STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

May 20, 1988

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Re: CASE NO. 9368
ORDER NO. R-8657

Mr. Ernest L. Padilla
Padilla & Snyder
Attorneys at Law
P. O. Box 2523
Santa Fe, New Mexico 87504-2523

Applicant:

Siete Oil & Gas Corporation

Dear Sir:

Enclosed herewith are two copies of the above-referenced Divisicn order recently entered in the subject case.

Sincerely,

Florene Davidson

FLORENE DAVIDSON
OC Staff Specialist

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

June 21, 1989

Siete Oil & Gas Corporation
P.O. Box 2523
Roswell, NM 88202

Attention: Attention: Robert Lee

RE: Injection Pressure Increase
Blackhawk Well No. 3
Blackhawk Federal Waterflood Project
Eddy County, New Mexico

Dear Mr. Lee:

Reference is made to your request dated June 12, 1989, to increase the surface injection pressure on the Blackhawk Well No. 3. This request is based on a step rate test conducted on the well on June 9, 1989. The results of the test has been reviewed by my staff and we feel an increase in injection pressure on the well is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following well:

WELL AND LOCATION	MAXIMUM INJECTION SURFACE PRESSURE
Blackhawk Federal Well No. 3 Unit L, Section 24, T-18 South, R-31 East, NMPM, Eddy County, New Mexico.	1150 PSIG

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected water is not being confined to the injection zone or is endangering any fresh water aquifers.

Sincerely,

William J. LeMay
Director

cc: OCD - Artesia
File: Case 9368
T. Gallegos
D. Catanach

SIETE OIL & GAS CORPORATION

Petroleum Building Suite 200
P.O. Box 2523 Roswell, New Mexico 88202
Telephone (505) 622-2202

June, 12, 1989

Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attn: Dave Catanach

RE: Increasing Injection Pressure
on the Blackhawk #3.
Shugart Field, Eddy Co. N.M.
Order # R-8657

Dear Mr. Catanach:

Siete Oil & Gas respectfully requests the wellhead injection pressure for the Blackhawk #3 be increased from the current limitation of 744 psi to 1150 psi. Please find attached the following graphs to justify this request:

1. Injection Rate & Injection Pressure vs. Time
2. Oil Production & Injection Rate vs. Time
3. Step-Rate Tests (Surface & Bottomhole Readings)
4. John West's data and plots

The plot of Rate & Pressure vs. Time shows injection pressure increasing over time and the rate being reduced to stay below the maximum injection pressure of 744 psi. As the reservoir pressure continues to increase, the wellhead injection pressure also increases. We have had to reduce our rate from 350 BWPD to 250 BWPD to stay below 744 psi at the wellhead. You can see the 1000 gal. acid job at 200 days of injection temporarily reduced the injection pressure, but was only a short term fix. Pressures gradually increased and the rates had to be reduced. A recent 2000 gal. acid job has also provided some reduction in the injection pressure. We have been able to increase the injection rate for now, but anticipate the pressure to increase and once again force a reduction in the injection rate.

The plot of Oil Rate & Injection Rate vs. Time illustrates the current decline in oil production. It is my opinion this decline is in response to the reduction in injection rates. If the

injection rates can be increased the oil production will rise accordingly.

To justify increasing the injection pressure a step-rate test was ran on June 9, 1989 and was witnessed by Mike Stubblefield from the OCD office in Artesia. The bottom-hole readings best shows the break-over at parting pressure. This occurs at a rate of 2350 BWPD and a BHP of 2917 psi. The surface readings indicate the wellhead injection pressure at the formation parting pressure is 1250 psi. We want to stay below the parting pressure and therefore request the maximum injection pressure be raised to 1150 psi.

The data recorded by West Engineering and the associated plots are also attached.

