(Barrels of oil per year)

Well	YEAR 1	2	3	4	5	6	CUM
1. Jicarilla 20 No. 2	9,019	9,803	8,605	8,293	6,280		42,000
2. Jicarilla 28 No. 1	13,174	7,014	6,552	5,050(Est.)			31,790
3. Jicarilla 28 No. 2	5,015	2,609	3,104	2,430(Est.)			13,158
4. Jicarilla 22 No. 1	4,792	3,480	3,130	2,900(Est.)			14,300
5. Amarada A No. 3	10,182	6,936	[illegible]	[illegible]	4,741	4,262	36,961

CUMULATIVE BO

100,000

10,000

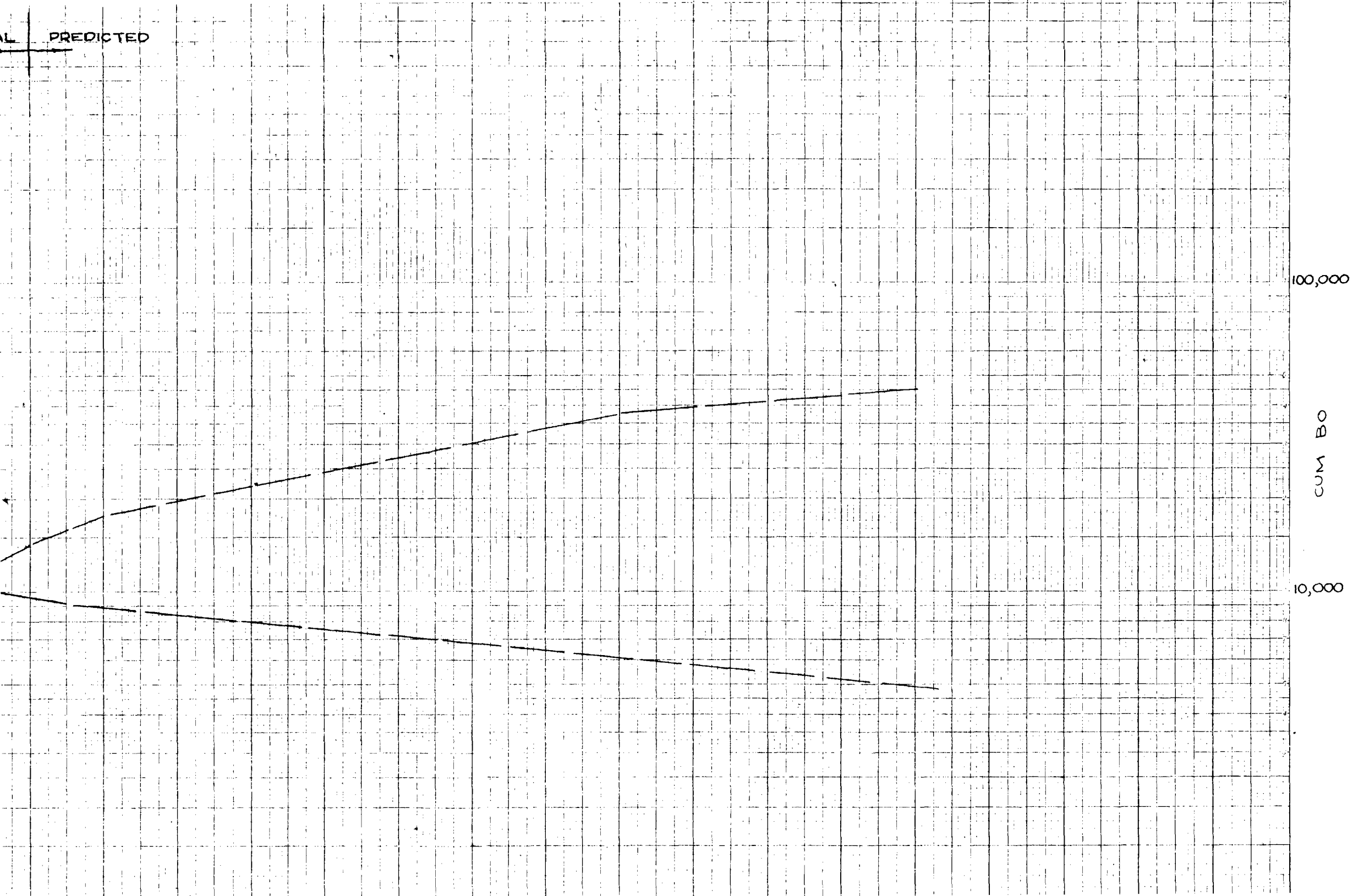
Predicted

Actual

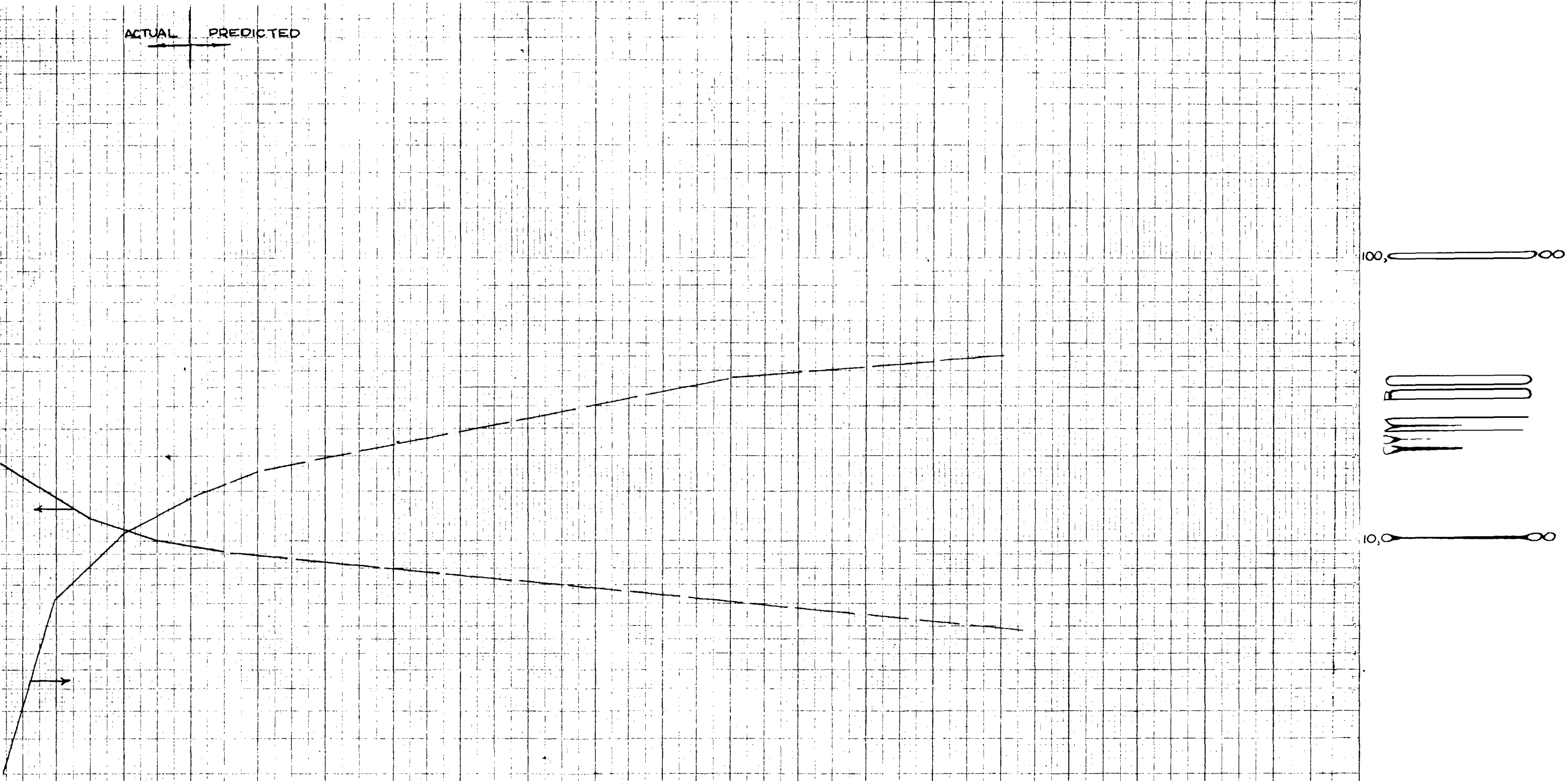
BOPD

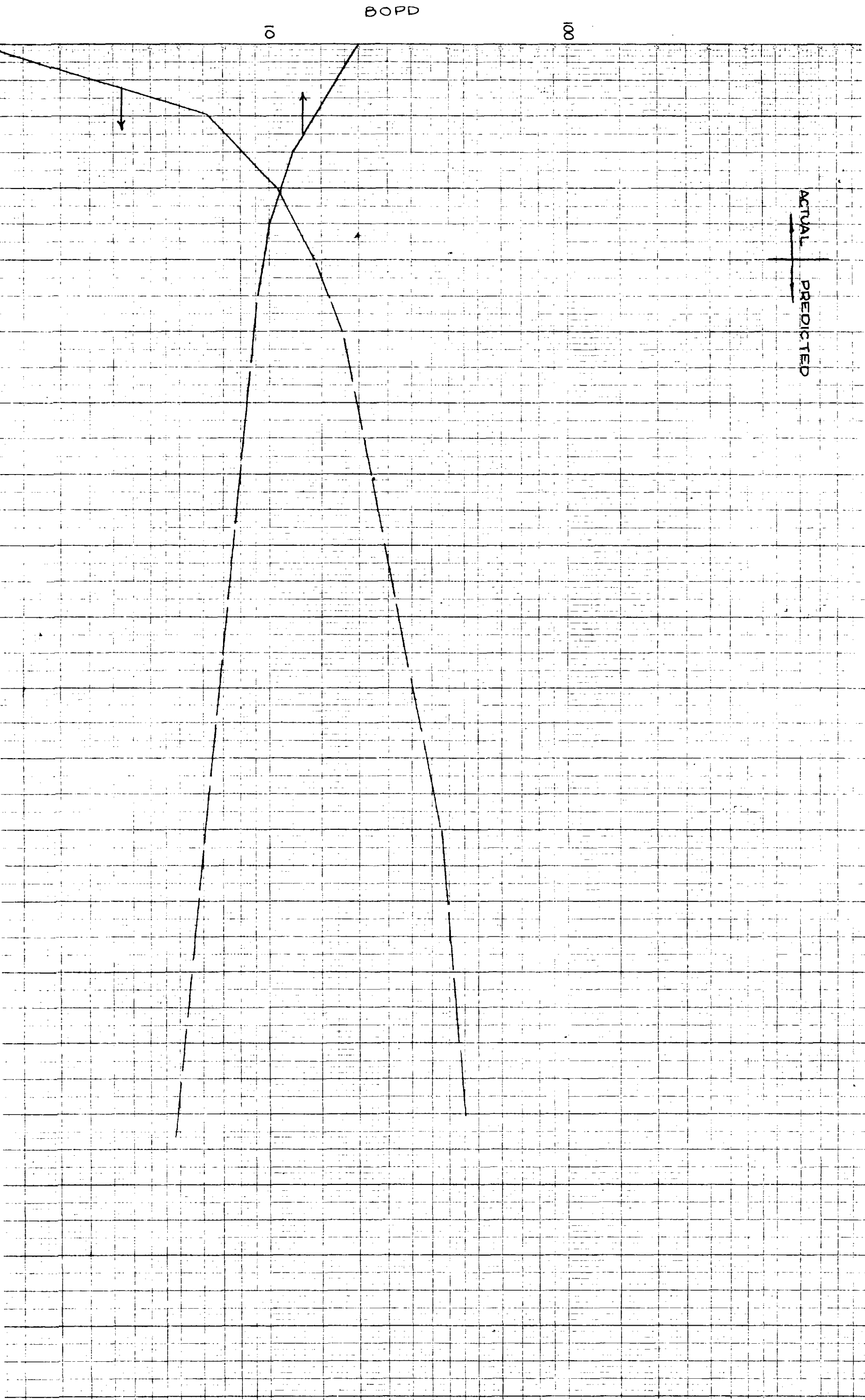
50 40 30 20 10

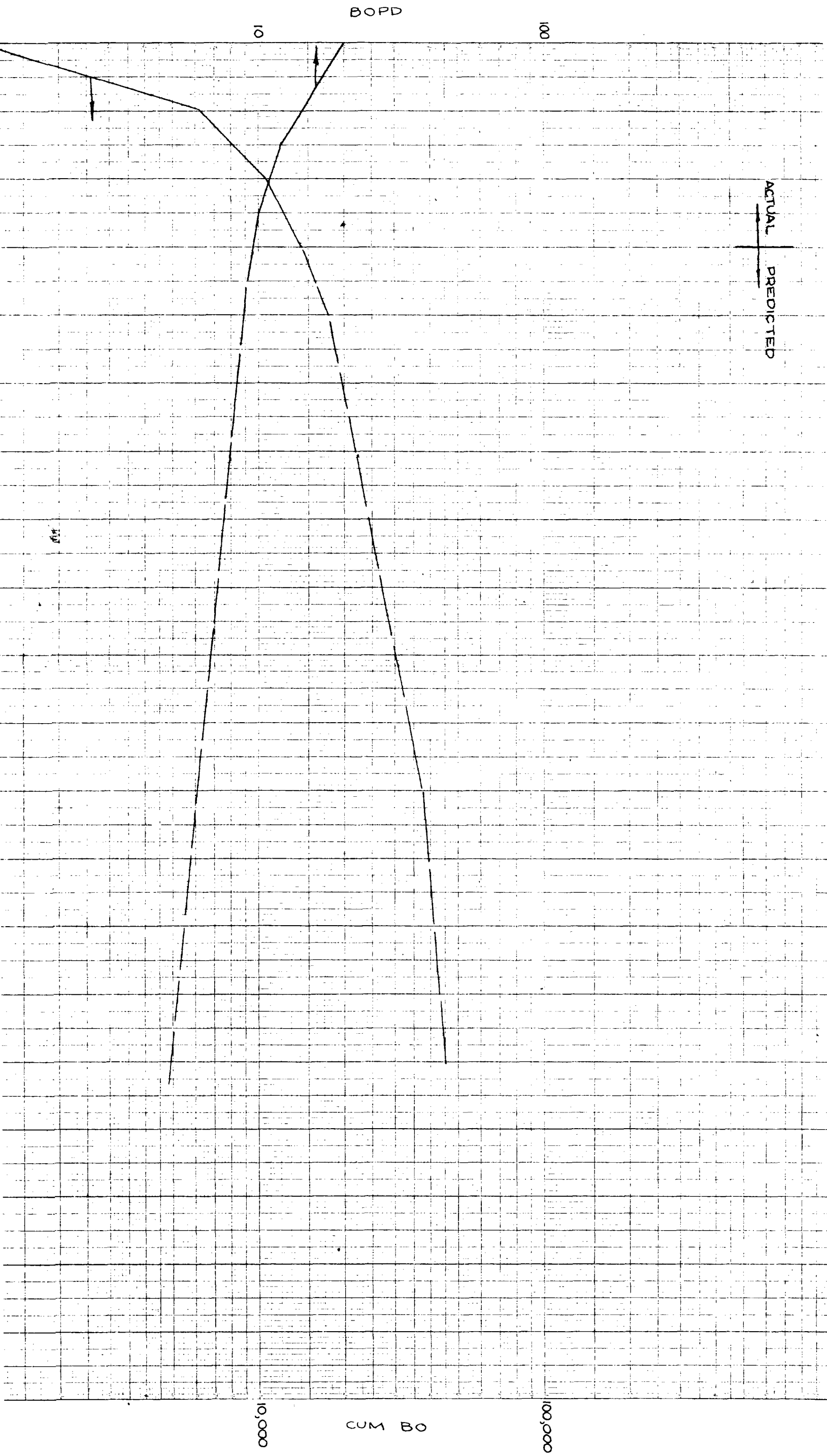
0 0

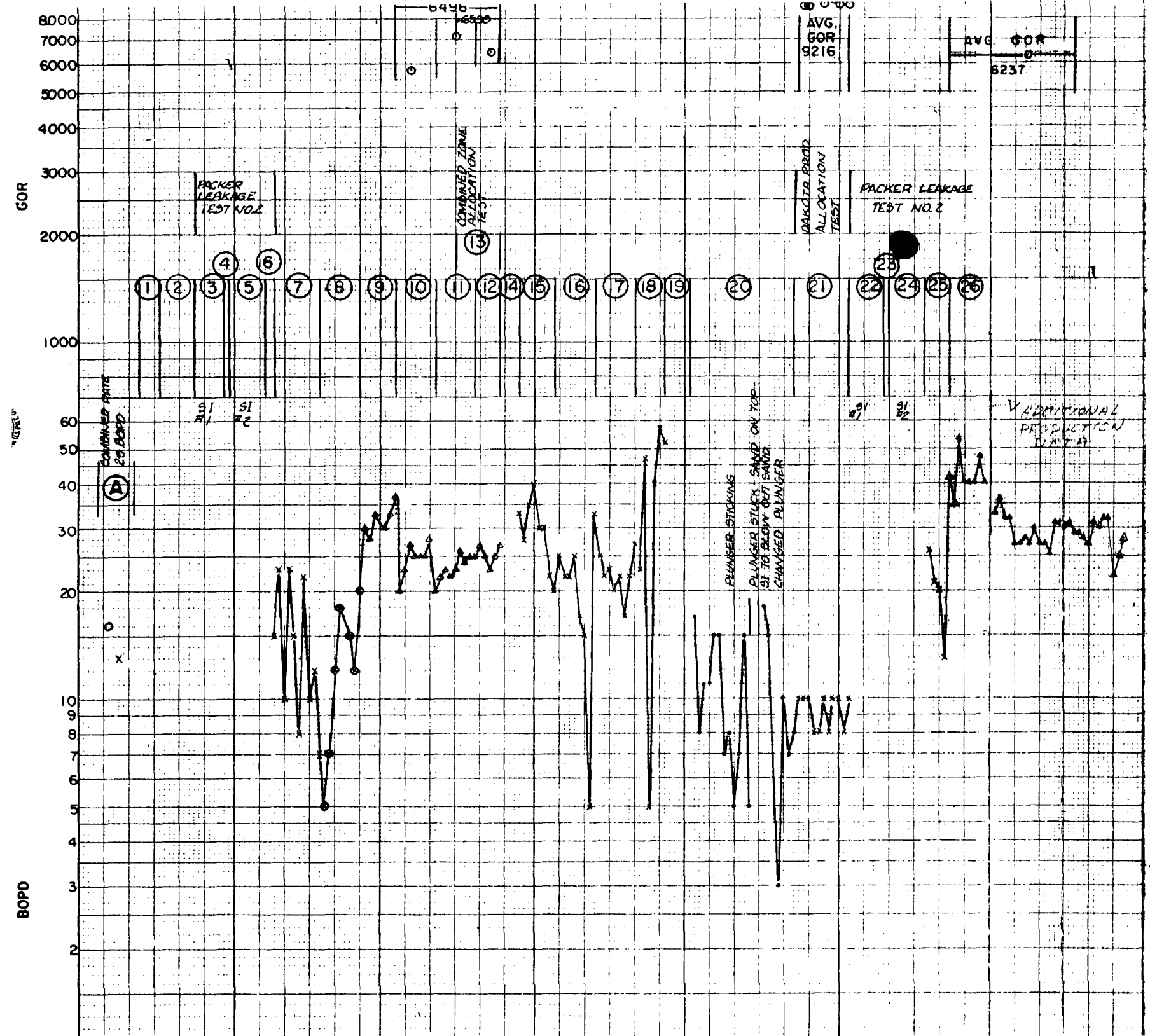

AL
PREDICTED
100,000
10,000
CUM BO

ACTUAL | PREDICTED









(A) 8-Day average individual producing rates prior to installation of Dual Flow Choke Gallup (pumping) Dakota (Plunger Lift)

(1) Shut-in. Pulled tubing and installing "Dual Flow Choke" w/Dakota check valve rem

(2) Recovering load oil used to kill well.

(3) Shut-in for packer-leakage test No. 1.

(4) Flow period No. 1. Flow Gallup up annulus. 180 MCF gas, 0 oil.

(5) Shut-in period No. 2 - packer-leakage.

(6) Flow period No. 2. Produce Dakota up tubing.

