Data Relating
To
Lease and Well Production - Production Tests
Well Completion Information
Lease Reserves and Future Production
For
Marathon Oil Company's
McCallister State Lease
Vacuum (Grayburg-San Andres) Field
Lea County, New Mexico

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Marathon Exhibit No. 2
Case No.

MARATHON OIL COMPANY
McCALLISTER STATE LEASE
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

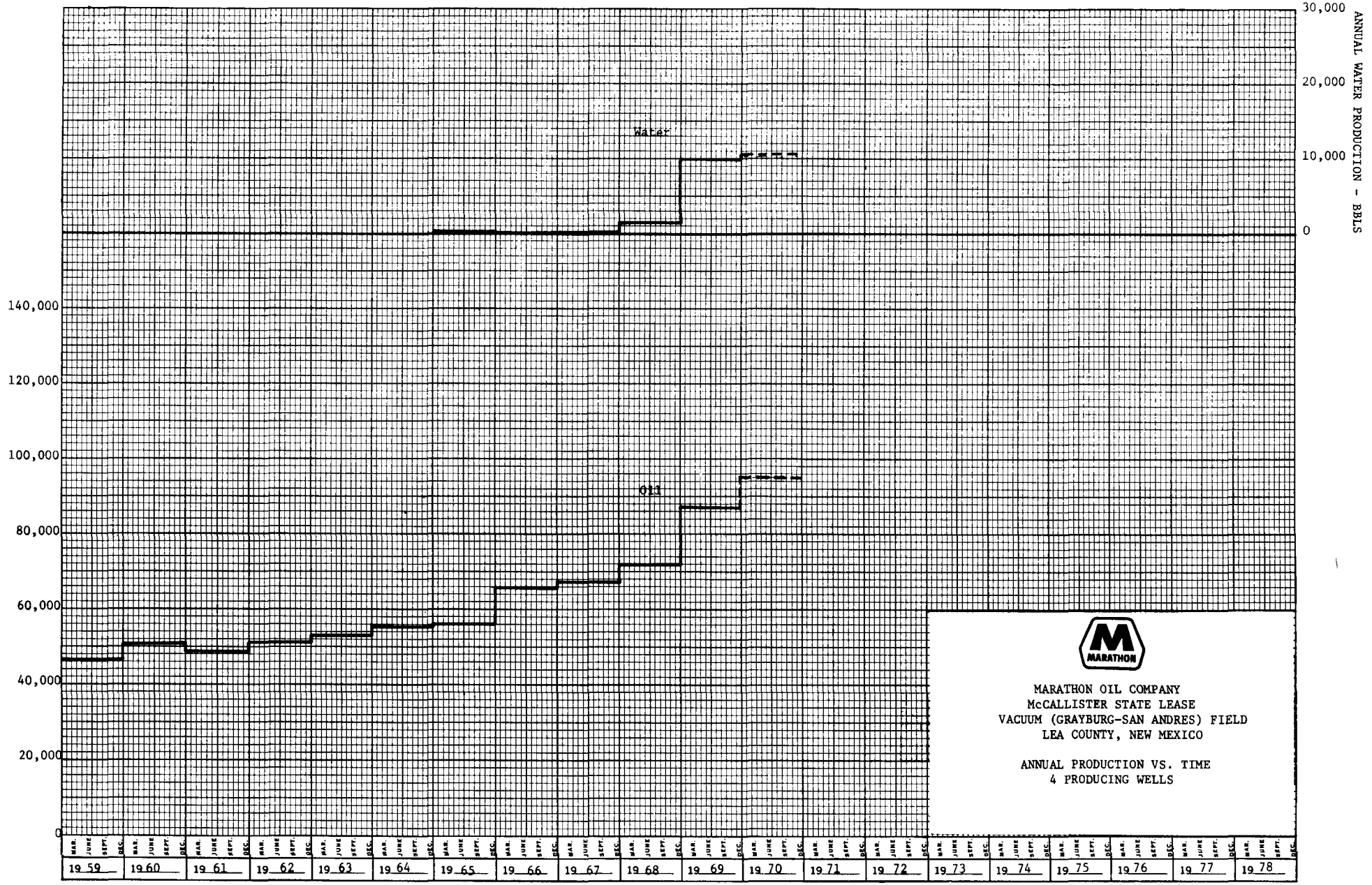
Commenced Production July 16, 1938
4 Producing Wells

Cumulative Production to August 1, 1970

Oil	1,848,468 Bbls
Water	18,382 Bbls
Gas	1,886,285 MCF

July 1970 Production

Oil	8,458 Bbls
Water	748 Bbls
Gas	10,278 MCF


ANNUAL OIL PRODUCTION - BBLS
ANNUAL WATER PRODUCTION - BBLS
Water
Oil
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000
0
10,000
20,000
30,000
MAR. JUNE SEPT. DEC.
19 59
19 60
19 61
19 62
19 63
19 64
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19 75
19 76
19 77
19 78
MARATHON
MARATHON OIL COMPANY
McCALLISTER STATE LEASE
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
ANNUAL PRODUCTION VS. TIME
4 PRODUCING WELLS

MARATHON OIL COMPANY
McCALLISTER STATE NO. 1
660' FSL & 1980' FWL
N-Section 25, T-17-S, R-34-E
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

Drilling Completed: July 9, 1938
Commenced Production: July 16, 1938

Cumulative Production To August 1, 1970

Oil	424,717 Bbls
Water	0 Bbls
Gas	421,845 MCF

Production Tests

Date	August 3, 1970	September 11, 1970
Method of Production	Flow, 18/64" chk.	Flow, 15/64" chk.
Oil (BPD)	103.0	85.5 (21 Hrs.)
Water (BPD)	0	0
GOR (ft^3/bbl)	Not Available	2195
Tubing Pressure (psig)	260	300
Casing Pressure (psig)	Packer	Packer

Date	September 12, 1970
Method of Production	Flow, 13/64" chk.
Oil (BPD)	84.2
Water (BPD)	0
GOR (ft^3/bbl)	2167
Tubing Pressure (psig)	320
Casing Pressure (psig)	Packer

Original Completion

TD:	4680'
OH:	4083'-4680'
Treatment:	None
Initial Potential:	Flowed 51 BO per hour for a rate of 1224 BOPD, 1" choke, GOR 698, no water.

Other Data

January 1941 - Flowed 46 BOPD, 19/64" choke, GOR 698, no water.

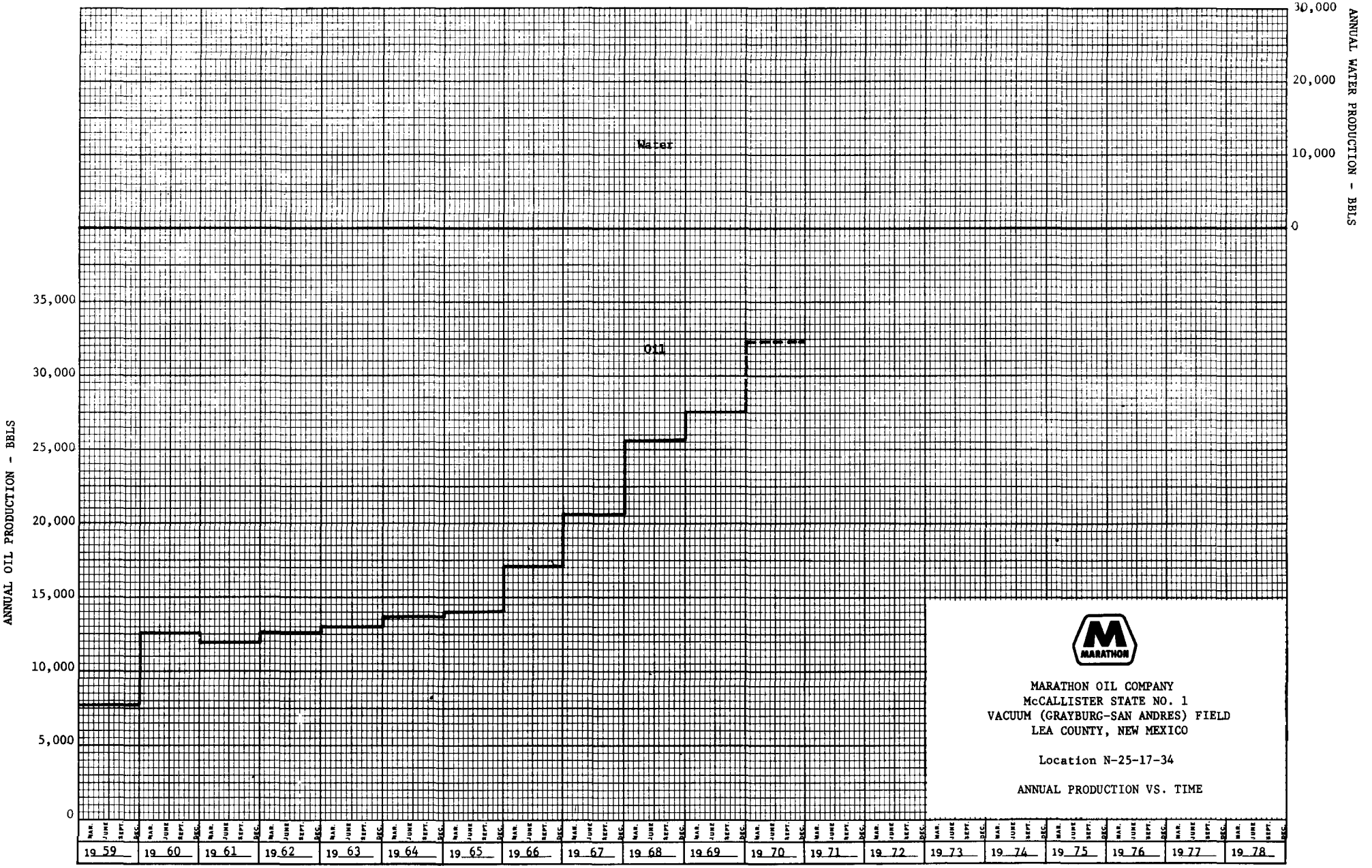
April 1947 - Installed Pumping Unit

Before Pump Installation - Flowed 10 BOPD
After Pump Installation - Pumped 40 BOPD

OWWO - Drilled Deeper - Ran Liner

Date of Workover:	September, 1959 - October, 1959
Production Prior to Workover:	Pumped 13.8 BOPD
Workover Procedure:	Cleaned out open hole 4083'-4680'. Drilled 6-1/8" hole to 4705'. Set 4½" liner from 3904'-4670', and cemented with 100 sacks. Top of cement at 3904'. Drilled out cement and shoe, cleaned out to 4705' TD.

Producing Interval:	OH 4670'-4705'
Treatment:	1000 Acid, plus sand fraced 4600 gallons of lease oil and 9000# of sand.
Potential:	Flowed 69.16 BO per 6 hours, or at a rate of 276.6 BOPD through a ½" choke, no water, GOR 366.


ANNUAL OIL PRODUCTION - BBLS
ANNUAL WATER PRODUCTION - BBLS
Water
Oil
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
30,000
20,000
10,000
0
MAR. JUNE SEPT. DEC.
19 59
19 60
19 61
19 62
19 63
19 64
19 65
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19 76
19 77
19 78
MARATHON
MARATHON OIL COMPANY
McCALLISTER STATE NO. 1
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
Location N-25-17-34
ANNUAL PRODUCTION VS. TIME

MARATHON OIL COMPANY
McCALLISTER STATE NO. 2
1980' FSL & 1980' FWL
K-Section 25, T-17-S, R-34-E
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

Drilling Completed: August 17, 1938
Commenced Production: September 1, 1938

Cumulative Production To August 1, 1970

Oil	458,039 Bbls
Water	16,668 Bbls
Gas	527,329 MCF

Production Tests

Date	July 2, 1970	September 9, 1970
Method of Production	Pump	Pump
Oil (BPD)	34.8	40.2
Water (BPD)	23.1	26.8
GOR (ft^3/bbl)	973	1486
Tubing Pressure (psig)	45	50
Casing Pressure (psig)	45	50

Pumping Fluid Level By Sonic Measurement

September 4, 1970	742' Over Pump
September 10, 1970	1176' Over Pump

Original Completion

TD:	4700'
OH:	4101'-4700'
Treatment:	None
Initial Potential:	Flowed 45 BO per hour for a rate of 1080 BOPD, GOR 60, no water.

Other Data

January 1941 - Flowed 192 BOPD, 11/64" choke, GOR 60, no water.

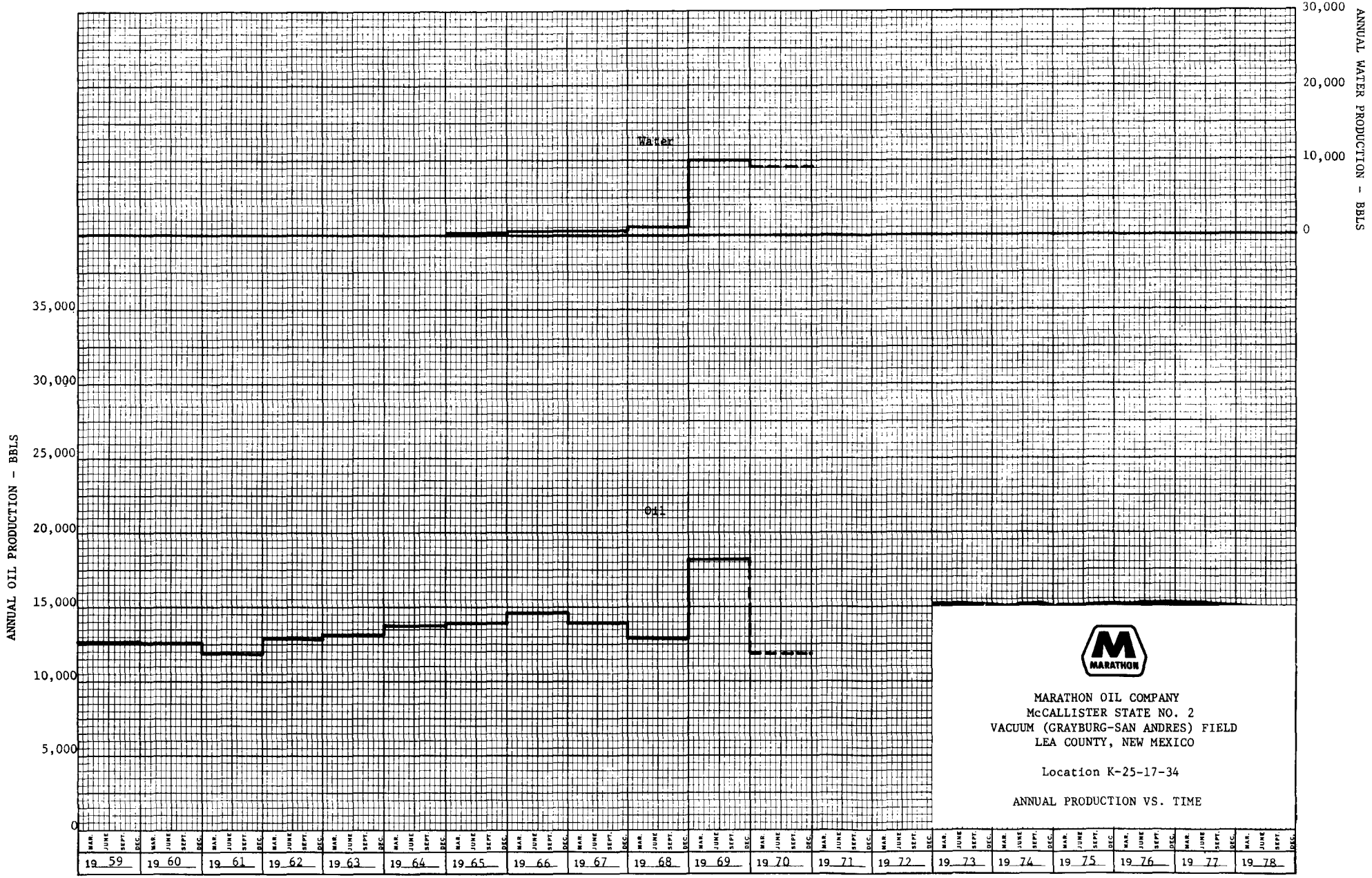
January 1949 - Installed Pumping Unit

Before Pump Installation - Flowed 10 BOPD
After Pump Installation - Pumped 75 BOPD

OWWO - Drilled Deeper - Ran Liner

Date of Workover:	July, 1968 - August, 1968
Production Prior to Workover:	Pumped 19 BOPD
Workover Procedure:	Cleaned out hole to 4700'. Drilled 6-1/4" hole to 4788'. Set 4½" liner from 3977'-4787' and cemented with 80 sacks. Perf 4680', 85', 91', 4720', 23', 36', 60', 75', with 2 jet shots per foot, treated with 2000 gallons of acid - last test the well pumped 19 BO + 81 BWPD, squeezed perf 4760' & 4775' with 50 sacks, re-perforated 4680', 85', 91', 4720', 23', 36', with 2 jet shots per foot, treated with 2000 acid.

Producing Interval:	Perforated 4680'-4736' (Gross Interval)
Treatment:	4000 Acid
Potential:	Pumped 71.4 BOPD plus 4 BWPD, GOR 749, pumping 12-54" SPM.


ANNUAL OIL PRODUCTION - BBLS
ANNUAL WATER PRODUCTION - BBLS
Water
Oil
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
30,000
20,000
10,000
0
MARATHON
MARATHON OIL COMPANY
McCALLISTER STATE NO. 2
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
Location K-25-17-34
ANNUAL PRODUCTION VS. TIME
MAR. JUNE SEPT. DEC.
19 59
19 60
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19 62
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MARATHON OIL COMPANY
McCALLISTER STATE NO. 3
660' FSL & 660' FWL
M-Section 25, T-17-S, R-34-E
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

Drilling Completed: December 23, 1938
Commenced Production: Not Available

Cumulative Production To August 1, 1970

Oil	483,578 Bbls
Water	1,078 Bbls
Gas	426,176 MCF

Production Tests

Date	August 2, 1970	September 1, 1970
Method of Production	Pump	Pump
Oil (BPD)	70.7	73.2
Water (BPD)	0.7	0.7
GOR (ft^3/bbl)	901	870
Tubing Pressure (psig)	51	51
Casing Pressure (psig)	51	51

Pumping Fluid Level By Sonic Measurement

September 4, 1970	1998' Over Pump
September 10, 1970	2059' Over Pump

Original Completion

TD:	4690'
OH:	4081'-4690'
Treatment:	None
Initial Potential:	Flowed 38 BO per hour for a rate of 912 BOPD, GOR 657, no water.

Other Data

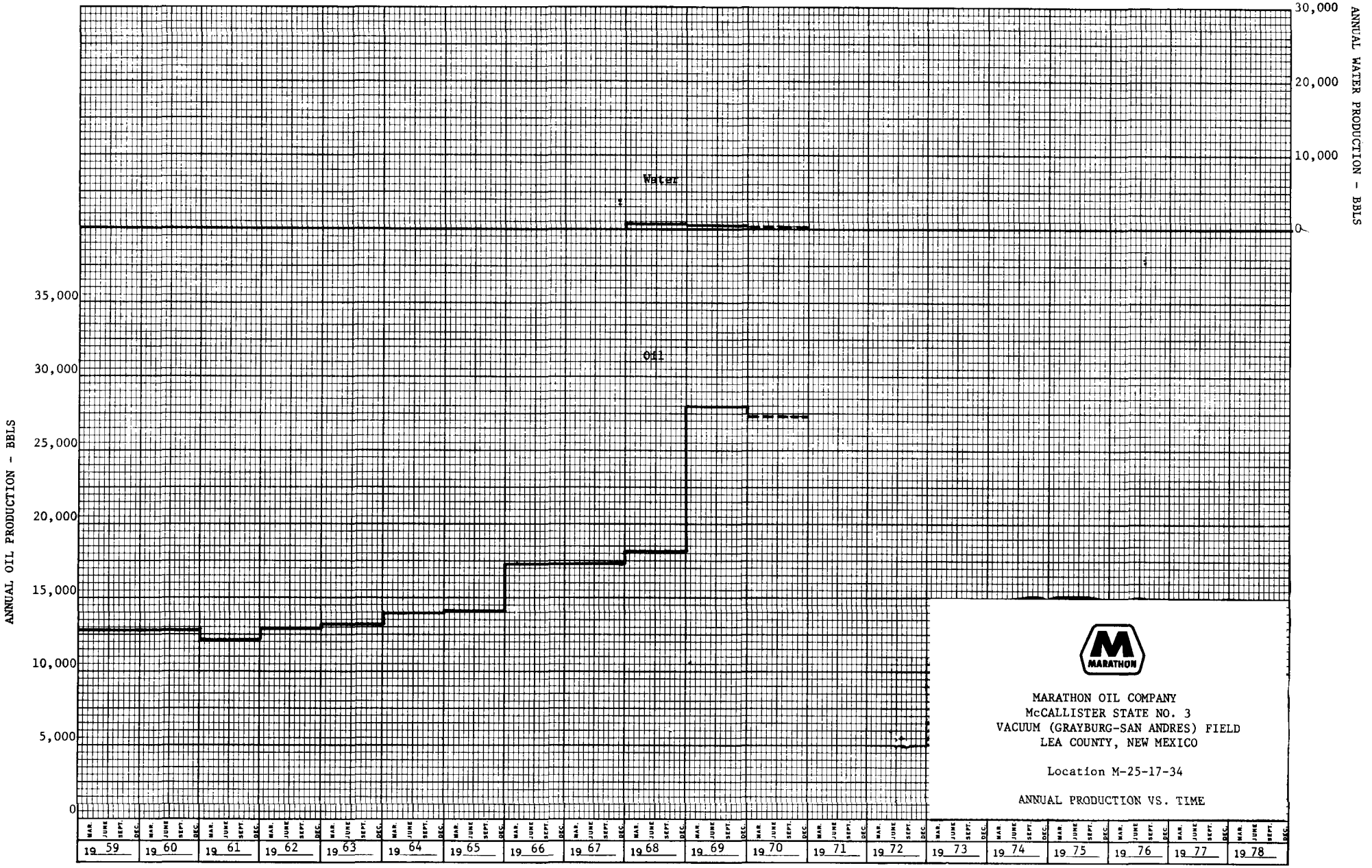
March 1949 - Installed Pumping Unit

Before Pump Installation - Flowed 10 BOPD
After Pump Installation - Pumped 80 BOPD

OWWO - Drilled Deeper - Ran Liner

Date of Workover:	March, 1968 - April, 1968
Production Prior to Workover:	Pumped 21 BOPD
Workover Procedure:	Cleaned out hole to 4690', drilled 6-1/4" hole to 4786'. Set 4½" liner at 4782' and cemented with 80 sacks. Perf 4666', 4683', 4700', 4706', 4720', 4732', 4739', 4743', and 4763' with 2 jet shots per foot, treated with 2000 acid.

Producing Interval:	Perforated 4666'-4763' (Gross Interval)
Treatment:	2000 Acid
Potential:	Pumped 71 BOPD plus 10 BWPD, GOR 372, pumping 14 - 44" SPM.


ANNUAL OIL PRODUCTION - BBLS
ANNUAL WATER PRODUCTION - BBLS
Water
Oil
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
10,000
20,000
30,000
MAR. JUNE SEPT. DEC.
19 59
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MARATHON
MARATHON OIL COMPANY
McCALLISTER STATE NO. 3
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
Location M-25-17-34
ANNUAL PRODUCTION VS. TIME

MARATHON OIL COMPANY
McCALLISTER STATE NO. 4
1980' FSL & 660' FWL
L-Section 25, T-17-S, R-34-E
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

Drilling Completed: January 28, 1939
Commenced Production: February 1, 1939

Cumulative Production To August 1, 1970

Oil	482,134 Bbls
Water	636 Bbls
Gas	510,935 MCF

Production Tests

Date	August 23, 1970	September 6, 1970
Method of Production	Pump	Pump
Oil (BPD)	76.4	84.1
Water (BPD)	0.8	0.8
GOR (ft^3/bbl)	1009	1058
Tubing Pressure (psig)	50	50
Casing Pressure (psig)	50	50

Pumping Fluid Level By Sonic Measurement

September 4, 1970	218' Over Pump
September 10, 1970	218' Over Pump

Original Completion

TD:	4710'
OH:	4099'-4710'
Treatment:	None
Initial Potential:	Flowed 35 BO per hour for a rate of 840 BOPD, GOR 107, no water.

