

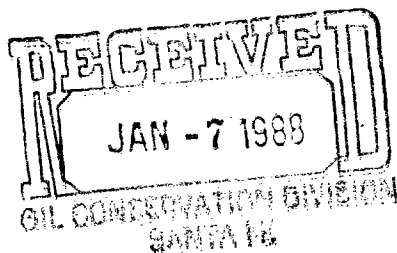


PHILLIPS PETROLEUM COMPANY

ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

December 29, 1987



Request for Increase in Surface
Injection Pressure
Maljamar SWD Well No. 1 (State Lease)
Vacuum (Grayburg/San Andres) Pool
Lea County, New Mexico

Department of Energy and Minerals
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

ATTN: Mr. William J. Lemay
Division Director

Gentlemen:

Phillips Petroleum Company respectfully requests administrative approval to increase the surface injection pressure from 0 PSI to 1570 PSI for the captioned well in Vacuum Pool. This pressure increase is necessary to dispose of produced water from Phillips' Philmex Lease (State Lease B-2229). Well No. 1 was approved for salt water disposal by Order No. SWD 126.

An injection step rate test was performed on October 6, 1987, which indicates that the formation fracture pressure is greater than 1570 PSIG (surface). Enclosed are a well bore diagram of the subject well, tabulations of data from the step rate test, the Engineering Discussion of the test results, and a fracture correlation curve (rate versus pressure) of the step rate test.

Phillips Petroleum Company operates all offsetting proration units as well as all wells within one-half mile of the captioned well. The mechanical integrity of each such well is sufficient to withstand the increased surface injection pressure at the Maljamar SWD Well No. 1. A plat of the area of review is enclosed.

Your early consideration and approval are appreciated. Please direct any questions to me or to Mr. John Currie at (915) 367-1342.

Very truly yours,



L. M. Sanders
Regulation and Proration Supervisor
(915) 367-1488

LMS:JCC:ls
REG/PRO7.1/Malj SWD

Enclosures

cc: N.M.O.C.D.,
Hobbs, New Mexico

Commission of Public Lands
P. O. Box 1148
Santa Fe, New Mexico

PHILLIPS PETROLEUM COMPANY--PERMIAN BASIN REGION

RKB @ 4163'
 CHF @
 GL @ 4148'

Area North
 Subarea Lovington

Date: 12/15/87

Lease & Well No. Maljamar SWD Well No. 1 (Philwex No. D-9)
 Legal Description 660' FNL & 1980' FEL, Sec. 26, T-17-S, R-33-E,
 Lea County, New Mexico

Field Vacuum (GB/SA)

Status Injecting

Tbs. 2-7/8" 6.5# J-55 Gr. @ 4855'

Pkr. Baker AD-1 @ 4855'

13-3/8" OD @ 335'
 48#
 TOC @ surface

8-5/8" OD @ 4664'
 24-32# K-55 Gr.
 11" hole
 TOC @ 2800'

Perforations:

4960'-5010'
 5070'-5090'

PBTD 5800'

Checked By:

Resv. Engr.: J. C. Currie

5-1/2" OD @ 11,479' TOC @ 1000'
 TD @ 11,479' 14# J-55 to 17# N-80
 7-7/8" hole

Phillips Petroleum Company
Maljamar SWD Well No. 1
Unit B, Section 26, 17S, 33E
Lea County, New Mexico