(7) Pulled tool. Blanked off Gallup zone. Ran seven-day pressure bomb recorder above for production distribution test. Tried both pressure control and time control to stabilize producing rates. Unable to obtain stabilized rates in clock period. 3-17-65. Pulled bomb and orifice head. Bomb clock failure. No data obtained.

(8) [illegible] orifice. Both zones producing commingled. Gas to pit. FTP 100#. Drawing Da down. Gallup not entering tubing.

(9) Gallup production entering tool. Gas continued to pit. FTP 100#.

(10) Gas to sales. 250# system pressure. Plunger 12 trips daily. Begin combined zone stabilized production test. 8-day gas chart period. Average 24 BOPD, GOR 5788.

(11) 8-day gas chart period. Combined zones. 8-day period. Average 24 BOPD, GOR 7337 Increase plunger trips to 16 daily 3-16-65.

(12) 5-day period. Combined zones. Average 25 BOPD, GOR 6416.

(13) Combined zone stabilized rate @ 16 plunger trips daily. Average 25 BOPD, GOR 6599

(14) Pulled orifice assembly. Installed blank in Gallup choke to produce Dakota only.

(15) Begin stabilize Dakota zone for subtraction method allocation.

(16) 8-day average production 20.5 BOPD, GOR 6713. High stabilized rate and low GOR in cates Gallup blank possibly not shutting off Gallup.

(17) Produced another 8-days. Average 22 BOPD, GOR 6624.

(18) Put gas to pit to draw down producing bottom-hole pressure. Gallup casing pressur decreased from 575# to 475# indicating Gallup zone was not blanked off by blanking

(19) Pulled orifice assembly. Found slightly damaged and had not seated in check assem Ordered new orifice assembly. Pulled and inspected check assembly. Re-ran check. Could not get new orifice to seat in check assembly. Attempted to retrieve check assembly. Could not retrieve after two days fishing. Killed well with oil and pu tubing. Ran tubing and tool with Gallup zone blanked off.

(20) Dakota producing load oil up tubing. Gas to pit. FP 50-100#.

(21) Load oil recovered from lower Dakota zone. Begin stabilized production test on Da for subtraction method allocation.
11-day stabilized average Dakota producing rate - 9.3 BOPD, GOR 9216.
Stabilized combined production rate from both zones.
(3-15-65 to 3-24-65) - 25 BOPD, GOR 6599.

(22) Pulled orifice assembly. Filled tubing and pressure tested check valves to 1600#. not leak. Knocked out lower plug in check assembly. Ran orifice assembly with Ga zone blanked off. Shut-in. Commenced test. Termination packer-leakage test No.

(23) Flow period No. 1. Gallup (upper) zone through casing.

(24) Shut-in period No. 2.

