KAISER-FRANCIS OIL COMPANY

August 1, 1984

Mr. Joe D. Ramey
Oil Conservation Division
Energy and Minerals Department
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Application for classification
as Hardship Gas Well
Pure Gold "A" Federal No. 1
Section 21-23S-31E
Eddy County, New Mexico

Dear Mr. Ramey,

Enclosed is our application for Hardship Gas Well classification for the subject well. All the information submitted with this application is true and correct to the best of my knowledge.

One copy has been submitted to the District office in Artesia, and notice of the application by copy of this letter has been sent to the purchaser, El Paso Natural Gas Company, and the offset operators listed below.

Yours very truly,

KAISER-FRANCIS OIL COMPANY

James W. Johnston
PE 39962 Texas

JWJ:ljb

cc: Offset Operators
El Paso Exploration
Santa Fe Energy
Yates Petroleum

BEFORE EXAMINER QUINTANA
OIL CONSERVATION DIVISION
KAISER-FRANCIS EXHIBIT NO. A
CASE NO. 8336

OATH STATEMENT

STATE OF OKLAHOMA)

TULSA COUNTY)

JAMES W. JOHNSTON, of lawful age, being first duly sworn upon oath, deposes and states:

That he is Reservoir Engineer of Kaiser-Francis Oil Company, the above-named applicant; that he has read the above foregoing petition and knows the contents thereof; and that all statements and allegations contained therein are true and correct to the best of his knowledge and belief. Additionally, I certify that one copy of this application has been submitted to the appropriate Division District Office (Artesia) and that notice of this application has been given to the gas purchaser and all offset operators.

James W. Johnston

SUBSCRIBED AND SWORN to before me this 1st day of August, 1984.

Notary Public in and for
Tulsa County, Oklahoma

My Commission Expires:

Ausut 22, 1985

KAISER-FRANCIS OIL COMPANY   P.O. BOX 21468   TULSA, OKLAHOMA 74121-1468

[illegible]

August 1, 1984

Mr. Joe D. Ramey
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P. O. Box 2088
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Re: Application for classification
as Hardship Gas Well
Pure Gold "A" Federal No. 1
Section 21-23S-31E
Eddy County, New Mexico

Dear Mr. Ramey,

Kaiser-Francis Oil Company respectfully requests administrative approval of the attached application for classification as Hardship Gas Well for the Pure Gold "A" Federal No. 1 well in the Sand Dunes West (Morrow) Gas Field in Eddy County, New Mexico. Kaiser-Francis operates the subject well and owns a 25% working interest in the unit.

The well produces gas from the Morrow Sands from 14,414 ft. to 14,663 ft. In May, 1983, the well began producing substantial quantities of water from an apparent well bore leak which has significantly reduced the ability of the well to flow. If the well is shut-in for more than a day, two to four days of swabbing are required to restore production. Current reservoir pressure is estimated to be about one-third of original pressure and the well has produced about two-thirds of the estimated ultimate recovery. As reservoir energy is reduced further, more extensive swabbing will be required to restore production. Also as reservoir pressure declines, the risk of damage due to water invasion is increased. This is compounded by the fact that the water appears to be foreign to the Morrow and could cause damage from scaling or clay swelling. The well is too deep to run small diameter tubing or unload with artificial lift devices. If the well dies due to high line pressure, production can be restored by blowing the water to the pit if the shut-in period is less than a day. This seems to be the most sensible and economic means of restoring and maintaining production. A workover to repair the well would be expensive and risk damaging or squeezing off the gas production altogether. Current swabbing costs are $2,000 to $3,000 per incident. With the increased operating costs for swabbing, it is estimated that 90 MMCF of gas reserves will be lost because the economic limit will be reached earlier if the well is not granted hardship classification. If the well is lost entirely as a result of water loading and damage due to extended shut-in, 450 MMCF of remaining reserves will be lost. Present performance indicates a

a minimum sustainable flow rate of 300 to 350 MCFD, allowing for fluctuations in line pressure. The following discussion and attachments are offered as justification for the hardship classification.