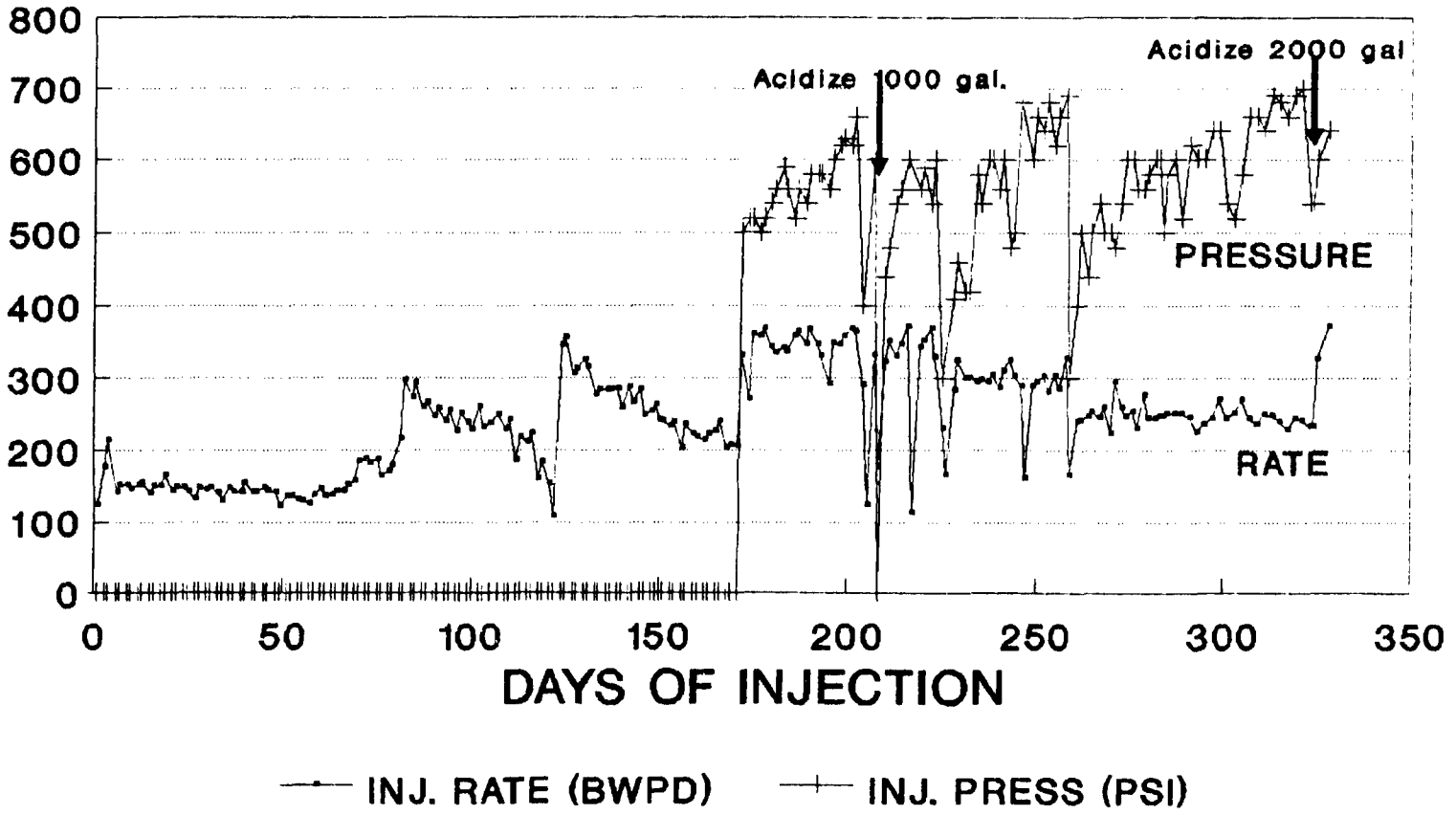
If you have any questions or need further information please do not hesitate to call me at 505-622-2202.