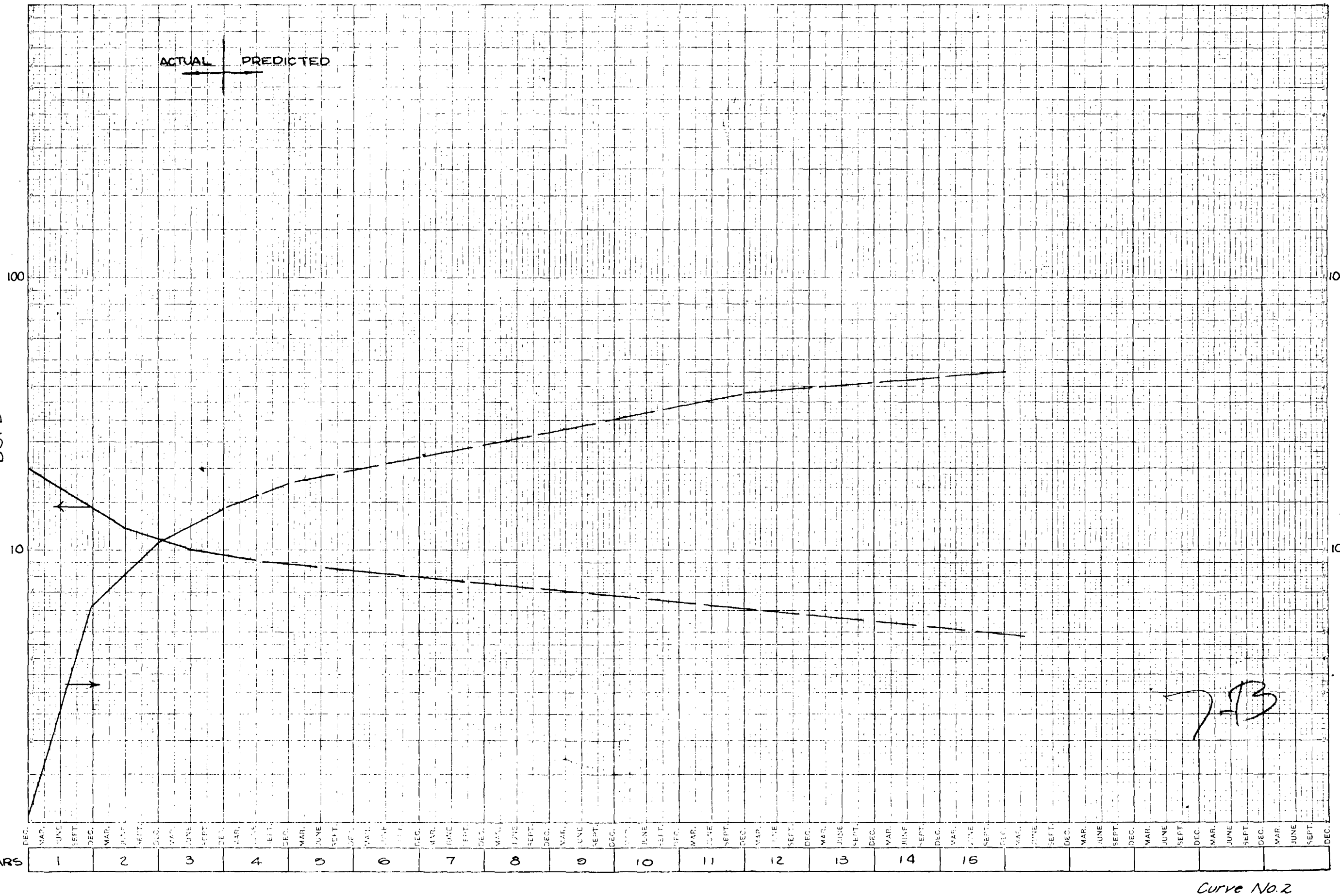
(25) Flow period No. 2. Dakota (Lower) zone up tubing. Produced Dakota to 6-22-65 and obtained final deadweight gauge for packer-leakage. No leaks indicated.

(26) Pulled entire "Dual Flow Choke" assembly. Replace lower knockout plug in check assembly. Ran assembly and plunger lift. Continue to produce both zones till tes period termination

WEST LINDRITH DAKOTA

TYPICAL WELL

RIO ARRIBA CO., NEW MEXICO



Curve No. 2

COMPOSITE - TYPICAL WEST LINDRITH GALLUP WELL

Rio Arriba County, New Mexico

Production Data from Five Wells Used
(Barrels of oil per year)

Well	YEAR 1	2	3	4	5	6	
1. Jicarilla 20 No. 2	9,019	9,803	8,605	8,293	6,280		42,000
2. Jicarilla 28 No. 1	13,174	7,014	6,552	5,050(Est.)			
3. Jicarilla 28 No. 2	5,015	2,609	3,104	2,430(Est.)			
4. Jicarilla 22 No. 1	4,792	3,480	3,130	2,900(Est.)			
5. Amarada A No. 5	10,182	6,938	5,349	5,289	4,741	4,262	36,961

BOPD

50
40
30
20
10

CUMULATIVE BO

100,000
10,000

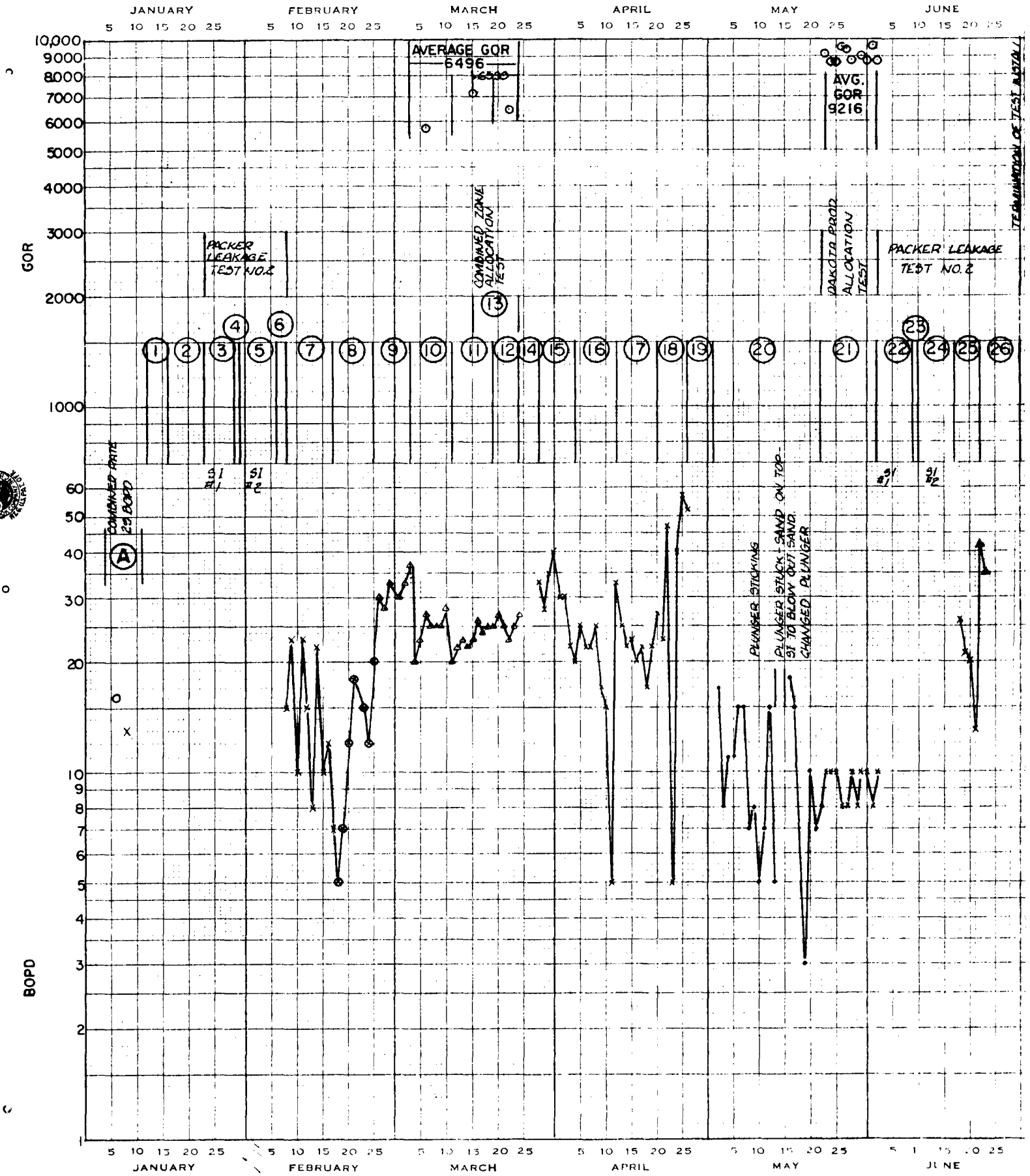
Actual ← → Predicted

#7-A.

YEARS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

CURVE NO. 1

"DUAL FLOW CHOKE" INSTALLATION
JICARILLA 28 WELL NO. 1



(A) 8-Day average individual producing rates prior to installation of Dual Flow Choke. Gallup (pumping) Dakota (Plunger Lift)

(1) Shut-in. Pulled tubing and installing "Dual Flow Choke" w/Dakota check valve removed.

(2) Recovering load oil used to kill well.

(3) Shut-in for packer-leakage test No. 1.

(4) Flow period No. 1. Flow Gallup up annulus. 180 MCF gas, 0 oil.

(5) Shut-in period No. 2 - packer-leakage.

(6) Flow period No. 2. Produce Dakota up tubing.

(7) Pulled tool. Blanked off Gallup zone. Ran seven-day pressure bomb recorder above tool for production distribution test. Tried both pressure control and time control to stabilize producing rates. Unable to obtain stabilized rates in clock period. 2-17-65. Pulled bomb and orifice head. Bomb clock failure. No data obtained.

(8) Ran orifice. Both zones producing commingled. Gas to pit. FTP 100#. Drawing Dakota down. Gallup not entering tubing.

(9) Gallup production entering tool. Gas continued to pit. FTP 100#.

