STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. Box 2088
Santa Fe, New Mexico 87501

Adopted 3-2-84
Side 1

Case 8533

APPLICATION FOR CLASSIFICATION AS HARDSHIP GAS WELL

Operator Ike Lovelady, Inc. Contact Party D.D. Jordan

Address P.O. Drawer 2666; Midland, Tx.79702 Phone No. (915) 694-8818

Lease Sam H.Snoddy Fed Well No. 1-28 UT A Sec. 26 TWP 20-S RGE 32-E

Pool Name Salt Lake (South Morrow) Minimum Rate Requested 1000 MCF P/D

Transporter Name Gas Company of New Mexico Purchaser (if different) Same

Are you seeking emergency "hardship" classification for this well? X yes _____ no

Applicant must provide the following information to support his contention that the subject well qualifies as a hardship gas well.

1) Provide a statement of the problem that leads the applicant to believe that "underground waste" will occur if the subject well is shut-in or is curtailed below its ability to produce. (The definition of underground waste is shown on the reverse side of this form)

2) Document that you as applicant have done all you reasonably and economically can do to eliminate or prevent the problem(s) leading to this application.

   a) Well history. Explain fully all attempts made to rectify the problem. If no attempts have been made, explain reasons for failure to do so.

   b) Mechanical condition of the well(provide wellbore sketch). Explain fully mechanical attempts to rectify the problem, including but not limited to:

      i) the use of "smallbore" tubing; ii) other de-watering devices, such as plunger lift, rod pumping units, etc.

3) Present historical data which demonstrates conditions that can lead to waste. Such data should include:

   a) Permanent loss of productivity after shut-in periods (i.e., formation damage).

   b) Frequency of swabbing required after the well is shut-in or curtailed.

   c) Length of time swabbing is required to return well to production after being shut-in.

   d) Actual cost figures showing inability to continue operations without special relief

4) If failure to obtain a hardship gas well classification would result in premature abandonment, calculate the quantity of gas reserves which would be lost

5) Show the minimum sustainable producing rate of the subject well. This rate can be determined by:

   a) Minimum flow or "log off" test; and/or

   b) Documentation of well production history (producing rates and pressures, as well as gas/water ratio, both before and after shut-in periods due to the well dying, and other appropriate production data).

6) Attach a plat and/or map showing the proration unit dedicated to the well and the ownership of all offsetting acreage.

7) Submit any other appropriate data which will support the need for a hardship classification.

8) If the well is in a prorated pool, please show its current under- or over-produced status.

9) Attach a signed statement certifying that all information submitted with this application is true and correct to the best of your knowledge; that one copy of the application has been submitted to the appropriate Division district office (give the name) and that notice of the application has been given to the transporter/purchaser and all offset operators.

T. SCOTT HICKMAN & ASSOCIATES, INC.
PETROLEUM CONSULTANTS

May 18, 1984

Ike Lovelady, Inc.
P. O. Drawer 2666
Midland, TX 79702

Attention: Mr. Paul Sims

Gentlemen:

Re: Snoddy Federal #1
Salt Lake, South (Morrow)
Lea County, New Mexico

At your request, we have made a study of pressure and performance data from the Ike Lovelady, Inc. operated Snoddy Federal #1. We conclude that gas is probably cross flowing from Morrow Zone 3 into Morrow Zones 1 and 2 when the subject well is shut-in. Part of this gas will probably be unrecoverable due to drainage by the offset Grace Petroleum operated Felmont Federal #1-G. We therefore recommend that you keep the subject well flowing at all times to prevent unrecoverable loss of gas reserves.