Sincerely,

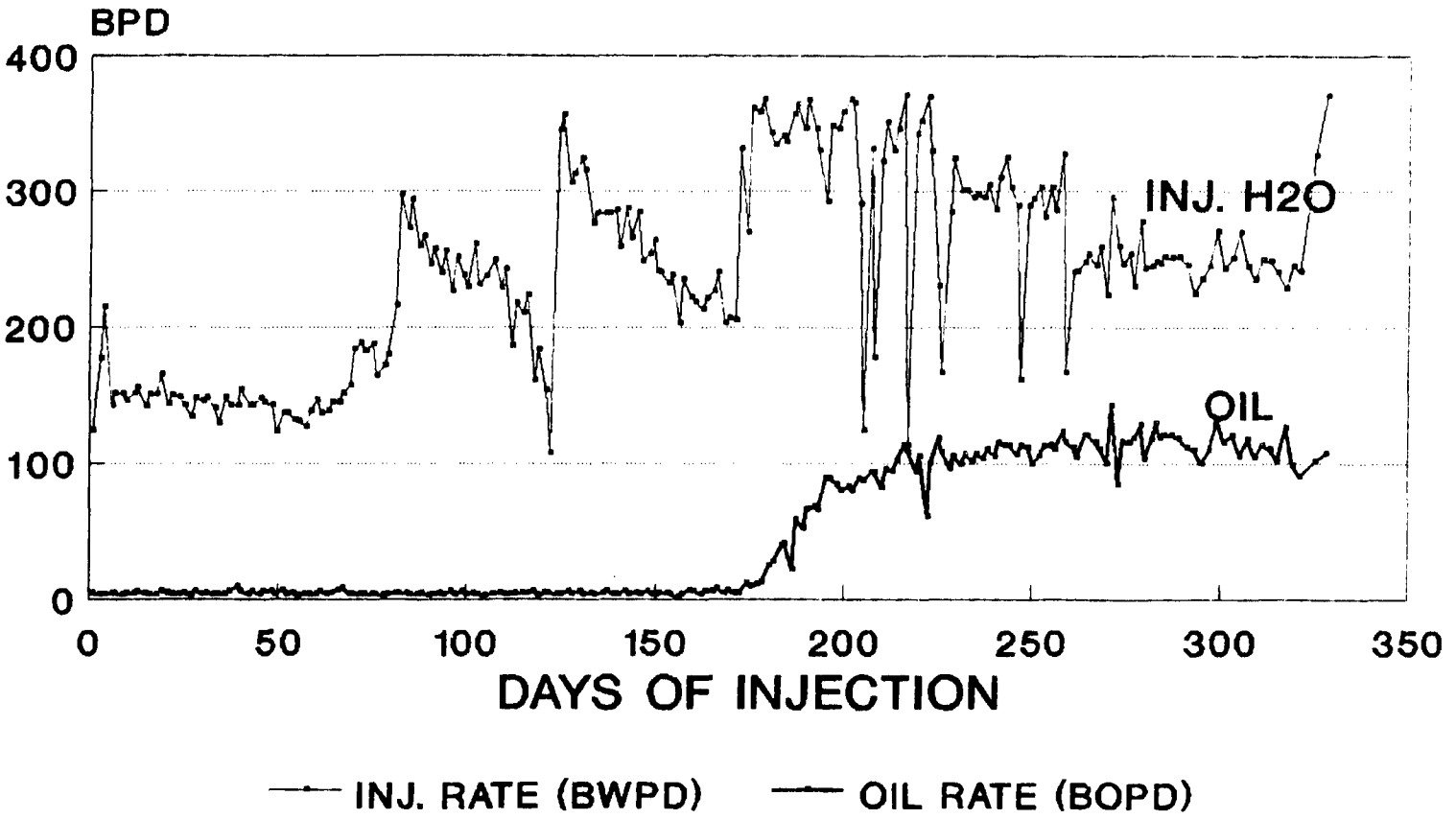
Robert Lee

Robert Lee
Senior Reservoir Engineer

