

## STATE OF NEW MEXICO

## ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

## OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

April 16, 1992



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

Yates Drilling Company  
105 South Fourth Street  
Artesia, New Mexico 88210

*RE: Injection Pressure Increase  
Cactus Queen Unit  
Waterflood Project  
Chaves County, New Mexico*

Dear Sir:

Reference is made to your request dated April 1, 1992, to increase the surface injection pressure on three wells within the Cactus Queen Unit Waterflood Project. This request is based on step rate tests conducted on these wells March 18-20, 1992. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on these wells is justified at this time.

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

<u>WELL AND LOCATION</u>	<u>MAXIMUM INJECTION SURFACE PRESSURE</u>
Cactus Queen Unit No. 1 Unit K, Section 27, Township 12 South, 31 East, NMPM;	1610 PSIG
Cactus Queen Unit No. 4 Unit O, Section 27, Township 12 South, Range 31 East, NMPM;	1660 PSIG
Cactus Queen Unit No. 5 Unit C, Section 34, Township 12 South, Range 31 East, NMPM;	1700 PSIG

All in Chaves County, New Mexico

Yates Drilling Company  
April 16, 1992  
Page 2

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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,

A handwritten signature in black ink, appearing to read "William J. LeMay". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

William J. LeMay  
Director

WJL/DC/jc

cc: Oil Conservation Division - Hobbs  
File: Case No. 9810  
D. Catanach  
R. Brown

NO WAITING PERIOD

COMPANY: Gates Drilling Company  
ADDRESS: 105 South Fourth Street  
CITY, STATE, ZIP: Artesia, New Mexico 88210  
ATTENTION: \_\_\_\_\_

Re: Injection Pressure Increase  
Cactus Queen Unit  
Waterflood Project  
Chaves County, New Mexico

Dear Sir:

Reference is made to your request dated April 1, 1982, to increase the surface injection pressure on three wells within the Cactus Queen Unit Waterflood Project. This request is based on step rate tests conducted on these wells March 18-20, 1982. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on these wells is justified at this time.

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

<u>Well &amp; Location</u>	<u>Maximum Injection Surface Pressure</u>
<u>Cactus Queen Unit No. 1</u> <u>Unit B, Section 27, T-12 South, R-31 East, NMPM</u>	<u>1610 PSI</u>
<u>Cactus Queen Unit No. 4</u> <u>Unit O, Section 27, T-12 South, R-31 East, NMPM</u>	<u>1660 PSI</u>
<u>Cactus Queen Unit No. 5</u> <u>Unit C, Section 34, T-12 South, R-31 East, NMPM</u>	<u>1700 PSI</u>
<u>All in Chaves County, New Mexico</u>	

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.

xc: T. GALLEGOS D. CATANACH FILE- Case No. 9810 OCD- Hobbs  
R. Brown



OIL CONSERVATION DIVISION

RECEIVED ENERGY

32 APR 10 AM 8 55

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE  
April 6, 1992

BRUCE KING  
GOVERNOR

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

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:

Yates Drilling Company	Cactus Queen Unit #5-C	34-12-31
Operator	Lease & Well No.	Unit
Request on attached C-103		S-T-R

and my recommendations are as follows:

*OK*

Very truly yours

Jerry Sexton  
Supervisor, District I

/bp

Submit 3 Copies  
to Appropriate  
District Office

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-103  
Revised 1-1-89

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

OIL CONSERVATION DIVISION  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

WELL API NO.