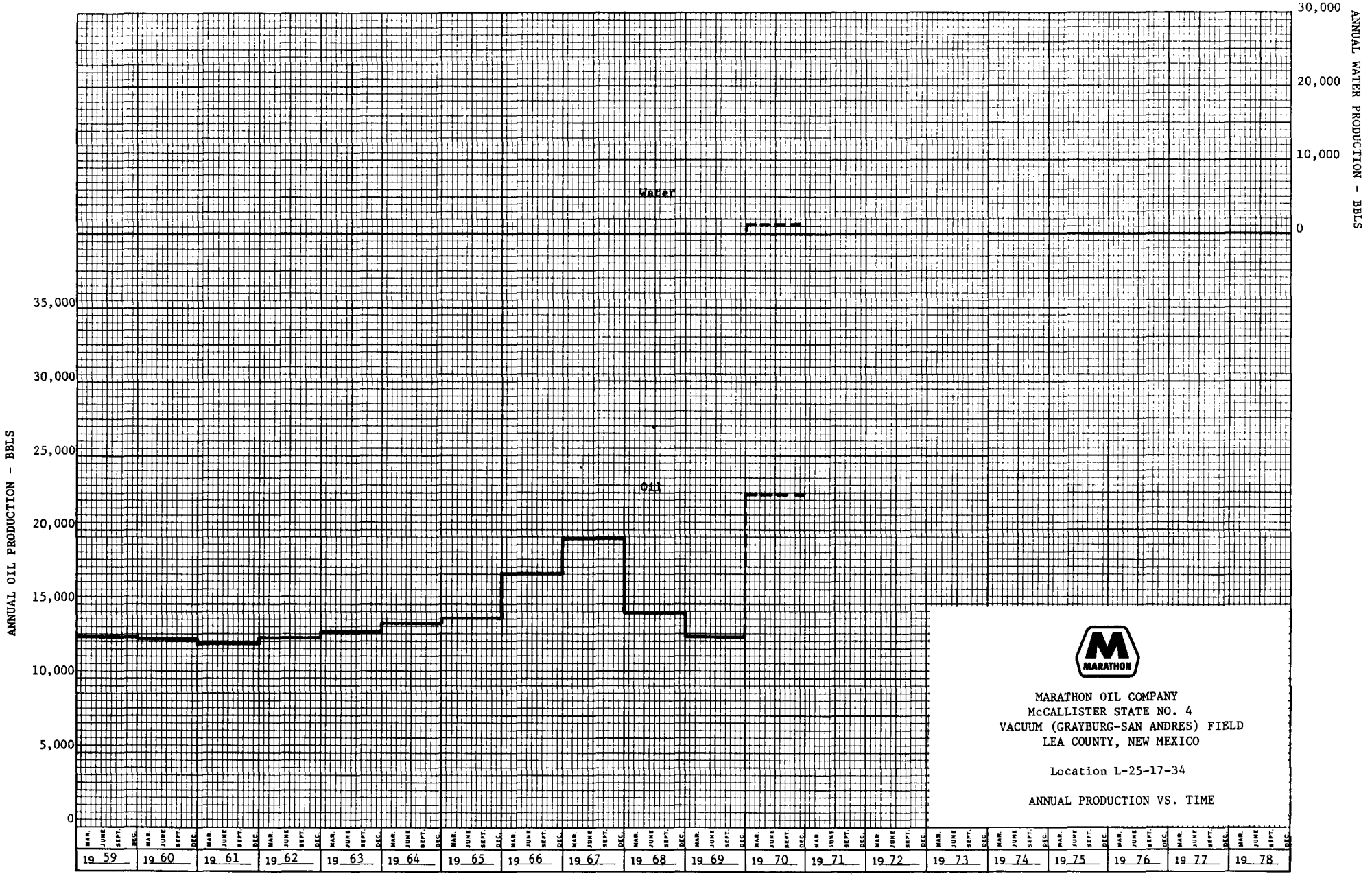
Other Data

March 1949 - Installed Pumping Unit

Before Pump Installation - Flowed 10 BOPD
After Pump Installation - Pumped 120 BOPD

OWWO - Drilled Deeper - Ran Liner

Date of Workover:	December, 1969 - January, 1970
Production Prior to Workover:	Pumped 21 BOPD
Workover Procedure:	Cleaned out hole to 4710'. Drilled 6-1/4" hole to 4780'. Ran 4½" liner to 4780' and cemented with 90 sacks. Perf 4737'-47' (Gross) - Pumped 25 BO plus 17 BWPD. Set retreivable bridge plug at 4730'. Perf 4673', 7475', 76', 4703', 04', 06', 07', 14', 15', 17', 18', 20', and 4721'with one jet shot per foot. Treated with 2000 acid.
Producing Interval:	Perforated 4673'-4747' (Gross Interval).
Treatment:	2000 A
Potential:	Pumped 92 BOPD plus 12 BWPD, GOR 1961


ANNUAL OIL PRODUCTION - BBLS
ANNUAL WATER PRODUCTION - BBLS
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
30,000
20,000
10,000
0
Water
Oil
MAR. JUNE SEPT. DEC.
19 59
19 60
19 61
19 62
19 63
19 64
19 65
19 66
19 67
19 68
19 69
19 70
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19 77
19 78
MARATHON
MARATHON OIL COMPANY
McCALLISTER STATE NO. 4
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO
Location L-25-17-34
ANNUAL PRODUCTION VS. TIME

ALL CALCULATIONS BY SLIDE RULE

PRB Sept. 16, 1970

MARATHON OIL COMPANY
McCALLISTER STATE LEASE
VACUUM (GRAYBURG-SAN ANDRES) FIELD
LEA COUNTY, NEW MEXICO

CALCULATION OF ORIGINAL OIL IN-PLACE

Well	Total Net Pay (ft.)	Total Upper San Andres Net Pay (ft)	Average Porosity (%)	Acreage	Fraction Net Pay Upper SA to Total	Original Oil In-Place (BSTO)	Original Oil In Place Upper San Andres (BSTO
McCallister State No. 6	217	75'	7.7	40	(.345)	3,191,000	1,100,000
McCallister State No. 8	157	55'	6.3	40	(.350)	1,889,000	660,000
McCallister State No. 9	221	65'	7.3	40	(.294)	3,081,000	906,000
McCallister State No. 10	149	49'	5.5	40	(.329)	1,565,000	515,000
Lease Total		SEE XSECTION A-A' Exhibit #3		160		9,726,000	3,181,000

Equation Used To Determine Original Oil In-Place Per Well:

$$OOIP = \frac{(7758)(\emptyset)(h)(1-S_w)(A)}{B}$$

where:

OOIP = Original Oil In-Place (BSTO)
$\emptyset$ = Porosity (Fractional) - Refer to Crossection A-A'
h = Net Pay (Feet) - Refer to Crossection A-A'
S_w = Water Saturation (Fractional) = 0.20
A = Area Of Proration Unit Assigned Well = 40 Acres
B = Formation Volume Factor = 1.3

FOR UPPER SAN ANDRES,

SOLUTION GAS DRIVE - ASSUME Ultimate Primary Recovery 25% OOIP = .25 x 3,181,000 = 800,000 BSTO
ASSUME Recovery WHILE ZONE OPEN - 15% OOIP = .15 x 3,181,000 = 477,000 BSTO
Primary Recovery POTENTIAL from workover AT LATER DATE 323,000 BSTO
ASSUME WATER FLOOD OIL 50% Primary (.50 x 800,000) = 400,000 BSTO
TOTAL Future POTENTIAL PRIMARY & SECONDARY OIL UPPER SAN ANDRES 723,000 BSTO

PRODUCING WELL PERFORMANCE

MOBIL BRIDGES STATE WATERFLOOD PROJECT

VACUUM FIELD
LEA COUNTY, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Marathon Exhibit No. 7
Case No. 4367 + 4368

INDEX

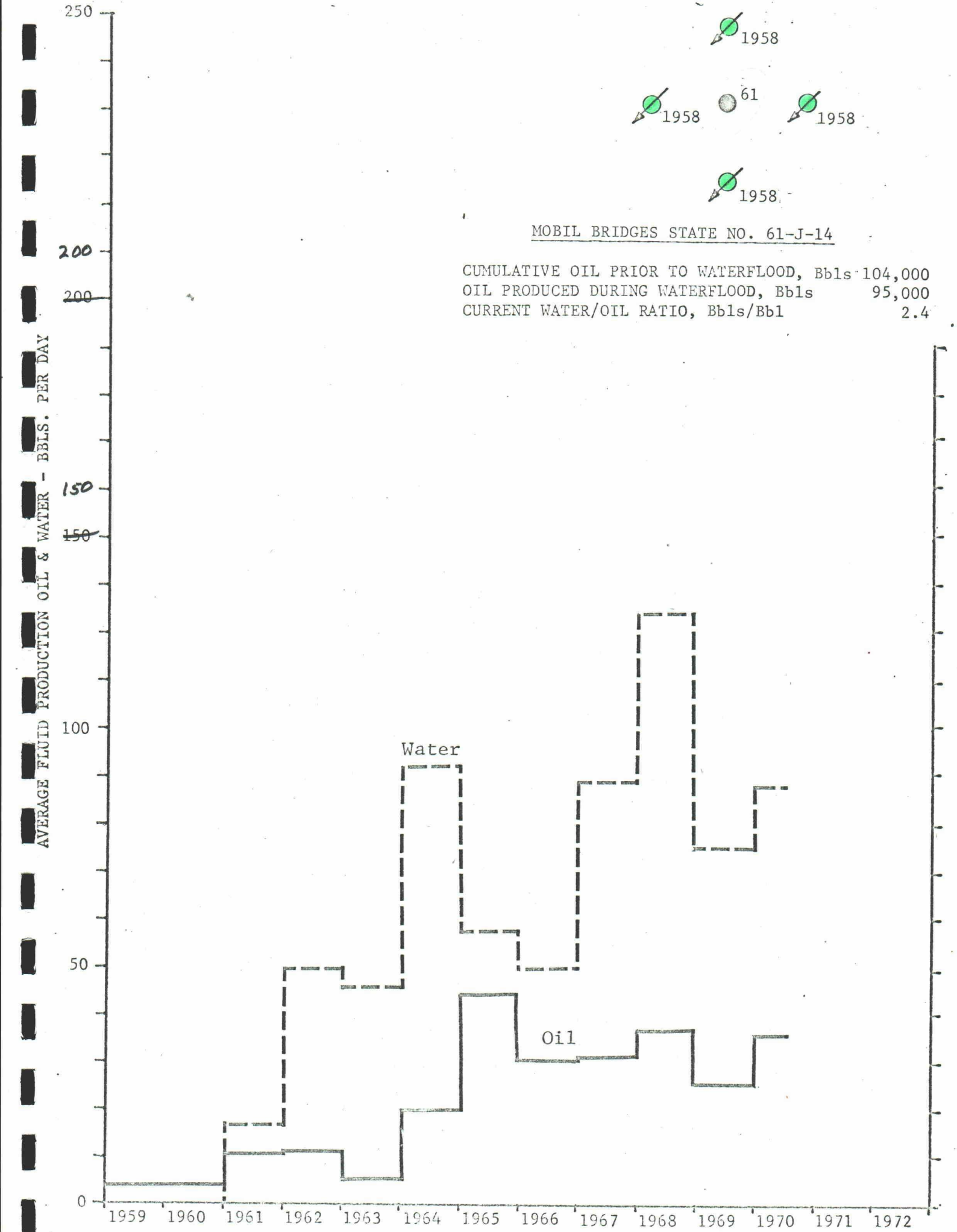

1958
1958
61
1958
1958
MOBIL BRIDGES STATE NO. 61-J-14
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 104,000
OIL PRODUCED DURING WATERFLOOD, Bbls 95,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 2.4
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
200
150
150
100
50
0
Water
Oil
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972

Figure No. 1

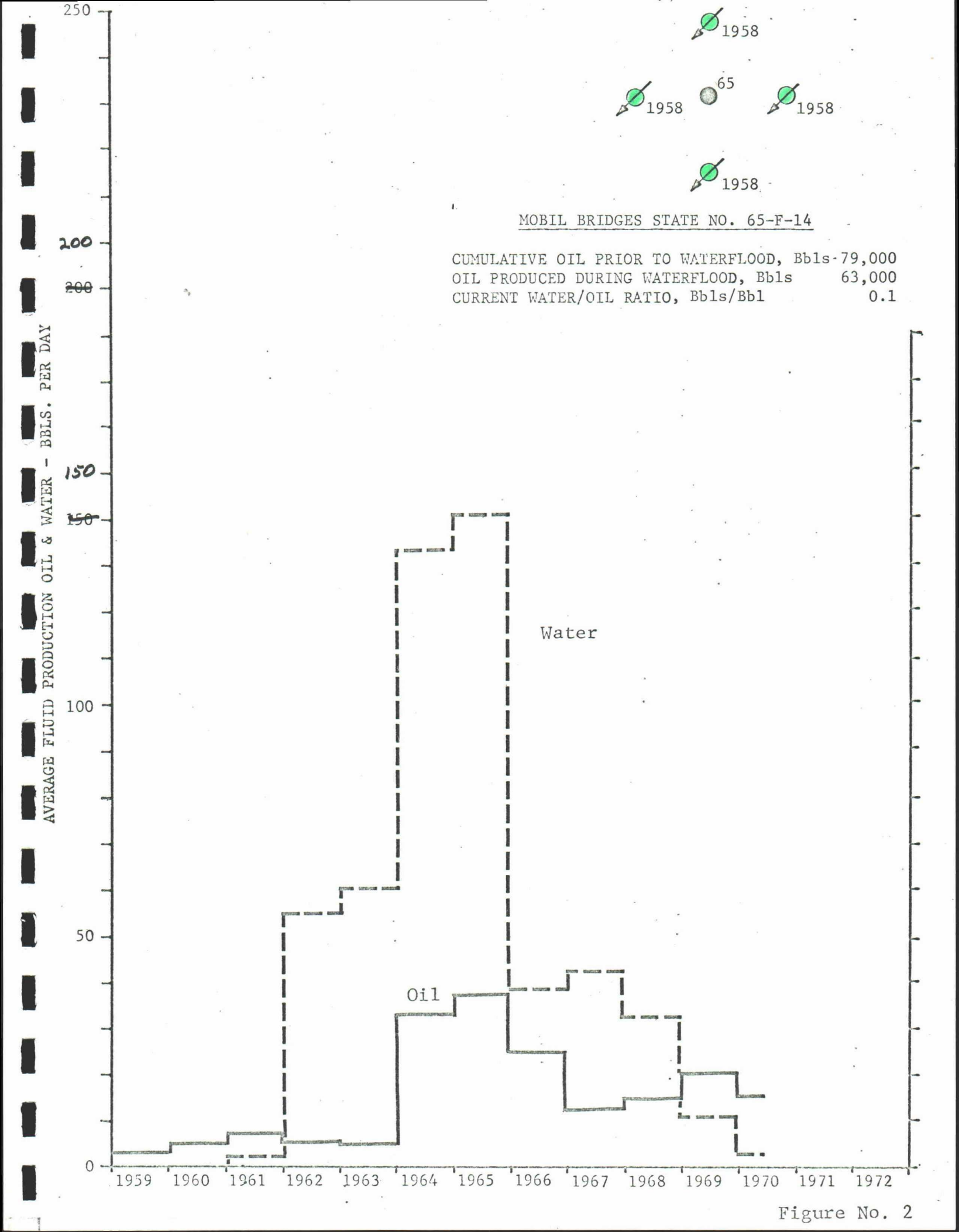

1958
65
1958
1958
1958
MOBIL BRIDGES STATE NO. 65-F-14
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 79,000
OIL PRODUCED DURING WATERFLOOD, Bbls 63,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 0.1
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Water
Oil
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972

Figure No. 2

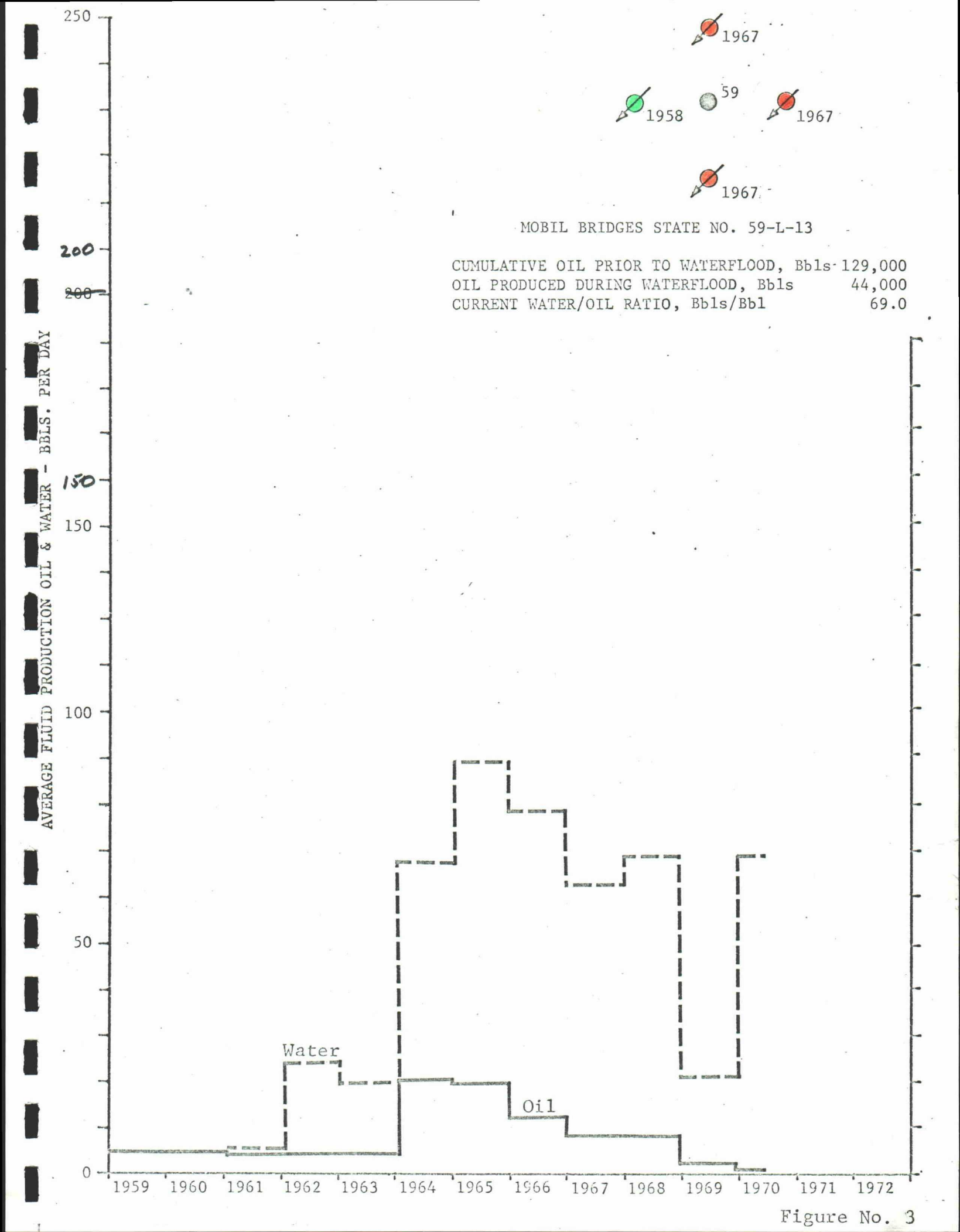

1967
1958
59
1967
1967
MOBIL BRIDGES STATE NO. 59-L-13
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 129,000
OIL PRODUCED DURING WATERFLOOD, Bbls 44,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 69.0
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Water
Oil
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 3

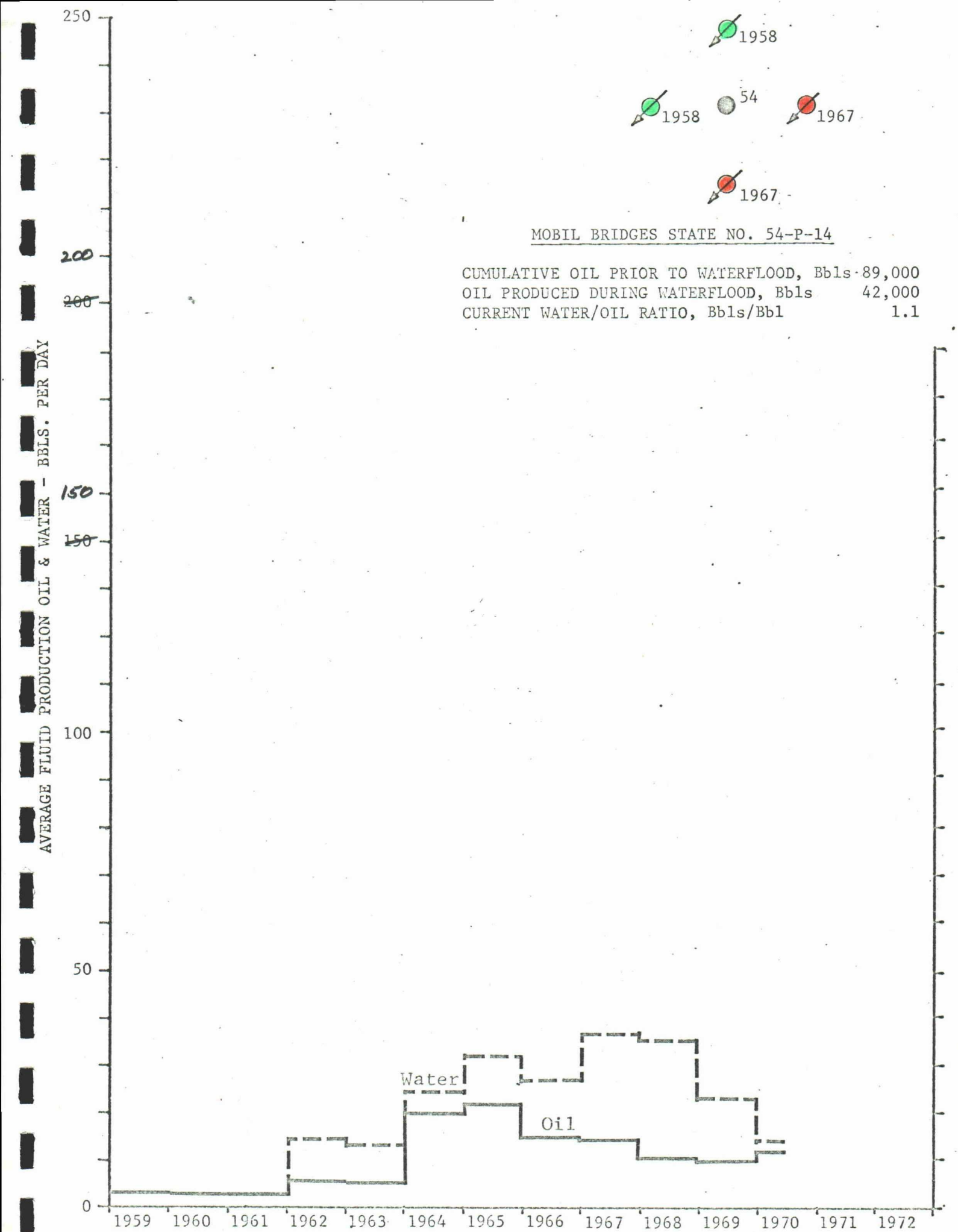

1958
1958
54
1967
1967
MOBIL BRIDGES STATE NO. 54-P-14
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 89,000
OIL PRODUCED DURING WATERFLOOD, Bbls 42,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 1.1
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Water
Oil
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 4

