

CF 9810

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

April 15, 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  
Doyle Fee Lease  
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 Doyle Fee Lease Waterflood Project. This request is based on step rate tests conducted on these wells March 17-19, 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>
Doyle No. 1 Unit A, Section 34, Township 12 South, Range 31 East, NMPM;	1480 PSIG
Doyle No. 3 Unit I, Section 27, Township 12 South, Range 31 East, NMPM;	1630 PSIG
Doyle No. 4 Unit M, Section 26, Township 12 South, Range 31 East, NMPM;	1750 PSIG

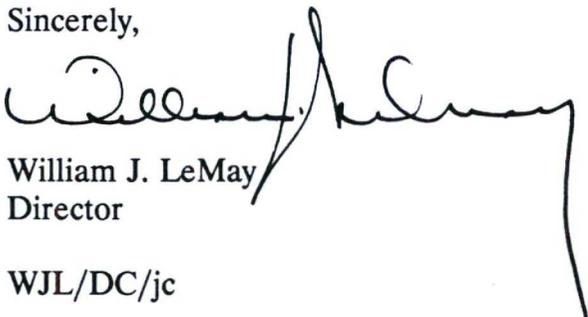
All in Chaves County, New Mexico

Yates Drilling Company  
April 15, 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,

  
William J. LeMay  
Director

WJL/DC/jc

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

NO WAITING PERIOD

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

Re: Injection Pressure Increase  
Doyle Fee Lease  
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 Doyle Fee Lease Waterflood Project. This request is based on step rate tests conducted on these wells March 17-19, 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 &amp; Location</u>	<u>Maximum Injection Surface Pressure</u>
<u>Doyle No. 1</u> <u>Unit A, Section 34, T-12 South, R-31 East, NMAP;</u>	<u>1480 PSIG</u>
<u>Doyle No. 3</u> <u>Unit I, Section 27, T-12 South, R-31 East, NMAP;</u>	<u>1630 PSIG</u>
<u>Doyle No. 4</u> <u>Unit M, Section 26, T-12 South, R-31 East, NMAP;</u>	<u>1750 PSIG</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: F. GALLEGOS D. CATANACH FILE- Case No. 9810 OCD- Abbes  
R. Brown



CONSERVATION DIVISION  
 RECEIVED  
 '92 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	Doyal #1-A	34-12-31
Operator	Lease & Well No.	Unit S-T-R

and my recommendations are as follows:

*Lower pressure (100 PSI)*

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. 30-005-20975
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Doyal
8. Well No. 1
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 <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>A</u> : <u>660</u> Feet From The <u>North</u> Line and <u>990</u> Feet From The <u>East</u> Line Section <u>34</u> Township <u>12S</u> Range <u>31E</u> NMPM <u>Chaves</u> County

10. Elevation (Show whether DF, RKB, RT, GR, etc.) 4428' 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"/>
TEMPORARILY ABANDON <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>
OTHER: Request Increase in Allowable Injection Pressure <input checked="" type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
	CASING TEST AND CEMENT JOB <input 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 West TITLE Petroleum Engineer DATE 4-1-92

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

(This space for State Use)