5. Indicate Type of Lease  
STATE  FEE

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name

Cactus Queen Unit

8. Well No.  
5

9. Pool name or Wildcat  
SE Chaves Qn Gas Area Assoc.

SUNDRY NOTICES AND REPORTS ON WELLS  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A  
DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT"  
(FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:  
OIL WELL  GAS WELL  OTHER  Water Injection Well

2. Name of Operator  
Yates Drilling Company

3. Address of Operator  
105 South 4th Street, Artesia, NM 88210

4. Well Location  
Unit Letter C : 330 Feet From The North Line and 2310 Feet From The West Line  
Section 34 Township 12S Range 31E NMPM Chaves County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)  
4438' GL

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>		CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER: Request Increase in Allowable Injection Pressure <input checked="" type="checkbox"/>		OTHER: <input type="checkbox"/>	

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

We recently authorized a step-rate test to be conducted on the subject well by John West Engineering Company of Hobbs, NM. This test was witnessed by Charlie Perrin of NMOCD. The results of this test are attached. We are requesting that our maximum allowed injection pressure be raised to a level justified by the test.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE John Rhoad TITLE Petroleum Engineer DATE 4-1-92

TYPE OR PRINT NAME \_\_\_\_\_ TELEPHONE NO. \_\_\_\_\_

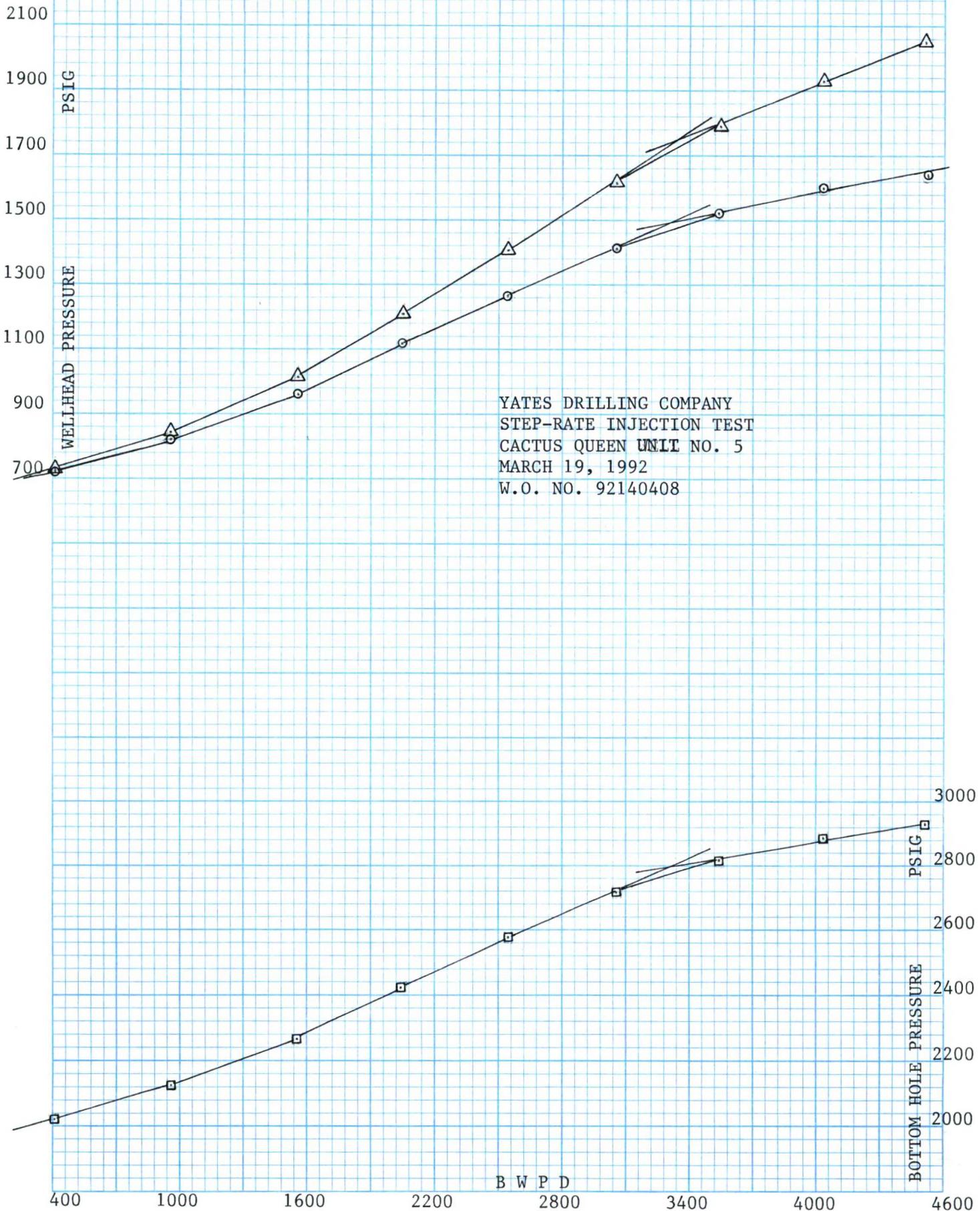
(This space for State Use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:



- △ RECORDED WELLHEAD PRESSURE
- CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
- BOTTOM HOLE PRESSURE @ 2985 FEET



RECEIVED

APR 08 1992

CCD PROCESS OFFICE

# JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: Yates Drilling Company

DATE: March 19, 1992

WELL NAME: Cactus Queen Unit No. 5  
Chaves County, New Mexico

WO#: 92140408

PERFS. = 2988 - 2992

PACKER DEPTH =

BHP GAUGE DEPTH = 2985

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbis)	(3) INJECTION RATE (bbis/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	11:35	684.7				684.7		1979
	11:40	708.7	1.3	374.4	4.183	704.5	10.92	1998
	11:45	715.1	2.6	374.4	4.183	710.9	10.92	2011
1	11:50	737.9	4.2	460.8	6.142	731.8	13.44	2028
				403.2				
	11:55	801.0	7.6	979.2	24.769	776.2	28.56	2071
	12:00	825.0	10.9	950.4	23.438	801.6	27.72	2100
2	12:05	845.2	14.2	950.4	23.438	821.8	27.72	2126
				960.0				
	12:10	948.8	19.6	1555.2	58.290	890.5	45.36	2189
	12:15	980.3	25.0	1555.2	58.290	922.0	45.36	2229
3	12:20	1018.2	30.4	1555.2	58.290	959.9	45.36	2267
				1555.2				
	12:25	1124.5	37.5	2044.8	96.715	1027.8	59.64	2330
	12:30	1170.0	44.6	2044.8	96.715	1073.3	59.64	2377
4	12:35	1213.0	51.7	2044.8	96.715	1116.3	59.64	2421
				2044.8				
	12:40	1323.8	60.6	2563.2	146.905	1176.9	74.76	2486
	12:45	1373.8	69.4	2534.4	143.866	1229.9	73.92	2534
5	12:50	1411.8	78.3	2563.2	146.905	1264.9	74.76	2576
				2553.6				
	12:55	1537.1	88.9	3052.8	202.993	1334.1	89.04	2636
	1:00	1581.4	99.5	3052.8	202.993	1378.4	89.04	2682
6	1:05	1618.1	110.1	3052.8	202.993	1415.1	89.04	2719
				3052.8				
	1:10	1740.9	122.4	3542.4	267.294	1473.6	103.32	2767
	1:15	1766.2	134.7	3542.4	267.294	1498.9	103.32	2799
7	1:20	1786.5	147.0	3542.4	267.294	1519.2	103.32	2820
				3542.4				



STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (5)/34.2357	(7) MEASURED BHP (psi)
8	1:25	1909.2	161.0	4032.0	339.627	1569.6	117.60	2850
	1:30	1920.6	175.0	4032.0	339.627	1581.0	117.60	2870
	1:35	1935.8	189.0	4032.0	339.627	1596.2	117.60	2886
9				4032.0				
	1:40	2043.3	204.7	4521.6	419.836	1623.5	131.88	2907
	1:45	2049.6	220.4	4521.6	419.836	1629.8	131.88	2916
	1:50	2053.4	236.1	4521.6	419.836	1633.6	131.88	2925
Fall-Off				4521.6				
	1:51	1597.7				1597.7		2900
	1:52	1593.9				1593.9		2892
	1:53	1587.6				1587.6		2886
	1:54	1581.3				1581.3		2879
	1:55	1576.2				1576.2		2874
	2:00	1553.5				1553.5		2850
2:05	1534.4				1534.4		2830	