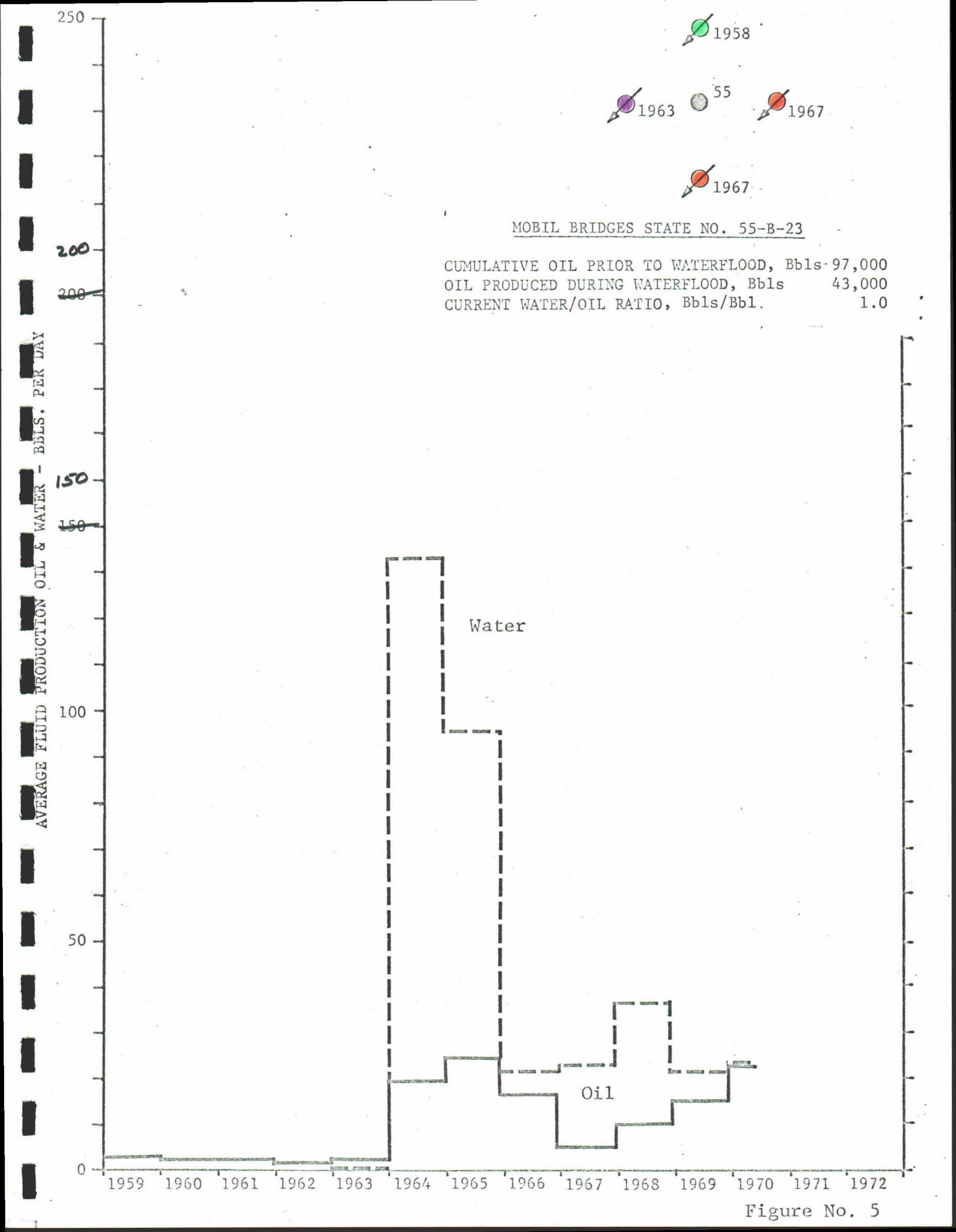

1958
1963
55
1967
1967
MOBIL BRIDGES STATE NO. 55-B-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 97,000
OIL PRODUCED DURING WATERFLOOD, Bbls 43,000
CURRENT WATER/OIL RATIO, Bbls/Bbl. 1.0
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Water
Oil
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972

Figure No. 5

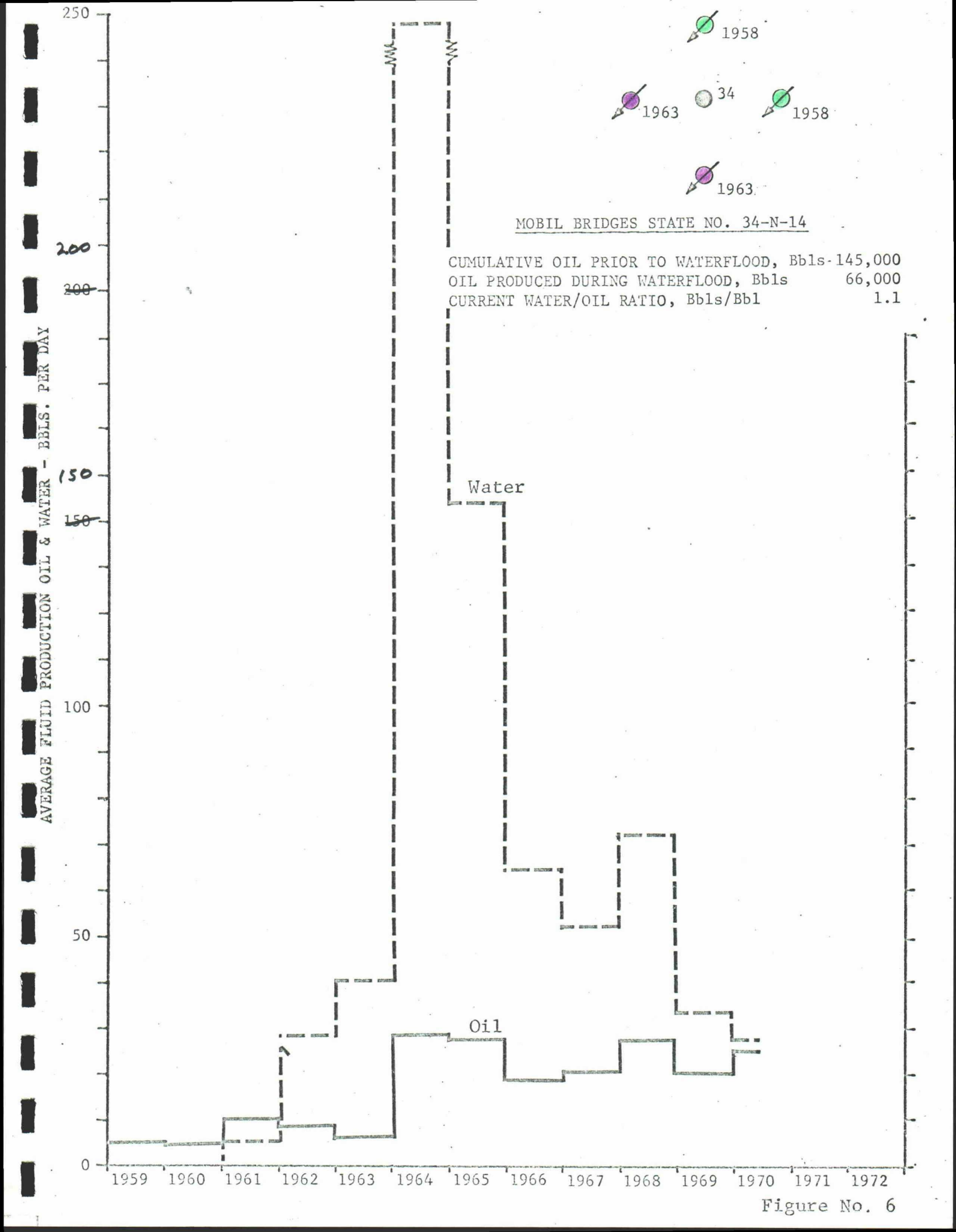

1958
1963
34
1958
1963
MOBIL BRIDGES STATE NO. 34-N-14
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 145,000
OIL PRODUCED DURING WATERFLOOD, Bbls 66,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 1.1
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Water
Oil
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 6

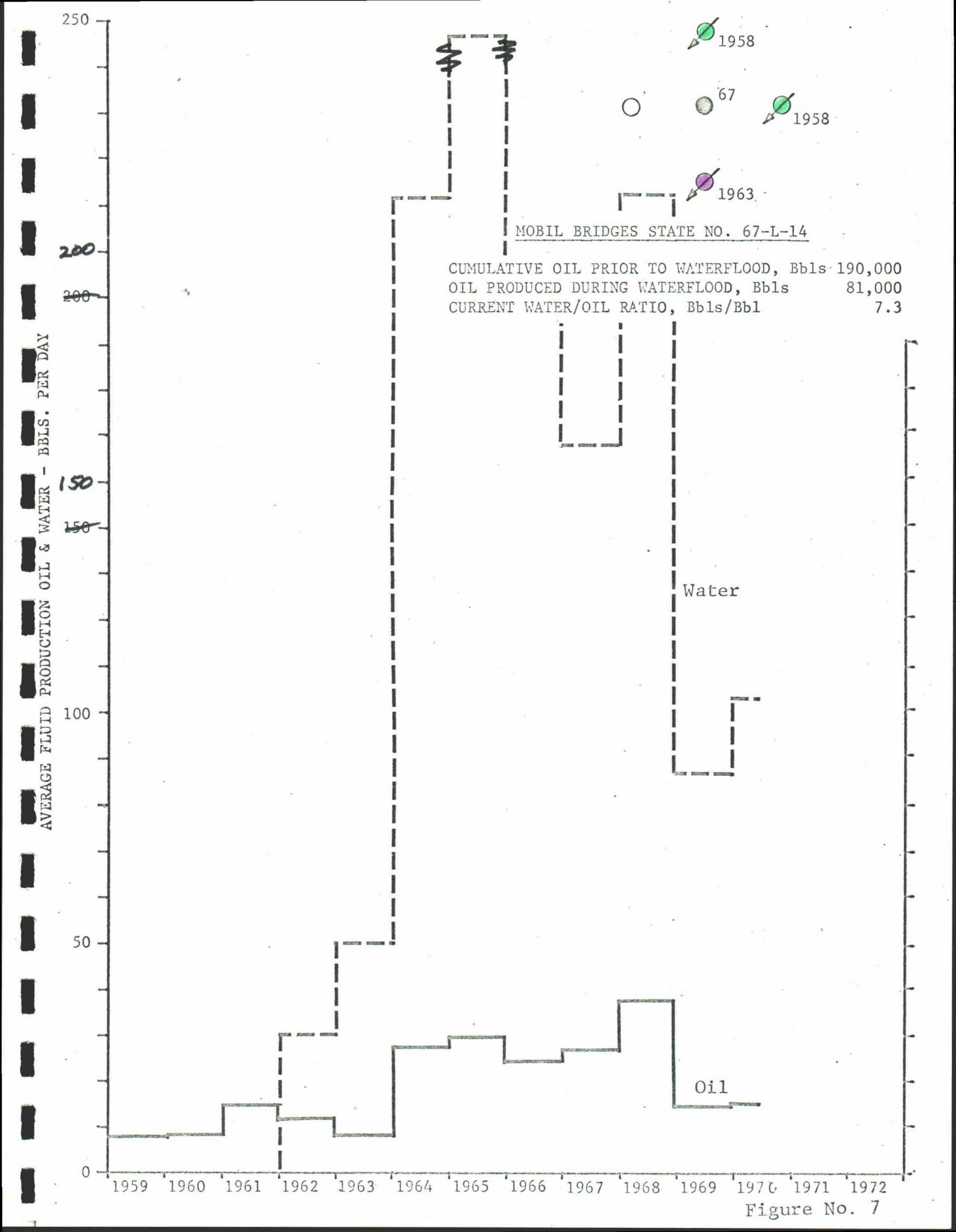

250
200
150
100
50
0
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
1958
67
1958
1963
MOBIL BRIDGES STATE NO. 67-L-14
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 190,000
OIL PRODUCED DURING WATERFLOOD, Bbls 81,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 7.3
Water
Oil
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 7

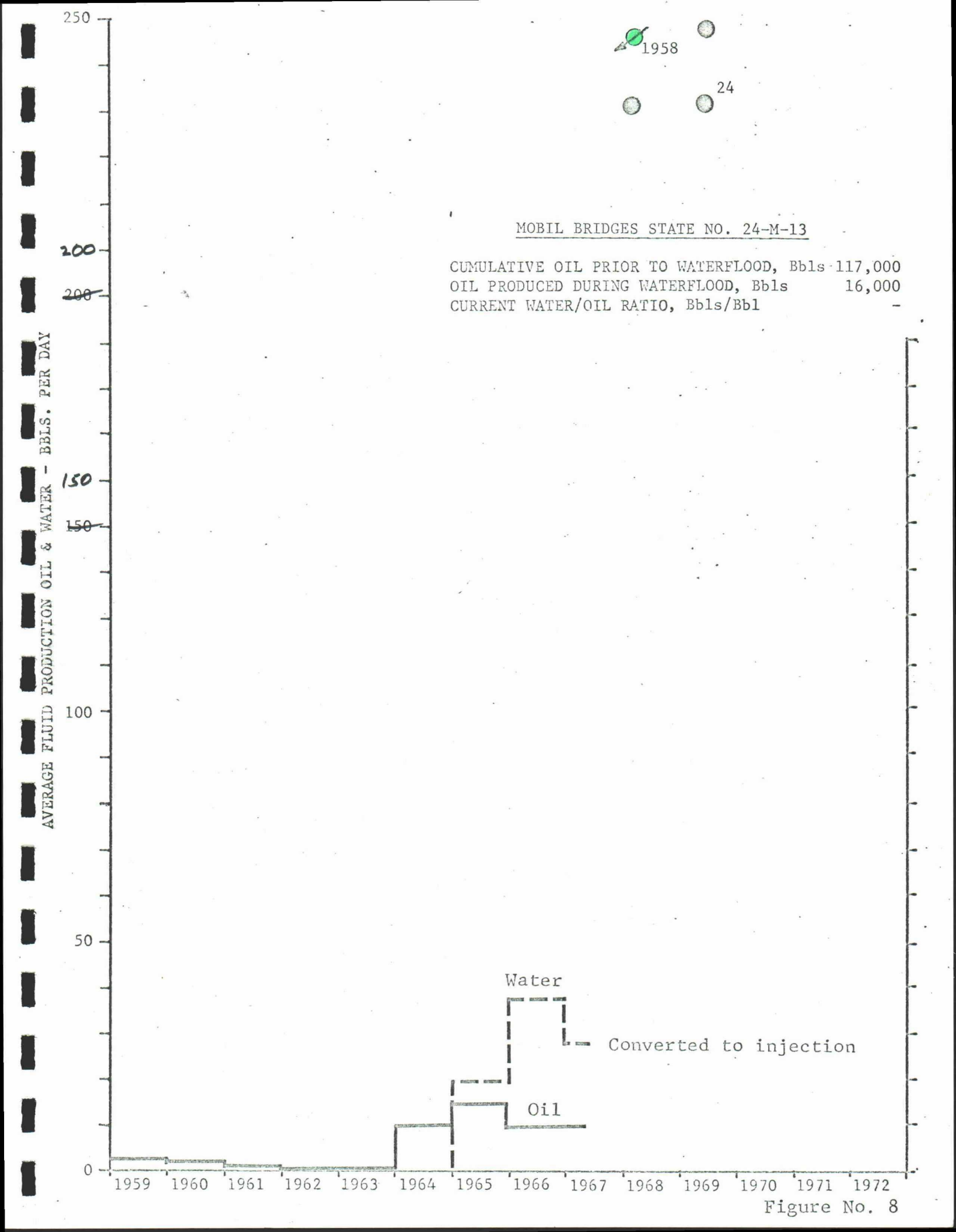

1958
24
MOBIL BRIDGES STATE NO. 24-M-13
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 117,000
OIL PRODUCED DURING WATERFLOOD, Bbls 16,000
CURRENT WATER/OIL RATIO, Bbls/Bbl -
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Water
Converted to injection
Oil
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 8

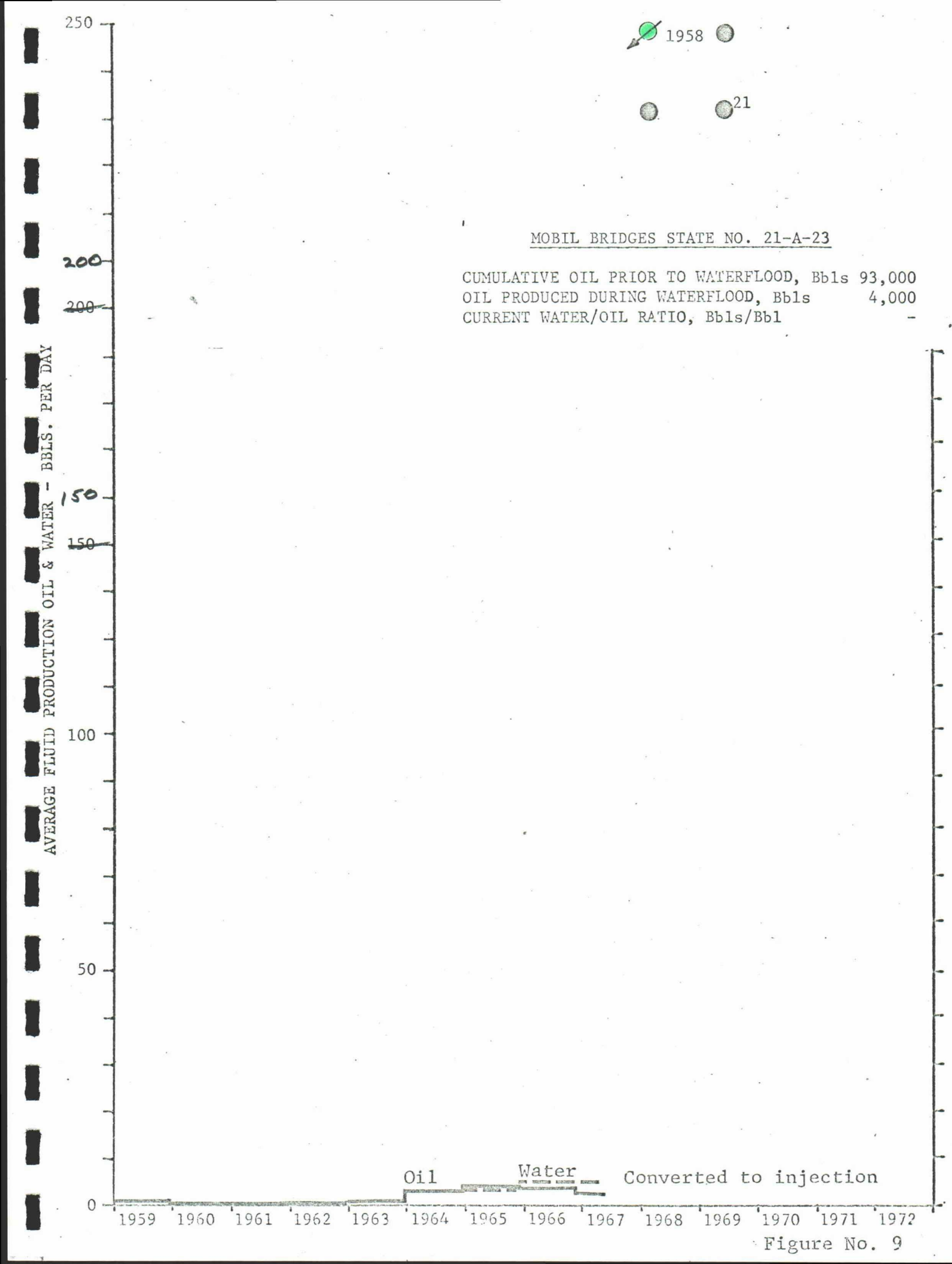

1958
21
MOBIL BRIDGES STATE NO. 21-A-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 93,000
OIL PRODUCED DURING WATERFLOOD, Bbls 4,000
CURRENT WATER/OIL RATIO, Bbls/Bbl -
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Oil
Water
Converted to injection
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972

Figure No. 9

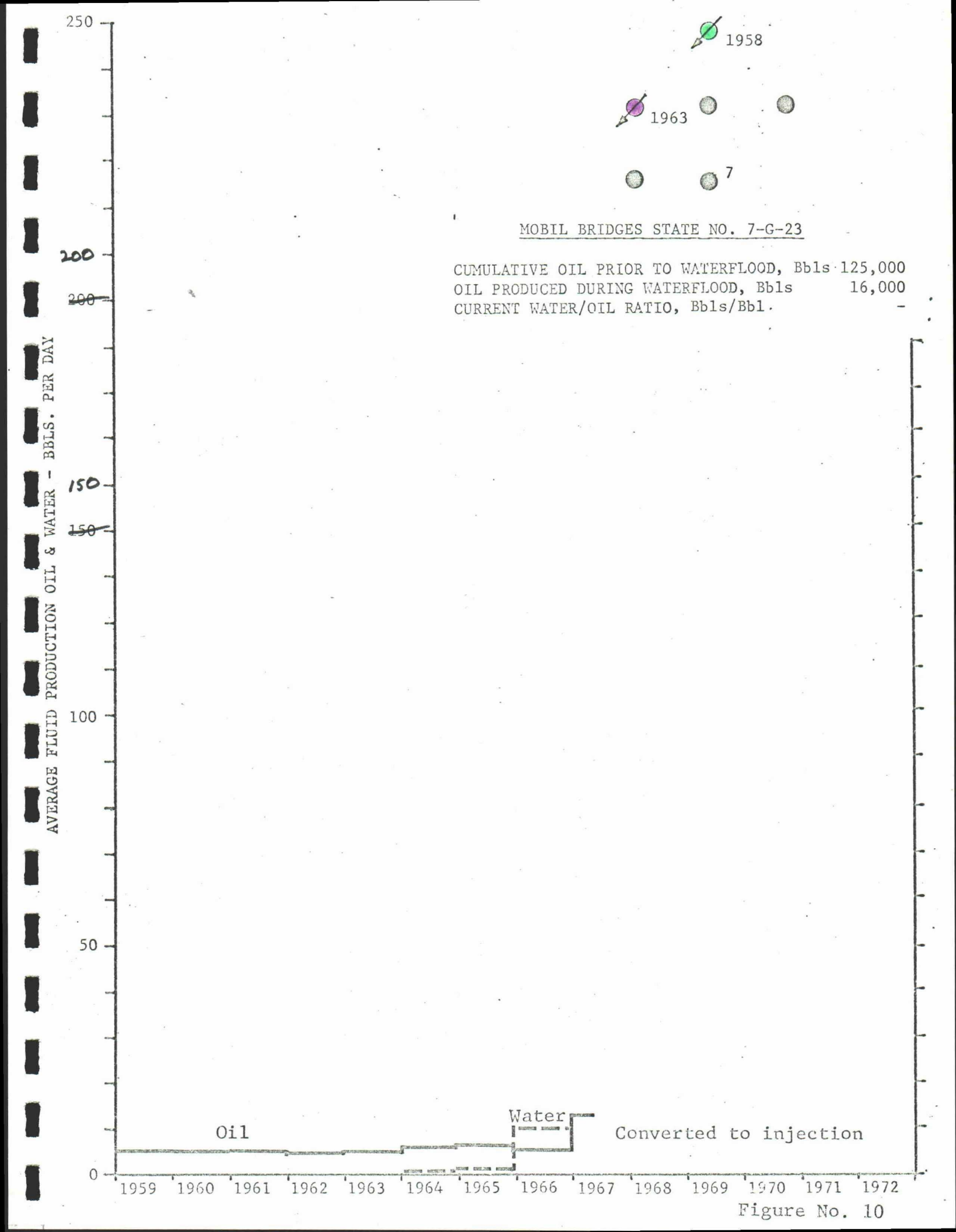

1958
1963
7
MOBIL BRIDGES STATE NO. 7-G-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 125,000
OIL PRODUCED DURING WATERFLOOD, Bbls 16,000
CURRENT WATER/OIL RATIO, Bbls/Bbl. -
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Oil
Water
Converted to injection
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 10