The Pure Gold "A" Federal No. 1 is located in the Sand Dunes West (Morrow) field as shown on Exhibit No. 1, a plat of the area showing offset wells. It was completed from the Morrow Sands in January, 1981 from 14,414 feet to 14,633 feet in depth. The original reservoir pressure was 6750 psi and the CAOF was 2397 MCFD. The well is completed through perforations and 2 7/8 inch tubing. A well bore diagram is included as Exhibit No. 2. Exhibit No. 3 is a plot of monthly gas production and Exhibit No. 4 is a monthly tabulation of production data. Production began in February, 1981 and the well was capable of producing about 750 MCFD with a 1000 psi flowing tubing pressure. When it began to produce substantial quantities of water in May, 1983, production capacity dropped to 600 MCFD while water production was 30 bwpd. At the request of El Paso Natural Gas Company, the gas purchaser, the well was shut-in in early June, 1983. EPNG asked that the well be returned to production on June 9, 1983 but it had loaded up with water and would not flow. After extensive swabbing efforts, production was resumed on June 12, 1983. Swabbing costs for that effort totaled $3,651. The well was shut-in again in January and February, 1984 for a total of 13 days. During this period, two days of swabbing was required to resume production at a cost of $1,528. The well was down for seven days in May and 18 days in June, 1984. A total of six days of swabbing in two incidents was required at a total cost of $4,979. Total swabbing costs to date due to shut-in is $10,158.

Since May, 1983, water production has averaged between 6 and 10 bwpd. When allowed to produce, deliverability is close to the decline trend established in the early life of the well. Flowing tubing pressure has dropped to 700-750 psi, however, reflecting the additional 250 to 300 psi draw down required to unload the water production. Exhibit No. 5 is a graphical material balance for the well. The first two pressures were taken in 1981 and indicate an ultimate recovery of about 1.4 BCF. The last two points are bottom hole pressures calculated from surface readings and show the effect of the water loading up the tubing. Cumulative production is 930 MMCF and the estimated current reservoir pressure is 2230 psi, about one-third of the original pressure. As pressure declines further, the risk of permanently "drowning" the reservoir from long term shut-in periods is increased. At least, more extensive swabbing will be required in the future to restore production. A water analysis taken in May, 1983 showed 105,000 ppm chlorides. This is about twice the value expected from Morrow zone water and may indicate a leak from another zone. The Morrow is sensitive to foreign waters and there is risk of damage due to clay swelling or scale.

Exhibit No. 6 is a table showing daily performance for the month of May, 1984. The well was down twice for less than a day. Production was restored by blowing the water to a pit on both occasions. When shut-in for three days in early May, three days of swabbing were required to return the well to production. The rate and pressure data from this table suggest that minimum flow rate to maintain production would be 300 to 350 MCFD.

Since the well is 14,000 feet deep, small diameter tubing or artificial lift would not be mechanically feasible. We have considered working the well over to reduce the water production. However, the well would have to be pulled and the leak isolated and squeeze cemented. Based on our experience this type of workover is expensive and has high risk of failure. There is also the added risk of damaging the Morrow producing zones with cement from the squeeze job.

Since production can be restored by unloading to a pit if the shut-in period is limited, this seems to be the most sensible and economic method at this time to maintain deliverability. If the well is allowed to produce and unload the water, the risk of permanent water blockage is low and the opportunity to maximize gas recovery is greatly improved. If an extended shut-in period permanently damages the well, approximately 450 MMCF of remaining reserves will be lost. If the well is not permanently damaged but must be swabbed monthly due to shut-in, the increased operating costs raise the economic limit to the extent that 90 MMCF of reserves will not be recovered.

In view of the above, it is our opinion that underground waste will occur if the subject well is shut-in for extended periods of time or curtailed below its ability to produce.