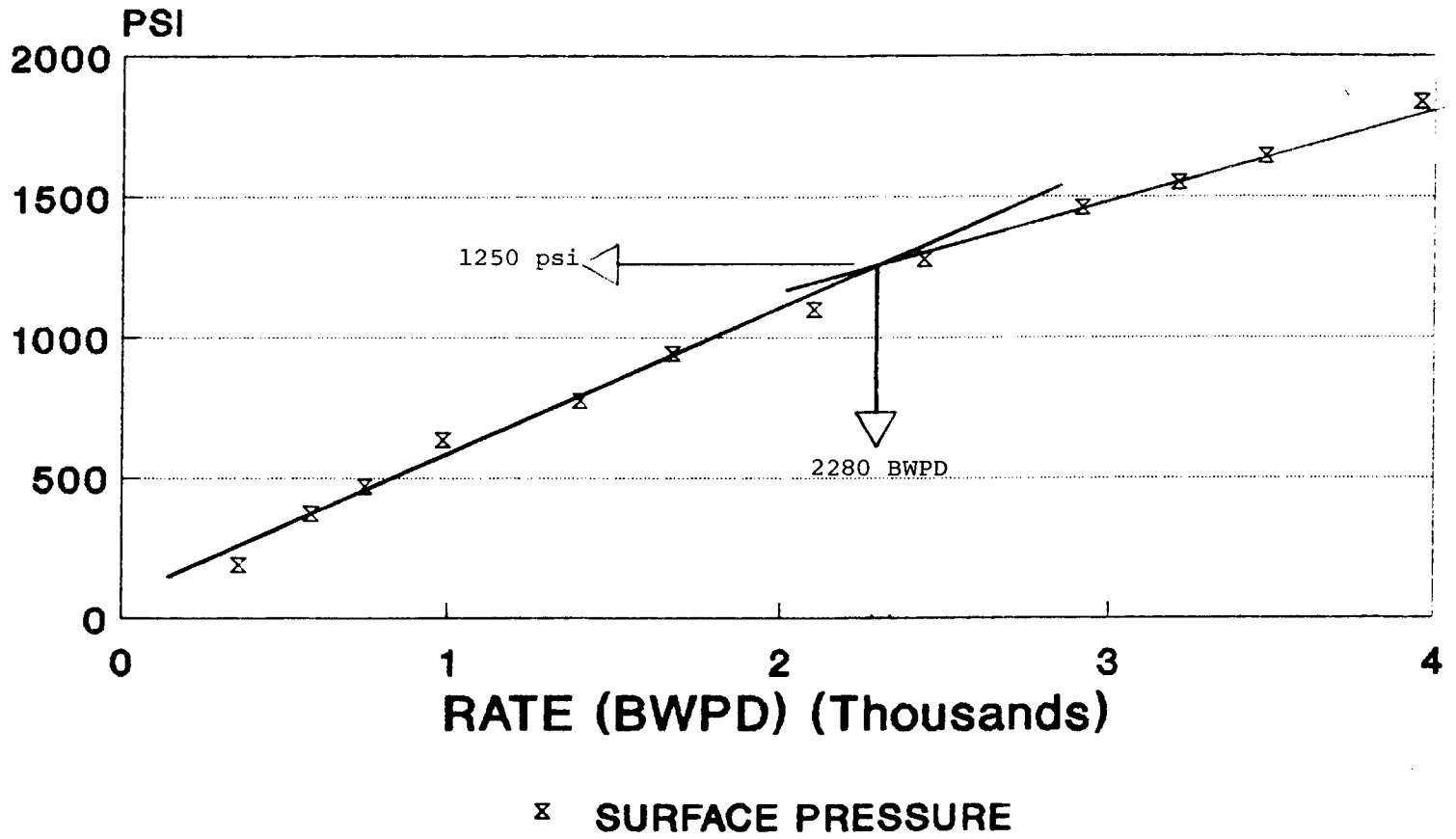
BLACKHAWK WATERFLOOD
RATES AND PRESSURES