APPLICATION FOR INCREASED INJECTION PRESSURE LIMITATION

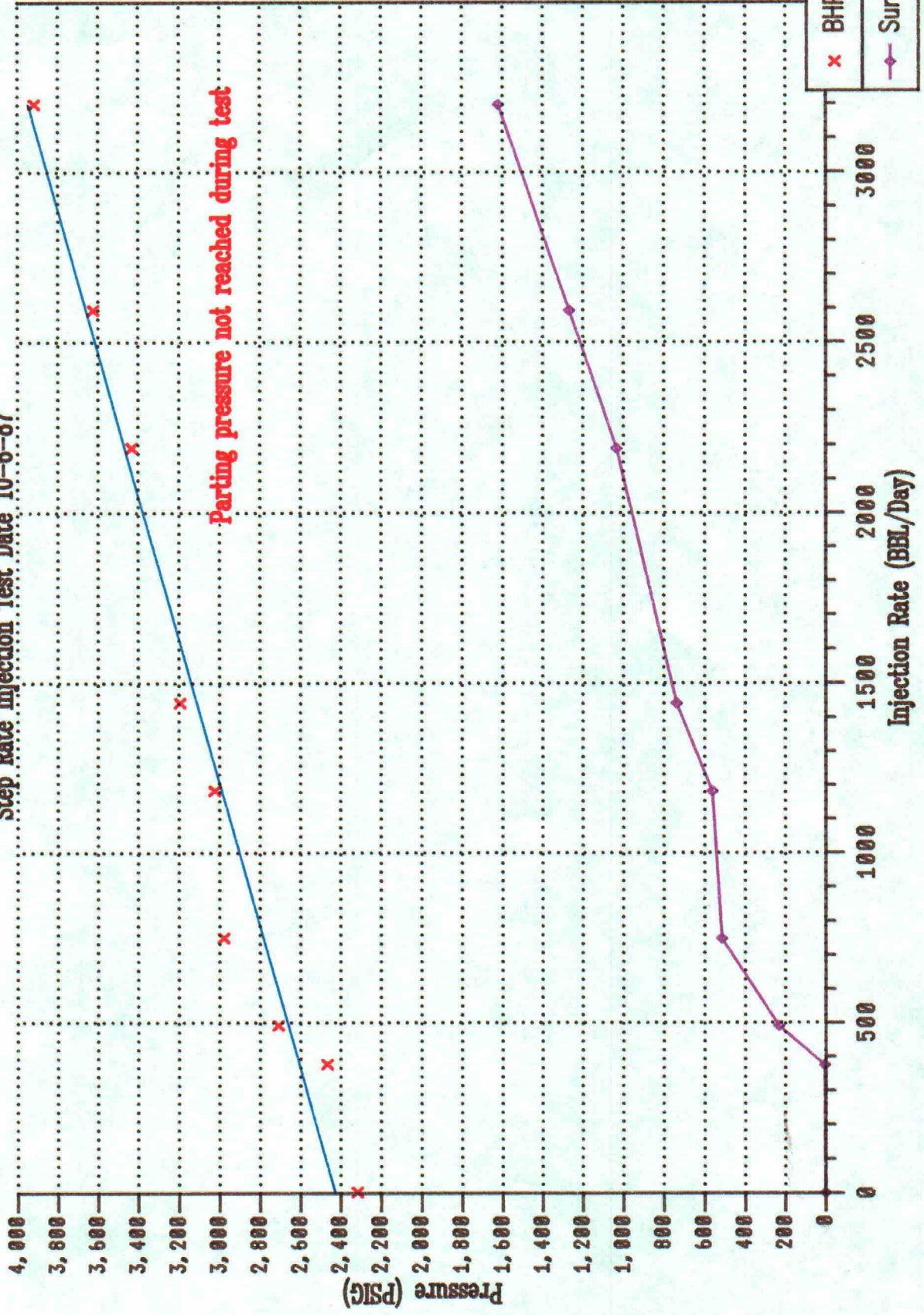
Engineering Discussion

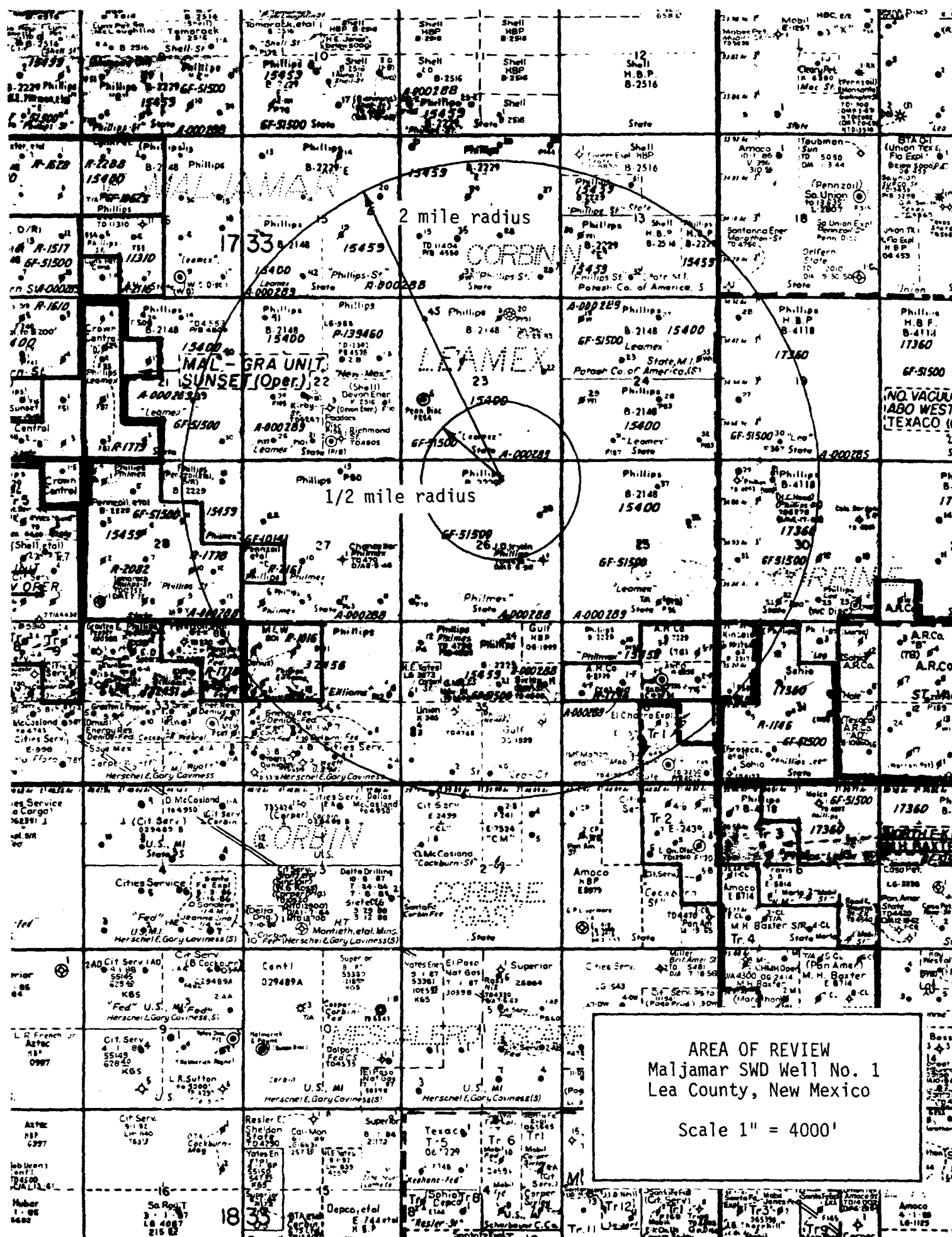
A step rate injection test was performed on the subject well October 6, 1987 by John West Engineering, test data enclosed. As shown on the enclosed well bore diagram, all tubing and down hole equipment was installed at the time of the test. Pressure data came from a surface pressure meter and a bottom hole Amerada bomb. Injection rates were calculated from the flow totalizer. Eight equal step lengths of 30 minutes each were run.

The enclosed plot of surface and bottom hole pressure versus rate indicates that parting pressure was not reached during the test. The highest bottom hole pressure measured was 3918 psi at 5090 ft, yielding a formation fracture pressure gradient greater than 0.77 psi/ft. Limiting the bottom hole pressure to less than 3918 psi will prevent fracturing the formation and will maintain the integrity of the strata confining the injected fluid.

The bottom hole injection pressure of 3918 psi corresponds to a measured surface injection pressure of 1620 psi. Thus, limiting the maximum surface injection pressure to 1570 psi will maintain the integrity of the confining strata. The mechanical integrity of the subject injection well is such that surface injection pressures of this magnitude can be sustained. No other well within one half mile radius penetrates the injection zone. Phillips Petroleum Company requests permission to inject water into the Maljamar SWD Well No. 1 at surface pressures which do not exceed 1570 psi.

Phillips Petroleum Company
 Majamar SWD Well No. 1
 Step Rate Injection Test Date 10-6-87





Phillips Petroleum Co.
Maljamar SWD No. 1
Bottom Hole Pressure Step-Rate Test.
Tabulation of times and pressures.

TEST CONDUCTED BY:
JOHN WEST ENGINEERING CO.

TEST DATE: OCTOBER 06 1987
TEST DEPTH: 5090 Feet
ELEMENT NO: 34911 (0-6100 PSI)
OPERATOR: W.S.