Yours very truly,

KAISER-FRANCIS OIL COMPANY

James W. Johnston
PE 39962 Texas

JWJ:ljb

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

APPLICATION FOR CLASSIFICATION AS HARDSHIP GAS WELL

Operator Kaiser-Francis Oil Company Contact Party M. W. Moore

Address P. O. Box 21468, Tulsa, Ok. 74121-1468 Phone No. 918/494-0000

Lease Pure Gold Well No. 1 UT "A" Sec. 21 TWP 23S RGE 31E

Pool Name Sand Dunes West (Morrow) Minimum Rate Requested 350 MCFD

Transporter Name El Paso Ng. Company 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.

GENERAL INFORMATION APPLICABLE TO HARDSHIP GAS WELL CLASSIFICATION

1) Definition of Underground Waste.

"Underground Waste as those words are generally understood in the oil and gas business, and in any event to embrace the inefficient, excessive, or improper use or dissipation of the reservoir energy, including gas energy and water drive, of any pool, and the locating, spacing, drilling, equipping, operating, or producing, of any well or wells in a manner to reduce or tend to reduce the total quantity of crude petroleum oil or natural gas ultimately recovered from any pool, and the use of inefficient underground storage of natural gas."

2) The only acceptable basis for obtaining a "hardship" classification is prevention of waste with the burden of proof solely on the applicant. The applicant must not only prove waste will occur without the "hardship" classification, but also that he has acted in a responsible and prudent manner to minimize or eliminate the problem prior to requesting this special consideration. If the subject well is classified as a "hardship" well, it will be permitted to produce at a specified minimum sustainable rate without being subject to shut-in by the purchaser due to low demand. The Division can rescind approval at any time without notice and require the operator to show cause why the classification should not be permanently rescinded if abuse of this special classification becomes apparent.

3) The minimum rate will be the minimum sustainable rate at which the well will flow. If data from historical production is insufficient to support this rate (in the opinion of the Director), or if an offset operator or purchaser objects to the requested rate, a minimum flow ("log off") test may be required. The operator may, if he desires, conduct the minimum flow test, and submit this information with his application.

4) If a minimum flow test is to be run, either at the operator's option or at the request of the Division, the offset operators, any protesting party, the purchaser and OCD will be notified of the date of the test and given the opportunity to witness, if they so desire.

5) Any interested party may review the data submitted at either the Santa Fe office or the appropriate OCD District Office.

6) The Director can approve uncontested applications administratively if, in his opinion, sufficient justification is furnished. Notice shall be given of intent to approve by attaching such notice to the regular examiner's hearing docket. Within 20 days following the date of such hearing, the affected parties will be permitted to file an objection. If no objection has been filed, the application may be approved.

7) Should a protest be filed in writing, the applicant will be permitted to either withdraw the application, or request it to be set for hearing.

8) An emergency approval, on a temporary basis for a period not to exceed 90 days, may be granted by the District Supervisor, pending filing of formal application and final action of the OCD Director. This temporary approval may be granted only if the District Supervisor is convinced waste will occur without immediate relief. If granted, the District Supervisor will notify the purchaser.

9) After a well receives a "hardship" classification, it will be retained for a period of one year unless rescinded sooner by the Division. The applicant will be required to certify annually that conditions have not changed substantially in order to continue to retain this classification.

10) Nothing here withstanding, the Division may, on its own motion, require any and all operators to show cause why approval(s) should not be rescinded if abuse is suspected or market conditions substantially change in the State of New Mexico.

