

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:

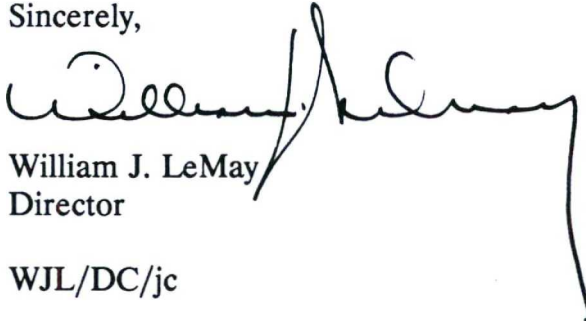
<u>WELL AND LOCATION</u>	<u>MAXIMUM INJECTION SURFACE PRESSURE</u>
Doyle No. 1 Unit A, Section 34, Township 12 South, Range 31 East, NMPM;	1480 PSIG
Doyle No. 3 Unit I, Section 27, Township 12 South, Range 31 East, NMPM;	1630 PSIG
Doyle No. 4 Unit M, Section 26, Township 12 South, Range 31 East, NMPM;	1750 PSIG

All in Chaves County, New Mexico

Yates Drilling Company
April 15, 1992
Page 2

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', with a long, sweeping 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: 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, 1982, 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, 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 & 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: T. GALLEGOS D. CATANACH FILE- Case No. 9810 OCD- Hobbs
R. Brown



BRUCE KING
GOVERNOR

RECEIVED
ENERGY AND MINERALS DEPARTMENT
'92 APR 10 AM 8 55

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

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

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. 30-005-20975
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)

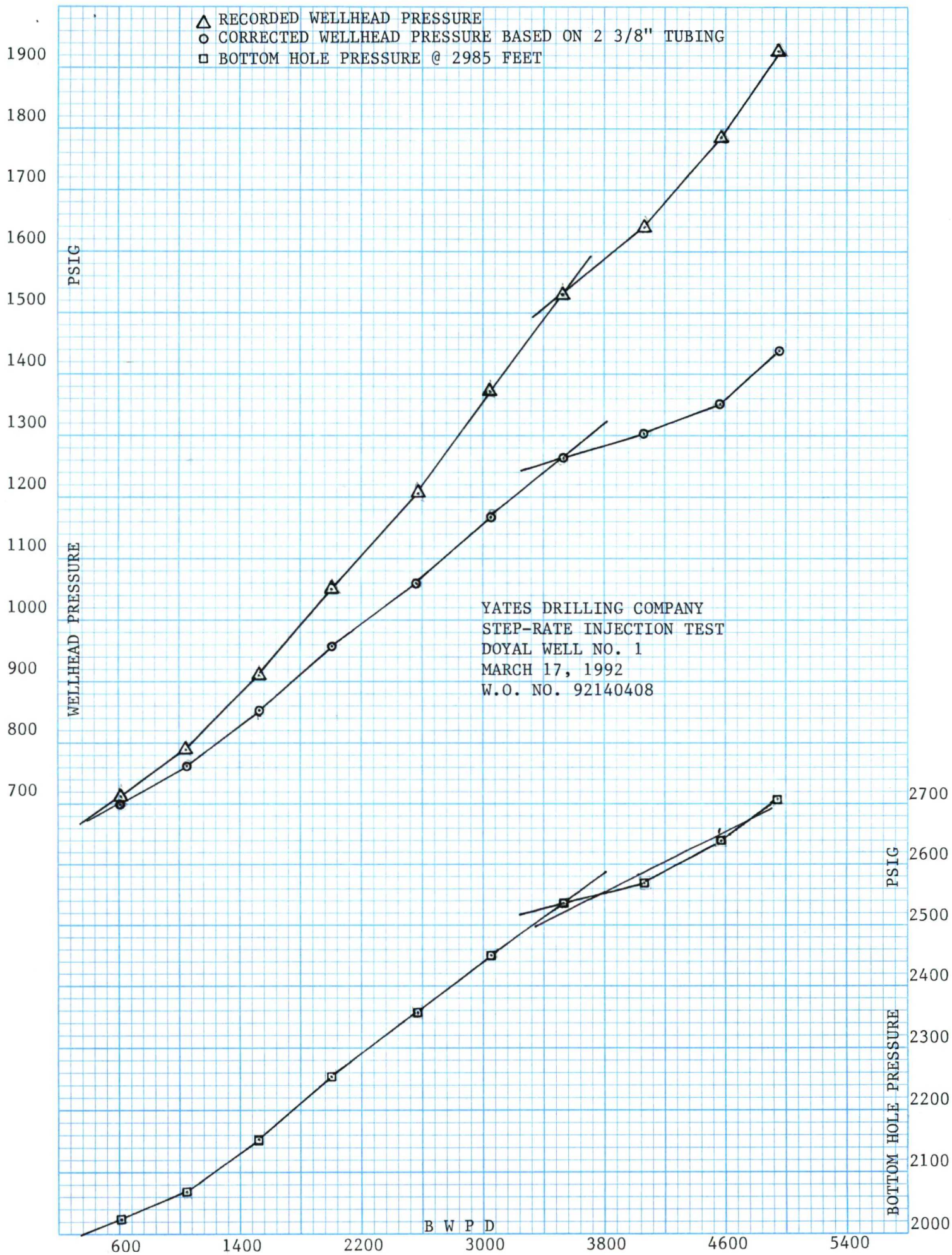
APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

