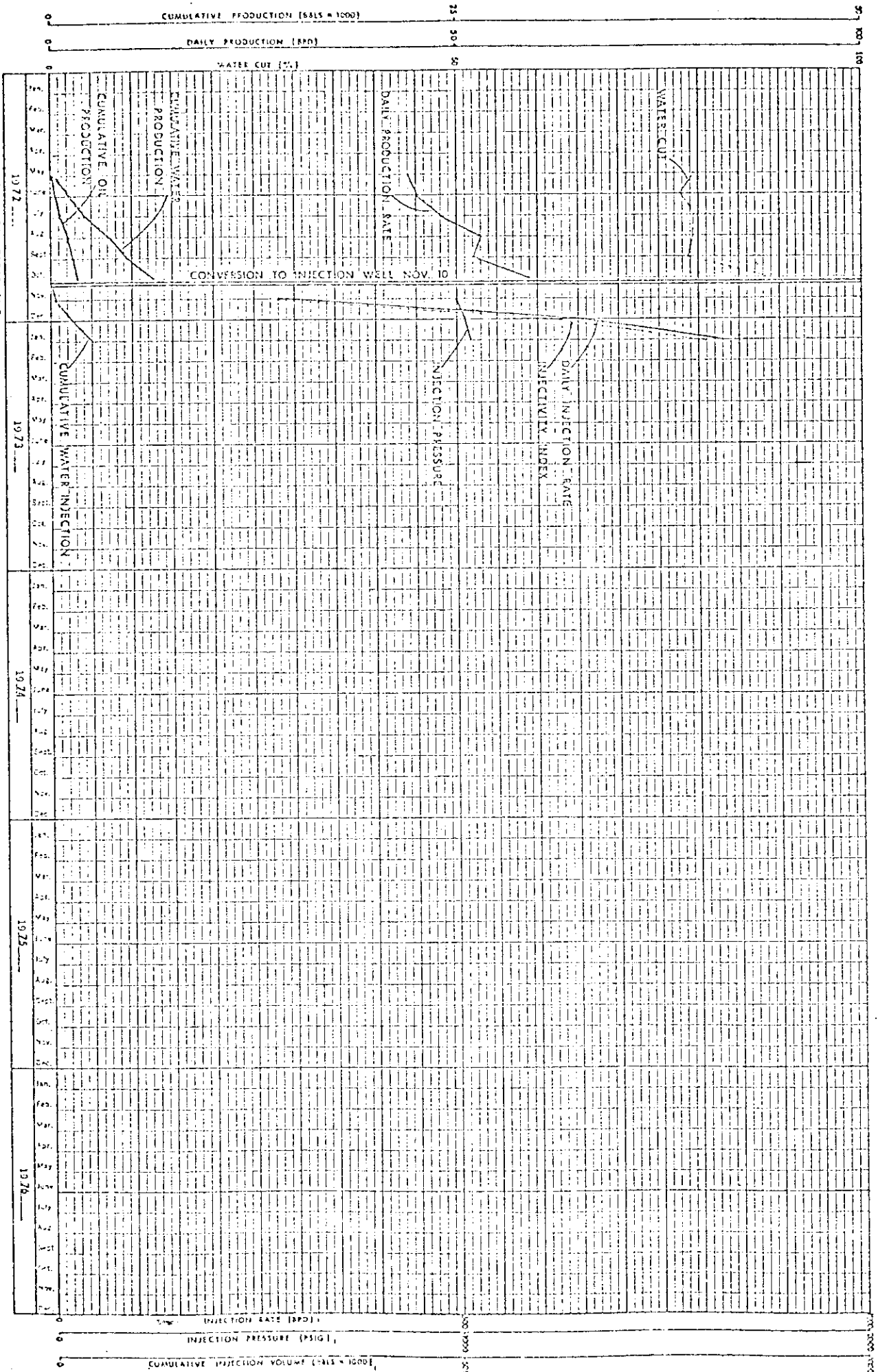
FIGURE 27



SAMEKAN ROUTLEDGE PROV. 14-11-9-25W/PM.

FIGURE 28

SAMEDAN ROUTLEDGE PROV. 6-14-9-25 W/P.M.



CHEMICAL TREATMENT

- JUNE 26/72
- 250 GAL. PARAN
- 165 GAL. VERSENE

FIGURE 29