BLACKHAWK WATERFLOOD
RATES

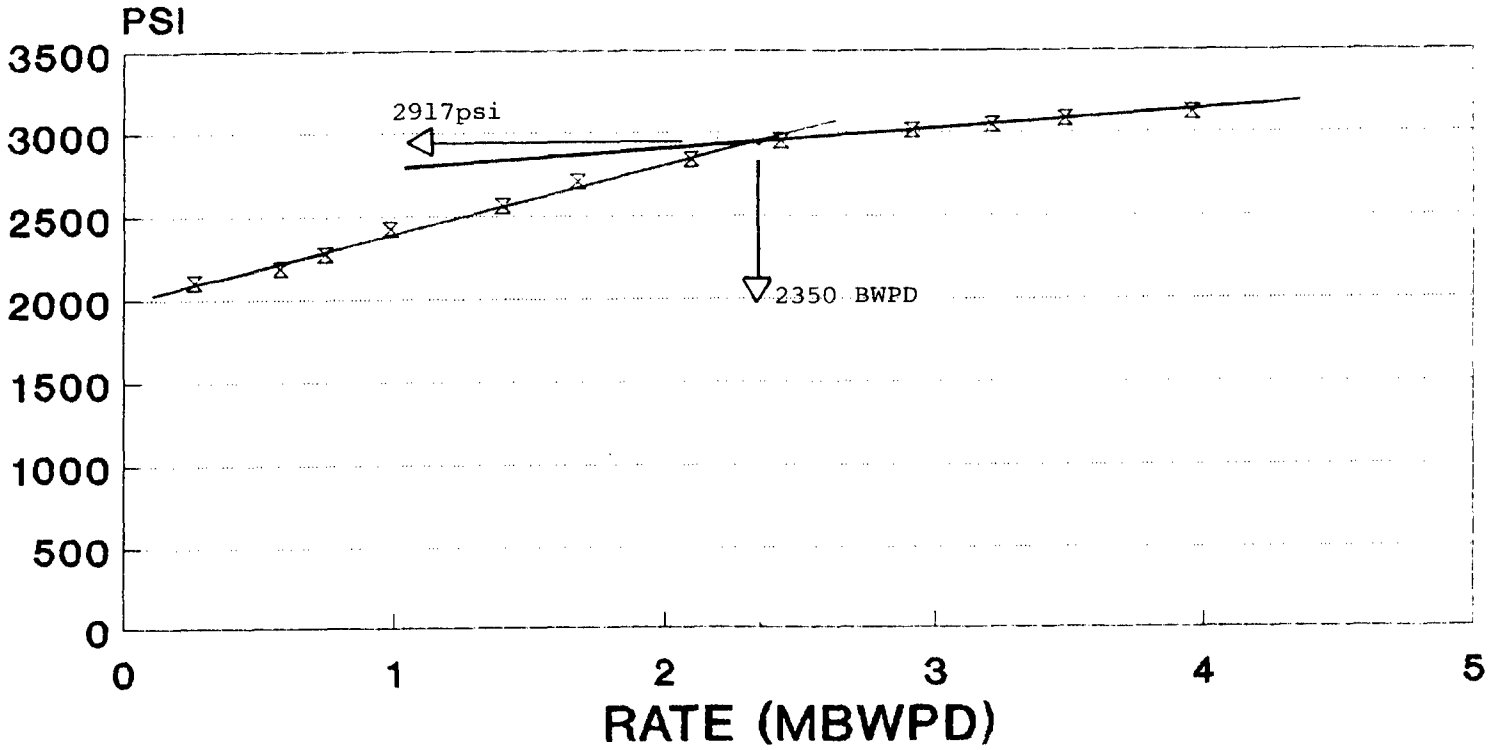


BLACKHAWK #3 STEP-RATE TEST
SURFACE PRESSURE

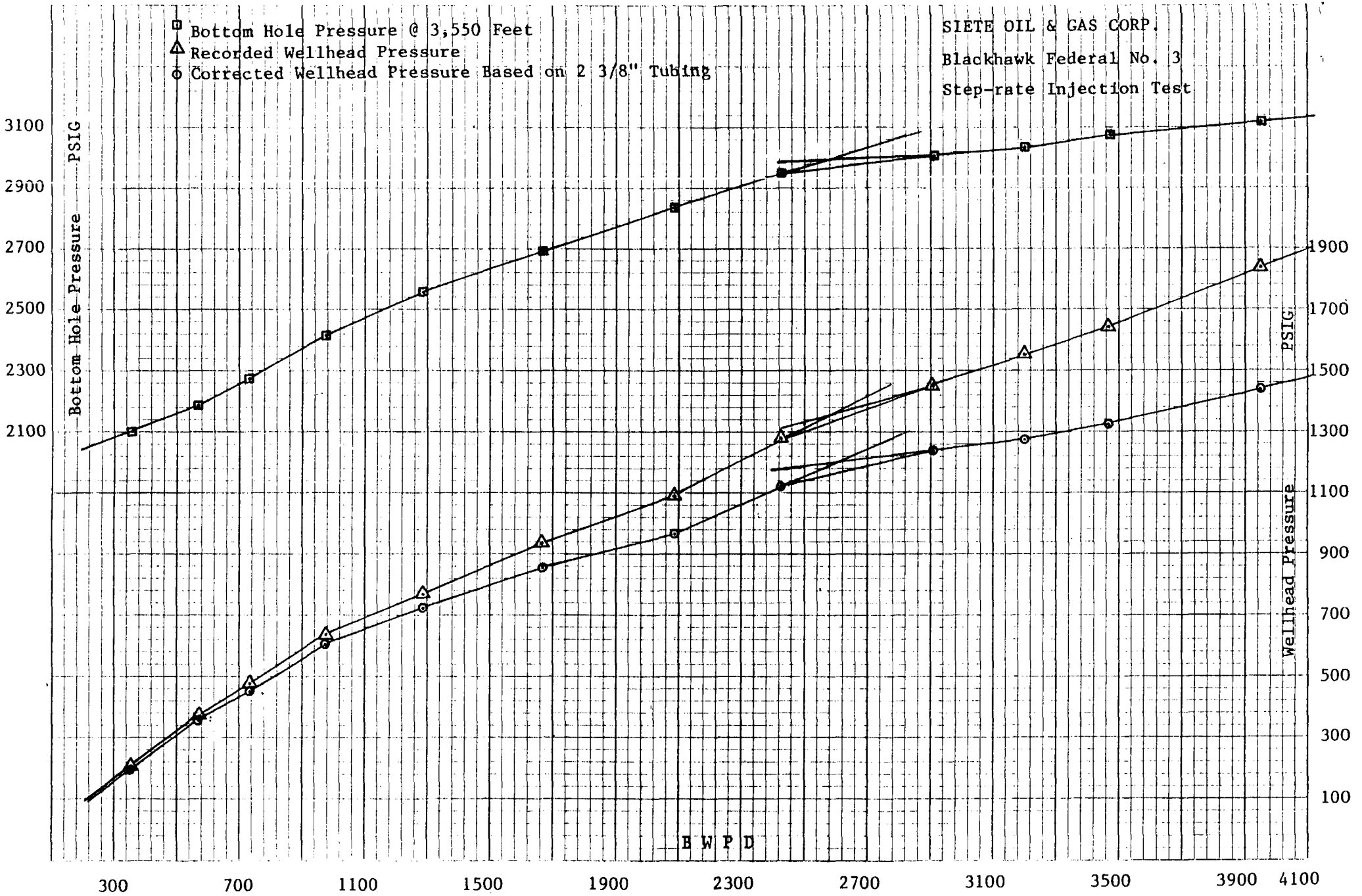


6/9/89

BLACKHAWK #3 STEP-RATE TEST
BOTTOMHOLE PRESSURE



6/9/89


Bottom Hole Pressure @ 3,550 Feet
Recorded Wellhead Pressure
Corrected Wellhead Pressure Based on 2 3/8" Tubing
SIETE OIL & GAS CORP.
Blackhawk Federal No. 3
Step-rate Injection Test
Bottom Hole Pressure PSIG
Wellhead Pressure PSIG
3100
2900
2700
2500
2300
2100
1900
1700
1500
1300
1100
900
700
500
300
100
B W P D
300
700
1100
1500
1900
2300
2700
3100
3500
3900
4100

JOHN WEST ENGINEERING CO.