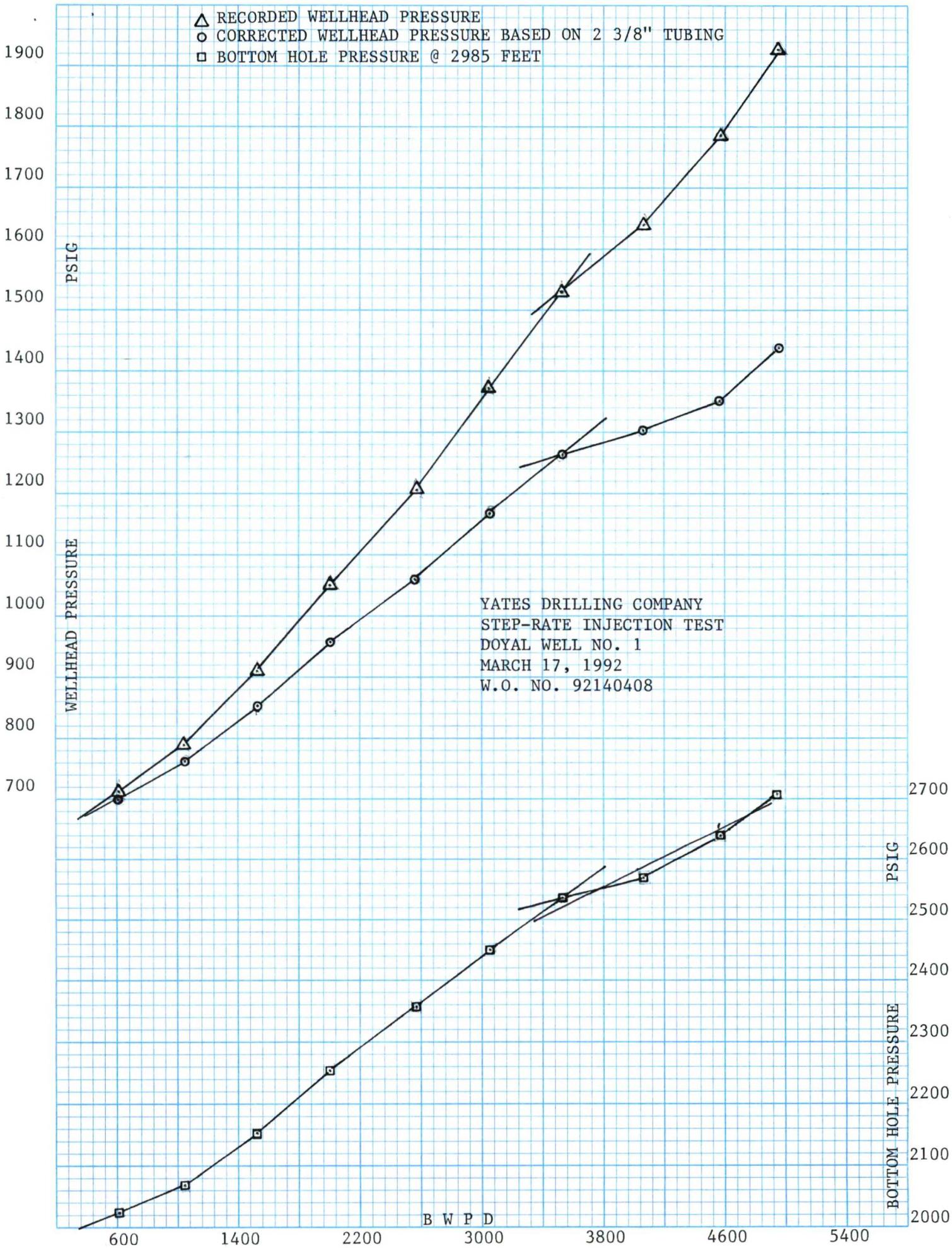
APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