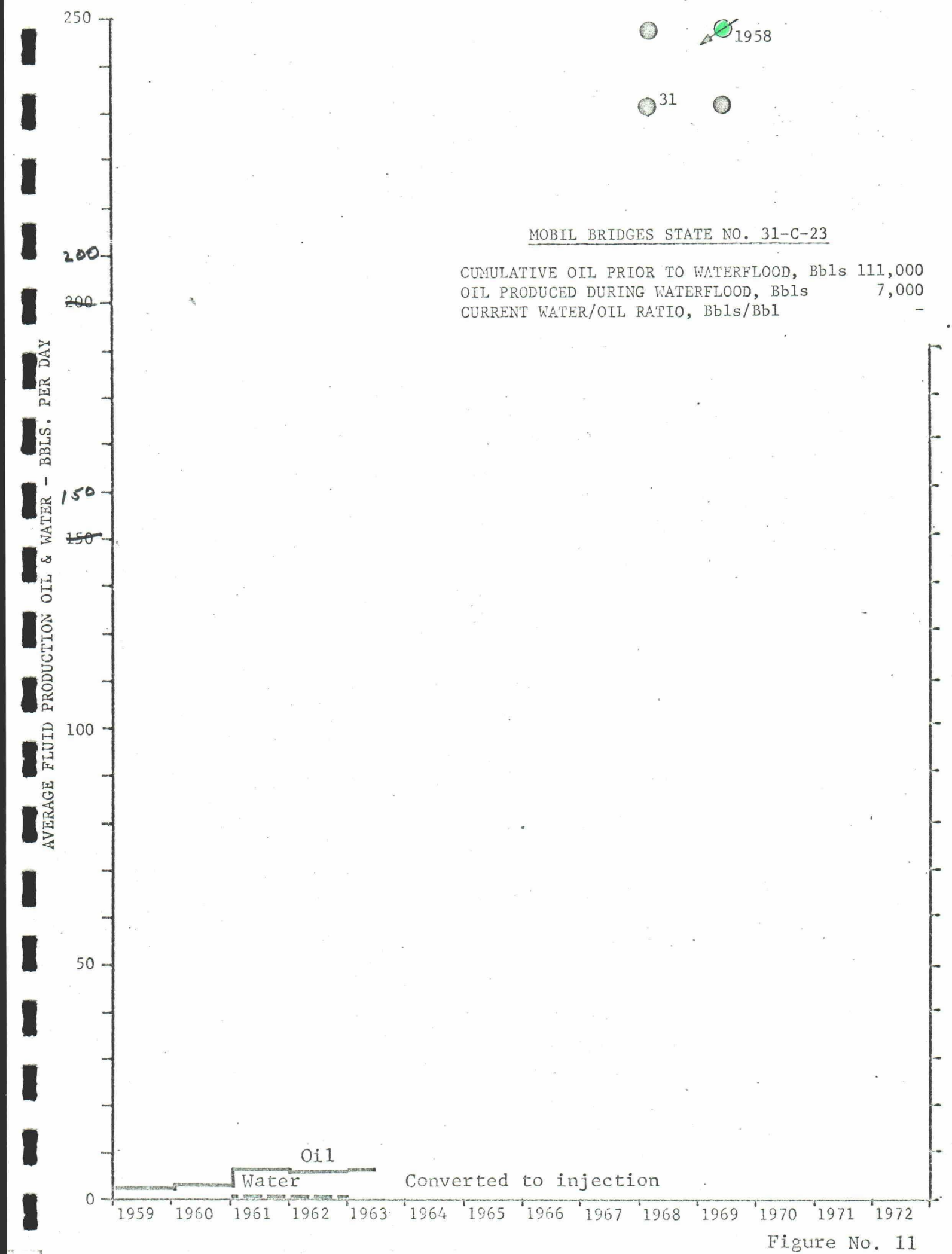

1958
31
MOBIL BRIDGES STATE NO. 31-C-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 111,000
OIL PRODUCED DURING WATERFLOOD, Bbls 7,000
CURRENT WATER/OIL RATIO, Bbls/Bbl -
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Oil
Water
Converted to injection
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 11

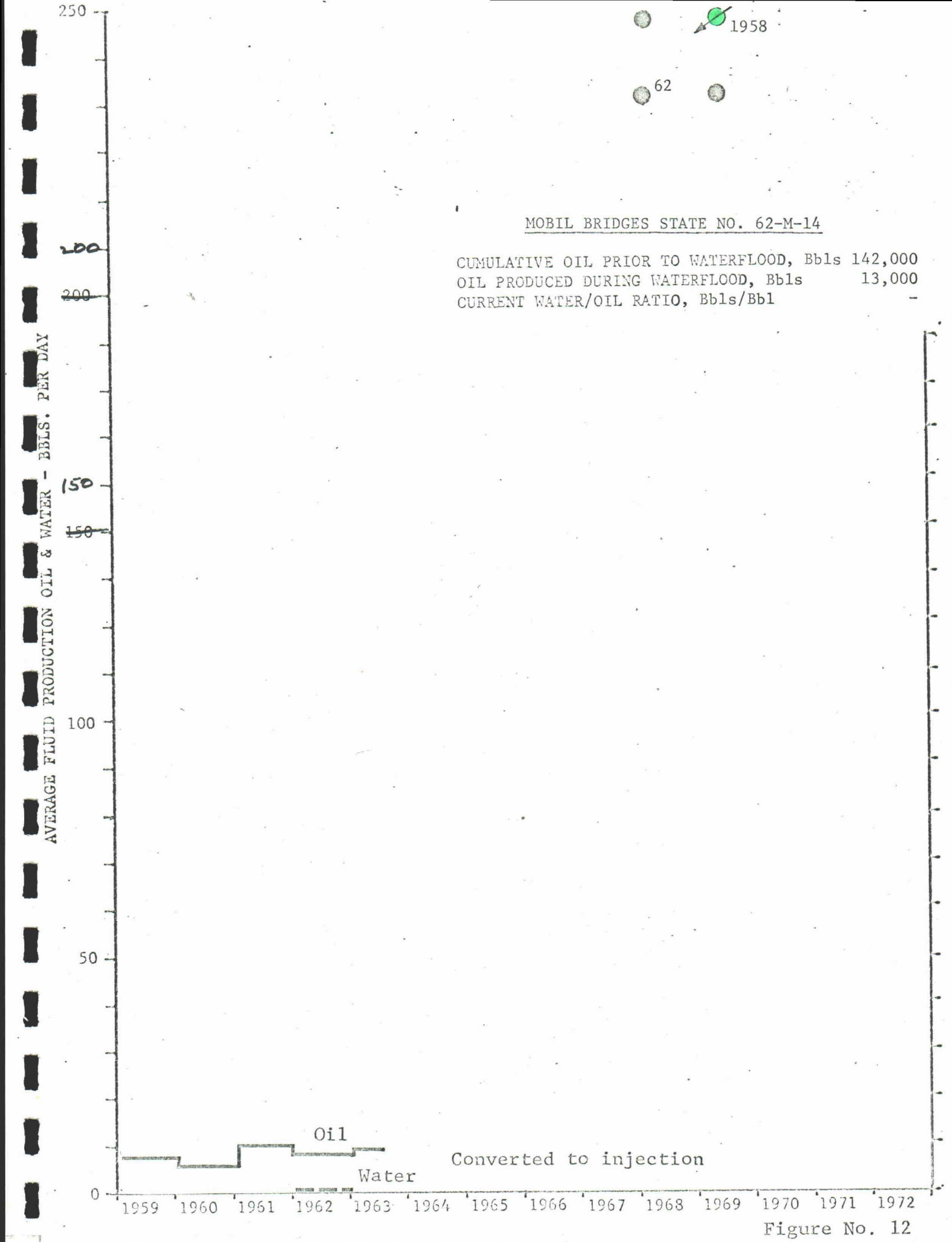

1958
62
MOBIL BRIDGES STATE NO. 62-M-14
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 142,000
OIL PRODUCED DURING WATERFLOOD, Bbls 13,000
CURRENT WATER/OIL RATIO, Bbls/Bbl -
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Oil
Water
Converted to injection
1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972

Figure No. 12

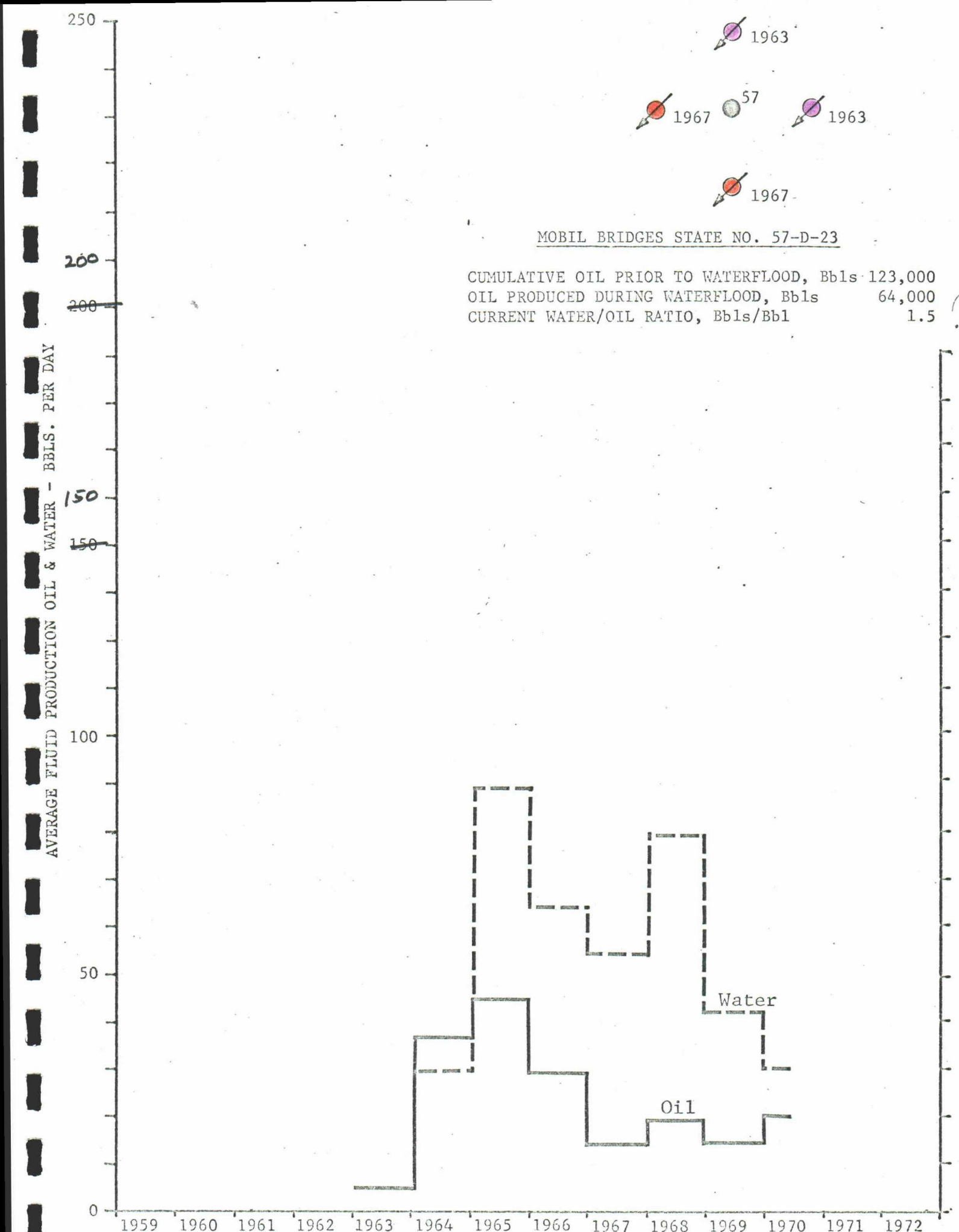

1963
57
1967
1963
1967
MOBIL BRIDGES STATE NO. 57-D-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 123,000
OIL PRODUCED DURING WATERFLOOD, Bbls 64,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 1.5
AVERAGE FLUID PRODUCTION OIL & WATER - BBLS. PER DAY
250
200
150
100
50
0
Water
Oil
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972

Figure No. 13

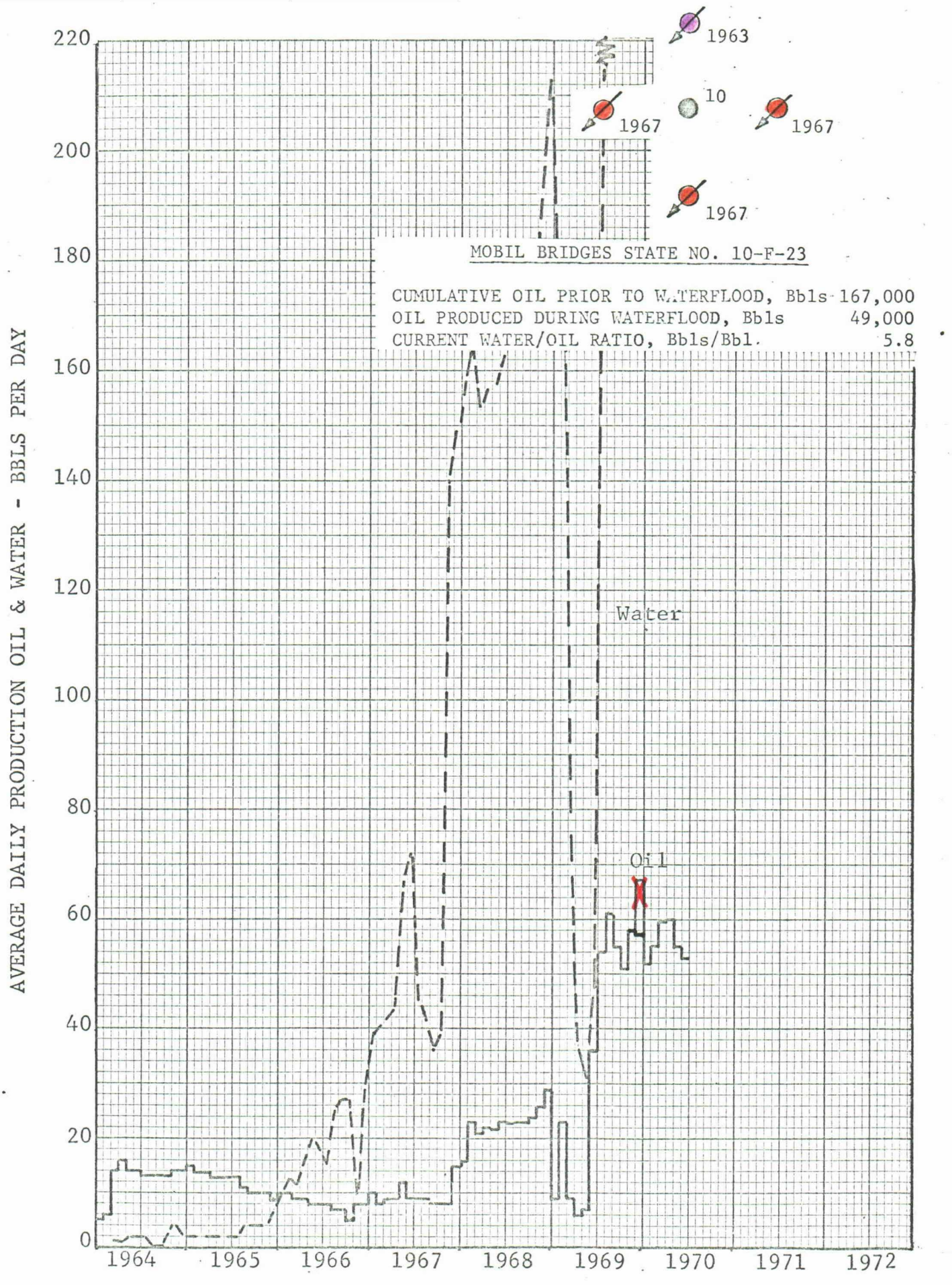

1963
1967
10
1967
1967
MOBIL BRIDGES STATE NO. 10-F-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 167,000
OIL PRODUCED DURING WATERFLOOD, Bbls 49,000
CURRENT WATER/OIL RATIO, Bbls/Bbl. 5.8
AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
Water
Oil
1964
1965
1966
1967
1968
1969
1970
1971
1972

Figure No. 14

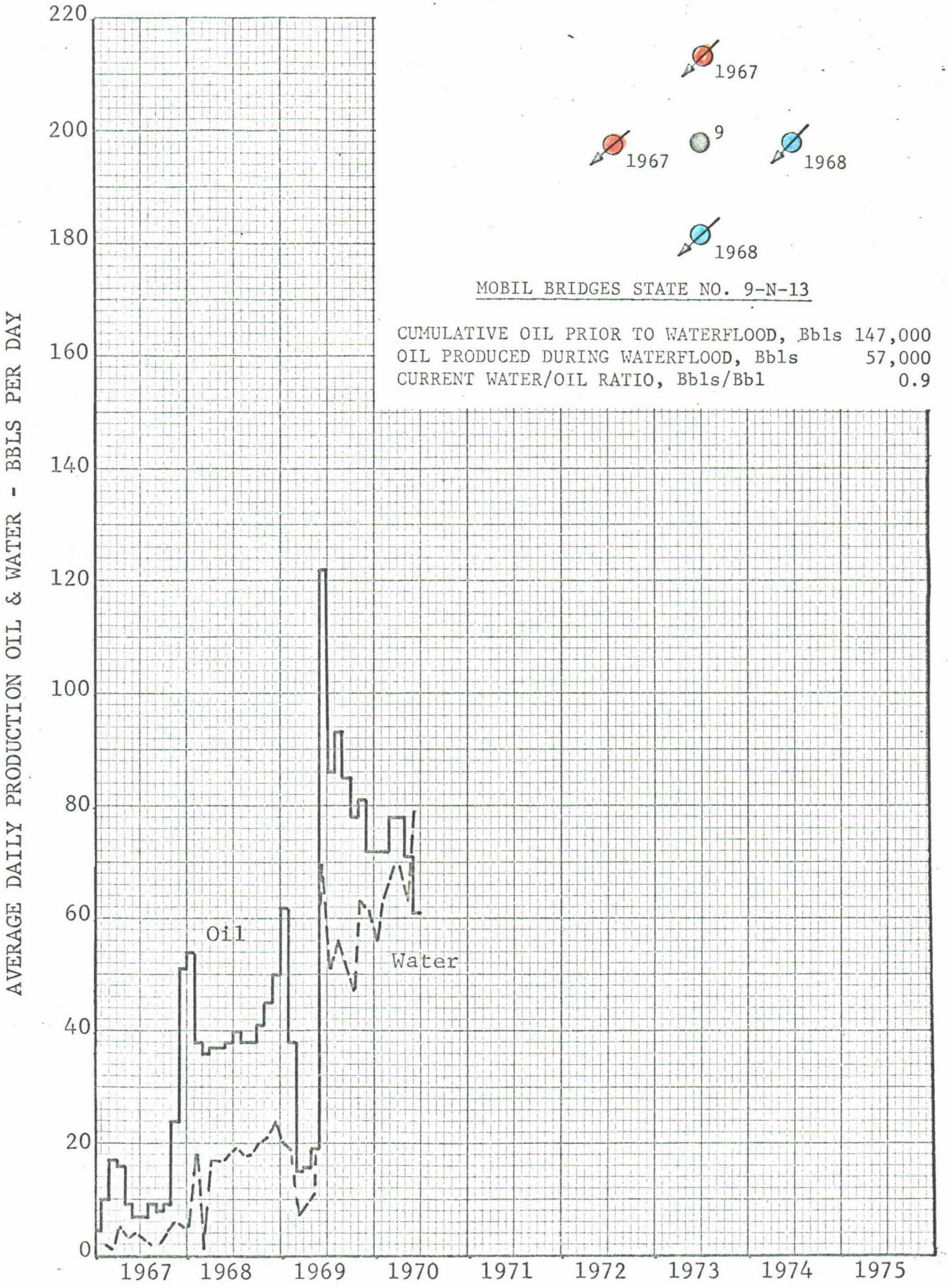

AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
1967
1968
1969
1970
1971
1972
1973
1974
1975
Oil
Water
1967
1967
9
1968
1968
MOBIL BRIDGES STATE NO. 9-N-13
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 147,000
OIL PRODUCED DURING WATERFLOOD, Bbls 57,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 0.9