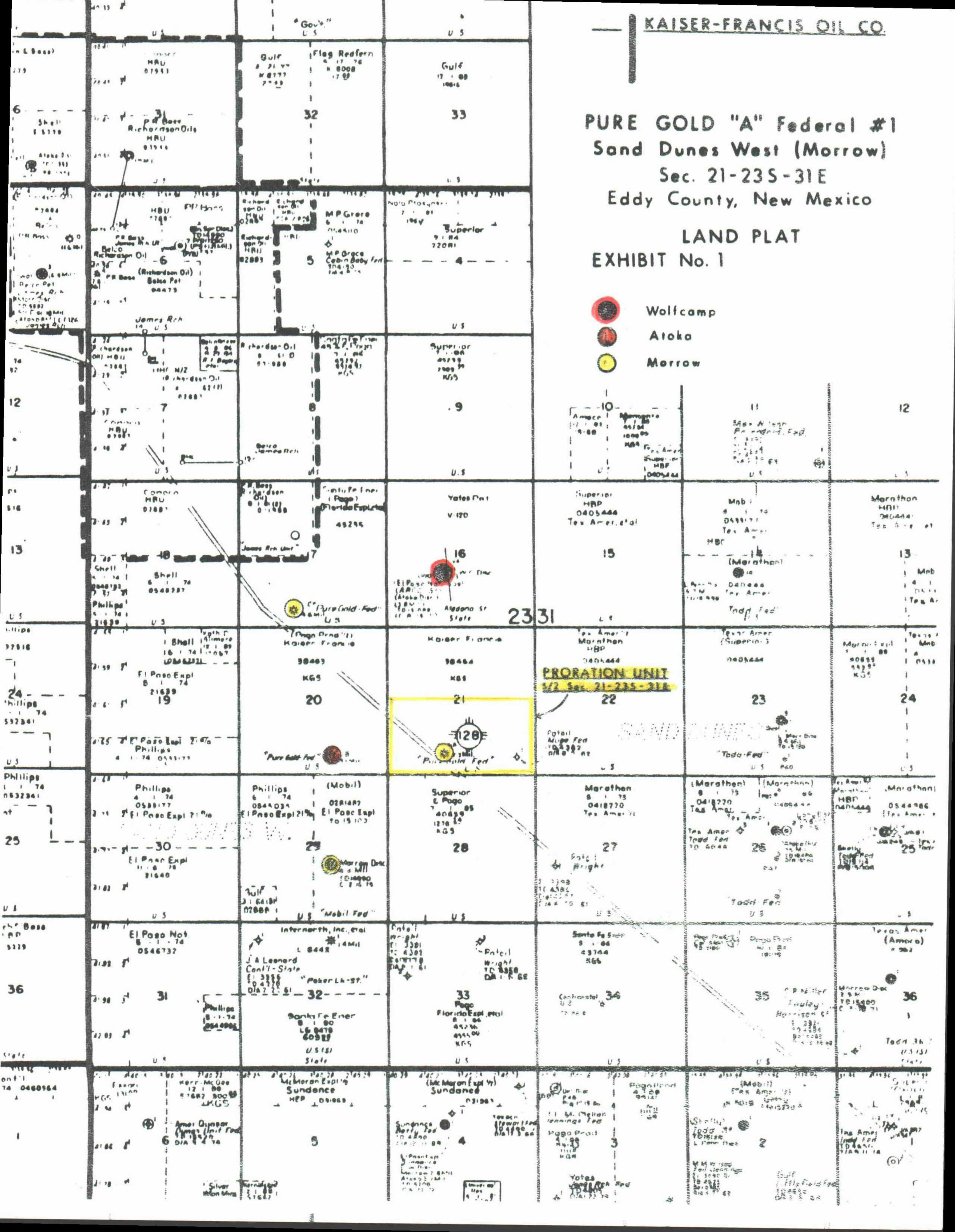
11) A well classified as a "hardship well" will continue to accumulate over and under production (prorated pools). Should allowables exceed the hardship allowable assigned, the well will be permitted to produce at the higher rate, if capable of doing so, and would be treated as any other non-hardship well. Any cumulative overproduction accrued either before or after being classified "hardship" must, however, be balanced before the well can be allowed to produce at the higher rate.