000 00000 00000

APR 02 1992

RECEIVED



RECEIVED

APR 08 1992

OCD HOBBS OFFICE

# JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: YATES DRILLING COMPANY

DATE: MARCH 17, 1982

WELL NAME: Doyal No. 1

WO#: 92140408

Chaves County, New Mexico

MID-PERFS. = 2985

PACKER DEPTH = 2913

BHP GAUGE DEPTH = 2985

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)
	12:35	763.3				763.3		2067
	12:40	769.6	2.1	604.8	10.157	759.4	17.64	2054
	12:45	762.1	4.2	604.8	10.157	751.9	17.64	2036
1	12:50	709.1	6.3	604.8	10.157	698.9	17.64	2022
				604.8				
	12:55	774.6	10.1	1094.4	30.427	744.2	31.92	2051
	1:00	784.6	13.7	1036.8	27.531	757.1	30.24	2061
2	1:05	789.6	17.4	1065.6	28.963	760.6	31.08	2067
				1065.6				
	1:10	866.6	22.7	1526.4	56.309	810.3	44.52	2113
	1:15	889.3	28.0	1526.4	56.309	833.0	44.52	2136
3	1:20	910.8	33.3	1526.4	56.309	854.5	44.52	2153
				1526.4				
	1:25	1000.4	40.4	2044.8	96.715	903.7	59.64	2208
	1:30	1029.4	47.5	2044.8	96.715	932.7	59.64	2236
4	1:35	1050.8	54.4	1987.2	91.735	959.1	57.96	2256
				2025.6				
	1:40	1162.6	63.5	2620.8	153.071	1009.5	76.44	2312
	1:45	1187.3	72.4	2563.2	146.905	1040.4	74.76	2339
5	1:50	1202.5	81.2	2534.4	143.866	1058.6	73.92	2358
				2572.8				
	1:55	1324.0	91.8	3052.8	202.993	1121.0	89.04	2410
	2:00	1345.5	102.4	3052.8	202.993	1142.5	89.04	2434
6	2:05	1370.8	113.1	3081.6	206.550	1164.2	89.88	2452
				3062.4				
	2:10	1492.3	125.4	3542.4	267.294	1225.0	103.32	2499
	2:15	1512.6	137.7	3542.4	267.294	1245.3	103.32	2523
7	2:20	1527.8	150.0	3542.4	267.294	1260.5	103.32	2538
				3542.4				

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APR 02 1992

OCD HOBBS OFFICE

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) (5)/34.2867	(7) MEASURED BHP (psi)
8	2:25	1664.7	164.2	4089.6	348.657	1316.0	119.28	2589
	2:30	1677.5	178.3	4060.8	344.129	1333.4	118.44	2608
	2:35	1640.8	192.3	4032.0	339.627	1301.2	117.60	2568
9	2:40	1762.5	208.5	4060.8	444.906	1317.6	136.08	2607
	2:45	1776.5	223.7	4377.6	395.436	1381.1	127.68	2627
	2:50	1785.5	239.7	4608.0	434.798	1350.7	134.40	2640
10	2:55	1908.4	256.8	4550.4	491.709	1416.7	143.64	2670
	3:00	1922.3	274.3	4924.8	513.199	1409.1	147.00	2688
	3:05	1931.2	291.4	4924.8	491.709	1439.5	143.64	2707
Fall-Off	3:06	1332.5		4963.2		1332.5		2639
	3:07	1298.3				1298.3		2605
	3:08	1269.2				1269.2		2576
	3:09	1243.9				1243.9		2550
	3:10	1221.1				1221.1		2527

RECEIVED

FEB 02 1992

BOB ROBBS OFFICE



ENERGY AND MINERALS DEPARTMENT

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE

April 6, 1992

BRUCE KING  
GOVERNOR

1992 APR 10 AM 8 55  
OIL CONSERVATION DIVISION  
RECEIVED

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	Doyal #3-I	27-12-31
Operator	Lease & Well No.	Unit
(Request on attached C-103)		S-T-R

and my recommendations are as follows:

Lower to 2500 psi

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. 30-005-20982
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Doyal
8. Well No. 3
9. Pool name or Wildcat

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 I : 1980 Feet From The South Line and 990 Feet From The East Line

Section 27 Township 12S Range 31E NMPM Chaves County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)  
4429' 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"/>	