(10) Gas to sales. 250# system pressure. Plunger 12 trips daily. Begin combined zone stabilized production test. 8-day gas chart period. Average 24 BOPD, GOR 5788.

(11) 8-day gas chart period. Combined zones. 8-day period. Average 24 BOPD, GOR 7337. Increase plunger trips to 16 daily 3-16-65.

(12) 5-day period. Combined zones. Average 25 BOPD, GOR 6416.

(13) Combined zone stabilized rate @ 16 plunger trips daily. Average 25 BOPD, GOR 6599.

(14) Pulled orifice assembly. Installed blank in Gallup choke to produce Dakota only.

(15) Begin stabilize Dakota zone for subtraction method allocation.

(16) 8-day average production 20.5 BOPD, GOR 6713. High stabilized rate and low GOR indicates Gallup blank possibly not shutting off Gallup.

(17) Produced another 8-days. Average 22 BOPD, GOR 6624.

(18) Put gas to pit to draw down producing bottom-hole pressure. Gallup casing pressure decreased from 575# to 475# indicating Gallup zone was not blanked off by blanking plug

(19) Pulled orifice assembly. Found slightly damaged and had not seated in check assembly. Ordered new orifice assembly. Pulled and inspected check assembly. Re-ran check. Could not get new orifice to seat in check assembly. Attempted to retrieve check assembly. Could not retrieve after two days fishing. Killed well with oil and pulled tubing. Ran tubing and tool with Gallup zone blanked off.

(20) Dakota producing load oil up tubing. Gas to pit. FP 50-100#.

(21) Load oil recovered from lower Dakota zone. Begin stabilized production test on Dakota for subtraction method allocation.
11-day stabilized average Dakota producing rate - 9.3 BOPD, GOR 9216.
Stabilized combined production rate from both zones.
(3-15-65 to 3-24-65) - 25 BOPD, GOR 6599.

(22) Pulled orifice assembly. Filled tubing and pressure tested check valves to 1600#. Di not leak. Knocked out lower plug in check assembly. Ran orifice assembly with Gallup zone blanked off. Shut-in. Commenced test. Termination packer-leakage test No. 2.

(23) Flow period No. 1. Gallup (upper) zone through casing.

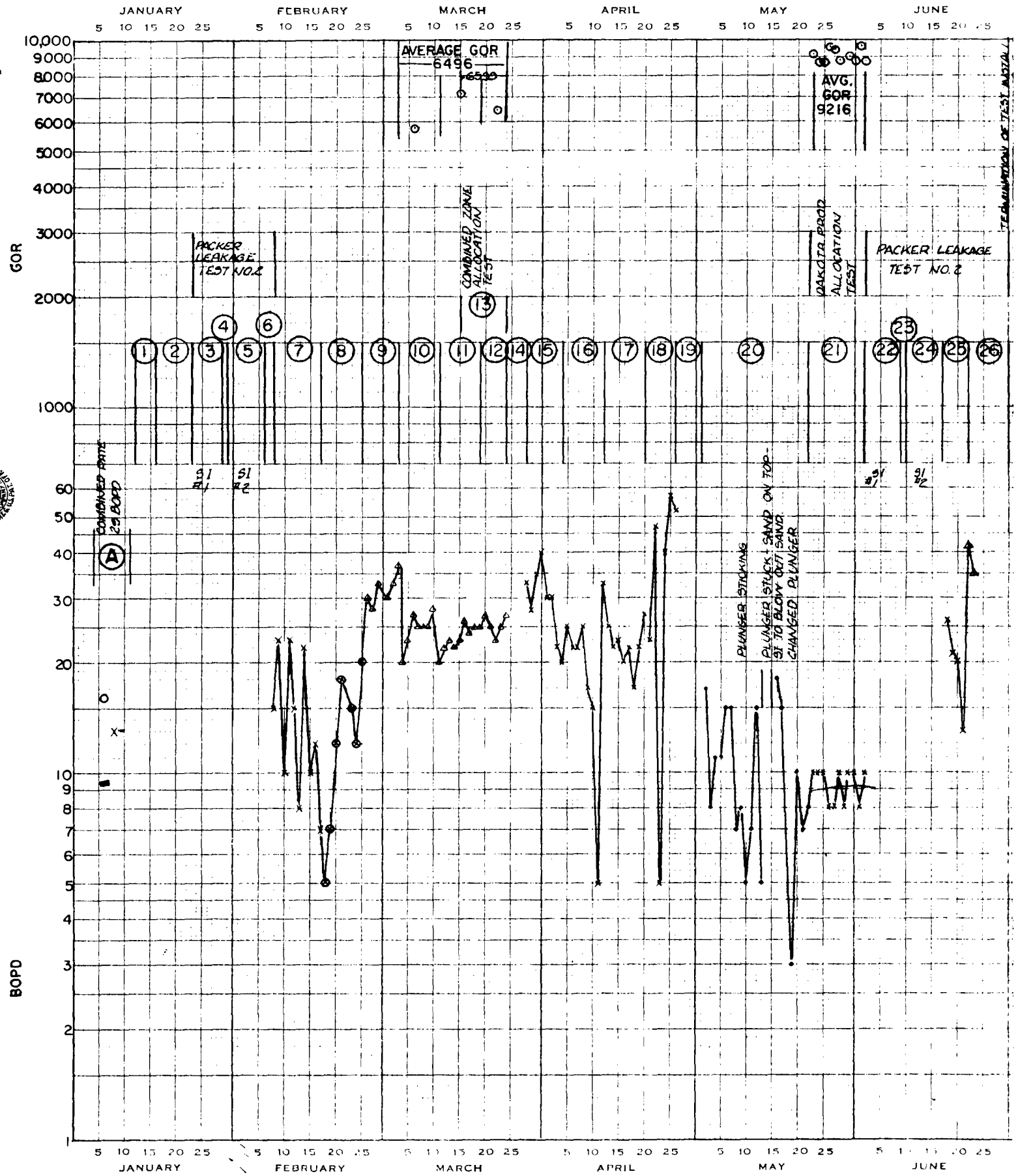
(24) Shut-in period No. 2.

(25) Flow period No. 2. Dakota (Lower) zone up tubing. Produced Dakota to 6-22-65 and obtained final deadweight gauge for packer-leakage. No leaks indicated.

(26) Pulled entire "Dual Flow Choke" assembly. Replace lower knockout plug in check assembly. Ran assembly and plunger lift. Continue to produce both zones till test period termination

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. _____
CASE NO. _____

EXHIBIT #4



"DUAL FLOW CHOKE" INSTALLATION
JICARILLA 28 WELL NO. 1

(A) 8-Day average individual producing rates prior to installation of Dual Flow Choke. Gallup (pumping) Dakota (Plunger Lift)

(1) Shut-in. Pulled tubing and installing "Dual Flow Choke" w/Dakota check valve remov

(2) Recovering load oil used to kill well.

(3) Shut-in for packer-leakage test No. 1.

(4) Flow period No. 1. Flow Gallup up annulus. 180 MCF gas, 0 oil.

(5) Shut-in period No. 2 - packer-leakage.

(6) Flow period No. 2. Produce Dakota up tubing.

(7) Pulled tool. Blanked off Gallup zone. Ran seven-day pressure bomb recorder above for production distribution test. Tried both pressure control and time control to stabilize producing rates. Unable to obtain stabilized rates in clock period. 2-17-65. Pulled bomb and orifice head. Bomb clock failure. No data obtained.

(8) Ran orifice. Both zones producing commingled. Gas to pit. FTP 100#. Drawing Dak down. Gallup not entering tubing.

(9) Gallup production entering tool. Gas continued to pit. FTP 100#.

(10) Gas to sales. 250# system pressure. Plunger 12 trips daily. Begin combined zone stabilized production test. 8-day gas chart period. Average 24 BOPD, GOR 5788.

(11) 8-day gas chart period. Combined zones. 8-day period. Average 24 BOPD, GOR 7337. Increase plunger trips to 16 daily 3-16-65.

(12) 5-day period. Combined zones. Average 25 BOPD, GOR 6416.

(13) Combined zone stabilized rate @ 16 plunger trips daily. Average 25 BOPD, GOR 6599.

(14) Pulled orifice assembly. Installed blank in Gallup choke to produce Dakota only.

(15) Begin stabilize Dakota zone for subtraction method allocation.

(16) 8-day average production 20.5 BOPD, GOR 6713. High stabilized rate and low GOR indicates Gallup blank possibly not shutting off Gallup.

(17) Produced another 8-days. Average 22 BOPD, GOR 6624.