Figure No. 15

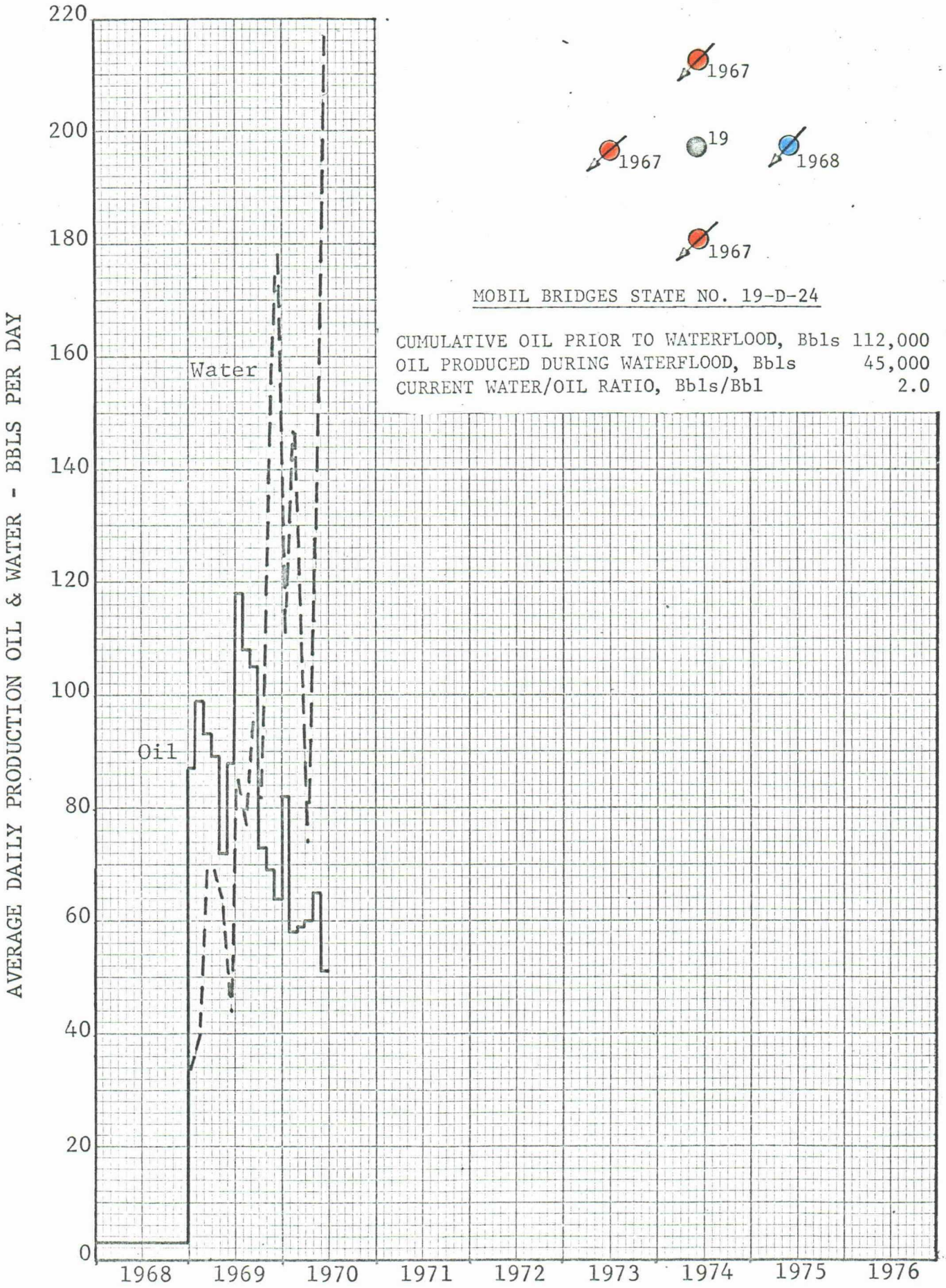
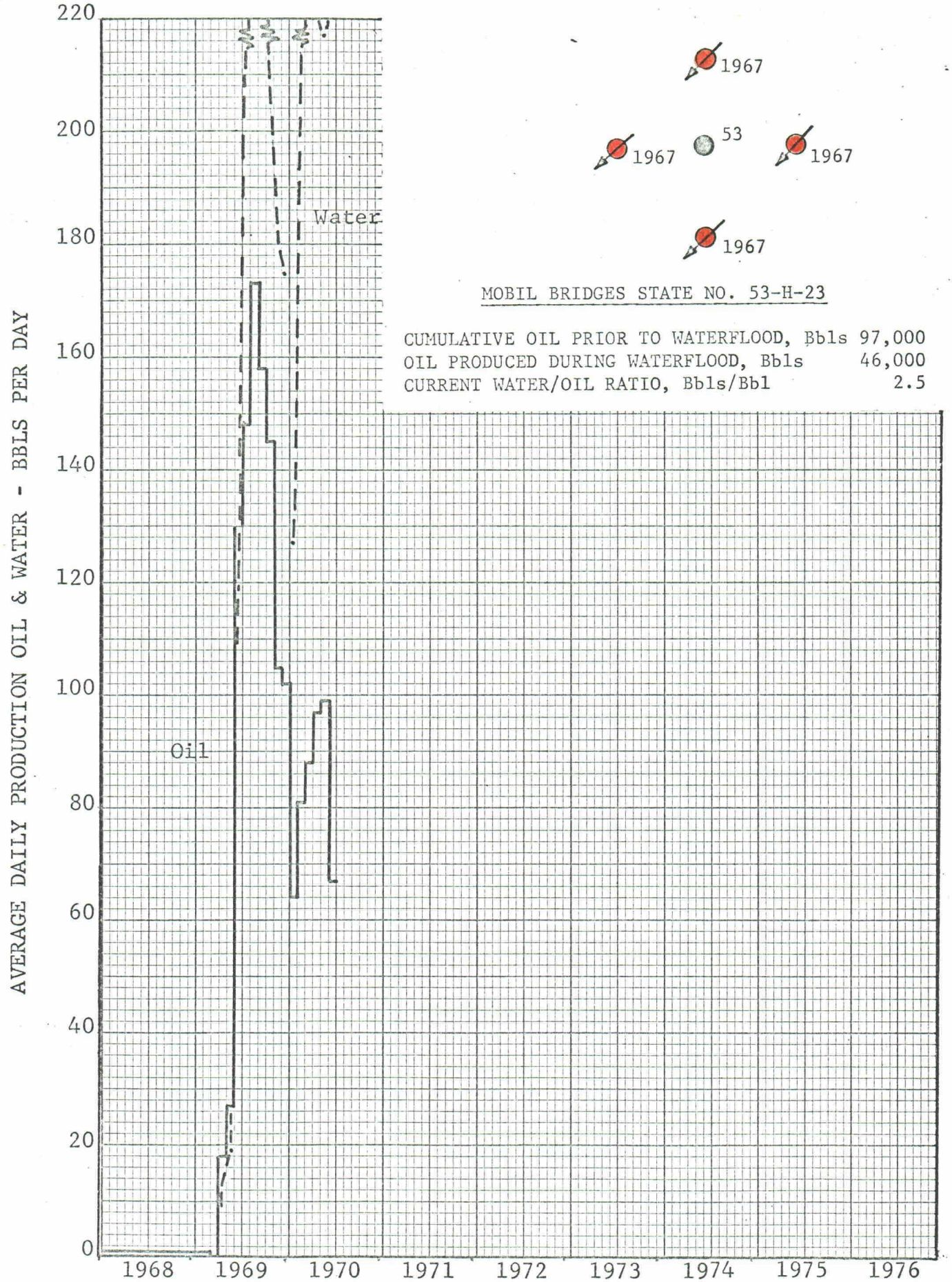

AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
Water
Oil
1968
1969
1970
1971
1972
1973
1974
1975
1976
1967
19
1967
1968
1967
MOBIL BRIDGES STATE NO. 19-D-24
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 112,000
OIL PRODUCED DURING WATERFLOOD, Bbls 45,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 2.0

Figure No. 16



MOBIL BRIDGES STATE NO. 53-H-23

CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls	97,000
OIL PRODUCED DURING WATERFLOOD, Bbls	46,000
CURRENT WATER/OIL RATIO, Bbls/Bbl	2.5

Figure No. 17

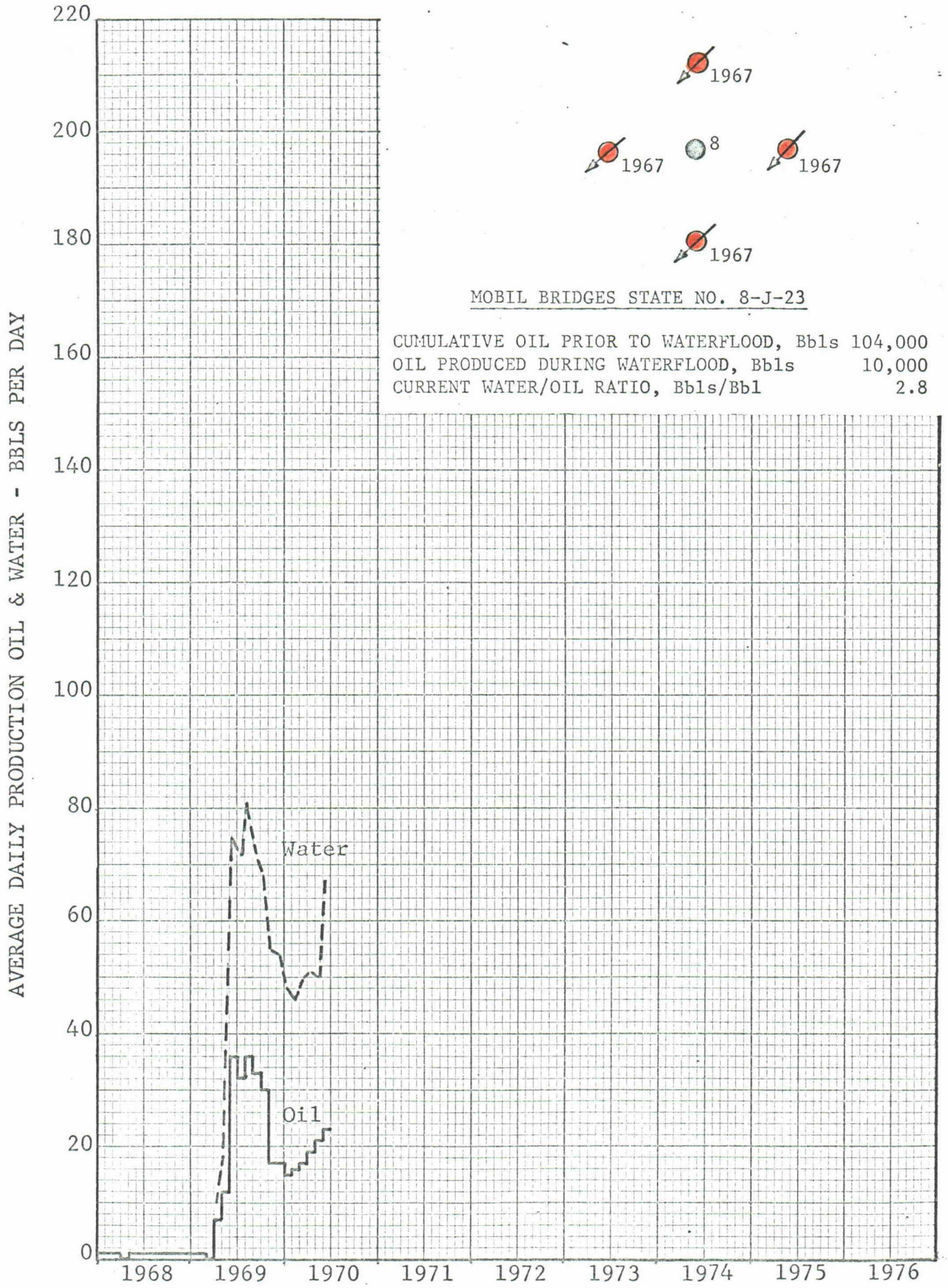

AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
1968
1969
1970
1971
1972
1973
1974
1975
1976
Water
Oil
1967
1967
8
1967
MOBIL BRIDGES STATE NO. 8-J-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 104,000
OIL PRODUCED DURING WATERFLOOD, Bbls 10,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 2.8

Figure No. 18

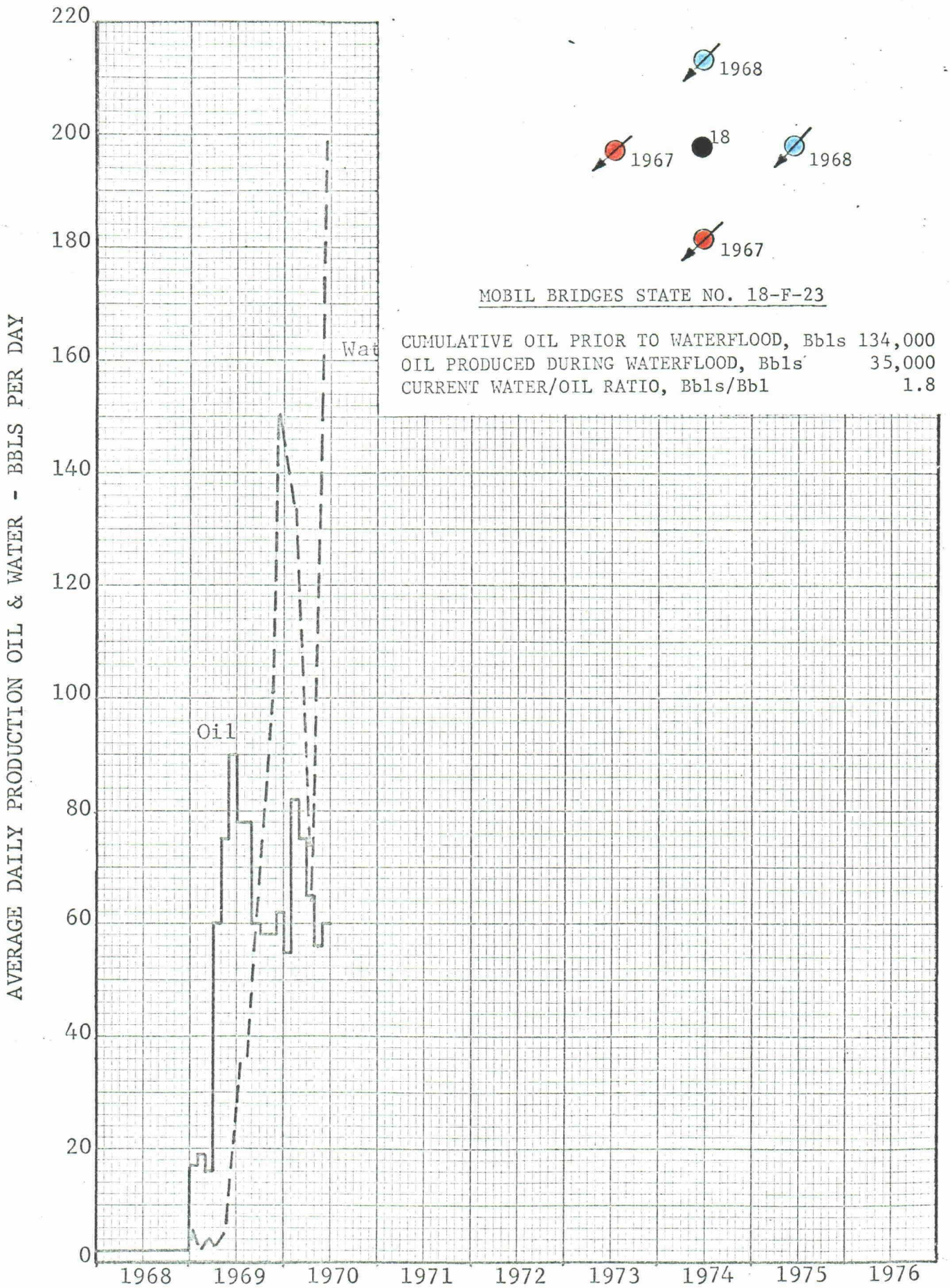

AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
Oil
Wat
1968
1969
1970
1971
1972
1973
1974
1975
1976
1968
1967
18
1968
1967
MOBIL BRIDGES STATE NO. 18-F-23
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 134,000
OIL PRODUCED DURING WATERFLOOD, Bbls 35,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 1.8

Figure No. 19

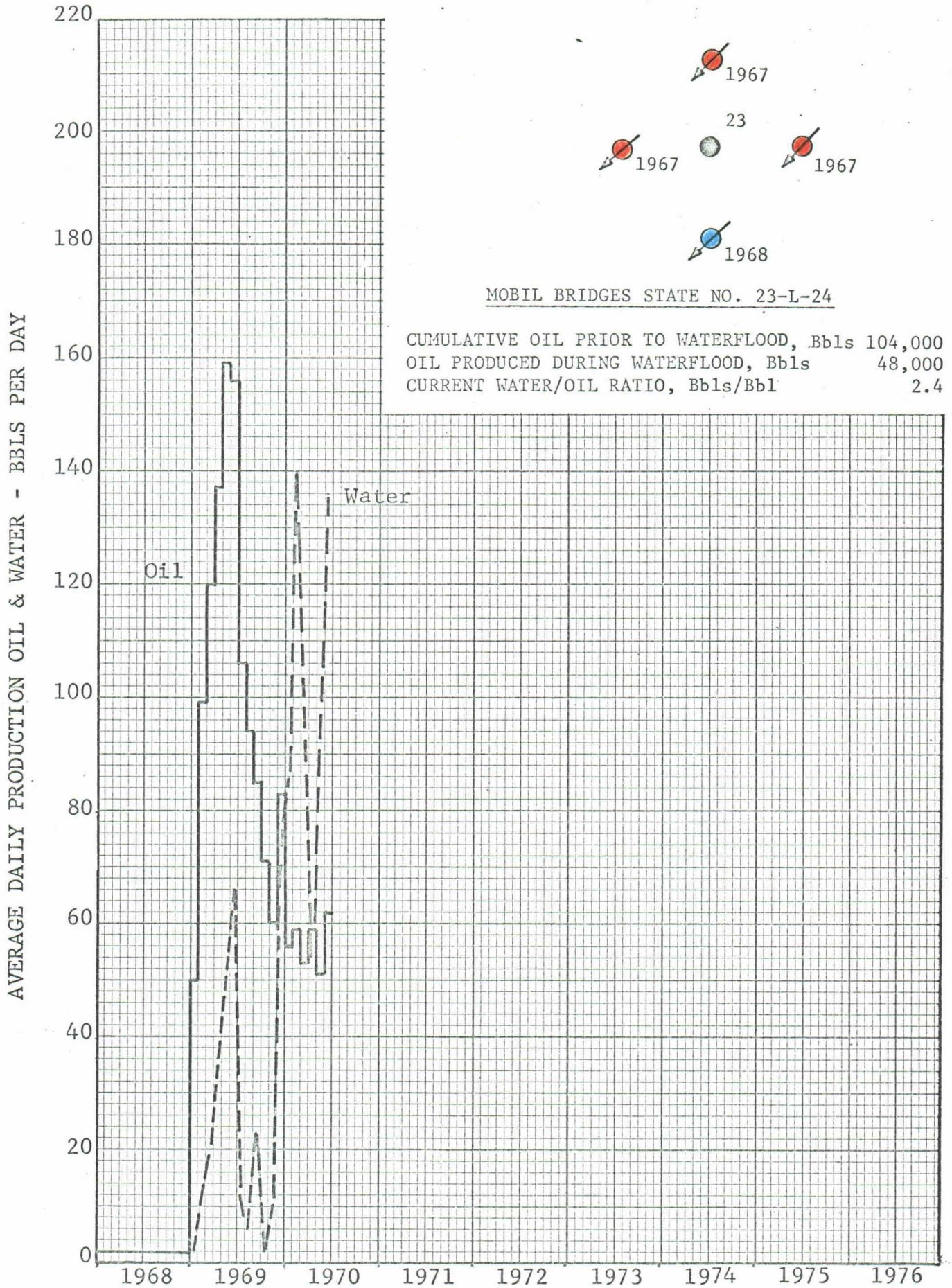

AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
1968
1969
1970
1971
1972
1973
1974
1975
1976
Oil
Water
1967
23
1967
1967
1968
MOBIL BRIDGES STATE NO. 23-L-24
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 104,000
OIL PRODUCED DURING WATERFLOOD, Bbls 48,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 2.4

Figure No. 20

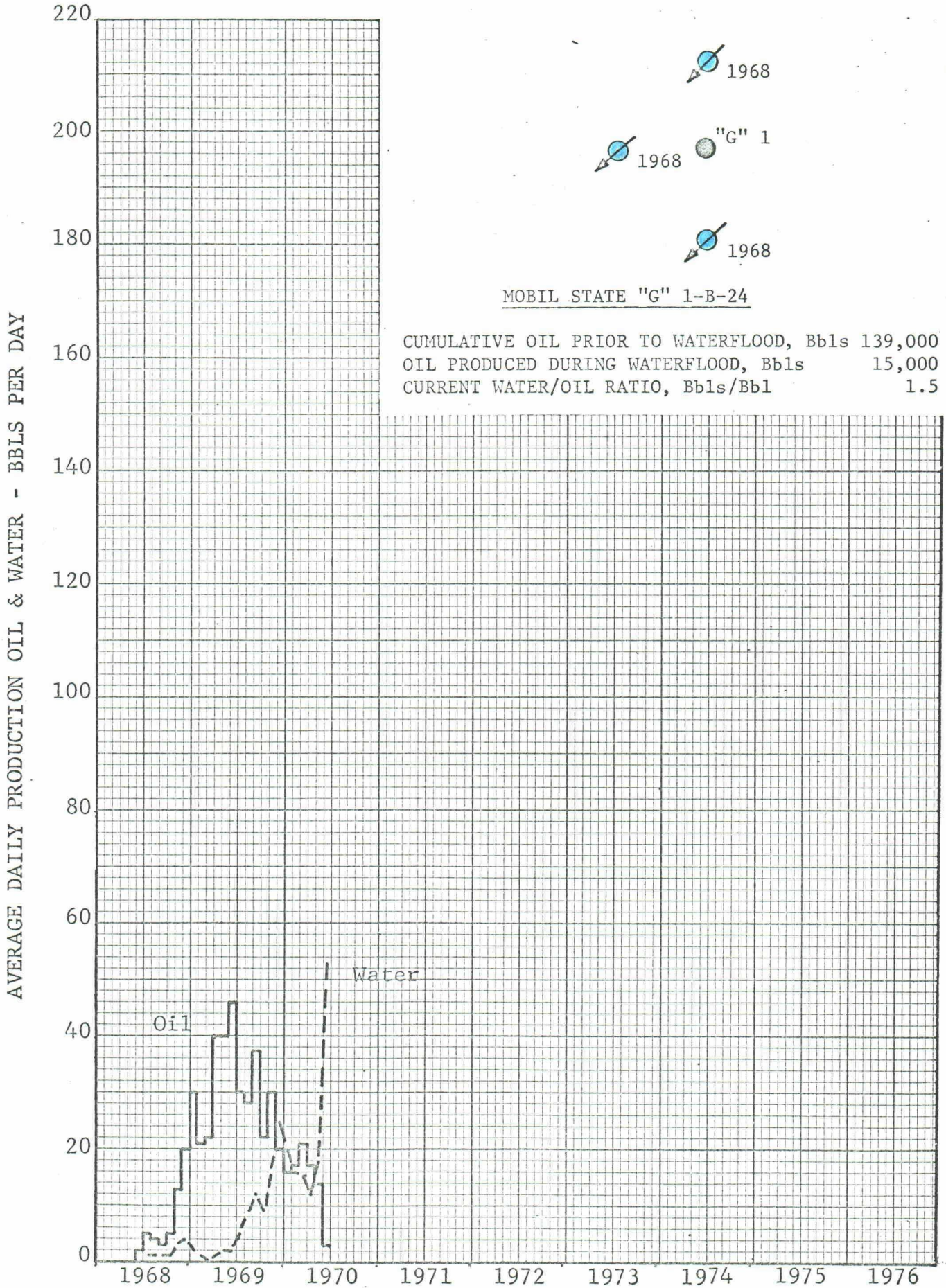

AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
1968
1969
1970
1971
1972
1973
1974
1975
1976
Oil
Water
1968
"G" 1
1968
1968
MOBIL STATE "G" 1-B-24
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 139,000
OIL PRODUCED DURING WATERFLOOD, Bbls 15,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 1.5

Figure No. 21

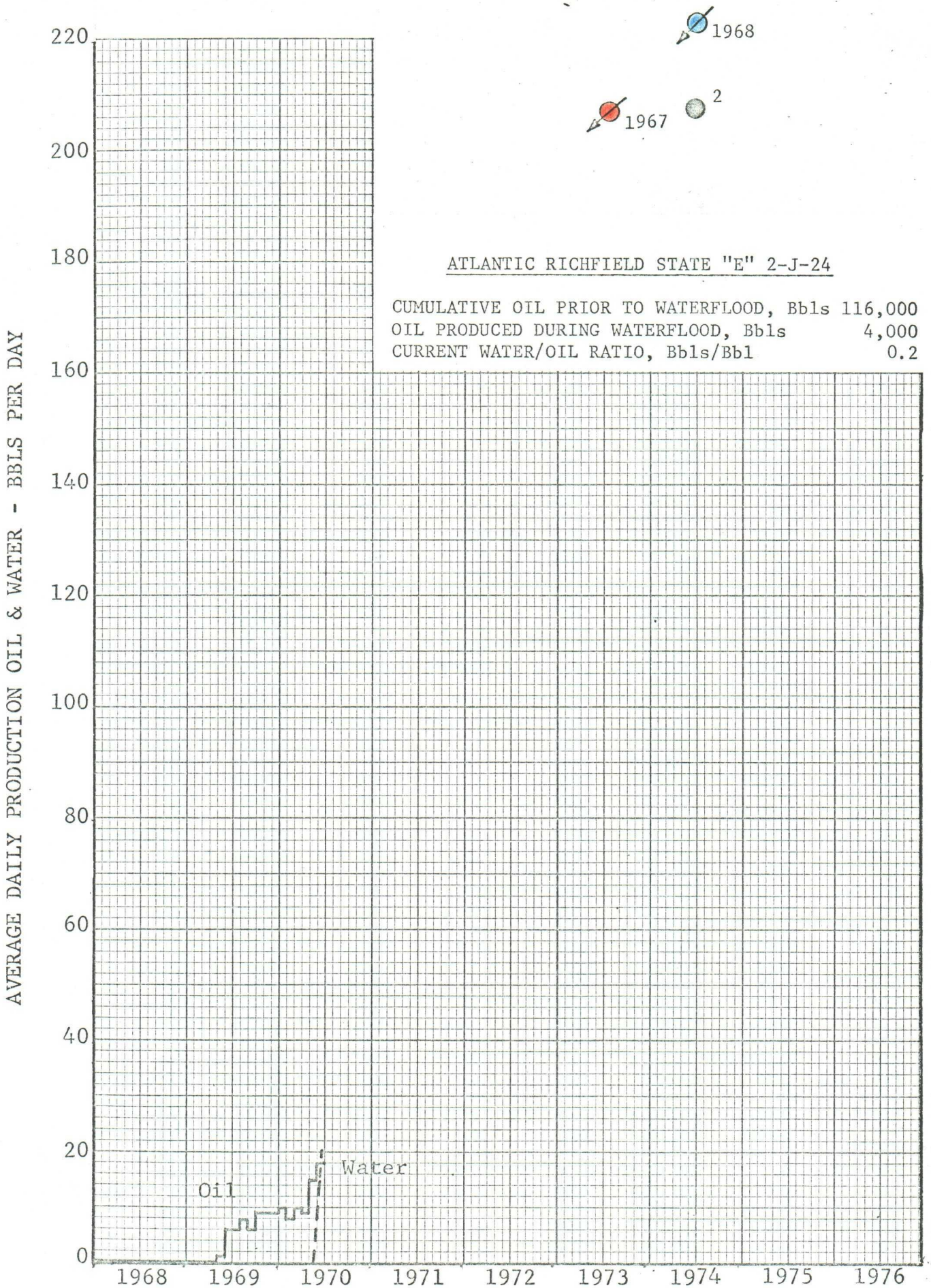

1968
1967
2
ATLANTIC RICHFIELD STATE "E" 2-J-24
CUMULATIVE OIL PRIOR TO WATERFLOOD, Bbls 116,000
OIL PRODUCED DURING WATERFLOOD, Bbls 4,000
CURRENT WATER/OIL RATIO, Bbls/Bbl 0.2
AVERAGE DAILY PRODUCTION OIL & WATER - BBLS PER DAY
220
200
180
160
140
120
100
80
60
40
20
0
Oil
Water
1968
1969
1970
1971
1972
1973
1974
1975
1976