Step Rate Injection Test

Well Name Blackhawk Federal #3 **Date** June 9, 1989

CO. Name Siete Oil & Gas Corp.

Remarks	Time	Tbg. Press.	Rate BPD	Total	BHP	Tbg. Press.	Rate GPM	HEAD LOSS
		BHP GAUGE @ 3,559 Feet						
	9:00			0				
	9:10			0				
	9:15	186.6	345.6	1.2	2046.50			
	9:20	364.10	374.4	2.5	2070.40			
1	9:25	187.80	345.60	3.7	2101.00	183.1	10.36	4.66
	9:30	346.20	576.00	5.7	2142.10			
	9:35	362.90	576.00	7.7	2166.30			
2	9:40	369.30	576.00	9.7	2182.10	357.9	16.80	11.40
	9:45	407.70	748.80	12.3	2232.20			
	9:50	435.80	720.00	14.8	2257.80			
3	9:55	466.40	748.80	17.4	2270.70	448.3	21.56	18.09
	10:00	564.80	979.20	20.8	2349.20			
	10:05	596.70	1008.00	24.3	2390.50			
4	10:10	631.20	950.40	27.6	2416.80	600.8	28.56	30.44
	10:15	706.50	1296.00	32.1	2493.00			
	10:20	744.70	1296.00	36.6	2520.20			
5	10:25	770.30	1296.00	41.1	2555.40	719.2	37.80	51.12
	10:30	872.50	1612.80	46.7	2628.70			
	10:35	908.30	1728.00	52.7	2666.20			
6	10:40	937.60	1670.40	58.5	2696.80	855.8	48.72	81.75
	10:45	1060.40	2102.40	65.8	2772.0			
	10:50	1093.70	2102.40	73.1	2811.30			
7	10:55	1094.90	2073.60	80.3	2829.10	970.8	61.04	124.06
	11:00	1237.10	2419.20	88.7	2898.10			
	11:05	1262.60	2448.00	97.20	2924.10			
8	11:10	1275.40	2419.20	105.60	2941.10	1112.0	70.84	163.40

JOHN WEST ENGINEERING CO.

Step Rate Injection Test

Well Name Blackhawk Federal #3 **Date** June 9, 1989

CO. Name Siete Oil & Gas Corp.

Remarks	Time	Tbg. Press.	Rate BPD	Total	BHP	Tbg. Press.	Rate GPM	HEAD LOSS
	11:15	1439.30	2908.80	115.7	3001.30			
	11:20	1458.50	2851.20	125.6	3010.30			
9	11:25	1458.40	2966.40	135.9	3008.50	1230.3	84.84	228.11
	11:30	1541.60	3196.80	147.0	3032.0			
	11:35	1544.10	3225.60	158.2	3037.0			
10	11:40	1546.60	3196.80	169.3	3034.80	1273.4	93.52	273.15
	11:45	1628.60	3542.40	181.60	3063.80			
	11:50	1632.40	3398.40	193.40	3068.20			
11	11:55	1641.20	3484.80	205.5	3075.70	1324.2	101.36	317.02
	12:00	1773.0	3801.60	218.70	3118.90			
	12:05	1829.20	3945.60	232.40	3110.20			
12	12:10	1832.80	4118.40	246.70	3112.00	1430.05	115.36	402.75
Fall-off	12:10:34	1122.10			2989.30			
	12:15	1013.20			2868.00			
	12:20	953.10			2807.50			