(18) Put gas to pit to draw down producing bottom-hole pressure. Gallup casing pressure decreased from 575# to 475# indicating Gallup zone was not blanked off by blanking

(19) Pulled orifice assembly. Found slightly damaged and had not seated in check assemb Ordered new orifice assembly. Pulled and inspected check assembly. Re-ran check. Could not get new orifice to seat in check assembly. Attempted to retrieve check assembly. Could not retrieve after two days fishing. Killed well with oil and pul tubing. Ran tubing and tool with Gallup zone blanked off.

(20) Dakota producing load oil up tubing. Gas to pit. FP 50-100#.

(21) Load oil recovered from lower Dakota zone. Begin stabilized production test on Dak for subtraction method allocation.
11-day stabilized average Dakota producing rate - 9.3 BOPD, GOR 9216.
Stabilized combined production rate from both zones.
(3-15-65 to 3-24-65) - 25 BOPD, GOR 6599.

(22) Pulled orifice assembly. Filled tubing and pressure tested check valves to 1600#. not leak. Knocked out lower plug in check assembly. Ran orifice assembly with Gal zone blanked off. Shut-in. Commenced test. Termination packer-leakage test No. 2

(23) Flow period No. 1. Gallup (upper) zone through casing.

(24) Shut-in period No. 2.

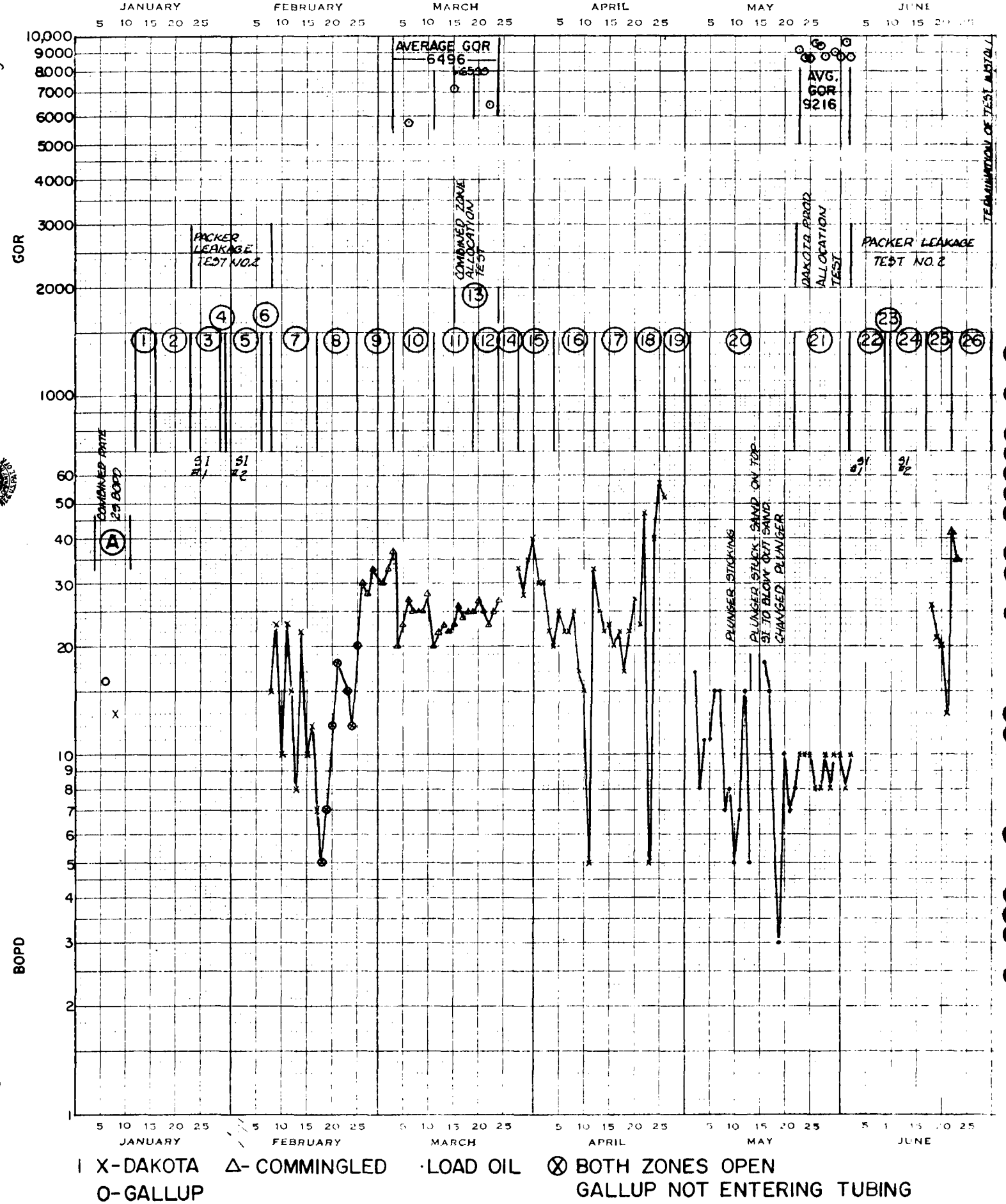
(25) Flow period No. 2. Dakota (Lower) zone up tubing. Produced Dakota to 6-22-65 and obtained final deadweight gauge for packer-leakage. No leaks indicated.

(26) Pulled entire "Dual Flow Choke" assembly. Replace lower knockout plug in check assembly. Ran assembly and plunger lift. Continue to produce both zones till test period termination

29.5
9.3
0.12

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 3112

EXHIBIT No 4



"DUAL FLOW CHOKE" INSTALLATION
JICARILLA 28 WELL NO. 1

(A) 8-Day average individual producing rates prior to installation of Dual Flow Choke. Gallup (pumping) Dakota (Plunger Lift)

(1) Shut-in. Pulled tubing and installing "Dual Flow Choke" w/Dakota check valve removed.

(2) Recovering load oil used to kill well.

(3) Shut-in for packer-leakage test No. 1.

(4) Flow period No. 1. Flow Gallup up annulus. 180 MCF gas, 0 oil.

(5) Shut-in period No. 2 - packer-leakage.

(6) Flow period No. 2. Produce Dakota up tubing.

(7) Pulled tool. Blanked off Gallup zone. Ran seven-day pressure bomb recorder above too for production distribution test. Tried both pressure control and time control to stabilize producing rates. Unable to obtain stabilized rates in clock period. 2-17-65. Pulled bomb and orifice head. Bomb clock failure. No data obtained.

(8) Ran orifice. Both zones producing commingled. Gas to pit. FTP 100#. Drawing Dakota down. Gallup not entering tubing.

(9) Gallup production entering tool. Gas continued to pit. FTP 100#.

(10) Gas to sales. 250# system pressure. Plunger 12 trips daily. Begin combined zone stabilized production test. 8-day gas chart period. Average 24 BOPD, GOR 5788.

(11) 8-day gas chart period. Combined zones. 8-day period. Average 24 BOPD, GOR 7337. Increase plunger trips to 16 daily 3-16-65.

(12) 5-day period. Combined zones. Average 25 BOPD, GOR 6416.

(13) Combined zone stabilized rate @ 16 plunger trips daily. Average 25 BOPD, GOR 6599.

(14) Pulled orifice assembly. Installed blank in Gallup choke to produce Dakota only.

(15) Begin stabilize Dakota zone for subtraction method allocation.

(16) 8-day average production 20.5 BOPD, GOR 6713. High stabilized rate and low GOR indicates Gallup blank possibly not shutting off Gallup.

(17) Produced another 8-days. Average 22 BOPD, GOR 6624.

(18) Put gas to pit to draw down producing bottom-hole pressure. Gallup casing pressure decreased from 575# to 475# indicating Gallup zone was not blanked off by blanking plu

(19) Pulled orifice assembly. Found slightly damaged and had not seated in check assembly. Ordered new orifice assembly. Pulled and inspected check assembly. Re-ran check. Could not get new orifice to seat in check assembly. Attempted to retrieve check assembly. Could not retrieve after two days fishing. Killed well with oil and pulled tubing. Ran tubing and tool with Gallup zone blanked off.

(20) Dakota producing load oil up tubing. Gas to pit. FP 50-100#.

(21) Load oil recovered from lower Dakota zone. Begin stabilized production test on Dakota for subtraction method allocation.
11-day stabilized average Dakota producing rate - 9.3 BOPD, GOR 9216.
Stabilized combined production rate from both zones.
(3-15-65 to 3-24-65) - 25 BOPD, GOR 6599.