The subject well was drilled and completed in September 1982 in three separate Morrow Zones as shown on the attached cross section (Figure 1). Bottomhole pressure was measured at 5271 psi at 12,800'. The offset Grace-Felmont Federal #1-G was completed in September 1978 in Morrow Zones 1 and 2, but Zone 3 was shaled-out. Bottomhole pressure on original completion was 3656 psi. Bottomhole pressure in September 1982 was measured at 2215 psi. The offset Grace-Felmont Federal #2-L was completed in February 1980 in Morrow Zones 1 and 2, but Zone 3 was also shaled-out. The Morrow in this well proved to be tight and has been temporarily abandoned. Original bottomhole pressure in the Salt Lake, South (Morrow) Field was about 5800 psi, based upon data from several wells.

A bottomhole pressure build-up test was run in the subject well in September 1983 (Figures 2 and 3). Reservoir pressure reached a maximum 2816 psi after 2 hours shut-in, but then decreased to 2701 psi after 65 hours. Another bottomhole pressure build-up test in November 1983 confirmed results from the first test (Figures 4 and 5). Reservoir pressure reached a maximum of 2920 psi after 3.75 hours shut-in, but decreased to 2637 psi after 23.25 hours. Pumper gauge report data (Figure 6) in the same month showed declining flowing tubing pressures (FTP) down to 1200 psi, at which pressure stabilized. Gas rates also declined during this time to about

ONE MARIENFELD PLACE, SUITE 262
MIDLAND, TEXAS 79701
915 683-4301

1 MMCF/D, but then increased to 1.5 MMCF/D when the FTP stablilized at 1200 psi. Gauge data shows that the stabilized FTP decreased significantly each time the well was shut-in (Figure 7).

We conclude from this performance that Morrow Zones 1 and 2 were partially depleted by the offset Grace Felmont Federal #1 when the subject well was completed, but Zone 3 was originally pressured. The initial bottomhole pressure of 5271 probably represents a mix between 5800 psi virgin pressure in Zone 3 and 2200+ psi current pressure in Zones 1 and 2. In the pressure build-up tests, pressure from Zone 3 dominated the build-up to a pressure of 2800-2900 psi, but then fell off as cross flow occured from Zone 3 into Zones 1 and 2. This theory is confirmed by drawn down test data (Figure 4), where it appears that only Zone 3 is contributing to the flow until FTP reaches 1200 psi. At that time, Zones 1 and 2 start to flow and the rate increases. The decrease in stabilized FTP (Figure 7) following each shut-in period may indicate a loss in gas reserves due to cross flow.

As long as the subject well is flowed at about 1 MMCF/D, the crossflow between zones probably does not occur based upon flowing bottomhole pressure of about 2000 psi (Figure 5) and static reservoir pressures of about 2200 psi in Zones 1 and 2.

Yours very truly,

T. SCOTT HICKMAN & ASSOCIATES, INC.

Joel S. Castello, P. E.

