

Hilliard Oil & Gas, Inc.
McClellan Federal No. 1
2180' FSL & 660' FEL (Un I)
Section 27, T-15-S, R-30-E
Cedar Point (Strawn) Pool
Chaves Co., New Mexico

WELL DATA

Spud Date: November 28, 1982

Casing and Tubing Program: 499' of 13-3/8", 48#, cemented with 525 sx;
3300' of 8-5/8", 32# & 24#, cemented with
2160 sx; 10,815' of 5-1/2", 17#, cemented
with 495 sx; 10,498' of 2-3/8", N-80, 4.70#,
set in Model "R" packer at 10,467'

Completion Zone: Strawn

Completion Perforations: 10,628'-10,636' with 2 JSPF

Completion Date: February 6, 1983

Completion Test (Natural): 224 BOPD, 16/64" choke, FTP = 500, 480 MCFD,
GOR = 2133, Gravity = 46° API

Original BHP: 3800 psig. (69 hr. build-up) @ 10,616' (-6531)

Production Commenced: March 25, 1983

Cumulative Production: 77,483 Bbls & 113,638 MCF to August 1, 1984

Gas Purchaser and Analysis: Cabot Pipeline
Specific Gravity 0.7240
BTU 1177 (wet)

Strawn Zone Reservoir Data: 12 md. (Calculated using Horner plot & build-
up data run 2-6-83 to 2-9-83)
h=9', ϕ =15%, S_w =18%
 B_{oi} =1.76 (chart data)
Bubble point pressure=3500 psig (chart data)
Viscosity Crude=0.25 cp. (chart data)
BHT = 175° F

Pressure Data
Calculated Productive Area

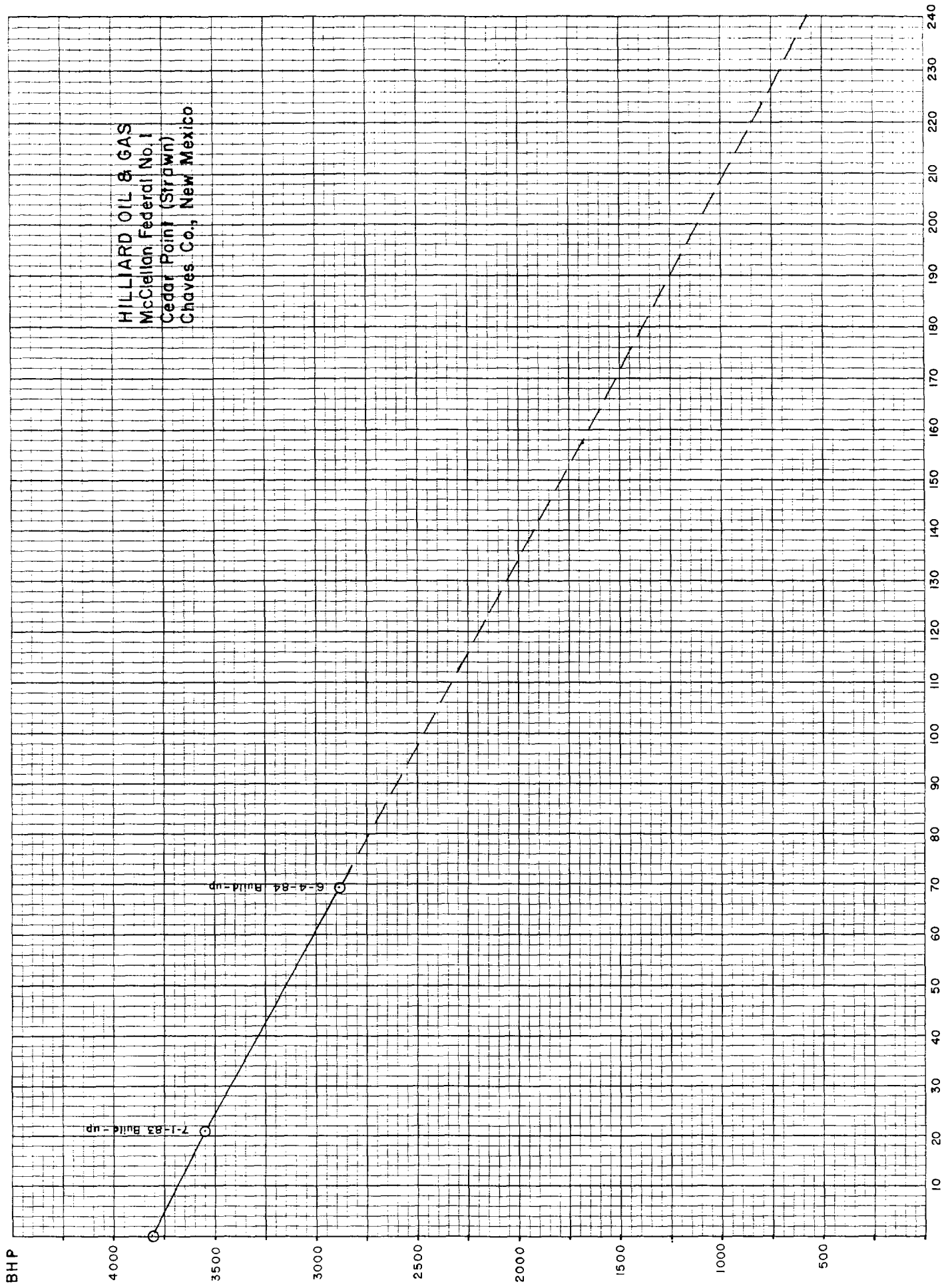
<u>Date</u>	<u>BHP</u>	<u>Cum Bbls</u>	<u>Remarks</u>
2-10-83	3800	-0-	Build-up (Horner Plot)
7-5-83	3554	21,000	Build-up (Horner Plot)
6-9-84	2894	69,000	Build-up (Horner Plot)