(22) Pulled orifice assembly. Filled tubing and pressure tested check valves to 1600#. D not leak. Knocked out lower plug in check assembly. Ran orifice assembly with Gallup zone blanked off. Shut-in. Commenced test. Termination packer-leakage test No. 2.

(23) Flow period No. 1. Gallup (upper) zone through casing.

(24) Shut-in period No. 2.

(25) Flow period No. 2. Dakota (Lower) zone up tubing. Produced Dakota to 6-22-65 and obtained final deadweight gauge for packer-leakage. No leaks indicated.

(26) Pulled entire "Dual Flow Choke" assembly. Replace lower knockout plug in check assembly. Ran assembly and plunger lift. Continue to produce both zones till test period termination

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
_____ EXHIBIT NO. _____
CASE NO. _____

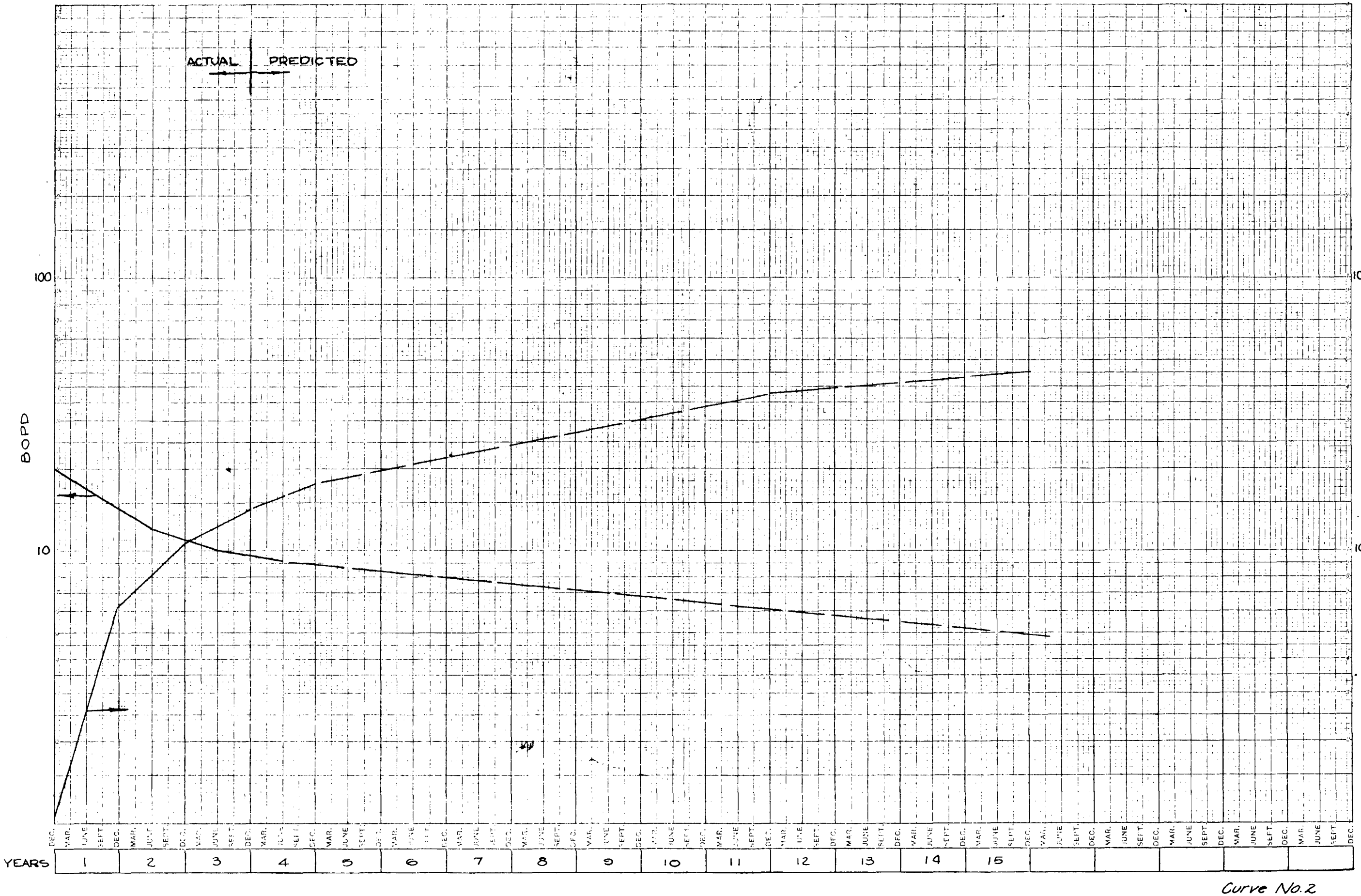
EXHIBIT #4

WEST LINDRITH DAKOTA

TYPICAL WELL

RIO ARRIBA CO., NEW MEXICO

EXH 7

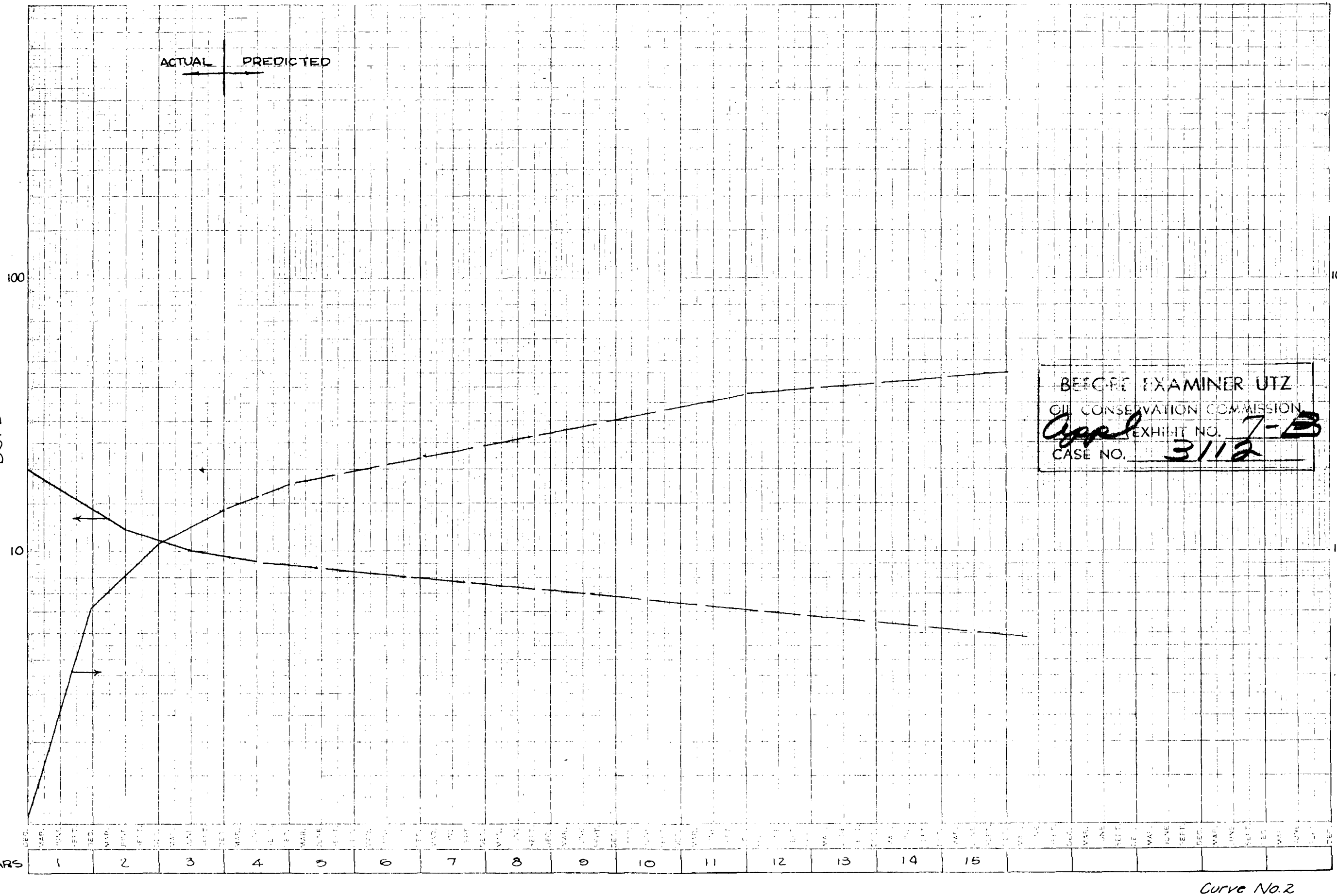


Curve No. 2

WEST LINDRITH DAKOTA

TYPICAL WELL

RIO ARRIBA CO., NEW MEXICO



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7-B
CASE NO. 3112

Curve No. 2

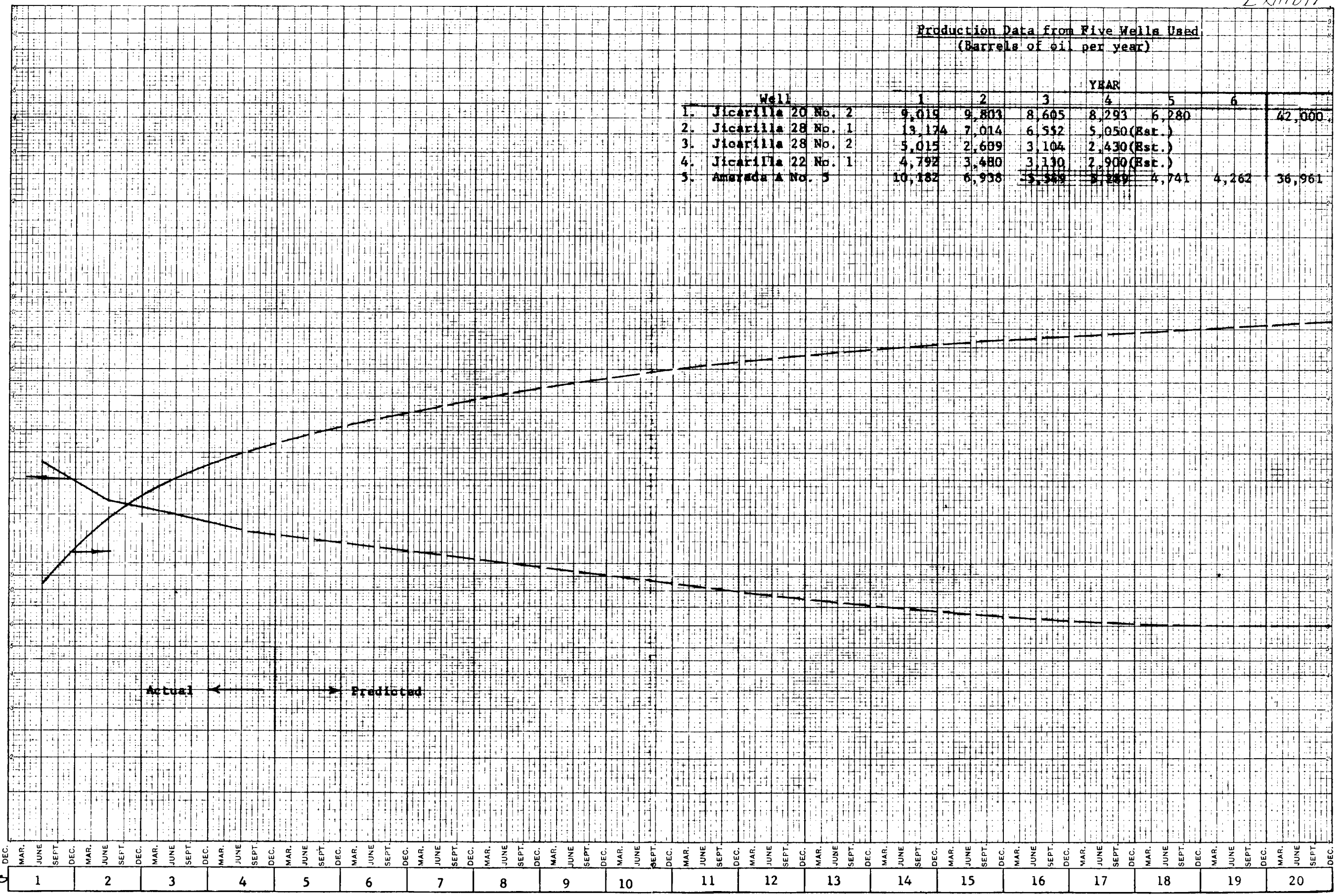
COMPOSITE - TYPICAL WEST LINDRITH GALLUP WELL

Rio Arriba County, New Mexico

EXHIBIT 7

Production Data from Five Wells Used
(Barrels of oil per year)

Well	YEAR 1	2	3	4	5	6	
1. Jicarilla 20 No. 2	9,019	9,803	8,605	8,293	6,280		42,000
2. Jicarilla 28 No. 1	13,174	7,014	6,552	5,050(Est.)			
3. Jicarilla 28 No. 2	5,015	2,609	3,104	2,430(Est.)			
4. Jicarilla 22 No. 1	4,792	3,480	3,130	2,900(Est.)			
5. Amarada A No. 5	10,182	6,938	5,349	5,249	4,741	4,262	36,961



CURVE NO. 1

COMPOSITE - TYPICAL WEST LINDRITH GALLUP WELL

Rio Arriba County, New Mexico

Production Data from Five Wells Used
(Barrels of oil per year)

Well	YEAR 1	2	3	4	5	6	CUM.
1. Jicarilla 20 No. 2	9,019	9,803	8,605	8,293	6,280		42,000
2. Jicarilla 28 No. 1	13,174	7,014	6,552	5,050(Est.)			31,790
3. Jicarilla 28 No. 2	5,015	2,609	3,104	2,430(Est.)			13,158