<u>DATE</u>	<u>TIME</u>	<u>CUM HRS./MIN.</u>	<u>PSIG @ 5090 FEET</u>
10-6-87	9:05 A.M.		2317 gauge reached 5090 feet
	9:45 A.M.	00 Hrs. 00 Min.	2317 Started test.
	9:47 A.M.	00 02	2354
	9:49 A.M.	00 04	2366
	9:51 A.M.	00 06	2375
	9:53 A.M.	00 08	2384
	9:55 A.M.	00 10	2390
	9:57 A.M.	00 12	2399
	9:59 A.M.	00 14	2409
	10:01 A.M.	00 16	2415
	10:03 A.M.	00 18	2421
	10:05 A.M.	00 20	2427
	10:07 A.M.	00 22	2436
	10:09 A.M.	00 24	2445
	10:11 A.M.	00 26	2454
	10:13 A.M.	00 28	2460
	10:15 A.M.	00 30	2466 End Rate I
	10:17 A.M.	00 32	2549
	10:19 A.M.	00 34	2585
	10:21 A.M.	00 36	2659
	10:23 A.M.	00 38	2704
	10:25 A.M.	00 40	2689
	10:27 A.M.	00 42	2698
	10:29 A.M.	00 44	2701
	10:31 A.M.	00 46	2704
	10:33 A.M.	00 48	2704
	10:35 A.M.	00 50	2707
	10:37 A.M.	00 52	2707
	10:39 A.M.	00 54	2707
	10:41 A.M.	00 56	2710
	10:43 A.M.	00 58	2710
	10:45 A.M.	01 00	2710 End Rate II
	10:47 A.M.	01 02	2948
	10:49 A.M.	01 04	2957
	10:51 A.M.	01 06	2945
	10:53 A.M.	01 08	2954
	10:55 A.M.	01 10	2957
	10:57 A.M.	01 12	2957
	10:59 A.M.	01 14	2960
	11:01 A.M.	01 16	2963
	11:03 A.M.	01 18	2966
	11:05 A.M.	01 20	2969
	11:07 A.M.	01 22	2966
	11:09 A.M.	01 24	2969
	11:11 A.M.	01 26	2976
	11:13 A.M.	01 28	2979
	11:15 A.M.	01 30	2979 End Rate III
	11:17 A.M.	01 32	3207
	11:19 A.M.	01 34	3052
	11:21 A.M.	01 36	3043
	11:23 A.M.	01 38	3024
	11:25 A.M.	01 40	3021
	11:27 A.M.	01 42	3021
	11:29 A.M.	01 44	3018
	11:31 A.M.	01 46	3018
	11:33 A.M.	01 48	3015
	11:35 A.M.	01 50	3015
	11:37 A.M.	01 52	3015
10-06-87	11:39 A.M.	01 54	3018

PHILLIPS PETROLEUM CO.
MALJAMAR SWD NO. 1
BOTTOM HOLE PRESSURE STEP-RATE TEST
TABULATION OF TIMES AND PRESSURES.

TEST CONDUCTED BY:
JOHN WEST ENGINEERING CO.

TEST DATE: October 06, 1987
TEST DEPTH: 5090 Feet
ELEMENT NO: 34911 (0-6100 PSI)
OPERATOR: W.S.

<u>DATE</u>	<u>TIME</u>	<u>CUM HRS./MIN.</u>	<u>PSIG @ 5090 FEET</u>
10-06-87	11:41 A.M.	01 Hrs. 56 Min.	3021
	11:43 A.M.	01 58	3021
	11:45 A.M.	02 00	3024 End Rate IV
	11:47 A.M.	02 02	3174
	11:49 A.M.	02 04	3183
	11:51 A.M.	02 06	3186
	11:53 A.M.	02 08	3189
	11:55 A.M.	02 10	3189
	11:57 A.M.	02 12	3189
	11:59 A.M.	02 14	3192
	12:01 P.M.	02 16	3192
	12:03 P.M.	02 18	3192
	12:05 P.M.	02 20	3192
	12:07 P.M.	02 22	3195
	12:09 P.M.	02 24	3195
	12:11 P.M.	02 26	3195
	12:13 P.M.	02 28	3195
	12:15 P.M.	02 30	3195 End Rate V
	12:17 P.M.	02 32	3430
	12:19 P.M.	02 34	3381
	12:21 P.M.	02 36	3387
	12:23 P.M.	02 38	3396
	12:25 P.M.	02 40	3402
	12:27 P.M.	02 42	3409
	12:29 P.M.	02 44	3412
	12:31 P.M.	02 46	3415
	12:33 P.M.	02 48	3421
	12:35 P.M.	02 50	3424
	12:37 P.M.	02 52	3424
	12:39 P.M.	02 54	3427
	12:41 P.M.	02 56	3430
	12:43 P.M.	02 58	3430
	12:45 P.M.	03 00	3433 End Rate VI
	12:47 P.M.	03 02	3509
	12:49 P.M.	03 04	3567
	12:51 P.M.	03 06	3613
	12:53 P.M.	03 08	3637
	12:55 P.M.	03 10	3634
	12:57 P.M.	03 12	3640
	12:59 P.M.	03 14	3655
	1:01 P.M.	03 16	3671
	1:03 P.M.	03 18	3686
	1:05 P.M.	03 20	3698
	1:07 P.M.	03 22	3664
	1:09 P.M.	03 24	3652
	1:11 P.M.	03 26	3646
	1:13 P.M.	03 28	3640
	1:15 P.M.	03 30	3624 End Rate VII
	1:17 P.M.	03 32	3854
	1:19 P.M.	03 34	3912
	1:21 P.M.	03 36	3851
	1:23 P.M.	03 38	3860
	1:25 P.M.	03 40	3866
	1:27 P.M.	03 42	3875
	1:29 P.M.	03 44	3881
	1:31 P.M.	03 46	3890
	1:33 P.M.	03 48	3896
10-06-87	1:35 P.M.	03 50	3902