$$\begin{aligned}
 \text{Original Oil-in-Place:} &= 7758 \times \phi \times (1 - S_w) \times 1/B_{oi} \\
 &= 7758 \times .15 \times (1 - 0.18) \times 1/1.76 \\
 &= 542 \text{ STB/Ac-Ft}
 \end{aligned}$$

$$\text{Estimated Recovery Factor:} = 25\%$$

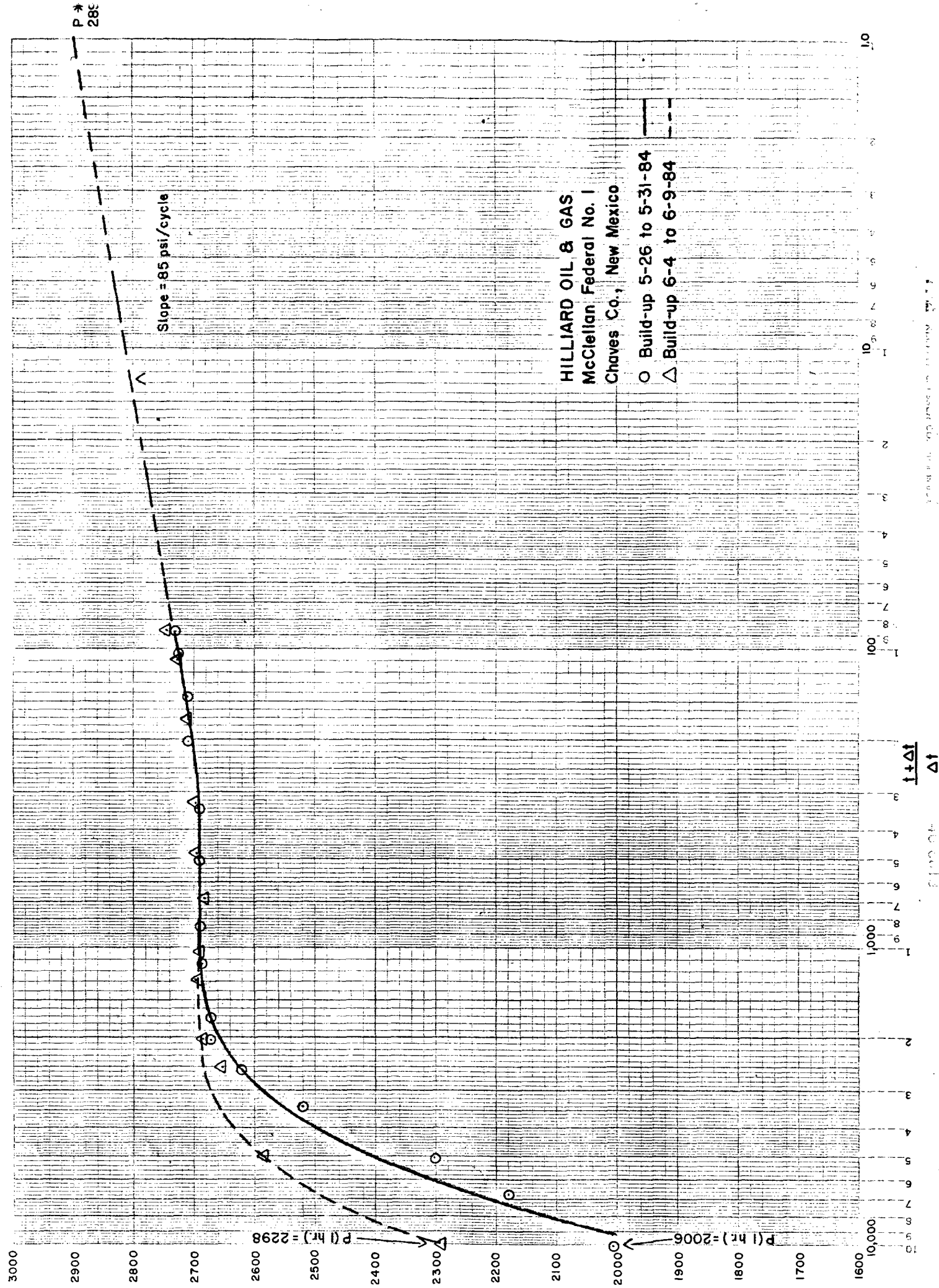
Bottom Hole Pressure vs. Cumulative Plot - Recoverable Oil of 240,000 STB

$$\text{Productive Area:} = \frac{240,000 \text{ STB}}{542 \text{ STB/Ac-Ft} \times 9 \text{ Ft} \times .25} = 197 \text{ acres}$$