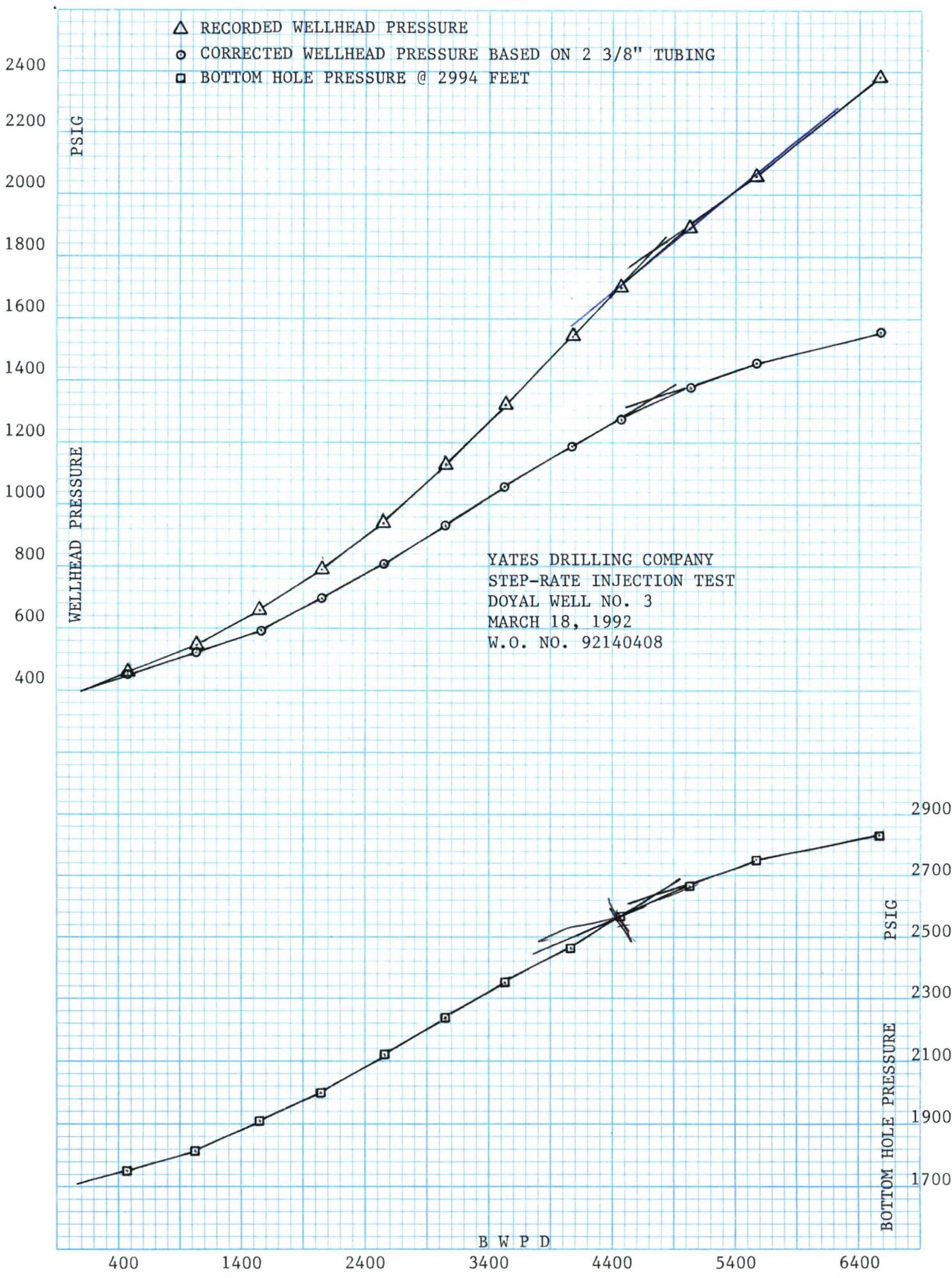
12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

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 Jal Khan 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