OSD HOBBBS OFFICE

APR 02 1992

RECEIVED



OIL CONSERVATION DIVISION STATE OF NEW MEXICO  
**ENERGY AND MINERALS DEPARTMENT**

'92 APR 10 AM 8 53  
 OIL CONSERVATION DIVISION  
 HOBBS DISTRICT OFFICE  
 April 6, 1992

BRUCE KING  
 GOVERNOR

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

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:

Yates Drilling Company	Cactus Queen Unit	#4-0	27-12-31
Operator	Lease & Well No.	Unit	S-T-R
(Request on attached C-103)			

and my recommendations are as follows:

*OK*

Very truly yours

Jerry Sexton  
 Supervisor, District I

/bp

Submit 3 Copies  
to Appropriate  
District Office

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-103  
Revised 1-1-89

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

OIL CONSERVATION DIVISION  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

WELL API NO.

30-005-20993

5. Indicate Type of Lease

STATE

FEE

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name

Cactus Queen Unit

8. Well No.

4

9. Pool name or Wildcat

SE Chaves On Gas Area Assoc.

SUNDRY NOTICES AND REPORTS ON WELLS  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A  
DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT"  
(FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:

OIL  
WELL

GAS  
WELL

OTHER Water Injection Well

2. Name of Operator

Yates Drilling Company

3. Address of Operator

105 South 4th Street, Artesia, NM 88210

4. Well Location

Unit Letter 0 : 660 Feet From The South Line and 1980 Feet From The East Line

Section 27 Township 12S Range 31E NMPM Chaves County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

4432' GL

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK

PLUG AND ABANDON

TEMPORARILY ABANDON

CHANGE PLANS

PULL OR ALTER CASING

OTHER: Request increase in Allowable Injection Pressure  X

SUBSEQUENT REPORT OF:

REMEDIAL WORK

ALTERING CASING

COMMENCE DRILLING OPNS.

PLUG AND ABANDONMENT

CASING TEST AND CEMENT JOB

OTHER:

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

We recently authorized a step-rate test to be conducted on the subject well by John West Engineering Company of Hobbs, NM. This test was witnessed by Charlie Perrin of NMOCD. The results of this test are attached. We are requesting that our maximum allowed injection pressure be raised to a level justified by the test.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

*Joby Rhoad*

TITLE Petroleum Engineer

DATE 4-1-92

TYPE OR PRINT NAME

TELEPHONE NO.