lg
attachments

cc: Mr. Ike Lovelady ✓
Ike Lovelady, Inc.
P. O. Drawer 2666
Midland, TX 79702

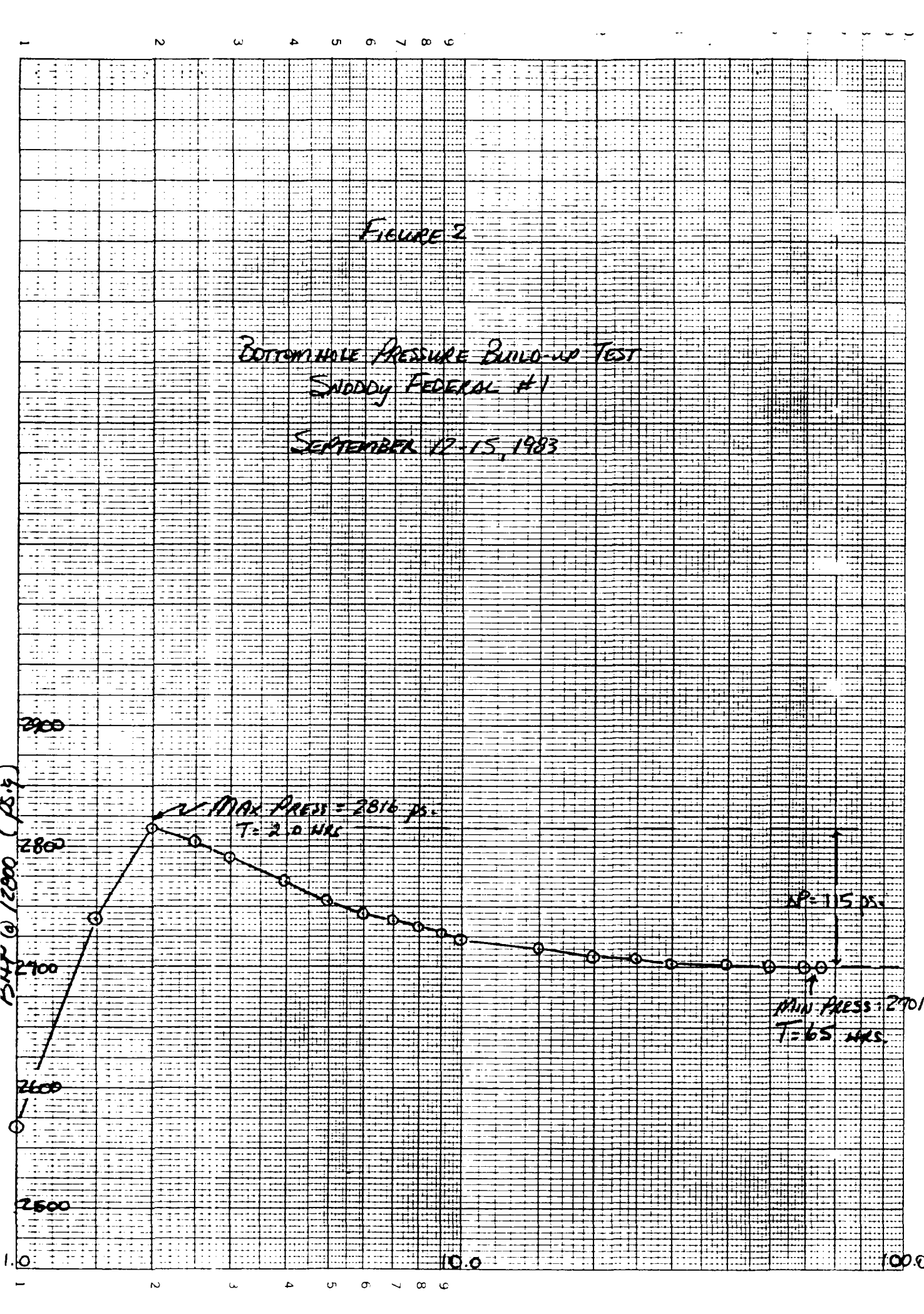


FIGURE 2
BOTTOM HOLE PRESSURE BUILD-UP TEST
SWODDY FEDERAL #1
SEPTEMBER 12-15, 1983
MAX PRESS = 2816 PSI.
T = 2.0 HRS
ΔP = 115 PSI.
MIN PRESS = 2701 PSI.
T = 65 HRS.
PRESS @ 12000 (PSIG)
2900
2800
2700
2600
2500
1.0
10.0
100.0
K&E SEMI-LOGARITHMIC 2 CYCLES X 200 DIVISIONS
KEUFFEL & ESSER CO MADE IN U.S.A.
46 5250

Figure 3

IKE LOVELADY, INC.
SAM H. SNODDY FED. NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST
TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: SEPT. 12 to 15, 1983
TEST DEPTH: 12,800 Feet
ELEMENT NO: 24635 (0-4050 psi)
OPERATOR: T.B.