OCD HOUSES OFFICE

# JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: Yates Drilling Company

DATE: March 18, 1982

WELL NAME: Doyal Well No. 3

WO#: 92140408

Chaves County, New Mexico

MID-PERFS. = 2991 - 2997

PACKER DEPTH =

BHP GAUGE DEPTH = 2994

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)
	11:25	414.9				414.9		1714
	11:30	431.2	1.7	489.6	6.891	424.3	14.28	1729
	11:35	435.2	3.4	489.6	6.891	428.3	14.28	1739
1	11:40	456.5	5.1	489.6	6.891	449.6	14.28	1748
				489.6				
	11:45	499.1	8.7	1036.8	27.614	471.5	30.24	1779
	11:50	524.2	12.3	1036.8	27.614	496.6	30.24	1799
2	11:55	549.5	15.8	1008.0	26.212	523.3	29.40	1816
				1027.2				
	12:00	612.7	21.2	1555.2	58.466	554.2	45.36	1856
	12:05	634.3	26.6	1555.2	58.466	575.8	45.36	1882
3	12:10	656.0	32.0	1555.2	58.466	597.5	45.36	1904
				1555.2				
	12:15	740.4	39.7	2073.6	99.549	640.9	60.48	1949
	12:20	764.3	46.3	2044.8	97.006	667.3	59.64	1978
4	12:25	791.0	53.4	2044.8	97.006	694.0	59.64	2003
				2054.4				
	12:30	889.4	62.3	2563.2	147.348	742.1	74.76	2052
	12:35	919.9	71.2	2563.2	147.348	772.6	74.76	2085
5	12:40	947.8	80.0	2534.4	144.300	803.5	73.92	2116
				2553.6				
	12:45	1062.9	90.7	3081.6	207.173	855.7	89.88	2166
	12:50	1096.0	101.3	3052.8	203.605	892.4	89.04	2202
6	12:55	1127.7	111.8	3024.0	200.066	927.6	88.20	2236
				3052.8				
	1:00	1254.2	124.1	3542.4	268.100	986.1	103.32	2285
	1:05	1286.9	136.4	3542.4	268.100	1018.8	103.32	2319
7	1:10	1319.6	148.5	3484.8	260.091	1059.5	101.64	2351
				3523.2				

RECEIVED  
APR 02 1992  
OCD HOBBS OFFICE

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)
8	1:15	1451.1	162.6	4060.8	345.166	1105.9	118.44	2398
	1:20	1481.3	176.6	4032.0	340.651	1140.6	117.60	2431
	1:25	1549.5	191.0	4147.2	358.875	1190.6	120.96	2460
9	1:30	1641.9	206.4	4435.2	406.337	1235.6	129.36	2509
	1:35	1679.8	222.0	4492.8	416.153	1263.6	131.04	2544
	1:40	1700.0	237.7	4521.6	421.102	1278.9	131.88	2573
10	1:45	1846.8	255.2	5040.0	514.746	1332.1	147.00	2613
	1:50	1862.3	272.8	5068.8	520.201	1342.1	147.84	2641
	1:55	1886.5	290.1	4982.4	503.916	1382.6	145.32	2668
11	2:00	2029.7	309.5	5587.2	622.882	1406.8	162.96	2703
	2:05	2050.1	328.9	5587.2	622.882	1427.2	162.96	2728
	2:10	2065.3	348.2	5558.4	616.955	1448.3	162.12	2751
12	2:15	2368.3	370.8	6508.8	826.178	1542.1	189.84	2788
	2:20	2370.9	393.9	6652.8	860.310	1510.6	194.04	2812
	2:25	2398.9	416.7	6566.4	839.754	1559.1	191.52	2833
Fall-Off	2:26	1498.4		6576.0		1498.4		2802
	2:27	1485.7				1485.7		2789
	2:28	1474.4				1474.4		2774
	2:29	1464.3				1464.3		2766
	2:30	1454.2				1454.2		2756
	2:35	1412.4				1412.4		2714
	2:40	1377.9				1377.9		2679

RECEIVED

APR 02 1992

OCD HOBBS OFFICE



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

OIL CONSERVATION DIVISION  
 RECEIVED  
 '92 APR 10 AM 8 55

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	Doyal	#4-M	26-12-31
Operator	Lease & Well No.	Unit	S-T-R

(Request on attached C-103)

and my recommendations are as follows:

*OR*

Very truly yours

*Jerry Sexton*

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.

30-005-20998

5. Indicate Type of Lease

STATE

FEE

6. State Oil & Gas Lease No.

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.)

7. Lease Name or Unit Agreement Name

Doyal

8. Well No.

4

9. Pool name or Wildcat

SE Chaves On Gas Area Assoc.