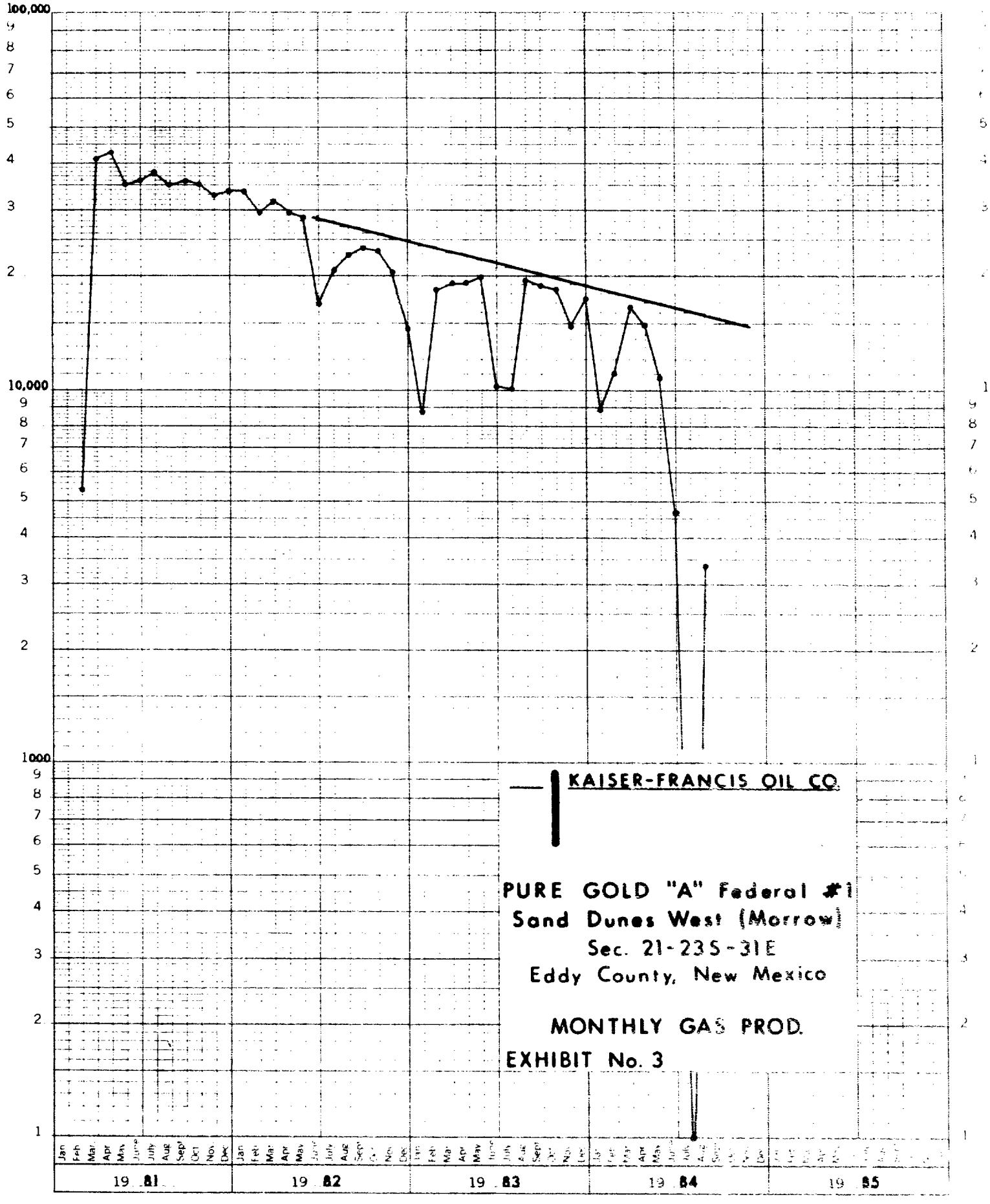
KAISER-FRANCIS OIL CO.