(This space for State Use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

RECEIVED  
APR 02 1992  
GOD REDES OFFICE

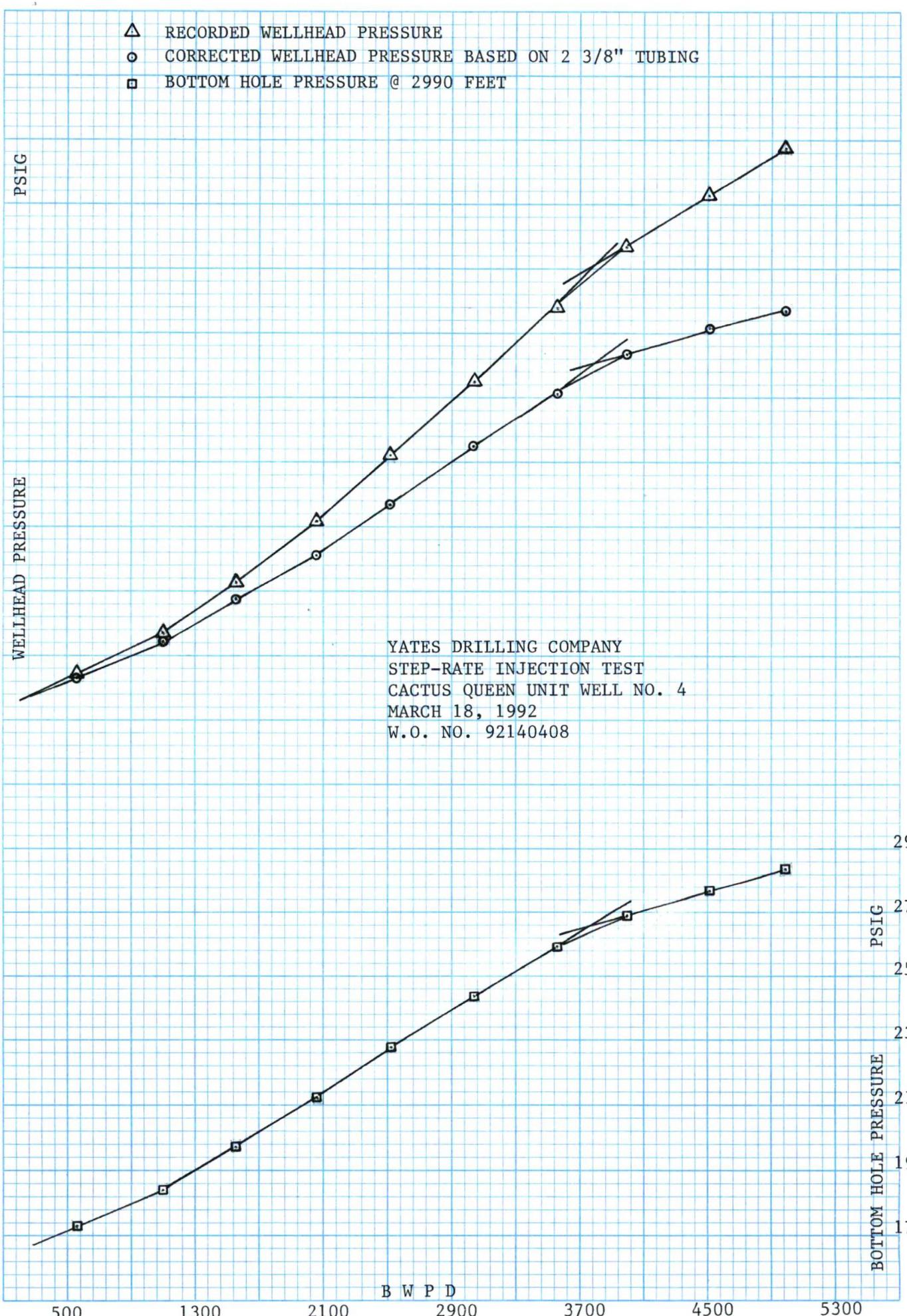
- △ RECORDED WELLHEAD PRESSURE
- CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
- BOTTOM HOLE PRESSURE @ 2990 FEET