Figure No. 22

4A

BASIC ASSUMPTIONS AND EQUATIONS USED IN CALCULATING WATERFLOOD OIL RESERVES

ϕ	=	Average Porosity	=	11%
S_w	=	Interstitial Water Saturation	=	36%
B_{oi}	=	Original Oil FVF	=	1.26 RB/STB
B_{oi}	=	FVF @ Start of Flood	=	1.05 RB/STB
E_v	=	Volumetric Sweep Efficiency	=	70%
S_{or}	=	Residual Oil Saturation Behind Flood Front	=	25%
S_{gr}	=	Residual Gas Saturation Behind Flood Front	=	5%
N	=	Oil Originally in Place, Bbls/AF		
		$\frac{(7758 \text{ Bbls/AF})(1-S_w)(\phi)}{B_{oi}} = \frac{7758\ (.64)(.11)}{1.26 \text{ RB/STB}}$	=	433 STB/AF

OIL SATURATION @ START OF FLOOD

$$S_{oi} = (1-S_w)(1-N_p/N)(B_{oi}/B_{oi})$$

Where:

S_{oi}	=	Oil Saturation @ Start of Flood
S_w	=	Interstitial Water Saturation, Fraction of Pore Space
N_p	=	Cumulative Oil Production @ Start of Flood, Bbls or Bbls/AF
N	=	Oil Originally in Place, Bbls or Bbls/AF
B_{oi}	=	Oil FVF @ Start of Flood, RB/STB
B_{oi}	=	Original Oil FVF, RB/STB

WATERFLOOD OIL RESERVES, BBLS/AF

$$N_{wf} = \frac{(7758 \text{ Bbls/AF})(\phi)}{B_o}\left[E_v(S_{oi} - S_{or}) - (1 - E_v)(S_{gi} - S_{gr})\right]$$

Where:

N_{wf}	=	Waterflood Oil Reserves, Bbls/AF
ϕ	=	Porosity Fraction
B_o	=	Oil FVF @ Displacing Pressure, RB/STB
E_v	=	Volumetric Sweep Efficiency, Fraction
S_{oi}	=	Oil Saturation @ Start of Flood, Fraction
S_{or}	=	Residual Oil Saturation in Swept Volume, Fraction
S_{gi}	=	Gas Saturation at Start of Flood, Fraction
S_{gr}	=	Residual Gas Saturation Behind Flood Front, Fraction

For the case where ϕ = 0.11 and B_o = 1.05 RB/STB, the Waterflood Reserves Equation Becomes:

$$N_{wf} = 812.75 \text{ STB/AF}\left[E_v(S_{oi} - S_{or}) - (1 - E_v)(S_{gi} - S_{gr})\right]$$

Mobil Oil Corporation
PWKelly/mw
9/10/70

4 B

ASSESSMENT OF MOBIL POTENTIAL WATERFLOOD RESERVES FOR THE ACREAGE SOUTH OF THE LAST ROW OF INJECTORS PERMITTED IN ORDERS NOS. R-3983 AND R-3984

BASIC DATA:

Cumulative Upper S. A. Oil to 7-1-70

2,346,912 Bbls.

Volume of Floodable Net Pay

27,150 Acre-Feet

Floodable Acreage

730 Acres

Cumulative Oil 7-1-70 Bbls./Ac. Ft.

$$\frac{2,346,912}{27,150} = 86.4 \frac{\text{Bbls.}}{\text{AF}}$$

Cumulative Oil 7-1-70 as Percent of Oil Originally in Place

$$\frac{86.4(100)}{433} = 19.95\%$$

Average Oil Saturation 7-1-70

$$Soi = (1-.36)(1-.1995)\left(\frac{1.05}{1.26}\right)(100) = 42.7\%$$

Waterflood Reserves Barrels/Acre-Foot

$$N_{wf} = 812.75 \frac{\text{Bbls.}}{\text{AF}} [.7\ (.427-.25) - (1-.7)(.213-.05)] =$$

$$812.75 \frac{\text{Bbls.}}{\text{AF}}\ (.075) = 61 \text{ Barrels/Acre-foot}$$

Total Waterflood Reserves, Bbls.

61 Bbls./Acre-Foot x 27,150 Acre-Feet = 1,656,150 Barrels

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

5A

ANALYSIS OF BRIDGES STATE NO. 10 PATTERN

(1) Determination of 1/1/64 Waterflood Oil in the Flood Pattern Defined by Producing Well No. 10 and WIW's No. 6, 31, 7 and Amerada State VA No. 3

Pattern Cumulative Oil to 1/1/64 296,732 Bbls

Pattern Net Pay Volume 2850 Acre Feet

Cumulative Oil 1/1/64 Bbls/AF = $\frac{296,732}{2850}$ = 104 Bbls/AF

Cumulative Oil 1/1/64 as % of Oil Originally in Place =

$$\frac{104 \times 100}{433} = 24\%$$

Average Oil Saturation in Pattern 1/1/64 =

$S_{oi} = (1 - .36)(1 - .24)(1.05/1.26)(100)$ = 40.5%

Pattern W.F. Oil Reserves 1/1/64, Bbls/AF

N_{wf} = 812.75 Bbls/AF $[.7(.405 - .25) - (1 - .7)(.235 - .05)]$

= 812.75 Bbls/AF (.053) = 43 Bbls/AF

Total 1/1/64 Pattern W/F Reserves

= 2850 AF x 43 Bbls/AF = 122,550 Bbls

Pattern W/F Reserves 1/1/64, Bbls/Acre = 122,550 Bbls/80 Acres

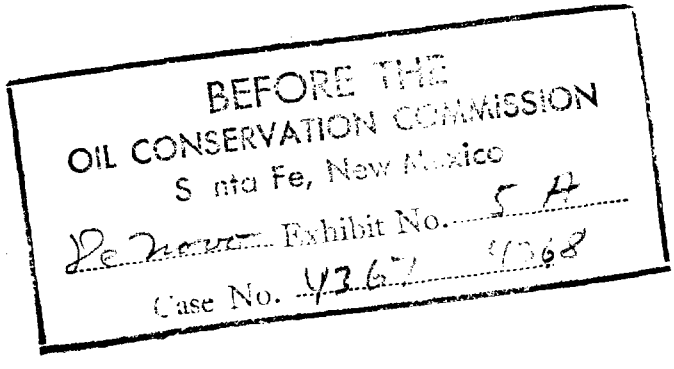
= 1532 Bbls/Acre

(2) Actual and Projected Waterflood Oil Produced by Bridges State #10 at time of 1967 Flood Expansion

13,112 Bbls

(3) Equivalent Closed Pattern Acres Effectively Flooded

$$\frac{13,112 \text{ Bbls}}{1,532 \text{ Bbls/Ac}} = 8.6 \text{ Acres}$$



Mobil Oil Corporation
P. W. Kelly
September 14, 1970

ANALYSIS OF BRIDGES STATE #54 PATTERN

5B

(1) Determination of 1/1/62 Waterflood Oil in Flood Pattern Defined by Producing Well No. 54 and WIW's No. 2, 56, 24, and 21

Pattern Cumulative Oil to 1/1/62 182,827 bbls

Pattern Net Pay Volume 3,380 Acre Feet

Cumulative Oil 1/1/62 Bbls/AF $\frac{182,827}{3,380}$ = 54 Bbls/AF

Cumulative Oil 1/1/62 as % of Oil Originally in Place

$$\frac{(54)(100)}{433} = 12.5\%$$

Average Oil Saturation in Pattern 1/1/62

S_{oi} = (1-.36)(1-.125)(1.05/1.26)(100)
= 46.6%

Pattern W/F Reserves 1/1/62, Bbls/AF

N_{wf} = 812.75 Bbls/AF $\left[.7(.466 - .25) - (1-.7)(.174-.05)\right]$
= 812.75 (.1139) = 93 Bbls/AF

Total 1/1/62 Pattern W/F Reserves

93 Bbls/AF x 3380 AF = 314,340 Bbls

Pattern W/F Reserves, Bbls/Acre

$$\frac{314,340 \text{ Bbls}}{80 \text{ Acres}} = 3929 \text{ Bbls/Acre}$$

(2) Actual and Projected W/F Oil Produced by Bridges State No. 54 at Time of 1967 Expansion

31,874 Bbls

(3) Equivalent Closed Pattern Acres Effectively Flooded

$$\frac{31,874 \text{ Bbls}}{3929 \text{ Bbls/Acre}} = 8.1$$

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

5C

ANALYSIS OF BRIDGES STATE NO. 55 PATTERN

(1) Determination of 1/1/64 Waterflood Oil in the Flood Pattern Defined by Producing Well No. 55 and WIW's No. 2, 21, 7 and 31

Pattern Cumulative Oil to 1/1/64 232,136 Bbls

Pattern Net Pay Volume 3180 Acre Feet

Cumulative Oil 1/1/64 Bbls/AF $\frac{232,136 \text{ Bbls}}{3180 \text{ AF}} = 73 \text{ Bbls/AF}$

Cumulative Oil 1/1/64 as % of Oil Originally in Place

$$\frac{73 \times 100}{433} = 16.9\%$$

Average Oil Saturation in Pattern 1/1/64

$$S_{oi} = (1 - .36)(1 - .169)(1.05/1.26)(100)$$
$$= 44.3\%$$

Pattern W/F Reserves 1/1/64 Bbls/AF

$$N_{wf} = 812.75 \text{ Bbls/AF} \left[.70 \ (.443 - .25) - (1 - .7)(.197 - .05) \right]$$
$$= 812.75 \ (.091) = 74 \text{ Bbls/AF}$$

Total 1/1/64 Pattern W/F Reserves

74 Bbls/AF x 3180 AF = 235,320 Bbls

Pattern W/F Reserves, Bbls/Acre

$$\frac{235,320 \text{ Bbls}}{80 \text{ Acres}} = 2942 \text{ Bbls/Acre}$$

(2) Actual W/F Oil Produced to Economic Limit @ Time of 1967 Expansion

23,206 Bbls

(3) Equivalent Closed Pattern Acres Effectively Flooded

$$\frac{23,206 \text{ Bbls}}{2942 \text{ Bbls/Acre}} = 7.9 \text{ Acres}$$

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 5C
Case No. 4367 4368

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

ANALYSIS OF BRIDGES STATE NO. 57 PATTERN

50

(1) Determination of 1/1/64 Waterflood Oil Reserves in the Flood Pattern Defined by Producing Well No. 57 and WIW's No. 62, 31, 6 and State J No. 4

Pattern Cumulative Oil to 1/1/64 — 240,282 Bbls

Pattern Net Pay Volume — 3300 Acre Feet

Cumulative Oil 1/1/64 Bbls/AF — $\frac{240,282 \text{ Bbls}}{3300 \text{ AF}} = 73$ Bbls/AF

Cumulative Oil 1/1/64 as % of Oil Originally in Place

$$\frac{73 \times 100}{433} = 16.9\%$$

Average Oil Saturation in Pattern 1/1/64

$$S_{oi} = (1 - .36)(1 - .169)(1.05/1.26)(100)$$

$$= 44.3\%$$

Pattern W/F Oil Reserves, Bbls/AF

$$N_{wf} = 812.75 \text{ Bbls/AF } [.7(.443 - .25) - (1 - .7)(.197 - .05)]$$
$$= 812.75\ (.091) = 74 \text{ Bbls/AF}$$

Total Pattern W/F Reserves
74 Bbls/AF x 3300 AF = 244,200 Bbls

Pattern W/F Reserves, Bbls/Acre = $\frac{244,200 \text{ Bbls}}{80 \text{ Acres}} = 3053$ Bbls/Acre

(2) Actual and Projected W/F Oil @ Time of 1967 Flood Expansion

53,054 Bbls

(3) Equivalent Closed Pattern Acres Effectively Flooded

$$\frac{53,054 \text{ Bbls}}{3053 \text{ Bbls/Acre}} = 17.4 \text{ Acres}$$

This open pattern recovery appears unusually high as compared to recoveries indicated for Bridges State Wells Nos. 10, 54 and 55.

Because of the large difference a further examination of company test and production records was made. It was found that reported production for Well No. 57 in 1965 and 1966 was substantially greater than its well test capacity and that actual production for No. 57 had declined to the economic limit late in 1966. A reallocation of battery production based on well tests through the period of inconsistency indicates that actual W/F recovery from No. 57 was 27,575 Bbls which is equivalent to the closed pattern reserves beneath 9 acres.

Mobil Oil Corporation
P W Kelly
September 14, 1970

ESTIMATE OF ACTUAL WATERFLOOD RESERVES
FOR BRIDGES STATE LEASE AREA SOUTH OF THE
LAST ROW OF W/W'S PERMITTED IN ORDERS
NO. R-3983 AND R-3984

6 A

Pilot Waterflood Data gathered on the performance of Bridges State Wells No. 10, 54, 55, and 57 indicate that in a One-Way Push Situation an average of only 42% of the otherwise recoverable oil can be produced from the Floodable Area. Based on this performance the following assumptions are made with respect to the Open Pattern recoveries to be anticipated from the Area South of the last row of Injection Wells authorized by the Commission:

1. One half the Closed Pattern Reserves can be recovered from Areas affected by a One Way Push
2. Three fourths the Closed Pattern Reserves can be recovered from areas affected by a Three Way Push

Producing wells that will be subject to a 3-Way Push under Orders No. R-3893 and R-3894 are Bridges State Wells No. 16, 36, 39 and 44. The sum of their Floodable Acre Feet is

5800 Acre Feet

Recoverable Oil by 3-Way Push

$$5800 \text{ Ac ft} \times 61 \frac{\text{BBls}}{\text{AcFt}} \times 0.75$$
$$= 265{,}350 \text{ BBls}$$

The remaining Wells in the Area of concern will be influenced by a One Way Push and will produce only half the closed Pattern Reserves from the Reservoir Rock situated between the Injectors and Producers. The Volume of Reservoir in this condition under the current orders is:

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 6 A
Case No. 4267

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

15,480 Acre Feet

Recoverable Oil by One Way Push

$$= 15{,}480 \text{ AcFt} \times 61 \frac{\text{BBls}}{\text{AcFt}} \times 0.5$$

$$= 472{,}140 \text{ bbls}$$

For a total Waterflood Recovery of

$$265{,}350 + 472{,}140 = 737{,}490 \text{ BBls}$$

Closed Pattern Recoverable Oil Pushed Beyond Mobil's Last Row of Producing Wells

$$1{,}656{,}150 \text{ bbls} - 737{,}490 \text{ bbls}$$

$$= \underline{918{,}660 \text{ bbls}}$$

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

7A

ESTIMATE OF WATERFLOOD RESERVES FOR THE AREA SOUTH OF THE LAST ROW OF WIW'S PERMITTED IN ORDERS NO. R-3983 AND R-3984 ASSUMING THE ORDERS WERE AMENDED TO ALLOW INJECTION INTO ALL THE PROPOSED WIW'S

The Floodable Pay Volume would then be:

Enclosed patterns	20,782 Ac FT
Open Pattern W/3-Way Push	1,548 Ac Ft
Open Pattern W/One Way Push	774 Ac Ft

And the Waterflood Recoveries would be:

$(20{,}782 \text{ Ac Ft})(61 \frac{\text{BBls}}{\text{AcFt}}) =$	1,267,702 bbls
$(1548 \text{ AcFt})(61 \text{ BBls/AcFt})(0.75) =$	70,821 bbls
$(774 \text{ AcFt})(61 \text{ BBls/AcFt})(0.5) =$	23,607
For a Total Recovery of	1,362,130 bbls

Waterflood Oil Pushed beyond Mobil's Producers and generally on to adjacent property to the South

1,656,150 bbls - 1,362,130 bbls =

= 294,020 bbls

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

12

ASSESSMENT OF PAST PRIMARY PERFORMANCE OF STATE H-35 LEASE

Well No.	MB Cum. Oil 5-1-70	Est. Cum. 5-1-70 U-SA	Est. Cum. 5-1-70 L-SA	Est. Pay Thickness Open U-SA	Est. Pay Thickness Open L-SA
H-35 #1	457	228	229	56	56
H-35 #2	475	414	61	34	5
H-35 #3	449	224	225	24	24
H-35 #4	378	189	189	29	25
H-35 #5	434	174	260	18	18
H-35 #6	346	346	0	14	0
		1,575	964		

DEPLETION STATUS OF UPPER SAN ANDRES

Well No.	Acres		Thickness	Acre-Feet	Oil Cumu. 5-1-70 B/AF	Percent OIP
#1	40	x	56'	2,240	102	23.6
#2	40	x	34'	1,360	304	70.2
#3	40	x	24'	960	233	53.8
#4	40	x	29'	1,160	163	37.7
#5	40	x	18'	720	242	55.9
#6	40	x	14'	560	618	142.8
				7,000		

$$\text{Total Lease U-SA Oil B/AF} = \frac{1,575 \text{ MB}}{7,000 \text{ AF}} = 225 \text{ B/AF}$$

$$\text{Percent OIP} = \frac{(100)225 \text{ B/AF}}{433} = 52 \text{ Percent OIP}$$

These recoveries are inconsistent with solution gas performance.

Possible explanations are:

(1) A much greater amount than allocated above was actually produced from the lower San Andres.

(2) A high percentage of replacement has been experienced on the H-35 Lease, i.e. oil has migrated to the lease from adjacent property to replace much of the oil that has been produced.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
De Novo Exhibit No. 12
Case No. 4367 4368

Mobil Oil Corporation
P. W. Kelly
October 14, 1970

12 g

RESERVE ESTIMATE FOR WELLS
ON CONOCO-STATE H-35 LEASE
VACUUM GBSA FIELD

By analysis of their decline curves the primary oil remaining to be recovered after July 1, 1970 is:

Well No.	Remaining Oil MB
1	48
3	42
4	0
5	57
6	5

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 12 G
Case No. 4262 4368

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

12 H

ESTIMATE OF WATERFLOOD RESERVES TO CONOCO STATE-H-35 WELL NO. 6 RESULTING FROM INJECTION INTO MOBIL'S PROPOSED WIW 760' TO THE NORTH

(1) Estimate Oil Saturation for this area based on performance of Bridges State No. 26

BS#26 Cum Oil 7/1/70 = 139,076 bbls

BS#26 Drainage Volume = 48' X 40 Acs = 1920 AcFt

Cum Oil 7/1/70 BBls/AF = $\frac{139,076 \text{ bbls}}{1920 \text{ Ac Ft}}$ = 72.4 BBls/AcFt

% Of Oil Originally in place = $\frac{72.4 \times 100}{433}$ = 16.7%

Oil Saturation at Start of Flood

$$Soi = (1-.36)(1-.167)\left(\frac{1.05}{1.26}\right)(100) = 44.4\%$$

(2) Waterflood Reserves BBls/AcFt

NWF = 812.75 BBls/AcFt (.7(.444-.25)-(1-.7)(.196-.05)

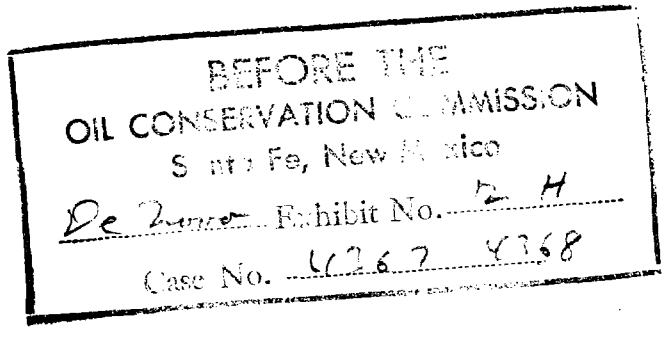
= 812.75 BBls/AcFt (.092) = 74.8 BBls/AcFt

(3) The W/F Reserves for H-35 No. 6 by Direct Analogy with the One Way Push performance of Bridges State No. 10 are:

NWF, BBls = Fractional Efficiency X Floodable Acre Feet X Closed Pattern Reserves $\frac{\text{BBls}}{\text{AF}}$

= $\frac{8.6}{20}$ X 159 AcFt X 74.8 BBls/AcFt

= 5114 BBls



Mobil Oil Corporation
P. W. Kelly
September 14, 1970

12 I

ESTIMATE OF WATERFLOOD RESERVES FOR
CONOCO STATE-H-35 WELL NO. 3 RESULTING FROM
INJECTION INTO BRIDGES STATE WELL NO. 15

Because Bridges State No. 15 has produced its oil from both the Upper and Lower San Andres and there is no reliable way to allocate cumulative Oil between the two zones, it is assumed that the Upper San Andres Oil Saturation between No. 15 and H-35 No. 3 is equal to the average of 42.7% for the South End of the Bridges State Lease and the Closed Pattern Waterflood Reserves are therefore 61 BBls/Acre Foot.

By Analogy with the One Way Push Performance of Bridges State No. 10, the W/F Reserves for H-35 No. 3 are:

NWF, BBls = Fractional Efficiency X Floodable Acre Feet X Closed Pattern Reserves $\frac{\text{BBls}}{\text{AcFt}}$

$= (\frac{8.6}{20})$ (640 AcFt) (61 B/AF)

$= \underline{16,787}$ bbls

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

12 J

TYPICAL WELL COST ESTIMATE

FIELD: VACUUM SAN ANDRES

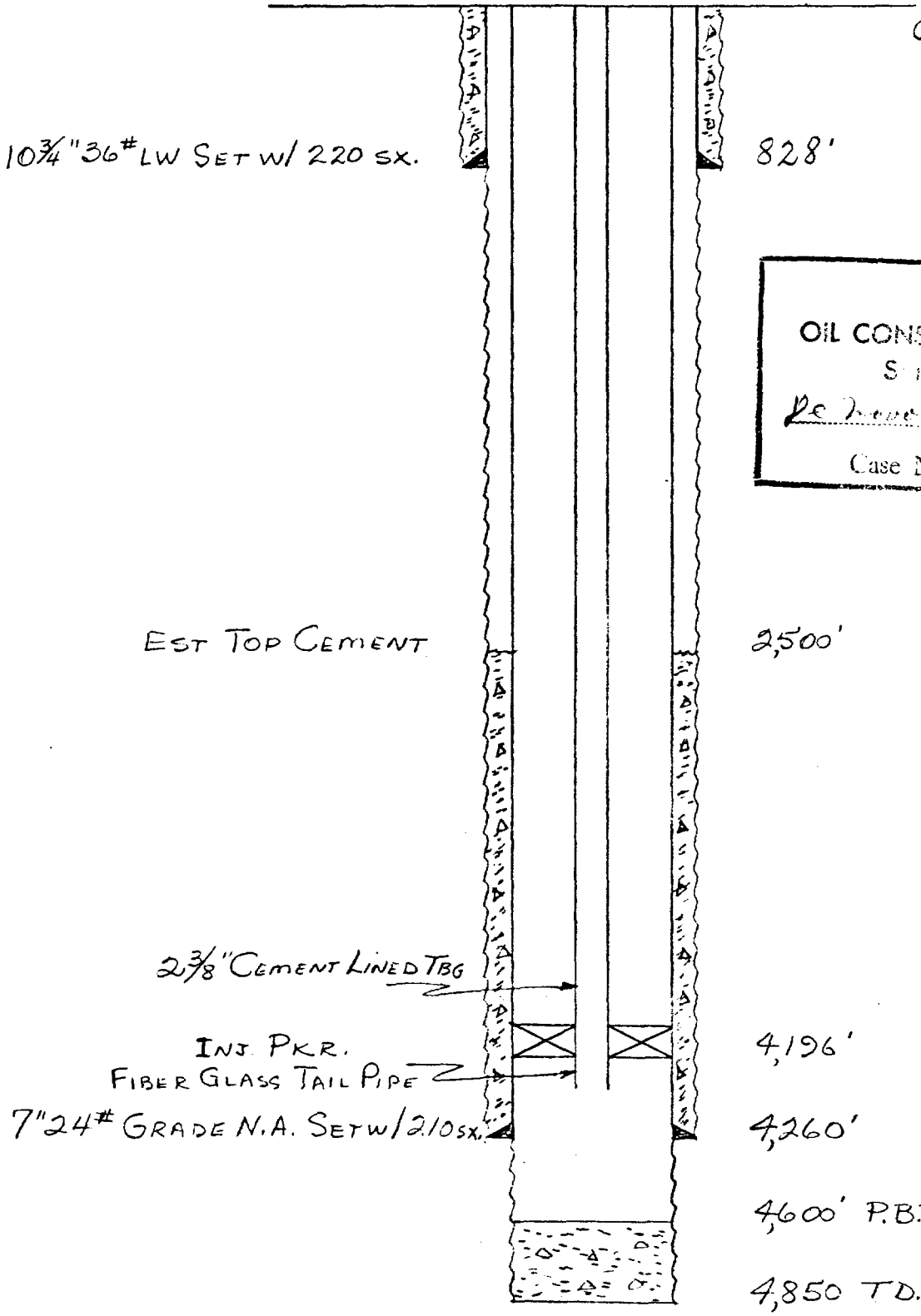
OBJECTIVE: To Drill Deeper in 5½" casing (Set @ 4168')
From 4670' to 4770'.