PURE GOLD "A" Federal #1
Sand Dunes West (Morrow)
Sec. 21-23S-31E
Eddy County, New Mexico

LAND PLAT
EXHIBIT No. 1

- Wolfcamp
- Atoka
- Morrow




100,000
10,000
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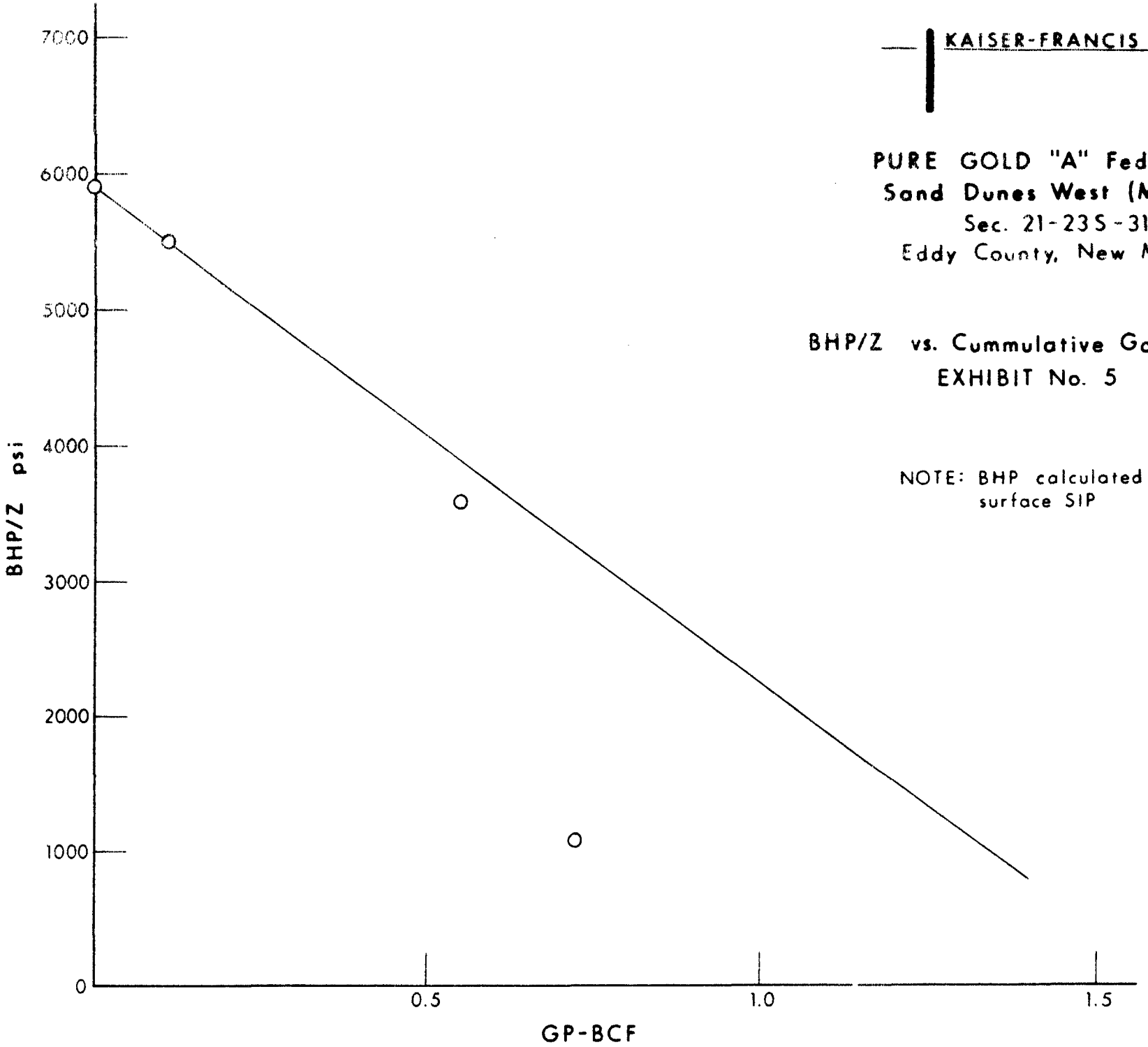
MCF/MO.
KAISER-FRANCIS OIL CO.
PURE GOLD "A" Federal #1
Sand Dunes West (Morrow)
Sec. 21-23S-31E
Eddy County, New Mexico
MONTHLY GAS PROD.
EXHIBIT No. 3
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec
19 81
19 82
19 83
19 84
19 85

KAISER-FRANCIS OIL CO.