DATE	TIME	CUM HRS./MIN.	PSIG @ 12,800 Feet
9-12-83	2:45 P.M.		1726 gauge reached 12,800' flowing
	3:45 P.M.	00 Hrs. 00 Min.	1488 Shut-In, Begin Build-Up
	4:00 P.M.	00 15	2100
	4:15 P.M.	00 30	2291
	4:30 P.M.	00 45	2474
	4:45 P.M.	01 00	2566
	5:15 P.M.	01 30	2738
	5:45 P.M.	02 00	2816
	6:15 P.M.	02 30	2805
	6:45 P.M.	03 00	2791
	7:45 P.M.	04 00	2770
	8:45 P.M.	05 00	2754
	9:45 P.M.	06 00	2744
	10:45 P.M.	07 00	2738
9-12-83	11:45 P.M.	08 00	2734
9-13-83	12:45 A.M.	09 00	2727
	1:45 A.M.	10 00	2723
	6:45 A.M.	15 00	2715
	11:45 A.M.	20 00	2709
	4:45 P.M.	25 00	2707
9-13-83	9:45 P.M.	30 00	2703
9-14-83	7:45 A.M.	40 00	2703
9-14-83	5:45 P.M.	50 00	2701
9-15-83	3:45 A.M.	60 00	2701
9-15-83	9:00 A.M.	65 15	2701 off bottom, end of test.

FIGURE 4

BOTTOM HOLE PRESSURE BUILD-UP TEST
SNODDY FEDERAL #1

NOVEMBER 25 & 26, 1983

BHP @ 12,800 ft (psig)

3000
2900
2800
2700
2600
2500

MAX PRESS = 2920 psi
T = 3.75 HRS

MIN PRESS = 2637 psi
T = 23.25 HRS

ΔP = 283 psi

1.0
10.0
100.0

K&E SEMI-LOGARITHMIC 2 CYCLES X 200 DIVISIONS
KEUFFEL & ESSER CO MADE IN U.S.A.

46 5250

Figure 5

IKE LOVELADY, INC.
SAM H. SNODDY FED. NO. 1
BOTTOM HOLE PRESSURE BUILD-UP TEST
TABULATION OF TIMES AND PRESSURES

TEST CONDUCTED BY:
JOHN WEST ENGINEERING COMPANY

TEST DATE: NOV. 25 to 26, 1983
TEST DEPTH: 12,800 FEET
ELEMENT NO: 28552-N (0-4150 psi)
OPERATOR: T.B.

DATE	TIME	CUM HRS./MIN.			PSIG @ 12,800 FEET	
11-25-83	9:00 A.M.			Flowing BHP's	2069	gauge reached 12,800' flow
	9:15 A.M.				2015	
	9:30 A.M.	00 Hrs.	00 Min.		2004	Shut-in, Begin Build-Up
	9:45 A.M.	00	15		2271	
	10:00 A.M.	00	30		2404	
	10:15 A.M.	00	45		2494	
	10:30 A.M.	01	00		2557	
	10:45 A.M.	01	15		2609	
	11:00 A.M.	01	30		2651	
	11:15 A.M.	01	45		2685	
	11:30 A.M.	02	00		2718	
	12:00 Noon	02	30		2775	
	12:30 P.M.	03	00		2834	
	1:00 P.M.	03	30		2912	
	1:15 P.M.	03	45		2920	Decrease
	1:30 P.M.	04	00		2910	
	2:00 P.M.	04	30		2876	
	2:30 P.M.	05	00		2849	
	3:30 P.M.	06	00		2805	
	4:30 P.M.	07	00		2775	
	5:30 P.M.	08	00		2752	
	6:30 P.M.	09	00		2735	
	7:30 P.M.	10	00		2721	
11-25-83	9:30 P.M.	12	00		2697	
11-26-83	12:30 A.M.	15	00		2674	
	5:30 A.M.	20	00		2647	
11-26-83	8:45 A.M.	23	15		2637	gauge out, to run gradier