ALTERNATIVE:	(1) Complete Initially In Open Hole	(2) To Set Liner At Later Date	(3) To Deepen & Set Liner Immediately
Day Work & Drilling Cost	$3200	$1500	$4000
Logging & Testing	800	-	800
Mud & Chemicals	1000	-	1000
Cement & Cementing Services	-	1700	1700
Trucking	-	200	200
Perforating & Acidizing	1500	2100	2100
Bits	1000	300	1000
Equipment Rental	1000	500	1000
Miscellaneous	400	500	500
700' 4" F.J. Casing	-	1600	1600
2-3/8" Tubing	100	400	400
TOTAL	$9000	$8800	$14,300

Mobil Oil Corporation
P. W. Kelly
September 14, 1970

X-13

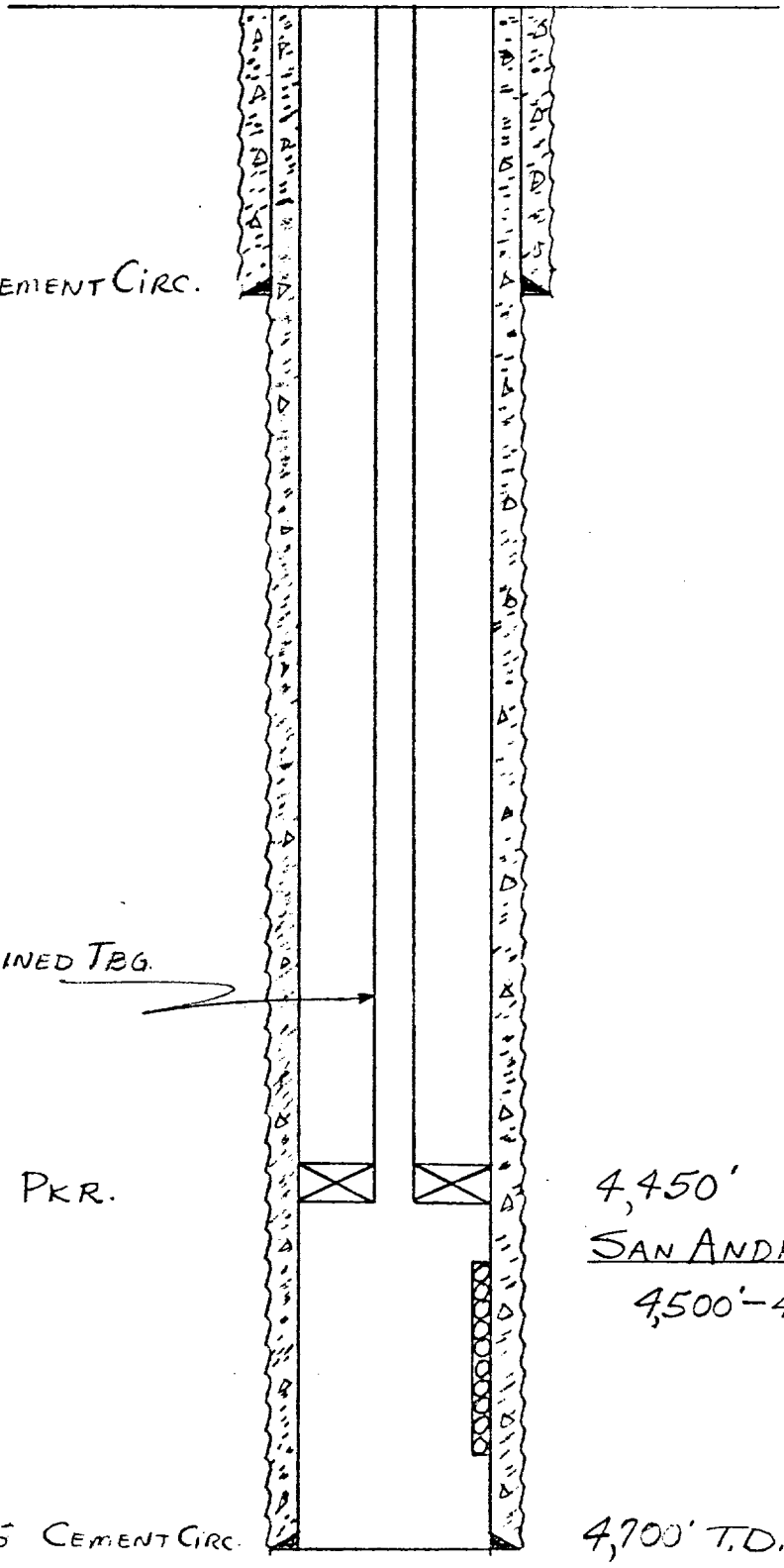
DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 29 W.I.W.
VACUUM (GRAYBURG-SAN ANDRES) POOL
LEA COUNTY, NEW MEXICO



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Exhibit No. 13
Case No. 4367

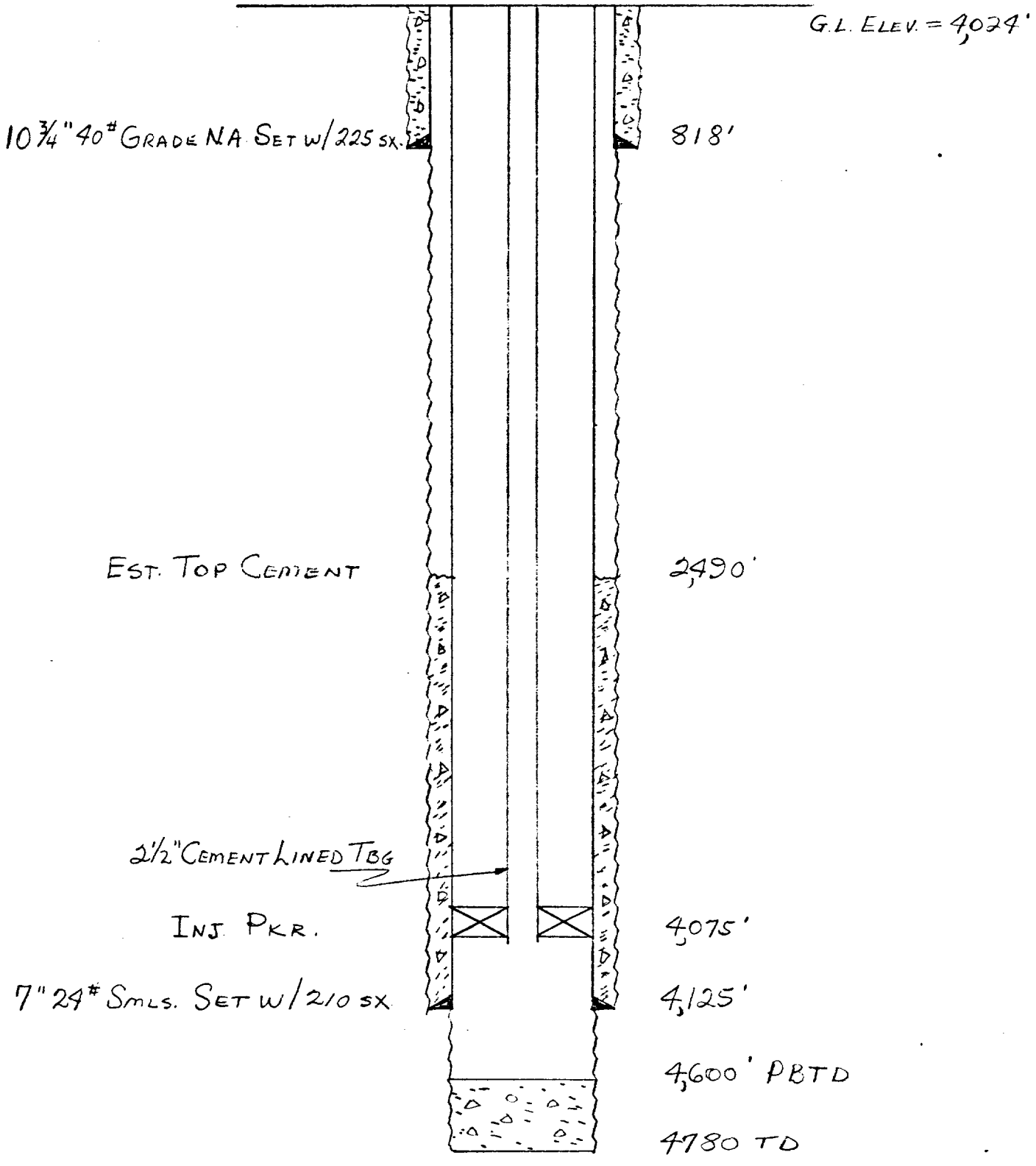
Mobil
9-14-70

Diagrammatic Well Sketch
W.I.W. To Be Drilled
Vacuum (Grayburg. S.A.) Pool
Lea County, New Mexico



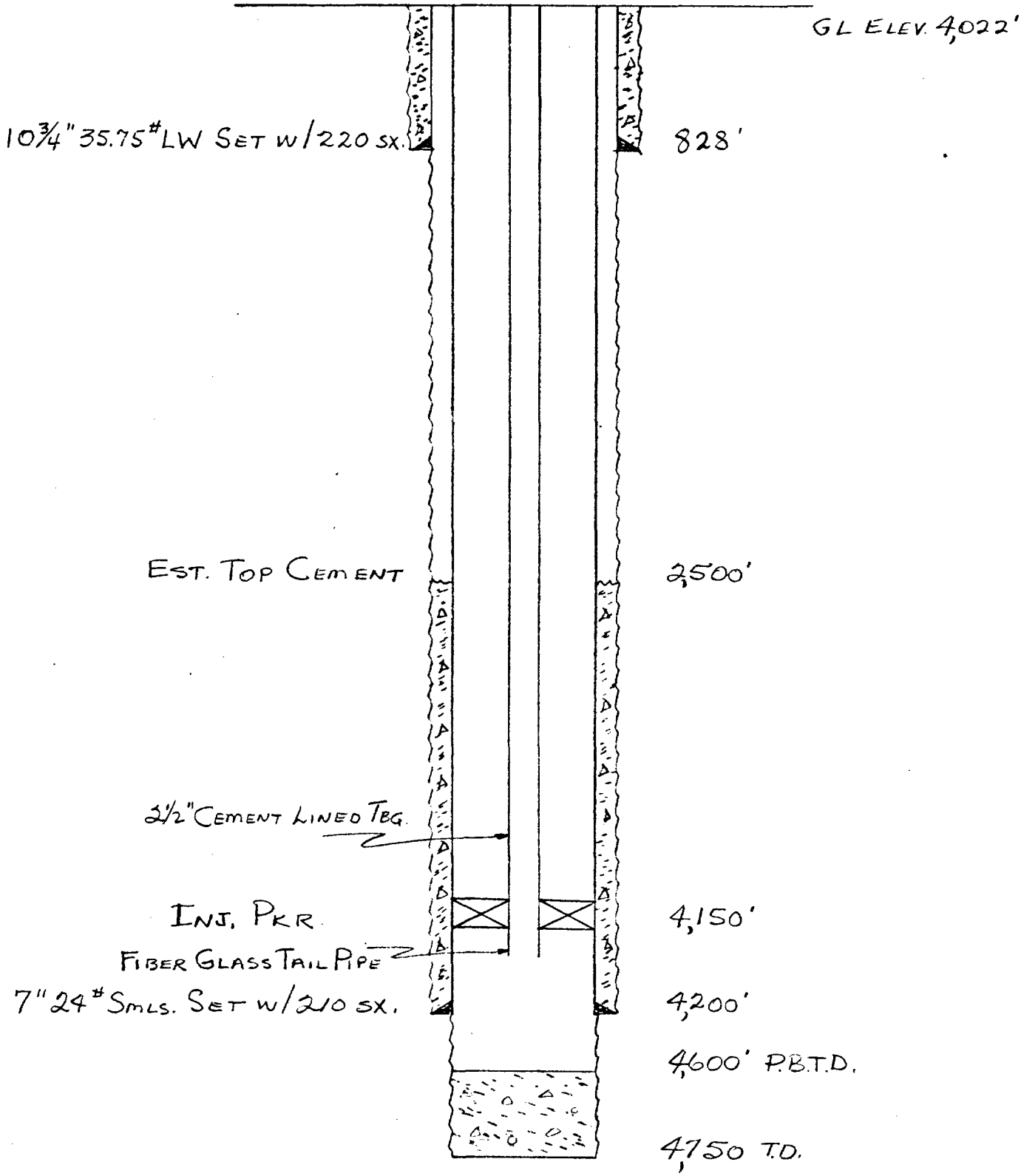
Mobil
9-14-70

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 15 W.I.W.
VACUUM (GRAYBURG-SAN ANDRES) POOL
LEA COUNTY, NEW MEXICO



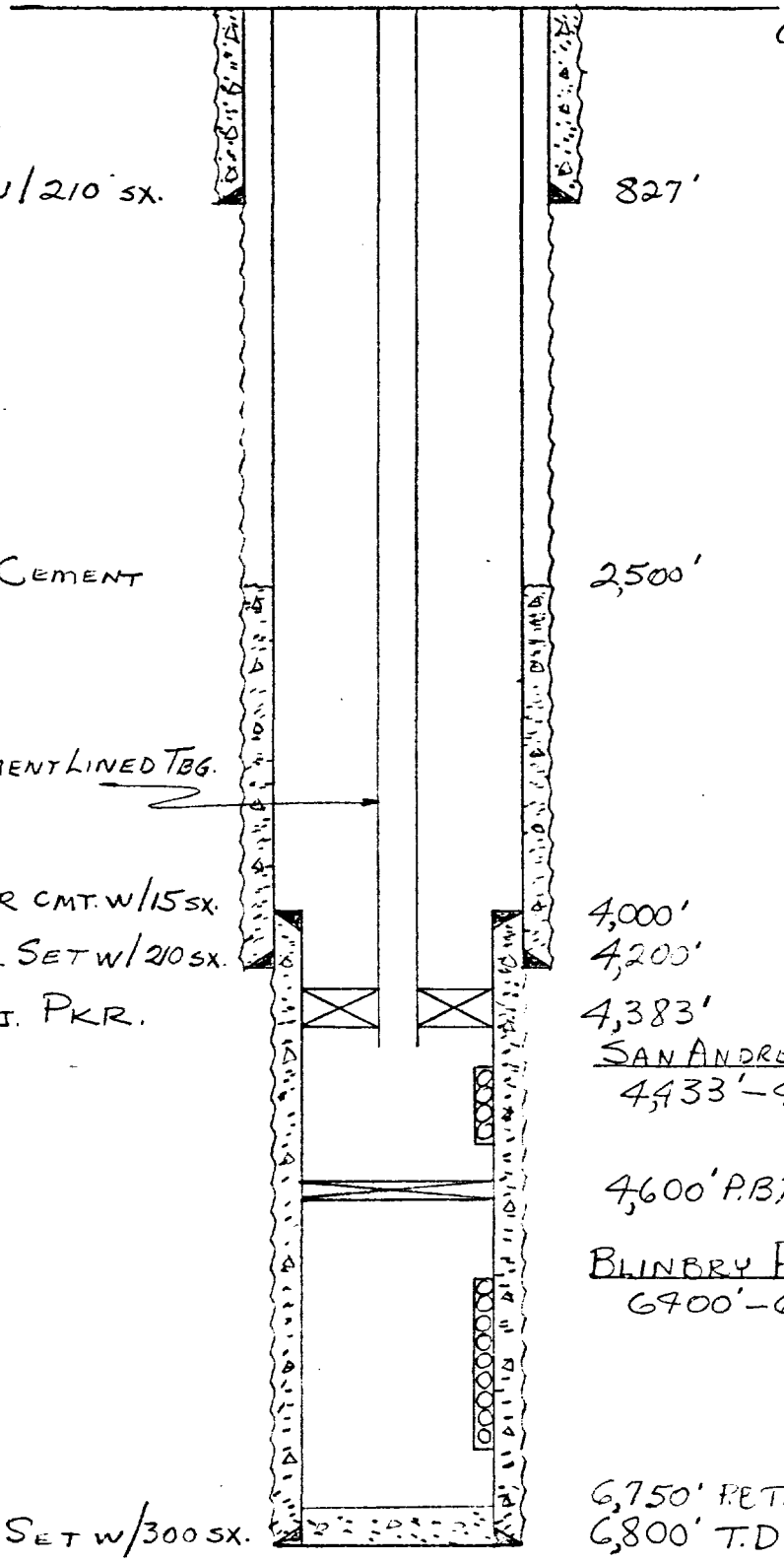
Mobil
9-14-70

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 25 W.I.W.
VACUUM (GRAYBURG-SAN ANDRES) POOL
LEA COUNTY, NEW MEXICO



Mobil
9-14-70

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 13 W.I.W.
VACUUM (BLINEBRY) POOL
LEA COUNTY, NEW MEXICO



G.L ELEV = 4009'

10¾" L.W. SET W/210 SX. — 827'

EST. TOP CEMENT — 2,500'

2⅜" CEMENT LINED TBG.

TOP LINER CMT. W/15 SX. — 4,000'

7" 24# GRADE N.A. SET W/210 SX. — 4,200'

INJ. PKR. — 4,383'

SAN ANDRES PERFORATIONS
4,433'–4449'

4,600' P.B.T.D

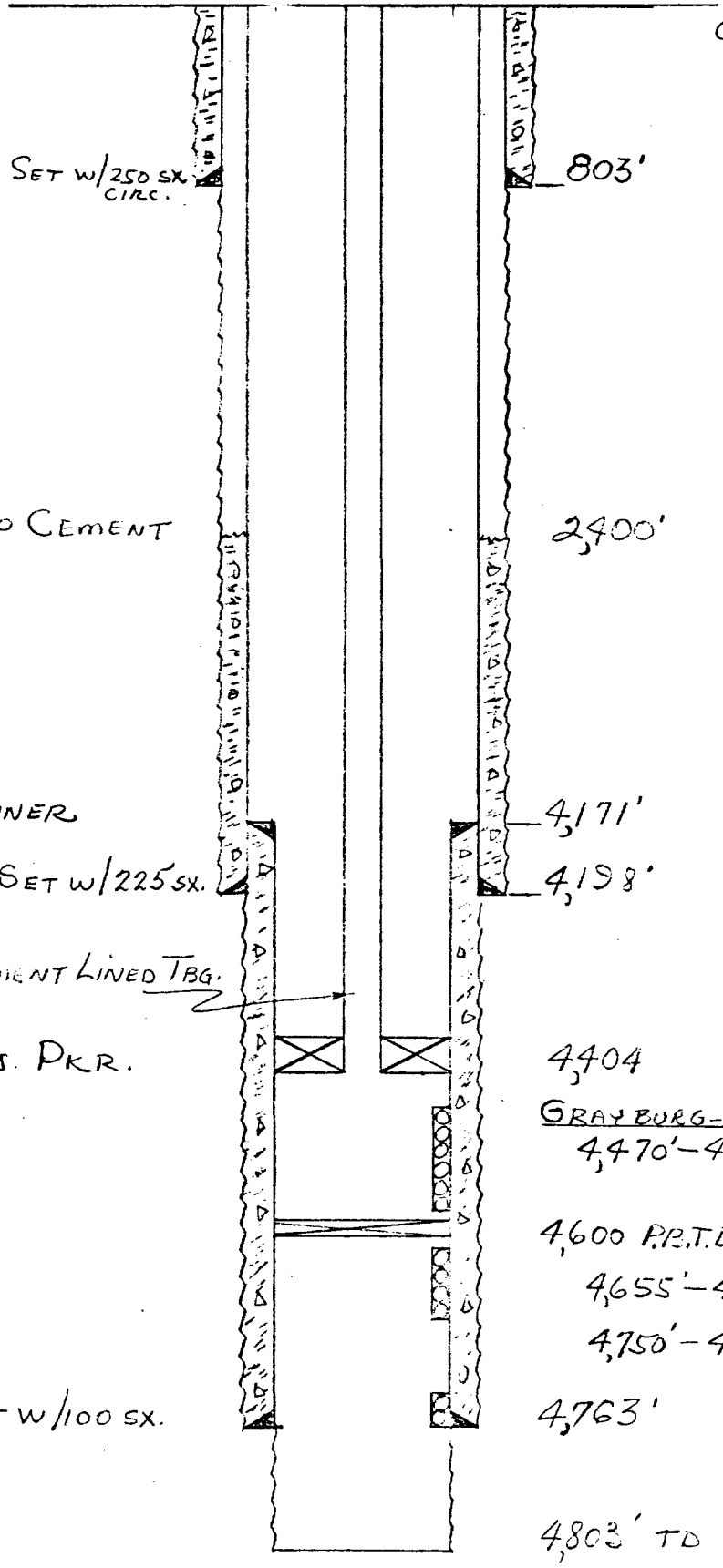
BLINBRY PERFORATIONS
6400'–6544' (21 HOLES)

6,750' P.B.T.D.

5" 15#/FT J-55 SET W/300 SX. — 6,800' T.D.

Mobil
9-14-70

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 14 W.I.W.
VACUUM (GRAYBURG-S.A.) POOL
LEA COUNTY, NEW MEXICO



G.L ELEV. = 4,007'

10¾" 35.75# GRADE NA SET W/250 SX. CIRC. — 803'

EST. TOP CEMENT — 2,400'

TOP 5" LINER — 4,171'

7" 24# GRADE N.A. SET W/225 SX. — 4,198'

2⅜" CEMENT LINED TBG.

INJ. PKR. — 4,404

GRAYBURG-SAN ANDRES PERFS
4,470'-4563' 1 JSPF (368 HOLES)

4,600 P.B.T.D.