Continued on attached sheet.

Phillips Petroleum Co.
Maljamar SWD No. 1
Bottom Hole Pressure Step-Rate Test
Tabulation of times and pressures.

TEST CONDUCTED BY:
JOHN WEST ENGINEERING CO.

TEST DATE: OCTOBER 06, 1987
TEST DEPTH: 5090 Feet
ELEMENT NO: 34911 (0-6100 PSI)
OPERATOR: W.S.

<u>DATE</u>	<u>TIME</u>	<u>CUM HRS./MIN.</u>	<u>PSIG @ 5090 FEET</u>
10-06-87	1:37 P.M.	03 Hrs. 52 Min.	3905
	1:39 P.M.	03 54	3933
	1:41 P.M.	03 56	3912
	1:43 P.M.	03 58	3915
	1:45 P.M.	04 00	3918 End Rate VIII
10-06-87	1:55 P.M.		2619 10 Min. Fall-off

JOHN WEST ENGINEERING CO.
Step Rate Injection Test

Well Name Phillips Petroleum Co.
CO. Name Maljamar SWD No. 1

Date October 6, 1987

Remarks	Time	Tbg. Press.	Rate BPD	Total	BHP	Tbg. Press.	Rate GPM	Total
10-06-87	9:45am	004		0				
	9:50	009	345.60	1.2				
	9:55	007	288.00	2.2				
	10:00	006	316.00	3.3				
	10:05	005	345.60	4.5				
	10:10	005	345.80	5.7				
RATE I	10:15	004	374.40	7.0	2466	1.45	10.92	2.55
	10:20	95	518.40	8.7				
	10:25	203	518.40	10.6				
	10:30	223	518.40	12.4				
	10:35	227	489.60	14.1				
	10:40	231	518.40	15.9				
RATE II	10:45	231	489.60	17.6	2710	226.81	14.28	4.19
	10:50	480	720.00	20.1				
	10:55	508	806.40	22.9				
	11:00	502	806.40	25.7				
	11:05	510	777.60	28.4				
	11:10	504	777.60	31.1				
RATE III	11:15	514	748.80	33.7	2979	504.81	21.84	9.19
	11:20	567	1152.00	37.7				
	11:25	556	1152.00	4.0				
	11:30	554	1152.00	8.0				
	11:35	554	1180.00	12.1				
	11:40	558	1180.00	16.2				
RATE IV	11:45	561	1180.00	20.3	3024	539.66	34.44	21.34
	11:50	732	1555.20	25.7				
	11:55	728	1440.00	30.7				
	12:00	730	1440.00	35.7				
	12:05pm	732	1440.00	40.7				
	12:10	736	1440.00	45.7				
RATE V	12:15	737	1440.00	50.7	3195	706.19	42.00	30.81

Well Name Maljamar SWD No. 1
CO. Name Phillips Petroleum Co.