WELLHEAD PRESSURE  
PSIG

BOTTOM HOLE PRESSURE  
PSIG

YATES DRILLING COMPANY  
STEP-RATE INJECTION TEST  
CACTUS QUEEN UNIT WELL NO. 4  
MARCH 18, 1992  
W.O. NO. 92140408

B W P D



RECEIVED

APR 02 1992

CCD HOBBS OFFICE

# JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: Greenhill Petroleum Corporation

DATE: March 18, 1992

WELL NAME: Cactus Queen Unit Well No. 4  
Chaves County, New Mexico

WO#: 92140408

MID-PERFS. = 2987 - 2993

PACKER DEPTH =

BHP GAUGE DEPTH = 2990

STEP NO. & REMARKS	TIME	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		SURFACE TUBING PRESS. (psig)	CUMMULATIVE VOL. INJECTED (bbls)	INJECTION RATE (bbls/day)	FRICTION HEAD LOSS (psi)	CORRECTED TUBING PRESS. (psi) (1)-(4)	INJECTION RATE (gpm) (3)/34.2857	MEASURED BHP (psi)
	7:30	364.2				364.2		1657
	7:35	403.4	1.9	547.2	8.454	394.9	15.96	1688
	7:40	428.7	4.0	604.8	10.174	418.5	17.64	1713
1	7:45	438.9	6.0	576.0	9.296	429.6	16.80	1733
				576.0				
	7:50	513.5	9.8	1094.4	30.478	483.0	31.92	1779
	7:55	547.6	13.6	1094.4	30.478	517.1	31.92	1814
2	8:00	571.7	17.5	1123.2	31.979	539.7	32.76	1845
				1104.0				
	8:05	657.7	22.8	1526.4	56.403	601.3	44.52	1898
	8:10	695.6	28.2	1555.2	58.388	637.2	45.36	1939
3	8:15	731.0	33.6	1555.2	58.388	672.6	45.36	1976
				1545.6				
	8:20	832.2	40.7	2044.8	96.877	735.3	59.64	2035
	8:25	876.4	47.8	2044.8	96.877	779.5	59.64	2081
4	8:30	915.6	55.0	2073.6	99.416	816.2	60.48	2121
				2054.4				
	8:35	1026.9	63.8	2534.4	144.107	882.8	73.92	2183
	8:40	1071.2	72.5	2505.6	141.092	930.1	73.08	2234
5	8:45	1115.6	81.2	2505.6	141.092	974.5	73.08	2279
				2515.2				
	8:50	1254.9	91.8	3052.8	203.333	1051.6	89.04	2344
	8:55	1301.8	102.4	3052.8	203.333	1098.5	89.04	2394
6	9:00	1346.2	113.0	3052.8	203.333	1142.9	89.04	2439
				3052.8				
	9:05	1493.2	125.3	3542.4	267.742	1225.5	103.32	2500
	9:10	1536.4	137.6	3542.4	267.742	1268.7	103.32	2548
7	9:15	1577.1	150.0	3571.2	271.783	1305.3	104.16	2587
				3552.0				

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APR 02 1992

GOV HOUSE OFFICE

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS (psig)	CUMMULATIVE VOL. INJECTED (bbls)	(2) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
8	9:20	1711.4	164.0	4032.0	340.196	1371.2	117.60	2636
	9:25	1741.8	178.0	4032.0	340.196	1401.6	117.60	2669
	9:30	1764.7	191.8	3974.4	331.260	1433.4	115.92	2695
9	9:35	1895.2	207.5	4012.8	420.539	1474.7	131.88	2731
	9:40	1919.4	223.1	4492.8	415.597	1503.8	131.04	2754
	9:45	1929.5	238.7	4492.8	415.597	1513.9	131.04	2770
10	9:50	2058.8	256.4	4502.4	524.980	1533.8	148.68	2796
	9:55	2063.9	273.4	5097.6	487.217	1576.7	142.80	2812
	10:00	2072.8	290.6	4953.6	497.874	1574.9	144.48	2828
Fall-Off	10:00			4982.4				
	10:01	1501.8				1501.8		2801
	10:02	1482.8				1482.8		2787
	10:03	1470.2				1470.2		2773
	10:04	1458.8				1458.8		2760
	10:05	1444.9				1444.9		2744
	10:10	1403.2				1403.2		2703
10:15	1366.5				1366.5		2667	

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RECEIVED

APR 02 1992

CCD PROCESS OFFICE



OIL CONSERVATION DIVISION  
RECEIVED  
APR 10 AM 8 55

STATE OF NEW MEXICO  
**ENERGY AND MINERALS DEPARTMENT**  
OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE  
April 6, 1992

BRUCE KING  
GOVERNOR

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

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:

Yates Drilling Company	Cactus Queen Unit	#1-K	27-12-31
Operator	Lease & Well No.	Unit	S-T-R

(Request on attached C-103)

and my recommendations are as follows:

OK

Very truly yours

Jerry Sexton  
Supervisor, District I

/bp



Submit 3 Copies  
to Appropriate  
District Office

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-103  
Revised 1-1-89

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

WELL API NO. 30-005-21037
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. LH-1648

SUNDRY NOTICES AND REPORTS ON WELLS  
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A  
DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT"  
(FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Water Injection Well
2. Name of Operator Yates Drilling Company
3. Address of Operator 105 South 4th Street, Artesia, NM 88210
4. Well Location Unit Letter <u>K</u> : <u>1650</u> Feet From The <u>South</u> Line and <u>2310</u> Feet From The <u>West</u> Line Section <u>27</u> Township <u>12S</u> Range <u>31E</u> NMPM Chaves County

7. Lease Name or Unit Agreement Name Cactus Queen Unit
8. Well No. 1
9. Pool name or Wildcat SE Chaves On Gas Area Assoc.