FIGURE 6

SWOODY FEDERAL #1

SURFACE FLOWING PRESSURE DRAWDOWN TEST

NOVEMBER 2 thru NOVEMBER 23, 1983

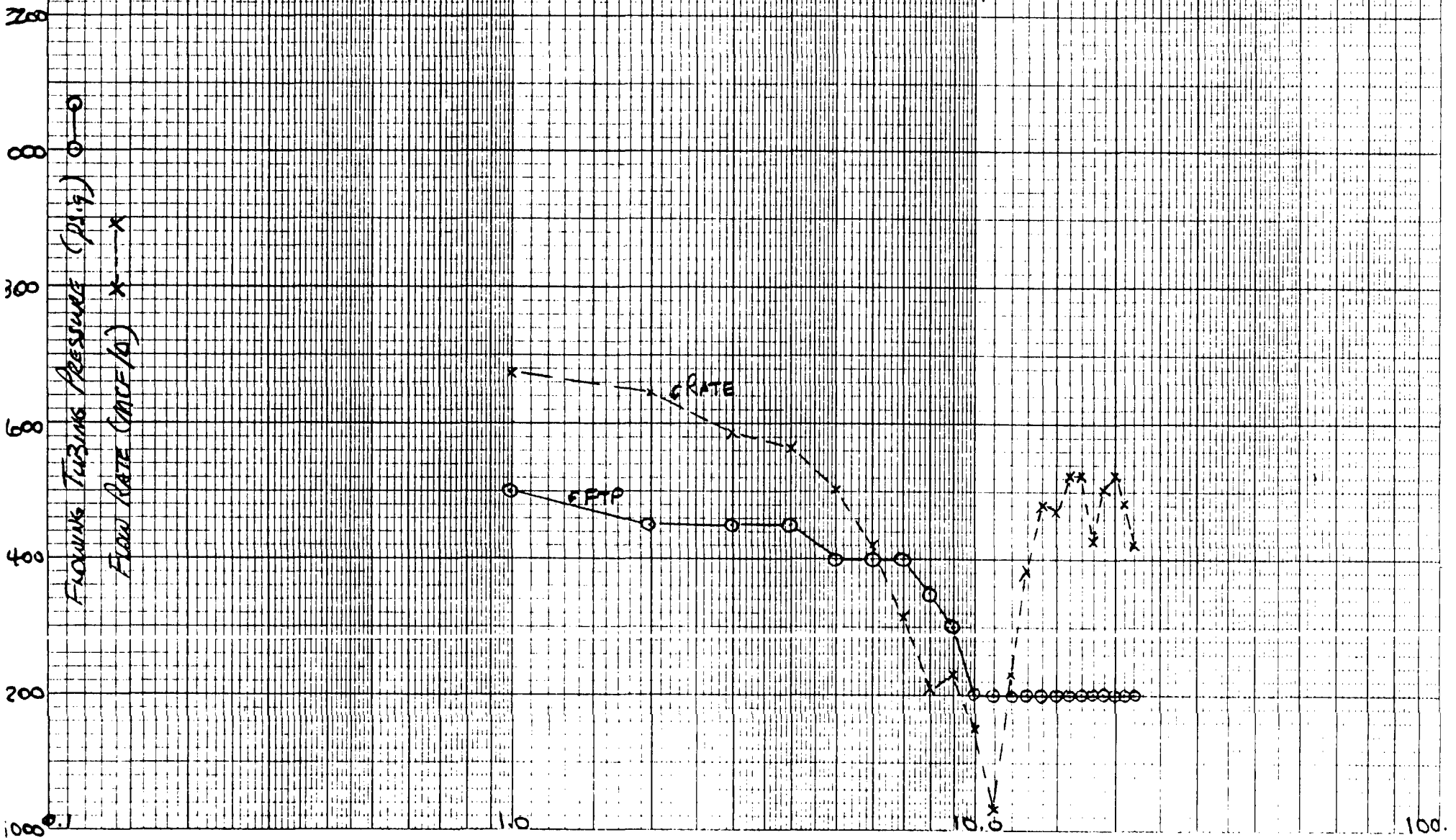
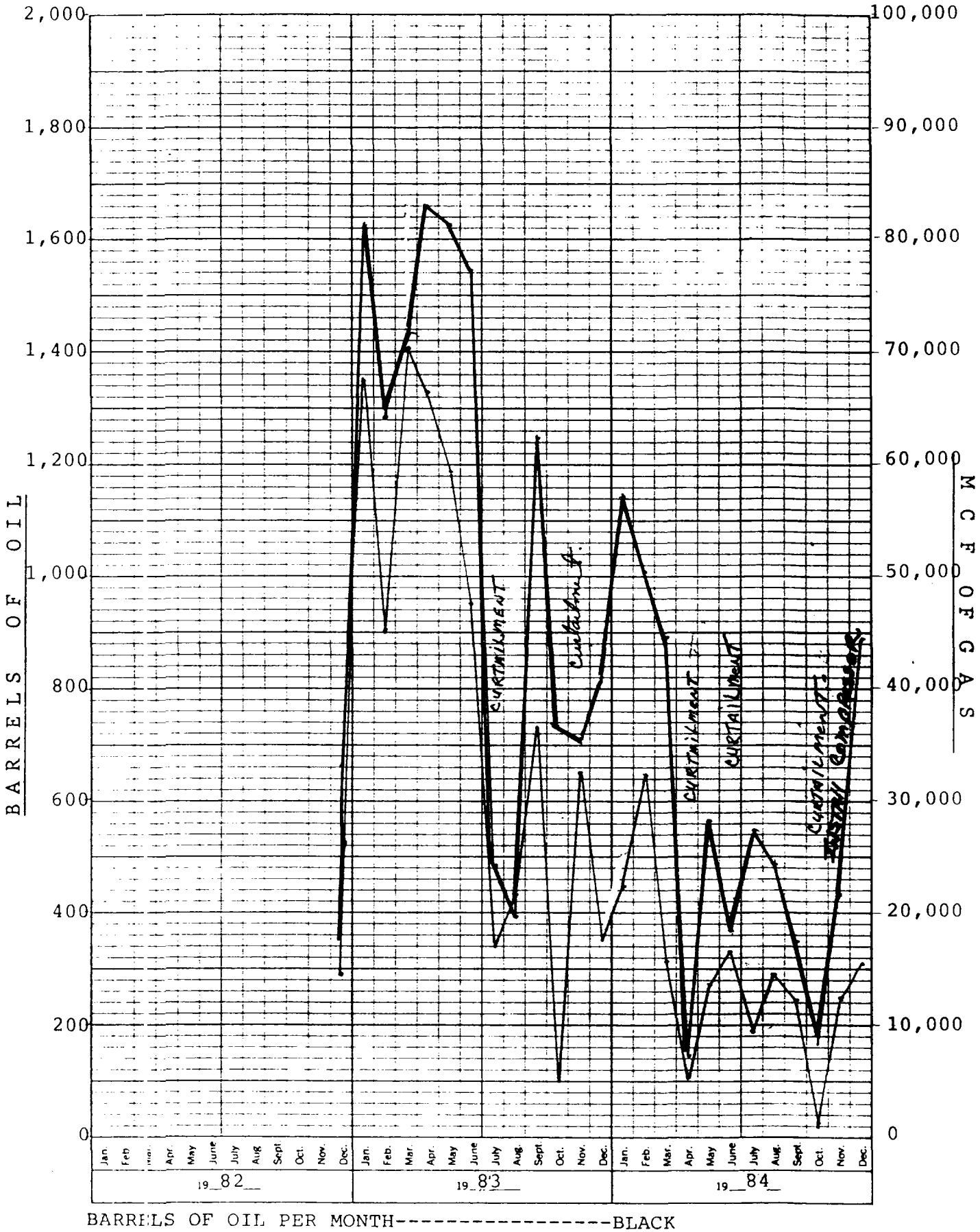