[illegible]

PHILLIPS PETROLEUM COMPANY

MALJAMAR SWD NO. 1

30 MINUTE STEP-RATE TEST

OCTOBER 06, 1987

2 3/8" Tubing

Bomb Depth: 5090 Feet

POINT NO.	TIME	BWPD (RATE)	GAUGE	FRICTION	CORRECTED	BHP
I	10:15 A.M.	374.40	004	1.45	10.92	2466
II	10:45 A.M.	489.60	231	226.81	4.19	2710
III	11:15 A.M.	748.80	514	504.81	9.19	2979
IV	11:45 A.M.	1180.80	561	539.66	21.34	3024
V	12:15 P.M.	1440.00	737	706.19	30.81	3195
VI	12:45 P.M.	2188.80	1032	1175.61	91.39	3634
VII	1:45 P.M.	3196.80	1620	1485.28	134.72	3918

130 10 minute Fall-Off

TEST DATE:
TEST DEPTH:

October 6, 1987
5,090 Feet

Element No.:
Range:
Clock No.:
Range:

34911
0-6100 PSI
B-18007
0-12 Hour

Pressures to use for plotting step-rate test

PHILLIPS PETROLEUM COMPANY

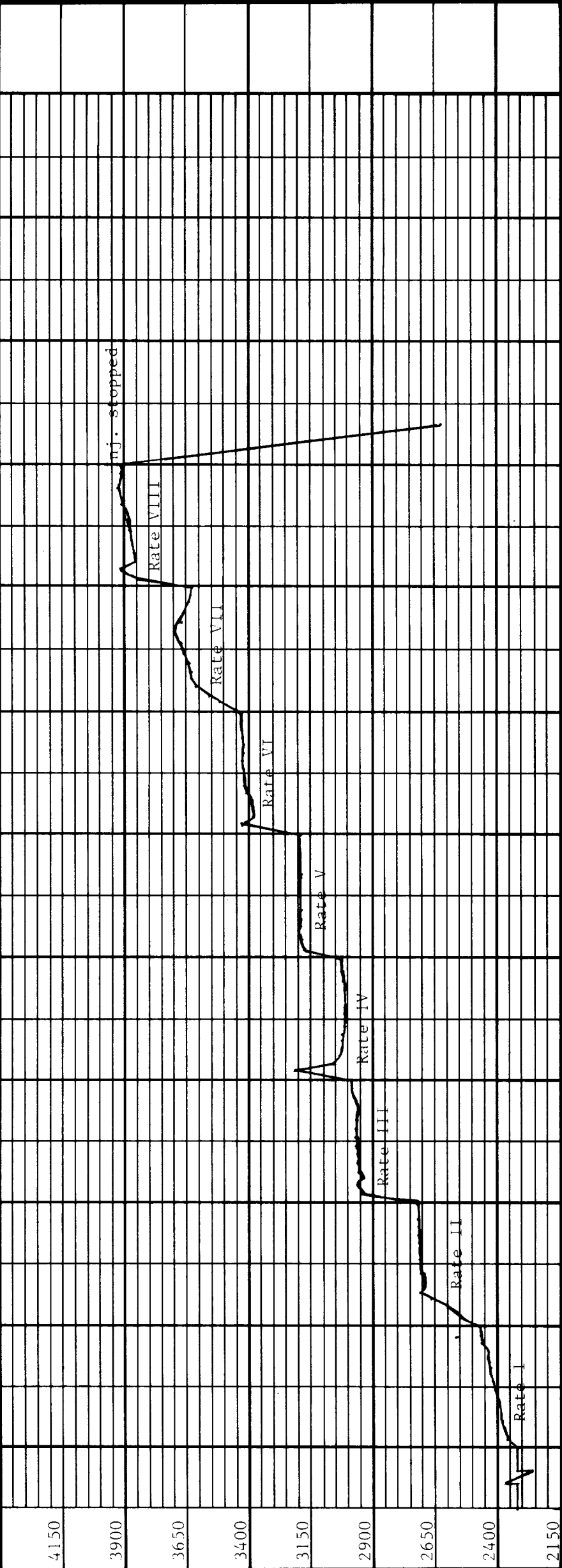
Maljamar SWD Well No. 1

Step-rate Injection Test

Note: See tabulation of Pressure and Time on attached sheet.

TIME-IN HOURS

0 0.5 1 1.5 2 2.5 3 3.5 4





STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE
January 7, 1988

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

JAN 11 1988

OIL CONSERVATION DIVISION
P.O. BOX 2088
SANTA FE, NEW MEXICO 87504-2088

RE: APPLICATION FOR PRESSURE LIMIT INCREASE FOR DISPOSAL & INJECTION WELLS

Gentlemen:

I have examined the step rate test for the:

Phillips Petroleum Co.	Maljamar SWD #1-B	26-17-33
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

OK JS

Very truly yours

Jerry Sexton

Jerry Sexton
Supervisor, District I

/bp