10. Elevation (Show whether DF, RKB, RT, GR, etc.) 4438' GL
--

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:
PERFORM REMEDIAL WORK <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>
PLUG AND ABANDON <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>
CHANGE PLANS <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>
OTHER: Request increase in Allowable Injection Pressure <input checked="" type="checkbox"/>	OTHER: <input type="checkbox"/>

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

We recently authorized a step-rate test to be conducted on the subject well by John West Engineering Company of Hobbs, NM. This test was witnessed by Charlie Perrin of NMOCD. The results of this test are attached. We are requesting that our maximum allowed injection pressure be raised to a level justified by the test.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE John R. [Signature] TITLE Petroleum Engineer DATE 4-1-92

TYPE OR PRINT NAME \_\_\_\_\_ TELEPHONE NO. \_\_\_\_\_

(This space for State Use)

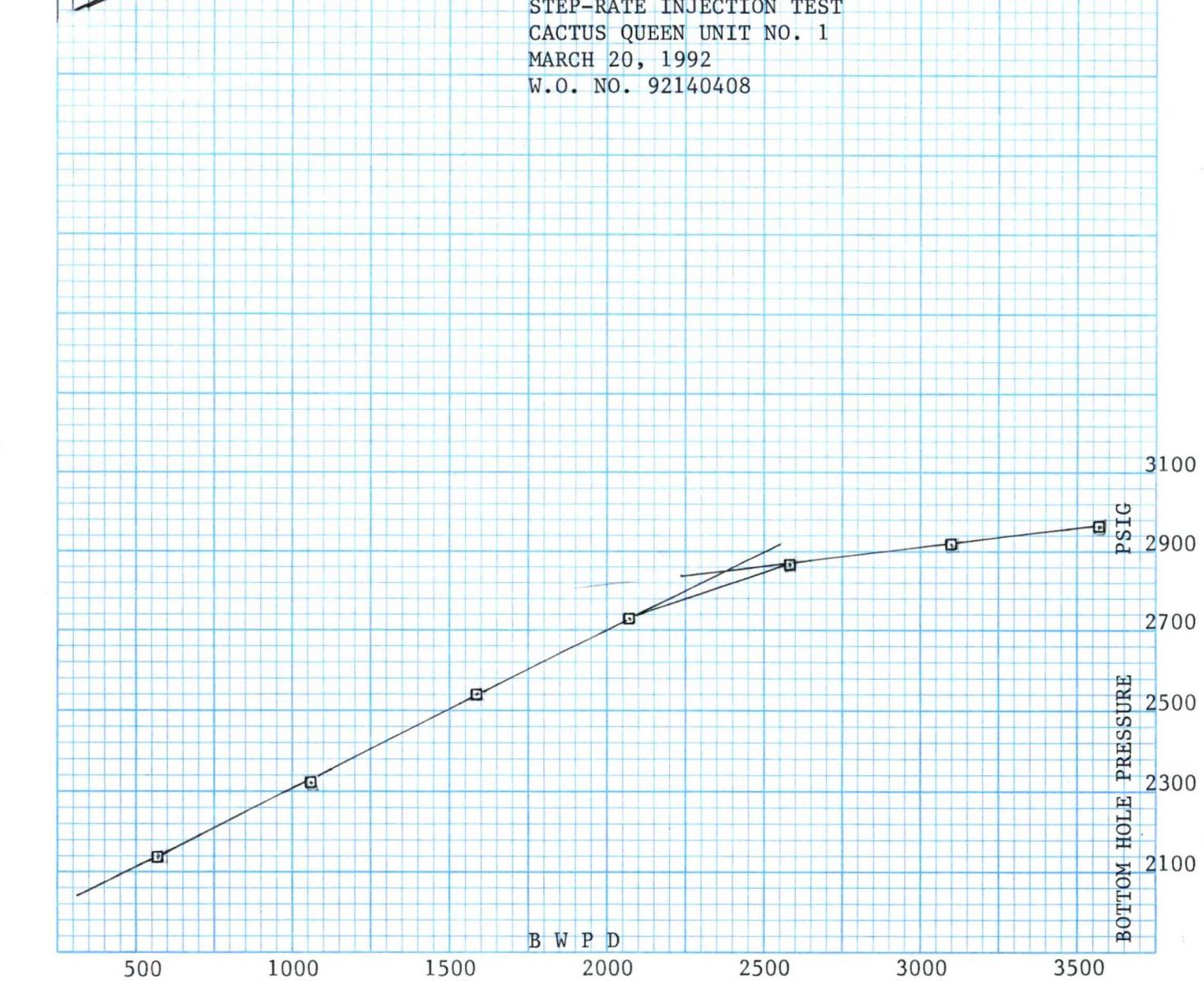
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:



- △ RECORDED WELLHEAD PRESSURE
- CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
- BOTTOM HOLE PRESSURE @ 2998 FEET

WELLHEAD PRESSURE  
PSIG



B W P D

BOTTOM HOLE PRESSURE  
PSIG

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APR 02 1992

GOV HOUSE OFFICE

# JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: Yates Drilling Company

DATE: March 20, 1992

WELL NAME: Cactus Queen Unit 1  
Chaves County, New Mexico

WO#: 92140408

PERFS = 2992 - 3000

PACKER DEPTH =

BHP GAUGE DEPTH = 2998 (MID-PERFS.)

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbbls)	(3) INJECTION RATE (bbbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	7:35	714.7				714.7		2012
	7:40	775.5	2.1	604.8	10.201	765.3	17.64	2066
	7:45	816.1	4.0	547.2	8.477	807.6	15.96	2105
1	7:50	846.6	5.9	547.2	8.477	838.1	15.96	2140
				566.4				
	7:55	931.1	9.6	1065.6	29.089	902.0	31.08	2214
	8:00	984.5	13.3	1065.6	29.089	955.4	31.08	2273
2	8:05	1051.7	16.9	1036.8	27.651	1024.0	30.24	2321
				1056.0				
	8:10	1161.9	22.4	1584.0	60.565	1101.3	46.20	2412
	8:15	1230.3	27.9	1584.0	60.565	1169.7	46.20	2481
3	8:20	1289.9	33.4	1584.0	60.565	1229.3	46.20	2540
				1584.0				
	8:25	1406.4	40.6	2073.6	99.682	1306.7	60.48	2623
	8:30	1468.5	47.8	2073.6	99.682	1368.8	60.48	2683
4	8:35	1520.4	55.0	2073.6	99.682	1420.7	60.48	2734
				2073.6				
	8:40	1638.2	63.9	2563.2	147.545	1490.7	74.76	2802
	8:45	1676.2	72.9	2592.0	150.626	1525.6	75.60	2839
5	8:50	1695.3	81.9	2592.0	150.626	1544.7	75.60	2863
				2592.0				
	8:55	1794.1	92.7	3110.4	211.051	1583.0	90.72	2895
	9:00	1804.3	103.5	3110.4	211.051	1593.2	90.72	2908
6	9:05	1812.0	114.2	3081.6	207.450	1604.6	89.88	2916
				3100.8				
	9:10	1909.5	126.5	3542.4	268.458	1641.0	103.32	2945
	9:15	1922.2	139.0	3600.0	276.590	1645.6	105.00	2959
7	9:20	1929.9	151.4	3571.2	272.510	1657.4	104.16	2967
				3571.2				

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CCD HOBBE OFFICE

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
Fall - Off	9:23	1625.0				1625.0		2931
	9:24	1623.0				1623.0		2928
	9:25	1619.0				1619.0		2924
	9:30	1603.0				1603.0		2908
	9:35	1591.0				1591.0		2896

OLD CROSS OFFICE

APR 02 1992

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