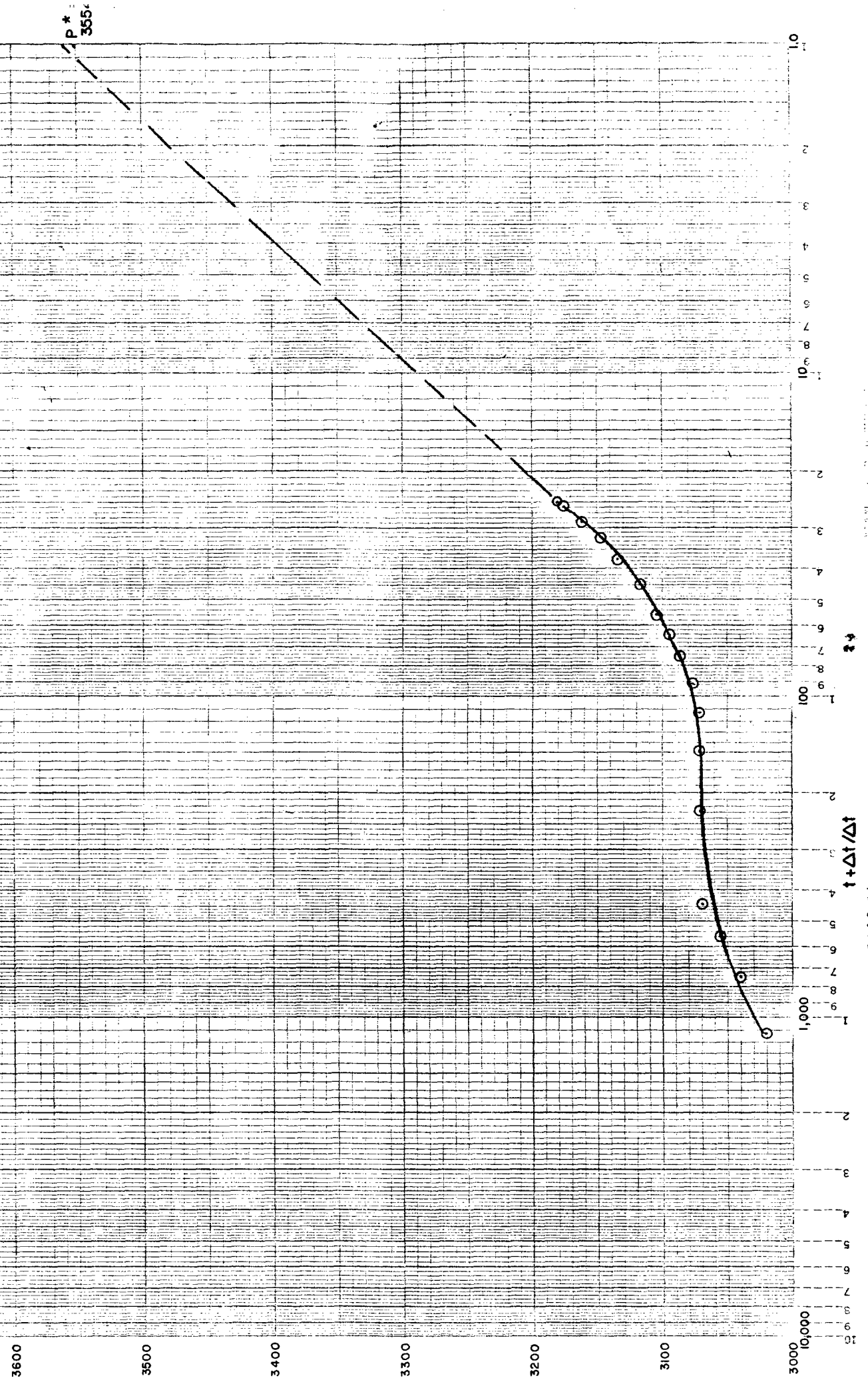
CUMULATIVE OIL, X 1000 BBLs.

46 1610



BHP
at 10,616'
(-6531)
3700

HILLIARD OIL & GAS
McClellan Federal No. 1
Chaves Co., New Mexico
93-hr. build-up from 7-1-83 to 7-5-83