PURE GOLD "A" Federal #1
Sand Dunes West (Morrow)
Sec. 21-23S-31E
Eddy County, New Mexico

BHP/Z vs. Cummulative Gas Production
EXHIBIT No. 5

NOTE: BHP calculated from surface SIP



KAISER-FRANCIS OIL COMPANY

PURE GOLD "A" NO. 1
SEC 21-23S-31E
EDDY COUNTY, NEW MEXICO

PRODUCTION DATA

YEAR	MONTH	MCF	FTP (PSI)	SHUT-IN DAYS	SWABBING COSTS $	WATER PRODUCED
1981		369,584				
1982	January	33,421	975	-	$ -	-
	February	29,372	925	-	-	-
	March	31,765	875	-	-	-
	April	29,596	860	-	-	-
	May	28,680	860	2	-	-
	June	16,959	1,000	10	-	-
	July	20,607	1,000	8	-	-
	August	22,862	875	3	-	-
	September	23,811	925	-	-	-
	October	23,217	850	-	-	-
	November	20,189	850	-	-	-
	December	14,489	950	12	-	-
	Total	294,968				
1983	January	8,990	950	23	-	-
	February	14,438	950	1	-	150
	March	19,281	950	-	-	-
	April	19,532	1,000	-	-	150
	May	20,374	800	-	-	900
	June	10,444	700	15	-	150
	July	10,260	700	14	3,651	130
	August	20,002	700	-	-	150
	September	19,388	800	-	-	150
	October	18,738	750	-	-	150
	November	15,275	750	-	-	300
	December	17,731	750	-	-	140
	Total	194,453			$ 3,651	

YEAR	MONTH	MCF	FTP (PSI)	SHUT-IN DAYS	SWABBING COSTS $	WATER PRODUCED
1984	January	8,872	800	9	-	-
	February	11,084	750	4	1,528	100
	March	16,573	750	-	-	287
	April	14,962	710	-	-	420
	May	10,722	750	7	2,150	150
	June	4,730	750	18	2,829	100
	July	70	725	30	1,320	-
	August	3,365(E)	725	21	3,000(E)	100
	September	1,542(E)	700	11	5,200(E)	NA
	TOTAL	71,920			$16,027	
GRAND TOTAL		930,925			19,678	

NOTE:

(1) (E) estimated from guage reports
(2) September data through 9-16-84

KAISER-FRANCIS OIL COMPANY

PURE GOLD "A" FEDERAL NO. 1
SAND DUNES WEST (MORROW)
SEC. 21-23S-31E
EDDY COUNTY, NEW MEXICO

MONTHLY AVERAGE DELIVERABILITY

YEAR	MONTH	DAYS PRODUCED	AVERAGE DELIVERABILITY (MCFD)	FTP (PSI)
1983	August - December	153	596	750
1984	January	22	403	800
	February	25	443	750
	March	31	535	750
	April	30	498	710
	May	24	446	750
	June	12	394	750
	July	1	70	725
	August	10	337	725
	September	5	308	700

EXHIBIT NO. 6

KAISER-FRANCIS OIL COMPANY

PURE GOLD "A" FEDERAL NO. 1
SAND DUNES WEST (MORROW)
SEC 21-23S-31E
EDDY COUNTY, NEW MEXICO

DAILY WELL HISTORY

MAY, 1984

DAY	MCF	FTP (Psi)	REMARKS
1	442	750	
2	388	750	
3	264	750	
4	258	750	
5	192	750	Well died
6	0		
7	0		
8	0		Swabbing
9	0		Swabbing
10	198	660	Swabbing-well started flowing
11	434	750	
12	462	750	
13	0		Highline pressure surge killed well, blew water to pit
14	527	750	
15	523	750	
16	511	750	
17	426	750	
18	365	750	
19	638	750	
20	465	750	
21	479	750	
22	467	750	
23	379	750	
24	358	750	
25	0		Highline pressure surge killed well, blew water to pit
26	252	750	
27	672	750	
28	554	750	
29	479	750	
30	383	750	
31	362	750	