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 M : 330 Feet From The South Line and 330 Feet From The West Line

Section 26 Township 12S Range 31E NMPM Chaves County

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

4425' GL

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

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

PERFORM REMEDIAL WORK

PLUG AND ABANDON

REMEDIAL WORK

ALTERING CASING

TEMPORARILY ABANDON

CHANGE PLANS

COMMENCE DRILLING OPNS.

PLUG AND ABANDONMENT

PULL OR ALTER CASING

CASING TEST AND CEMENT JOB

OTHER: Request increase in Allowable Injection Pressure

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 Jah Rho

TITLE Petroleum Engineer

DATE 4-1-92

TYPE OR PRINT NAME

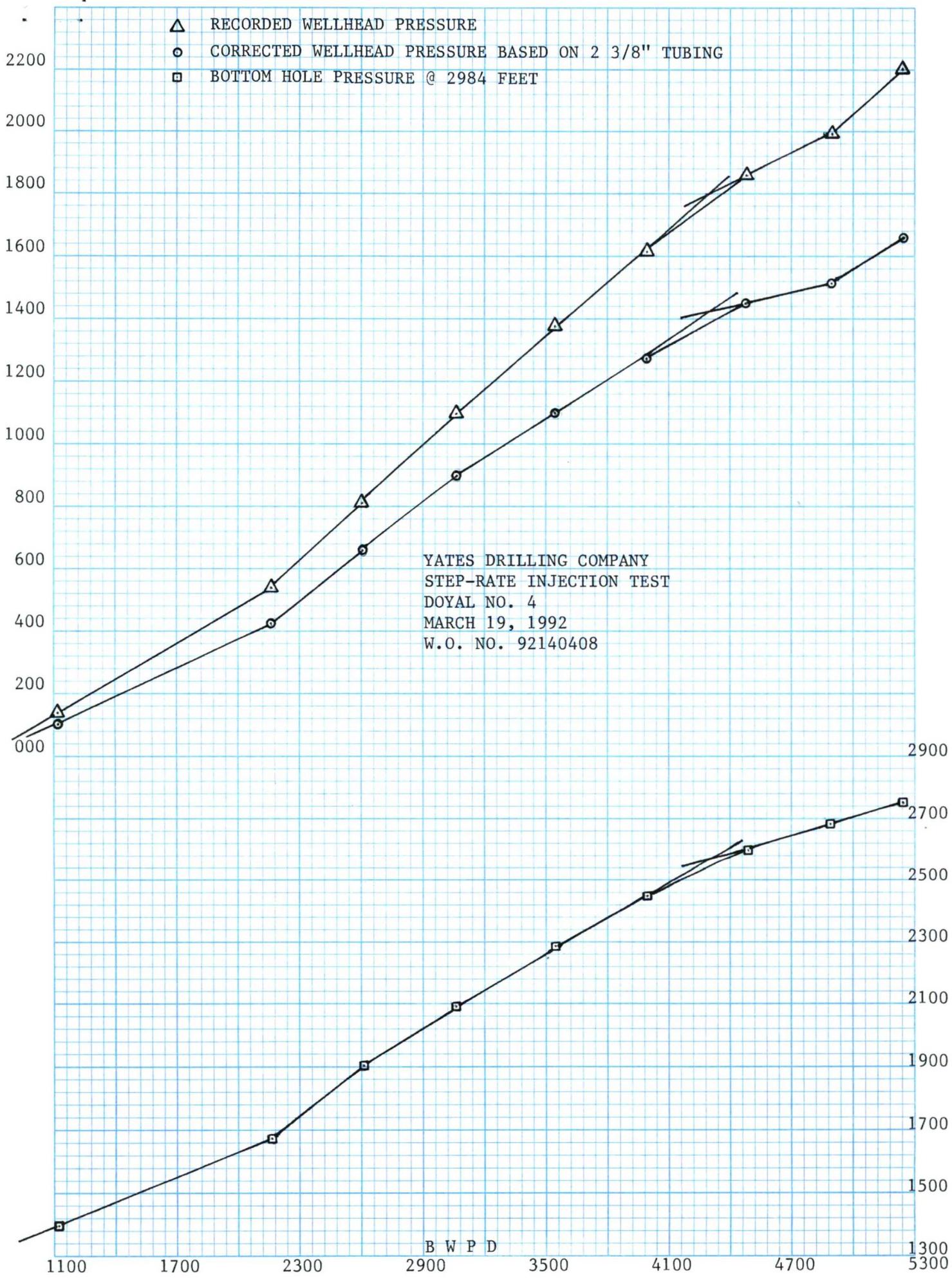
TELEPHONE NO.