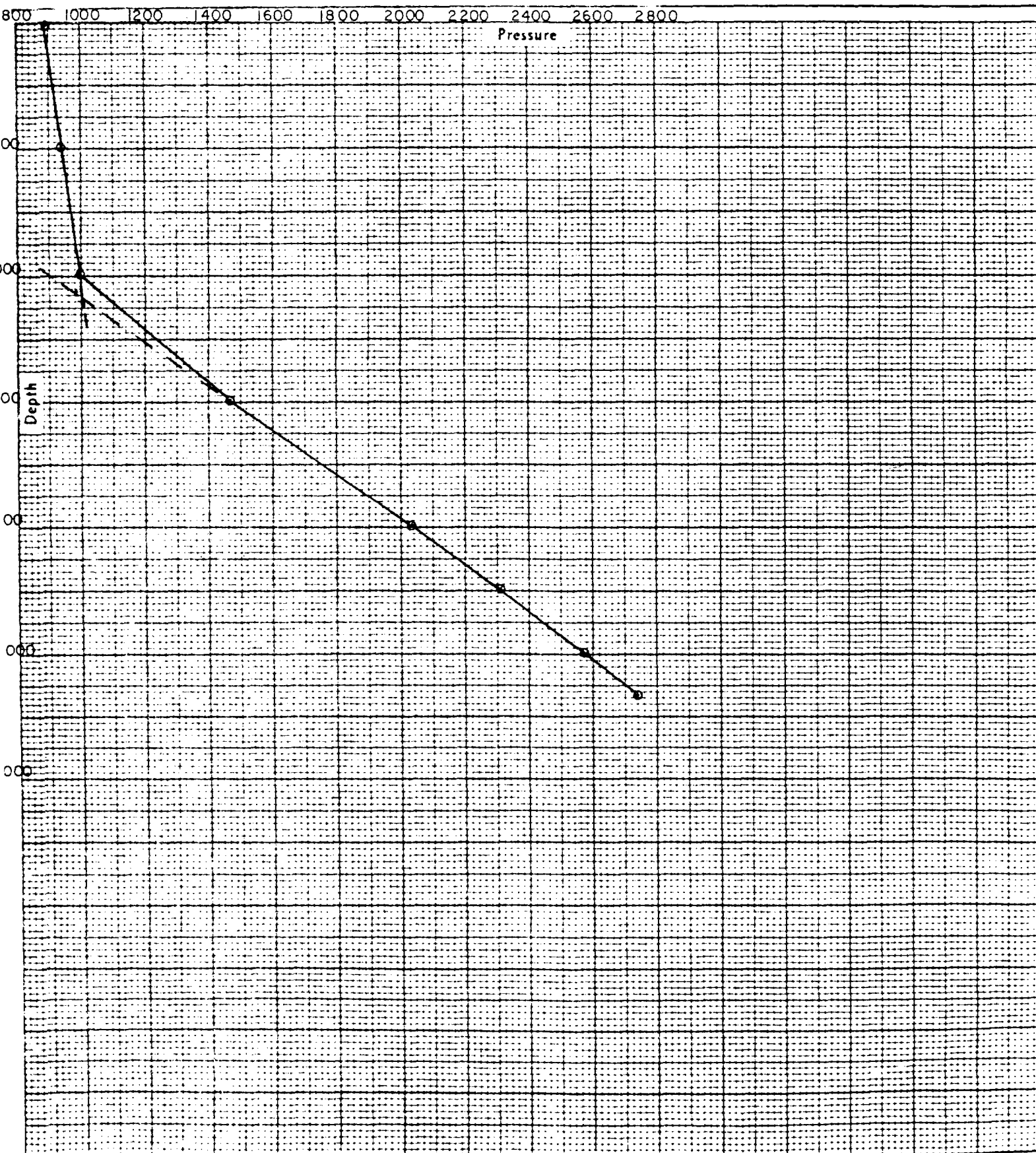
JOHN W. WEST ENGINEERING COMPANY
412 NORTH DAL PASO, HOBBS, NEW MEXICO

TELEPHONES 393-3942
393-3117

BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR Hilliard Oil & Gas, Inc.
LEASE McClellan Federal No. 1
WELL NO. 1
FIELD _____
DATE 6-9-84 TIME 9:30 A.M.
STATUS Shut-In TEST DEPTH 10,632'
TIME S.I. _____ LAST TEST DATE _____
CAS PRES. _____ BHP LAST TEST _____
TUB PRES. 884 psi BHP CHANGE _____
ELEV. _____ FLUID TOP 4400'
DATUM _____ WATER TOP _____
TEMP _____ RUN BY W.S.
CLOCK NO 21242 GAUGE NO. 19389
ELEMENT NO 23953 (0-4000 psi)

DEPTH	PRESSURE	GRADIENT
000	884	
2000	940	.028
4000	996	.028
6000	1464	.234
8000	2028	.282
9000	2304	.276
10000	2570	.266
10632	2740	.269



HILLIARD OIL & GAS, INC.
 McCLELLAN FEDERAL NO. 1
 BOTTOM HOLE PRESSURE BUILD-UP TEST
 BOTTOM HOLE PRESSURE FLOW TEST AND
 BOTTOM HOLE PRESSURE BUILD-UP TEST
 TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
 JOHN WEST ENGINEERING COMPANY

TEST DATE: MAY 26, to JUNE 9, 1984
 TEST DEPTH: 10,632 FEET
 ELEMENT NO: 23953 (0-4000 psi)
 OPERATOR: W.S.