Note: Gas rates are from uncorrected guage report

EXHIBIT NO. 6

KAISER-FRANCIS OIL COMPANY

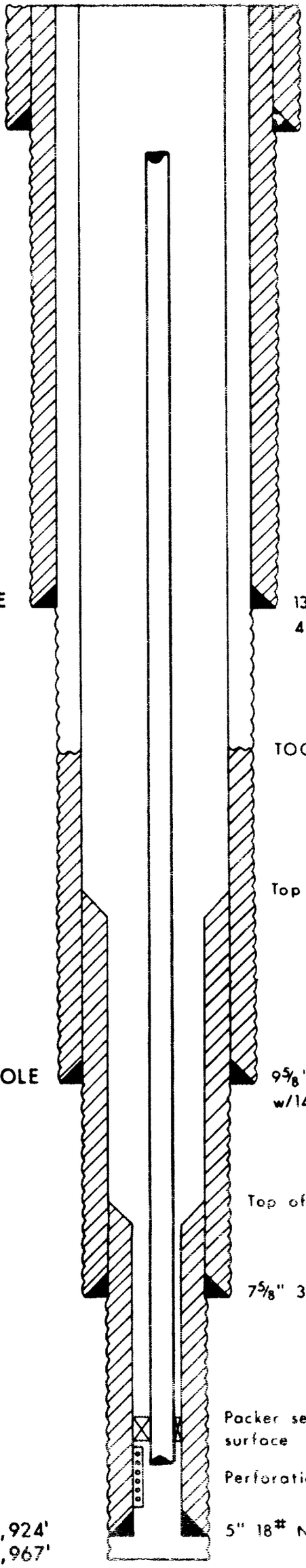
PURE GOLD "A" FEDERAL NO. 1
SAND DUNES WEST (MORROW)
Sec. 21-23S-31E
EDDY COUNTY, NEW MEXICO

DAILY WELL HISTORY

JUNE, 1984

DAY	MCF	FTP (Psi)	REMARKS
1	306	750	
2	252	750	
3	132	750	
4	132	750	High line pressure killed well
5	0		Well SI at pipeline request
6	0		
7	0		
8	0		
9	0		
10	0		
11	0		
12	0		Swabbing
13	0		Swabbing
14	0		Unloading water to pit
15	0		Unloading water to pit
16	0		Unloading water to pit
17	362	750	
18	340	750	
19	308	750	
20	308	750	
21	304	750	
22	243	750	
23	224	750	
24	0		Well loading up - blew water to pit
25	461	750	
26	421	750	
27	0		Well SI at pipeline request
28	0		
29	0		
30	0		

Note: Gas rates are from uncorrected guage report



26" HOLE

20" 94# K-55 STC set @ 583' w/625 sx circ.

KAISER-FRANCIS OIL CO.

PURE GOLD "A" Federal #1
Sand Dunes West (Morrow)
Sec. 21-23S-31E
Eddy County, New Mexico

WELLBORE DIAGRAM
EXHIBIT No. 2

17 1/2" HOLE

13 3/8" 54.5#, 61.5#, 68#, & 72# STC K-55 set @ 4206' w/2850 sx circ.

TOC (9 5/8") 7850'

Top of 7 5/8 liner set @ 11868' sqzd w/400 sx

12 1/4" HOLE

9 5/8" 43.5 , 47# S-95 + N-80 LTC set @ 12399' w/1450 sx

Top of 5" liner set @ 13702'
TOC-TOL

7 5/8" 39# P-110 HSFJ & TS set @ 14161' w/215 sx

Packer set @ 14~~338~~ w/2 7/8" 6.5# N-80 AB/mod Tubing to surface

Perforations 14,414 to 14,633

PBTD 14,924'
TD 14,967'

5" 18# N-80 HSFJ set @ 14967 w/200 sx