FIGURE 7

FLOW RATES AND FLOWING TUBING PRESSURES
FROM PUMPER'S GAUGE REPORTS
SNODDY FEDERAL #1
NOVEMBER 1 - NOVEMBER 23, 1983

Date	Rate (MCF/D)	FTP (PSIG)	Remarks
11-01-83	0	2100	shut-in
11-02-83	1673	1500	flowing on 32/64" choke
11-03-83	1644	1450	
11-04-83	1583	1450	
11-05-83	1562	1450	
11-06-83	1503	1400	
11-07-83	1421	1400	
11-08-83	1316	1400	
11-09-83	1203	1350	
11-10-83	1234	1300	
11-11-83	1151	1200	
11-12-83	1028	1200	
11-13-84	1234	1200	
11-14-83	1380	1200	
11-15-83	1481	1200	
11-16-83	1465	1200	
11-17-84	1524	1200	
11-18-84	1524	1200	
11-19-83	1425	1200	
11-20-83	1504	1200	
11-21-83	1523	1200	
11-22-83	1484	1200	
11-23-83	1421	1200	
11-24-83	1462	1200	
11-25-83	1421	1200	
11-26-83	0	1200	shut-in for BHP build-up test
11-27-83	0	1800	
11-28-83	1172	1200	
11-29-83	1363	1000	
11-30-83	1380	1000	
12-01-83	1201	1000	
12-02-83	1156	1000	
12-03-83	1108	1000	
12-04-83	963	1000	
12-05-83	1400	1000	
12-06-83	1644	1000	
12-07-83	1644	1050	
12-08-84	1578	1050	
12-09-83	0	1800	shut-in due to market demand
12-10-83	0	1800	
12-11-83	0	1800	
12-12-83	0	1800	
12-13-83	0	1800	
12-14-83	2120	800	
12-15-83	2152	800	
12-16-83	2215	800	