<u>DATE</u>	<u>TIME</u>	<u>CUM HRS./MIN.</u>	<u>PSIG @ 10,632 FEET</u>
5-26-84	10:15 A.M.		2094 gauge reached 10,632'
	10:45 A.M.		1906
	11:00 A.M.		1801
	11:15 A.M.	00 Hrs. 00 Min.	1775 Shut-In, Begin Build-Up
	11:30 A.M.	00 15	1837
	11:45 A.M.	00 30	1894
	12:00 Noon	00 45	1956
	12:15 P.M.	01 00	2006
	12:45 P.M.	01 30	2182
	1:15 P.M.	02 00	2304
	1:45 P.M.	02 30	2442
	2:15 P.M.	03 00	2526
	2:45 P.M.	03 30	2580
	3:15 P.M.	04 00	2626
	3:45 P.M.	04 30	2652
	4:15 P.M.	05 00	2672
	5:15 P.M.	06 00	2692
	6:15 P.M.	07 00	2702
	7:15 P.M.	08 00	2700
	8:15 P.M.	09 00	2696
	9:15 P.M.	10 00	2694
5-26-84	10:15 P.M.	12 00	2688
5-27-84	2:15 A.M.	15 00	2688
	7:15 A.M.	20 00	2690
	12:15 P.M.	25 00	2694
5-27-84	5:15 P.M.	30 00	2696
5-28-84	3:15 A.M.	40 00	2702
	1:15 P.M.	50 00	2706
5-28-84	11:15 P.M.	60 00	2710
5-29-84	9:15 A.M.	70 00	2714
5-29-84	7:15 P.M.	80 00	2718
5-30-84	5:15 A.M.	90 00	2724
5-30-84	3:15 P.M.	100 00	2728
5-31-84	1:15 A.M.	110 00	2730
5-31-84	8:45 A.M.	117 30	2734 gauge out to change charts.
5-31-84	10:00 A.M.	00 Hrs. 00 Min.	2736 gauge back to 10,632'
	10:05 A.M.	00 05	2736 Begin Flowing
	10:30 A.M.	00 25	2338
	11:05 A.M.	01 00	2172
	11:45 A.M.	01 40	2198
	2:35 P.M.	04 30	1355
	3:05 P.M.	05 00	1574
	4:05 P.M.	06 00	1522
	4:45 P.M.	06 40	1657
	5:05 P.M.	07 00	1548
	5:35 P.M.	07 30	1610
	7:25 P.M.	09 20	1520
	7:45 P.M.	09 40	1592
	8:05 P.M.	10 00	1534
	8:25 P.M.	10 20	1697
	9:45 P.M.	11 40	1556
	10:05 P.M.	12 00	1608
	11:05 P.M.	13 00	1554
5-31-84	11:45 P.M.	13 40	1626
6-01-84	1:05 A.M.	15 00	1546

Continued on attached sheet.

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HILLIARD OIL & GAS, INC.
McCLELLAN FEDERAL NO. 1
ELEMENT NO: 23953 (0-4000 psi)

DATE	TIME	CUM HRS./MIN.	PSIG @ 10,632 FEET
6-1-84	3:05 A.M.	17 Hrs. 00 Min.	1594
	6:05 A.M.	20 00	1590
	6:10 A.M.	20 05	1677
	8:05 A.M.	22 00	1564
	10:05 A.M.	24 00	1536
	11:05 A.M.	25 00	1546
	2:05 P.M.	28 00	1578
	3:05 P.M.	29 00	1556
	4:05 P.M.	30 00	1588
	6:05 P.M.	32 00	1576
	6:35 P.M.	32 30	1659
	8:35 P.M.	34 30	1594
6-1-84	8:45 P.M.	34 45	1653
6-2-84	1:00 A.M.	39 00	1610
	3:00 A.M.	41 00	1552
	3:40 A.M.	41 40	1629
	4:00 A.M.	42 00	1550
	7:00 A.M.	45 00	1576
	11:00 A.M.	49 00	1596
	1:00 P.M.	51 00	1548
	2:00 P.M.	52 00	1530
	2:30 P.M.	52 30	1528
	5:00 P.M.	55 00	1574
	6:40 P.M.	56 40	1588
	9:00 P.M.	59 00	1564
6-2-84	10:00 P.M.	60 00	1598
6-3-84	1:00 A.M.	63 00	1663
	3:00 A.M.	65 00	1665
	4:00 A.M.	66 00	1659
	5:00 A.M.	67 00	1655
	8:00 A.M.	70 00	1635
	9:00 A.M.	71 00	1590
	9:30 A.M.	71 30	1669
	10:00 A.M.	72 00	1576
	10:30 A.M.	72 30	1657
	1:00 P.M.	75 00	1627
	3:00 P.M.	77 00	1645
	6:00 P.M.	80 00	1661
	6:30 P.M.	80 30	1622
	7:00 P.M.	81 00	1677
6-3-84	11:00 P.M.	85 00	1622
6-4-84	12:30 A.M.	86 30	1568
	3:00 A.M.	89 00	1538
	4:00 A.M.	90 00	1574
	5:00 A.M.	91 00	1534
	6:00 A.M.	92 00	1536
	7:00 A.M.	93 99	1574
6-4-84	9:00 A.M.	95 00	1548 gauge out to change charts.
6-4-84	10:00 A.M.		1709 gauge back to 10,632'
	10:30 A.M.		1624
	11:00 A.M.	00 Hrs. 00 Min.	1639 Shut-In, Begin Build-Up
	11:15 A.M.	00 15	1918
	11:30 A.M.	00 30	2148
	11:45 A.M.	00 45	2212
	12:00 Noon	01 00	2298
	12:30 P.M.	01 30	2446
	1:00 P.M.	02 00	2586
	2:00 P.M.	03 00	2620
	2:30 P.M.	03 30	2630
	3:00 P.M.	04 00	2656
	3:30 P.M.	04 30	2664
	4:00 P.M.	05 00	2682
	5:00 P.M.	06 00	2686
	6:00 P.M.	07 00	2688
	7:00 P.M.	08 00	2692