4,655'-4670' (90 HOLES)

4,750'-4763' (13 HOLES)

5" 15# J-55 SET W/100 SX. — 4,763'

4,803' TD

Mobil
9-14-70

LEGEND

YATES · DEVONIAN · PENN. · BLINEBRY · GLORIETA · ABO · WOLFCAMP · LOWER SAN ANDRES · UPPER SAN ANDRES

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Continental Exhibit No. 1
Case No. 4367-4368

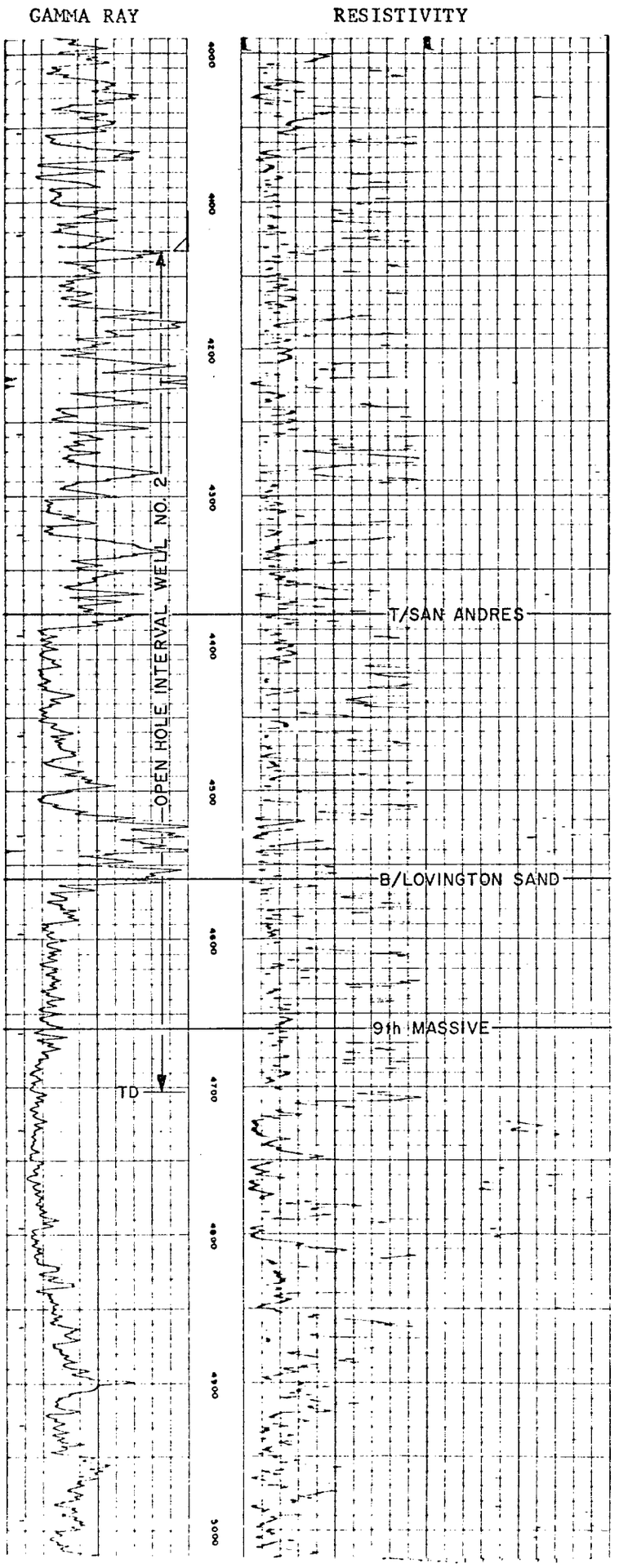
CONTINENTAL OIL COMPANY
PRODUCTION DEPARTMENT
HOBBS DISTRICT
VACUUM FIELD-LEA CO., NEW MEXICO

STATE H-35 LEASE

SCALE
0 1000 2000 FT.

Exhibit 1

CONTINENTAL OIL COMPANY
STATE H-35 NO. 8
760' FNL & 510' FEL
Sec. 35, T17S, R34E

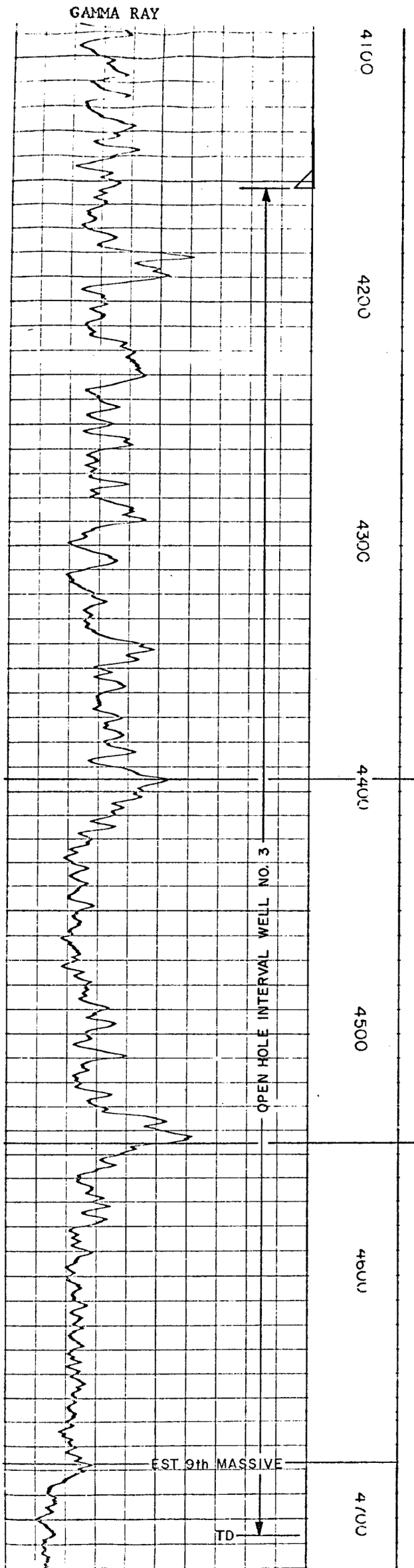


Twin well to State H-35 No. 2
660 FNL & 660 FEL
Sec. 35, T17S, R34E

PRODUCTION DATA

State H-35 No. 2
Latest test 4/24/70 - 60 BOPD, 0 BWPD, 1733 GOR, Cum to 1/1/70 469,477 barrels - Producing interval shown on log

State H-35 No. 8
Latest test 7/11/70 - 20 BOPD, 6 BWPD, 1365 GOR - Producing from the Glorietta formation with perforations 5964-5984



CONTINENTAL OIL COMPANY
STATE H-35 NO. 7
660' FNL & 1780' FEL
Sec. 35, T17S, R34E

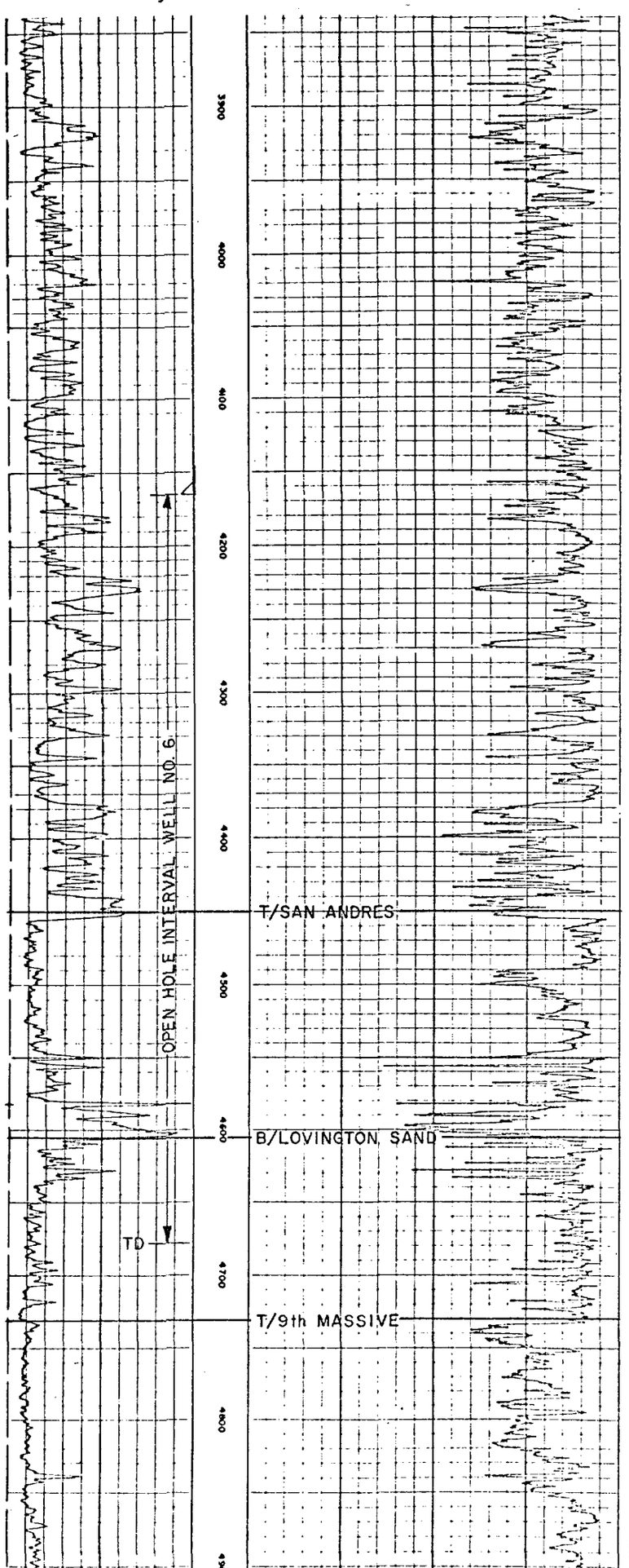
Twin well to State H-35 No. 3 - 660' FNL & 1980' FEL - Sec. 35, T17S, R34E

PRODUCTION DATA

State H-35 No. 3
Latest Test 4/26/70 - 31 BOPD, 0 BWPD, 1806 GOR - Cum to 1/1/70 446,320 barrels
Producing interval shown on log

State H-35 No. 7
Latest test 7/27/70 - 18 BOPD, 0 BWPD, 2644 GOR - Downhole commingled in Abo and Wolfcamp formation with perforations 9154-10,066

CONTINENTAL OIL COMPANY
STATE H-35 NO. 11
660' FNL & 2180' FWL
Sec. 35, T17S, R34E

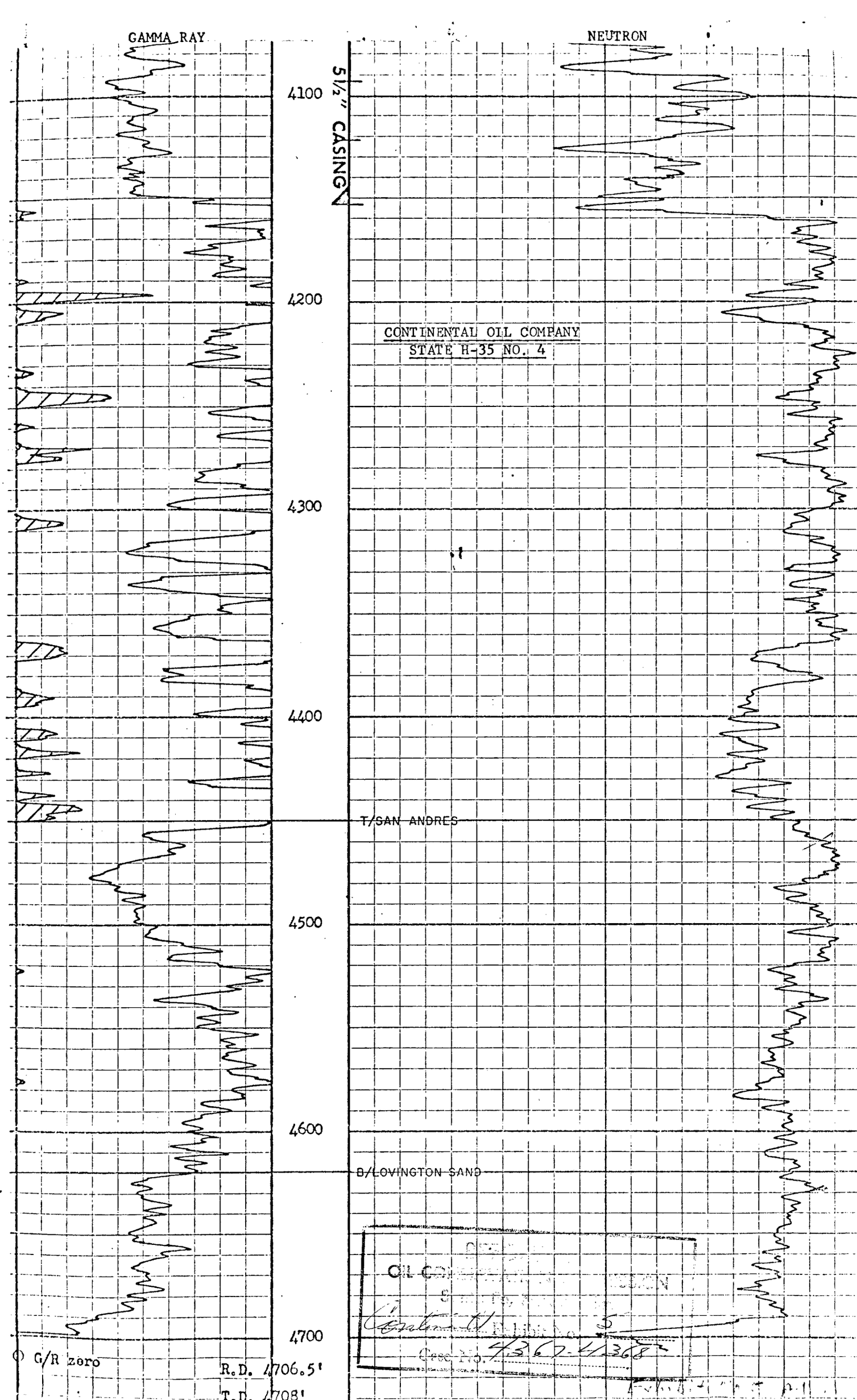


Twin well to State H-35 No. 6
660' FNL & 1980' FWL
Sec. 35, T17S, R34E

PRODUCTION DATA

State H-35 No. 6
Latest test 4/18/70 - 12 BOPD, 4 BWPD, 1141 GOR - Cum to 1/1/70 345,448 barrels - Producing interval shown on log

State H-35 No. 11
Junked and abandoned 2/13/64


GAMMA RAY
NEUTRON
5½" CASING
4100
4200
4300
4400
4500
4600
4700
CONTINENTAL OIL COMPANY
STATE H-35 NO. 4
T/SAN ANDRES
B/LOVINGTON SAND
G/R zero
R.D. 4706.5'
T.D. 4708'

CONTINENTAL OIL COMPANY
State H-35 NO. 4
1980' FNL & 1980' FNL
Sec. 35, T17S, R34E

Remedial Work

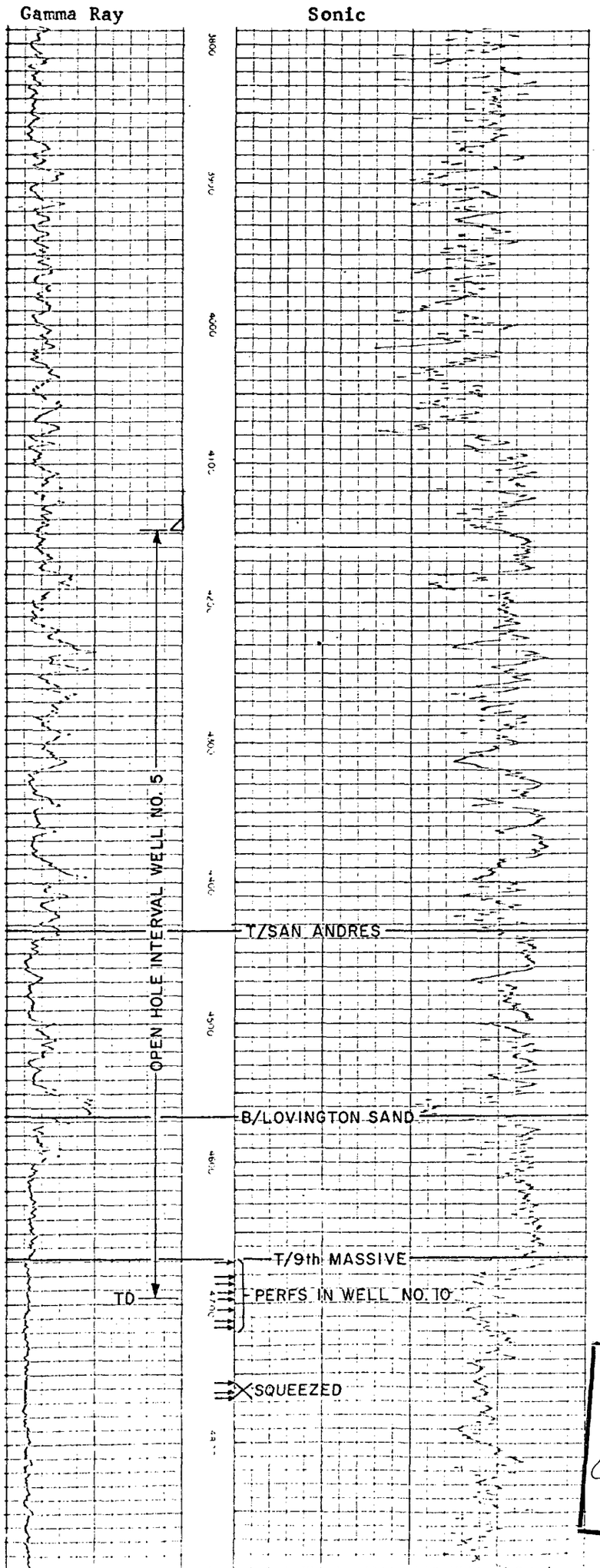
7/19/62 - Frac'd open hole with 20,000 gallons Production before and after was 8 BOPD.

4/13/69 - Blast-Frac'd 4530-4582 and 4646-4671. Prior to the job the well was shut-in. The well potentialed for 0 BOPD with 16 BWPD and 17.3 MCFG.

Production Data

Latest test 12/23/69 - 0 BOPD, 15 BWPD, 17.3 MCFG - Well temporarily shut-in
Cumulative production to 1/1/70 377,518 barrels - Producing interval as shown

CONTINENTAL OIL COMPANY
STATE H-35 NO. 10
2030' FNL & 1780' FEL
Sec. 35, T17S, R34E



Twin well to State H-35 No. 5
1980' FNL & 1980' FEL
Sec. 35, T17S, R34E

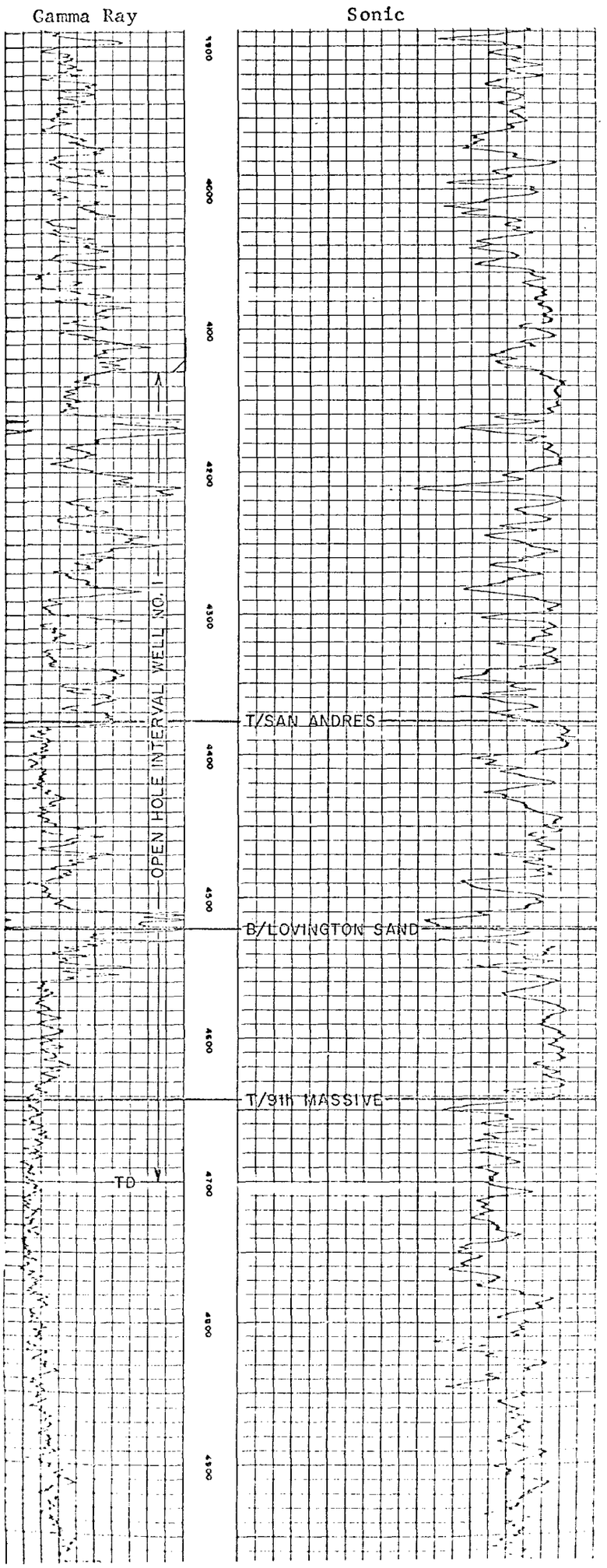
PRODUCTION DATA

State H-35 No. 5
Latest test 4/22/70-27 BOPD, 3 BWPD, 1148 GOR - Cum to 1/1/70 431,279 barrels - Producing interval shown on log

State H-35 No. 10
7/16/70 plugged back from Blinebry perfs. 6393-6476 and perf'd San Andres 4756-4767. Tested water with communications indicated 4747-4885. Squeezed 4756-4767 and perf'd 4671-4716. Acidized 6000 gals.

Latest test 8/13/70 - 41 BOPD, 15 BWPD, 195 GOR - Producing interval shown on log.

CONTINENTAL OIL COMPANY
STATE H-35 NO. 12
2180' FNL & 660' FEL
Sec. 35, T17S, R34E



Twin well to State H-35 No. 1
1980' FNL & 660' FEL
Sec. 35, T17S, R34E

PRODUCTION DATA

State H-35 No. 1
Latest test 4/25/70 - 23 BOPD, 4 BWPD, 3217 GOR - Cum to 1/1/70 454,433 barrels - Producing Interval shown on log

State H-35 No. 12
Latest test 6/18/70 - 72 BOPD, 28 BWPD, 277 GOR - Producing from the Glorietta formation with perforations 5934-6099

State H-35 No. 9
Latest test 7/4/70 - 41 BOPD, 61 BWPD, 634 GOR - Producing from the Abo formation - with perforations 9052-9232.
1980 FNL & 460 FEL
Sec. 35, T17S, R34E

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Continental Exhibit No. 7
Case No. 4367-4368

EXHIBIT NO. 7

VACUUM GRAYBURG-SAN ANDRES POOL

COMPANY, LEASE & WELL NO.	CUM. OIL TO 1-1-70	JULY PRODUCTION OIL	WATER	GAS
CONTINENTAL OIL COMPANY				
State H-35 No. 1	454,433	646	112	2078
2	469,477	1684	-	2076
3	446,320	869	-	1569
4	377,518	-	-	-
5	431,279	758	84	870
6	345,448	224	75	261
GETTY OIL COMPANY				
State B A No. 3	481,079	1894	-	2927
MARATHON OIL COMPANY				
McCallister State No. 3	468,821	1852	19	1142
MOBIL OIL COMPANY				
Bridges State No. 12	427,347	716	60	1593
15	390,163	448	30	911
26	138,959	-	-	-
29	174,884	30	-	-
State I No. 1	517,438	2180	-	4949
PHILLIPS PETROLEUM COMPANY				
Hale No. 1	454,115	2147	128	3047
2	482,454	2147	28	1696
3	474,598	2148	-	160
Mable No. 1	188,235	-	-	-
2	223,375	60	-	43
3	10,202	765	488	2435
TEXACO, INC.				
New Mexico State "O" No. 1	495,113	2198	273	2705
New Mexico State "S" No. 1	468,259	2199	-	9745

VTL-JS
9-4-70

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case Exhibit No. 9
Case No. 4367-4368

Exhibit No. 9