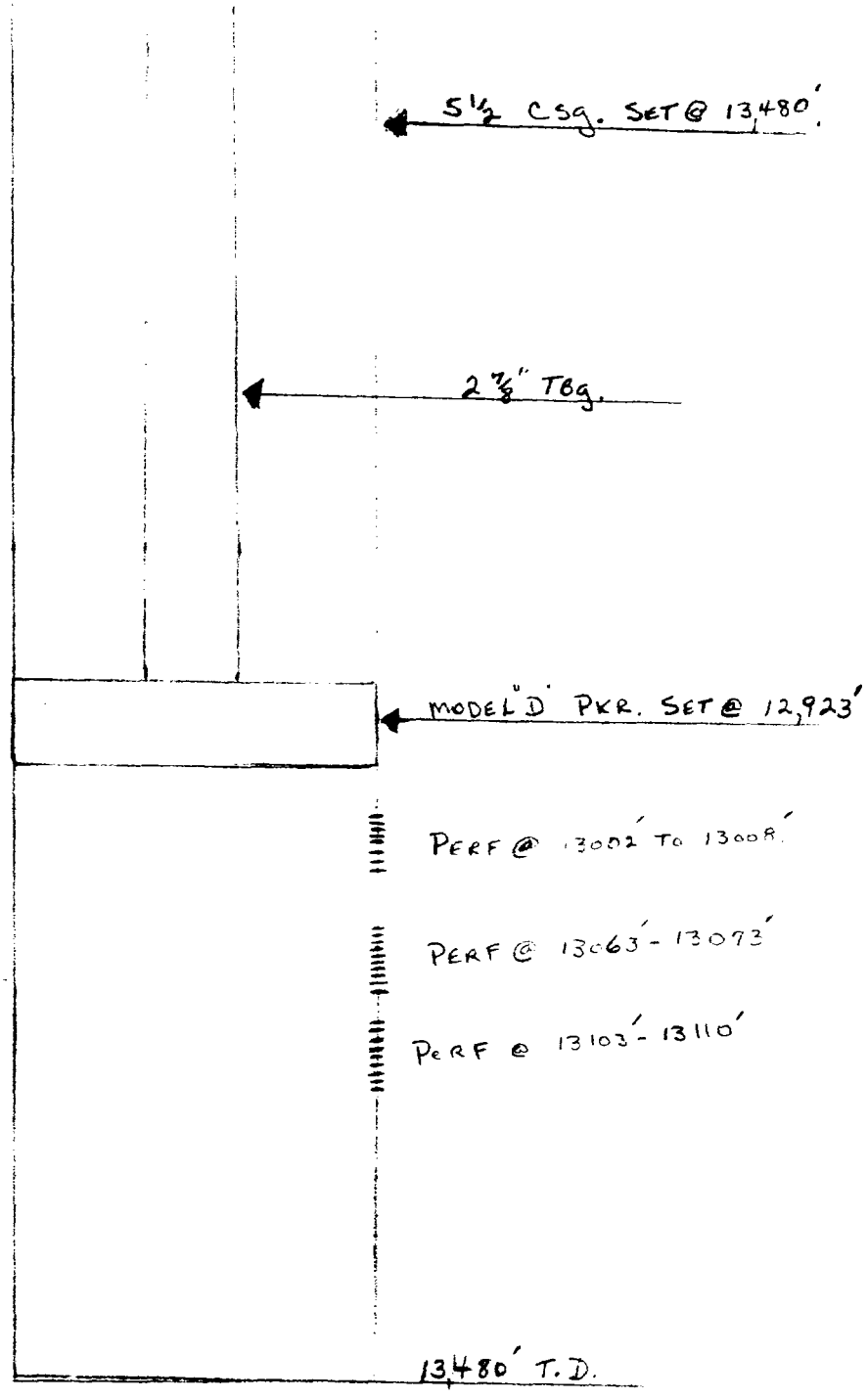
LEA COUNTY
NEW MEXICO



BARRELS OF OIL PER MONTH----------BLACK
MCF OF GAS PER MONTH----------BLUE

46 3290

K·E 3 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



IKE LOVELADY INC.

SAM SNOODY FEDERAL 28-#1

NM 15906

SEC 26 TS 20S RANGE 32E LEA COUNTY, NEW MEXICO.

A. C 915 – 682-5275 (OFFICE)
694-8818 (PRODUCTION OFFICE)

IKE LOVELADY, INC.
101 N. MARIENFELD SUITE 400
P. O. DRAWER 2666
MIDLAND, TEXAS 79702

March 1, 1985

Offset Operators

Re: Sam H. Snoddy Federal #1-28
UT A, Sec.26,RWP-20-S, R-32-E
Salt LAke (South Morrow)
Lea County, New Mexico

Gentlemen:

This letter serves as notice that Ike Lovelady, Inc., has filed a hardship gas well classification for the referenced well February 21, 1985.

Sincerely,

IKE LOVELADY, INC.

D.D. Jordan

D.D. Jordan
Drilling & Prod. Superintendent

DDJ:Llc

c Gas Company of New Mexico
311 Moore Drive
Carlsbad, New Mexico
Attn: Grady Gist

offset operators
list attached

IKE LOVELADY, INC.
OFFSET OPERATORS
March 1, 1985

Grace Petroleum, Corp
6501 N. Broadway
Oklahoma City, O.K. 73116

Felmont Oil Corp.
6 east 43rd Street
New York, N.Y. 10017

Belco Petroleum Corp.
1 Dag Hammarskjold Plaza
New York, N.Y. 10017

David Fasken
608 First Nat'l Bk. Bldg.
Midland, Texas 79701

Gulf Oil Exploration & Prod. Co.
Box 670
Hobbs, New Mexico 88240

C.W. Trainer Oil Prod
8201 Espanola Trail
Austin, Texas 78737

Sid Richardson Carbon & Gasoline Co.
3100 Fort Worth Nat'l Bank Bldg.
Fort Worth, Texas 76102

Perry R. Bass
3100 Fort Worth Nat'l Bank Bldg.
Fort Worth, Texas 76102

Texaco, Inc.
Box 728
Hobbs, New Mexico 88240