Continued on attached sheet.

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HILLIARD OIL & GAS, INC.

McCLELLAN FEDERAL NO. 1

ELEMENT NO: 23953 (0-4000 psi)

<u>DATE</u>	<u>TIME</u>	<u>CUM HRS./MIN.</u>	<u>PSIG @ 10,632 FEET</u>
6-4-84	8:00 P.M.	09 Hrs. 00 Min.	2692
	9:00 P.M.	10 00	2692
6-4-84	11:00 P.M.	12 00	2684
6-5-84	2:00 A.M.	15 00	2680
	7:00 A.M.	20 00	2682
	12:00 Noon	25 00	2684
6-5-84	5:00 P.M.	30 00	2690
6-6-84	3:00 A.M.	40 00	2694
	1:00 P.M.	50 00	2704
6-6-84	11:00 P.M.	60 00	2708
6-7-84	9:00 A.M.	70 00	2714
6-7-84	7:00 P.M.	80 00	2720
6-8-84	5:00 A.M.	90 00	2722
6-8-84	3:00 P.M.	100 00	2728
6-9-84	1:00 A.M.	110 00	2732
6-9-84	9:30 A.M.	118 30	2740 Off bottom, end of test.

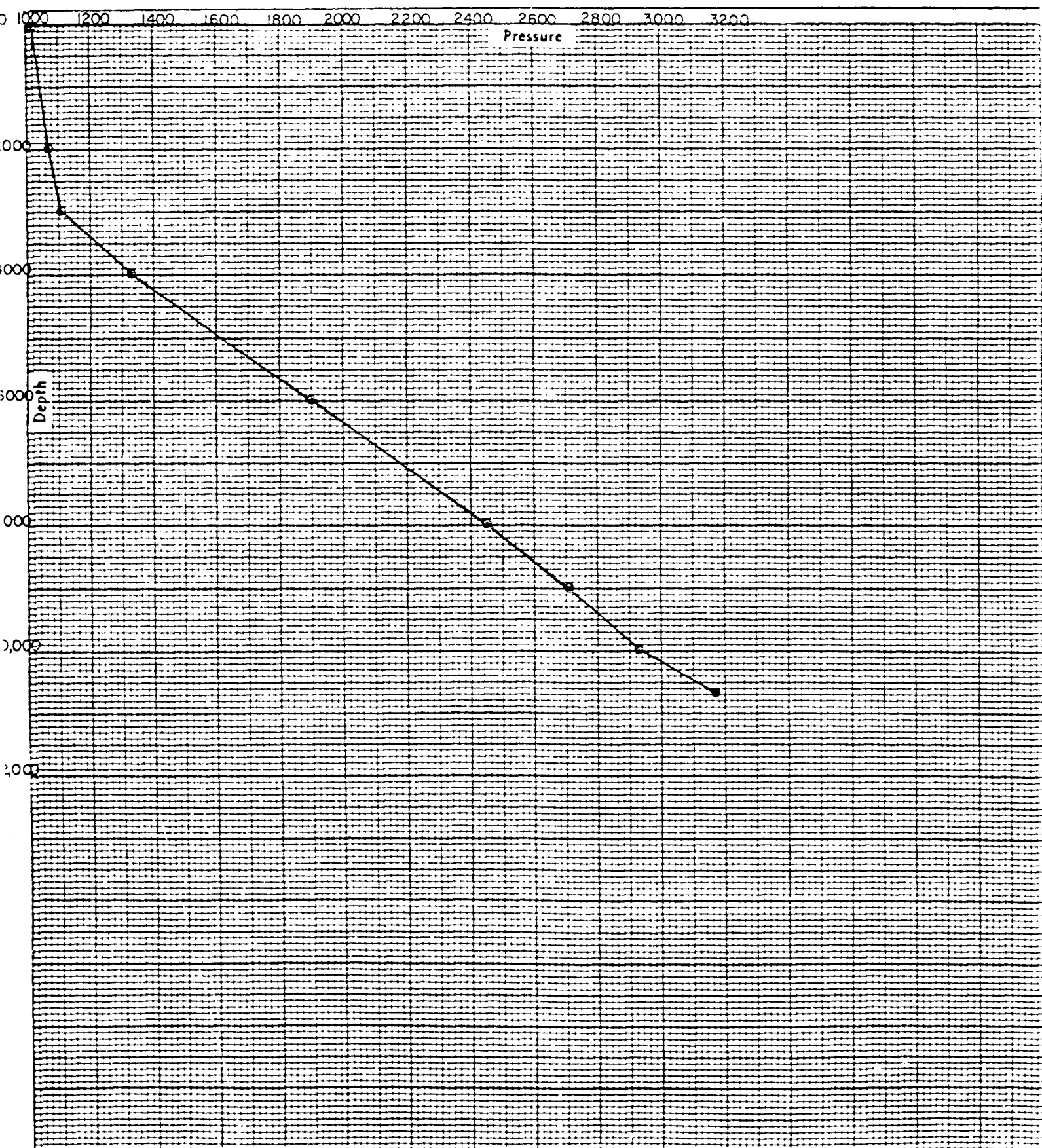
JOHN W. WEST ENGINEERING COMPANY
412 NORTH DAL PASO, HOBBS, NEW MEXICO

TELEPHONES 393-3942
393-3117

BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR WILLIARD OIL & GAS, INC.
LEASE McCLELLAN FEDERAL
WELL NO. 1
FIELD _____
DATE 7-5-83 TIME 11:15 A.M.
STATUS Shut-In TEST DEPTH 10,616'
TIME S.I. _____ LAST TEST DATE _____
CAS. PRES. _____ BHP LAST TEST _____
TUB. PRES. 1011psi BHP CHANGE _____
ELEV. _____ FLUID TOP _____
DATUM _____ WATER TOP _____