4. Jicarilla 22 No. 1	4,792	3,480	3,130	2,900(Est.)			14,300
5. Amarada A No. 5	10,182	6,938	5,369	5,289	4,741	4,262	36,961

BOPD

50
40
30
20
10

100,
10,

CUMULATIVE BO

Actual ← → Predicted

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Applt EXHIBIT NO. 7-A
CASE NO. 3112

DEC. MAR. JUNE SEPT. DEC.

YEARS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

CURVE NO. 1

EXHIBIT 7A

COMPOSITE - TYPICAL WEST LINDRITH GALLUP WELL

Rio Arriba County, New Mexico

Production Data from Five Wells Used
(Barrels of oil per year)

Well	YEAR 1	2	3	4	5	6	
1. Jicarilla 20 No. 2	9,019	9,803	8,605	8,293	6,280		42,000
2. Jicarilla 28 No. 1	13,174	7,014	6,552	5,050(Est.)			
3. Jicarilla 28 No. 2	5,015	2,609	3,104	2,430(Est.)			
4. Jicarilla 22 No. 1	4,792	3,480	3,130	2,900(Est.)			
5. Amerada A No. 3	10,182	6,938	5,349	5,289	4,741	4,262	36,961

BOPD: 50, 40, 30, 20, 10

CUMULATIVE BO: 100,000; 10,000

Representative

Actual ← → Predicted

YEARS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

CURVE NO. 1

CODEX BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS

NO. 4172. TWENTY YEARS BY MONTHS X 3 4-INCH CYCLES RATIO RULING.

EXHIBT 7B

WEST LINDRITH DAKOTA
TYPICAL WELL
RIO ARRIBA CO., NEW MEXICO

Re

ACTUAL | PREDICTED

100

10

BOPD

100,000

10,000

CUM BO

Representative

YEARS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Curve No. 2.

COMPOSITE - TYPICAL WEST LINDRITH GALLUP WELL

Rio Arriba County, New Mexico

Production Data from Five Wells Used
(Barrels of oil per year)

Well	YEAR 1	2	3	4	5	6	CUM
1. Jicarilla 20 No. 2	9,019	9,803	8,605	8,293	6,280		42,000
2. Jicarilla 28 No. 1	13,174	7,014	6,552	5,050(Est.)			31,790
3. Jicarilla 28 No. 2	5,015	2,609	3,104	2,430(Est.)			13,158
4. Jicarilla 22 No. 1	4,792	3,480	3,130	2,900(Est.)			14,300
5. Amarada A No. 5	10,182	6,938	5,588	5,249	4,741	4,262	36,961

BOPD

50
40
30
20
10

CUMULATIVE BO

100,000
10,000

Actual ← → Predicted

YEARS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

DEC. MAR. JUNE SEPT. DEC.

CURVE NO. 1