(This space for State Use)

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

CONDITIONS OF APPROVAL, IF ANY:





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# JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: Yates Drilling Company

DATE: March 19, 1992

WELL NAME: Doyal No. 4  
Chaves County, New Mexico

WO#: 92140408

PERFS. = 2982 - 2985

PACKER DEPTH =

BHP GAUGE DEPTH = 2984 (MID-PERFS.)

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)
	8:00	34.4				34.4		1292
	8:05	86.2	3.9	1123.2	31.915	54.3	32.76	1339
	8:10	117.8	7.7	1094.4	30.417	87.4	31.92	1370
1	8:15	138.1	11.7	1152.0	33.445	104.7	33.60	1393
				1123.2				
	8:20	413.4	19.2	2160.0	107.000	306.4	63.00	1560
	8:25	477.9	26.8	2188.8	109.654	368.2	63.84	1628
2	8:30	533.6	34.3	2160.0	107.000	426.6	63.00	1677
				2169.9				
	8:35	711.8	43.5	2649.6	156.145	555.7	77.28	1794
	8:40	766.3	52.5	2592.0	149.923	616.4	75.60	1845
3	8:45	809.3	61.4	2563.2	146.856	662.4	74.76	1901
				2601.6				
	8:50	998.9	72.1	3081.6	206.481	792.4	89.88	1995
	8:55	1052.1	82.8	3081.6	206.481	845.6	89.88	2051
4	9:00	1095.2	93.4	3052.8	202.925	892.3	89.04	2096
				3071.9				
	9:05	1283.8	105.6	3513.6	263.200	1020.6	102.48	2192
	9:10	1325.6	118.1	3600.0	275.298	1050.3	105.00	2240
5	9:15	1367.5	130.4	3542.4	267.205	1100.3	103.32	2285
				3551.9				
	9:20	1535.8	144.3	4003.2	335.040	1200.8	116.76	2365
	9:25	1573.9	158.1	3974.4	330.595	1243.3	115.92	2406
6	9:30	1609.4	172.0	4003.2	335.040	1274.4	116.76	2449
				3993.6				
	9:35	1805.6	187.5	4464.0	409.858	1395.7	130.20	2527
	9:40	1834.7	203.2	4521.6	419.695	1415.0	131.88	2565
7	9:45	1856.3	218.8	4492.8	414.763	1441.5	131.04	2596
				4492.8				

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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)
8	9:50	1995.6	235.9	4924.8	491.544	1504.1	143.64	2647
	9:55	2004.5	252.8	4867.2	480.961	1523.5	141.96	2669
	10:00	1998.2	269.7	4867.2	480.961	1517.2	141.96	2686
9				4886.4				
	10:05	2177.0	287.9	5241.6	551.635	1625.4	152.88	2723
	10:10	2163.1	306.2	5270.4	557.255	1605.8	153.72	2735
	10:15	2199.9	324.3	5212.8	546.041	1653.9	152.04	2746
				5241.6				
Fall-Off	10:16	1350.3				1350.3		2662
	10:17	1319.9				1319.9		2620
	10:18	1279.5				1279.5		2579
	10:19	1244.0				1244.0		2543
	10:20	1208.6				1208.6		2509
	10:25	1070.7				1070.7		2369
	10:30	968.2				968.2		2267

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