TEMP _____ RUN BY B.T.
CLOCK NO. 84479 GAUGE NO. 19389
ELEMENT NO. 8534 (0-5750 psi)

DEPTH	PRESSURE	GRADIENT
000	1011	
2000	1072	.031
3000	1106	.034
4000	1339	.233
6000	1905	.283
8000	2448	.273
9000	2713	.265
10000	2931	.218
10616	3177	.399



HILLIARD OIL & GAS, INC.

WELLAN FEDERAL NO. 1

BOTTOM HOLE PRESSURE BUILD-UP TEST.

TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:

JOHN WEST ENGINEERING COMPANY

TEST DATE: JULY 1 to 5, 1983
TEST DEPTH: 10,616 Feet
ELEMENT NO: 8534 (0-5750 psi)
OPERATOR: B.T.

<u>DATE</u>	<u>TIME</u>	<u>CUM HRS./MIN.</u>	<u>PSIG @ 10,616 FEET</u>
7-1-83	12:45 P.M.		2359 gauge reached 10,616'
	1:45 P.M.	00 Hrs. 00 Min.	2216 Begin Build-Up
	2:15 P.M.	00 30	2560
	2:45 P.M.	01 00	2882
	3:45 P.M.	02 00	3020
	4:45 P.M.	03 00	3041
	5:45 P.M.	04 00	3055
	6:45 P.M.	05 00	3070
7-1-83	11:45 P.M.	10 00	3072
7-2-83	4:45 A.M.	15 00	3072
	9:45 A.M.	20 00	3072
	2:45 P.M.	25 00	3078
7-2-83	7:45 P.M.	30 00	3087
7-3-83	12:45 A.M.	35 00	3096
	5:45 A.M.	40 00	3104
7-3-83	3:45 P.M.	50 00	3119
7-4-83	1:45 A.M.	60 00	3133
7-4-83	11:45 A.M.	70 00	3148
7-4-83	9:45 P.M.	80 00	3162
7-5-83	7:45 A.M.	90 00	3177
7-5-83	9:45 A.M.	92 99	3180 Off Bottom, end of tes

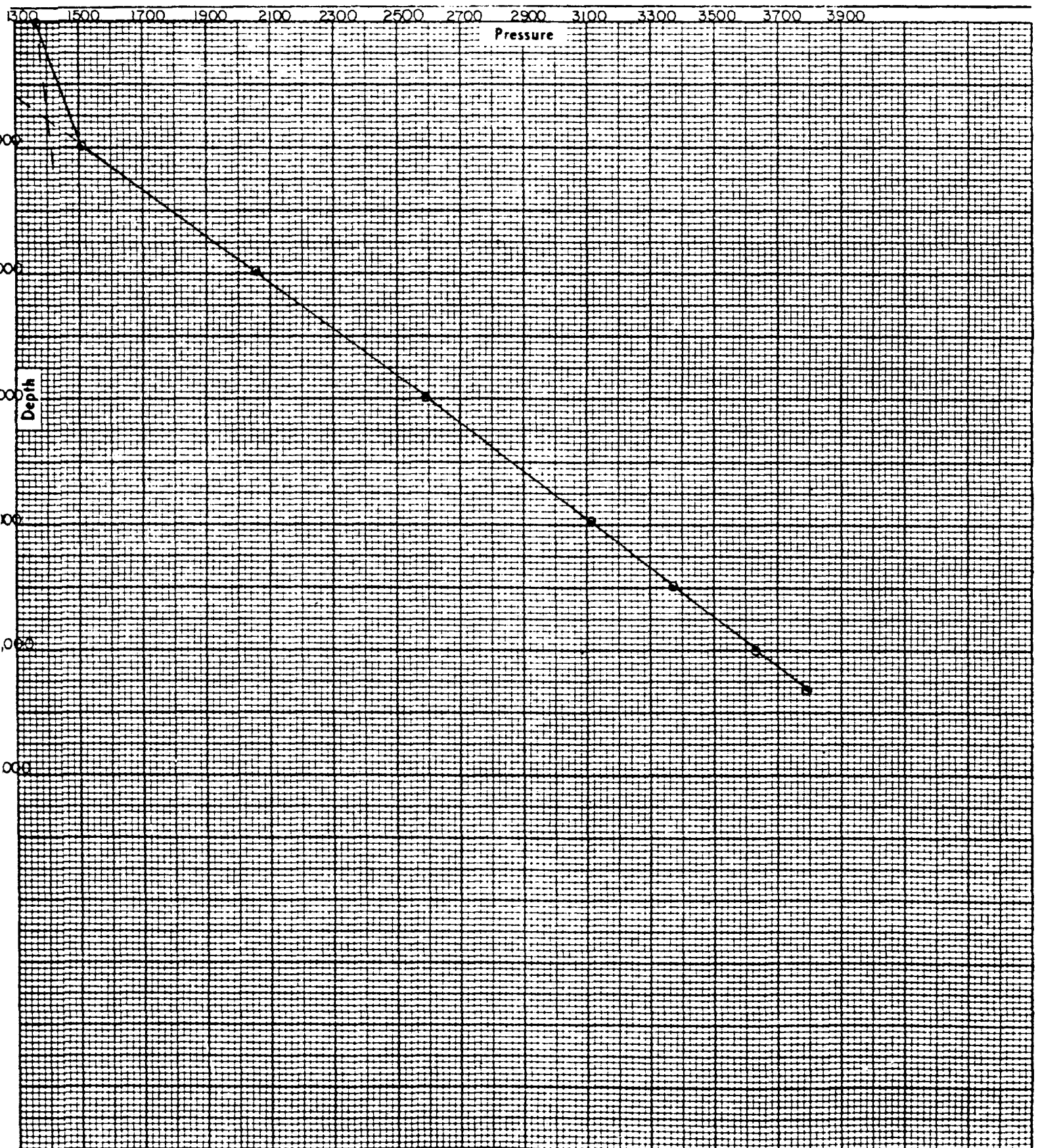
JOHN W. WEST ENGINEERING COMPANY
412 NORTH DAL PASO, HOBBS, NEW MEXICO

TELEPHONES 393-3942
393-3117

BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR HILLIARD OIL & GAS, INC.
LEASE McCLELLAN FEDERAL
WELL NO. 1
FIELD _____
DATE 2-10-83 TIME 10:30 A.M.
STATUS Shut-In TEST DEPTH 10,616'
TIME S.I. _____ LAST TEST DATE _____
CAS. PRES. _____ BHP LAST TEST _____
TUB. PRES. 1365psi BHP CHANGE _____
ELEV. _____ FLUID TOP 1550'
DATUM _____ WATER TOP _____
TEMP _____ RUN BY W.S.
CLOCK NO. 23123 GAUGE NO. _____
ELEMENT NO. 8534 (0-5750 psi)

DEPTH	PRESSURE	GRADIENT
000	1365	
2000	1503	.069
4000	2060	.279
6000	2598	.269
8000	3113	.258
9000	3374	.261
10000	3626	.252
10616	3786	.260



ELLIARD OIL & GAS, INC.
McCLELLAN FEDERAL NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST
TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: February 6 to 9, 1983
TEST DEPTH: 10,616 Feet
ELEMENT NO: 8534 (0-5750 psi)
OPERATOR: W.S.

<u>DATE</u>	<u>TIME</u>	<u>CUM HRS./MIN.</u>	<u>PSIG @ 10616 FEET</u>
2-6-83	2:45 P.M.		2460 gauge reached 10616 feet
	3:45 P.M.	00 Hrs. 00 Min.	2302 Shut-In, Begin Build-Up
	4:00 P.M.	00 15	2621
	4:15 P.M.	00 30	2885
	4:30 P.M.	00 45	3038
	4:45 P.M.	01 00	3275
	5:15 P.M.	01 30	3519
	5:45 P.M.	02 00	3626
	6:45 P.M.	03 00	3693
	7:45 P.M.	04 00	3722
2-6-83	8:45 P.M.	05 00	3728
2-7-83	1:45 A.M.	10 00	3733
	6:45 A.M.	15 00	3736
	11:45 A.M.	20 00	3745
-7-83	4:45 P.M.	25 00	3751
2-7-83	9:45 P.M.	30 00	3754
2-8-83	7:45 A.M.	40 00	3762
2-8-83	5:45 P.M.	50 00	3765
2-9-83	3:45 A.M.	60 00	3771
2-9-83	1:00 P.M.	69 15	3777 Off-Bottom