000 H0035 07102

APR 02 1992

RECEIVED



RECEIVED

APR 02 1992

GCD 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)
1	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
	12:50	709.1	6.3	604.8	10.157	698.9	17.64	2022
				604.8				
2	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
	1:05	789.6	17.4	1065.6	28.963	760.6	31.08	2067
3				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
	1:20	910.8	33.3	1526.4	56.309	854.5	44.52	2153
				1526.4				
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
	1:35	1050.8	54.4	1987.2	91.735	959.1	57.96	2256
				2025.6				
5	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
	1:50	1202.5	81.2	2534.4	143.866	1058.6	73.92	2358
				2572.8				
6	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
	2:05	1370.8	113.1	3081.6	206.550	1164.2	89.88	2452
				3062.4				
7	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
	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)/34.2857	(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				4060.8				
	2:40	1762.5	208.5	4665.6	444.906	1317.6	136.08	2607
	2:45	1776.5	223.7	4377.6	395.436	1381.1	127.68	2627
10	2:50	1785.5	239.7	4608.0	434.798	1350.7	134.40	2640
				4550.4				
	2:55	1908.4	256.8	4924.8	491.709	1416.7	143.64	2670
Fall - Off	3:00	1922.3	274.3	5040.0	513.199	1409.1	147.00	2688
	3:05	1931.2	291.4	4924.8	491.709	1439.5	143.64	2707
				4963.2				
	3:06	1332.5				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

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APR 02 1992

GOV HOUSES OFFICE



BRUCE KING
GOVERNOR

ENERGY

STATE OF NEW MEXICO
AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

April 6, 1992

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

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. 30-005-20982
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 <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>I</u> : <u>1980</u> Feet From The <u>South</u> Line and <u>990</u> Feet From The <u>East</u> Line Section <u>27</u> Township <u>12S</u> Range <u>31E</u> 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"/>	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

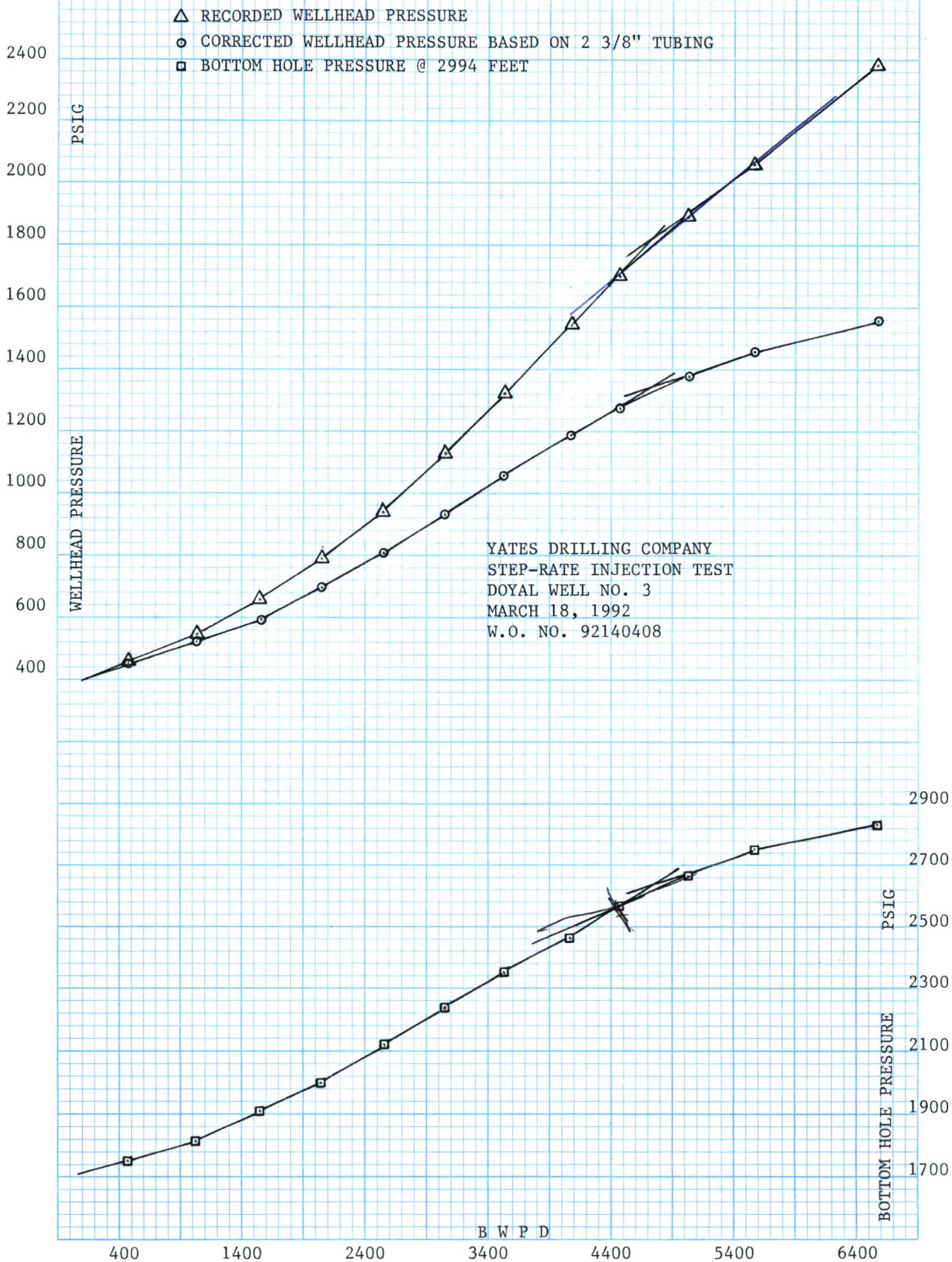
TYPE OR PRINT NAME

TELEPHONE NO.

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:



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, 1992

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) 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)
1	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
	11:40	456.5	5.1	489.6	6.891	449.6	14.28	1748
				489.6				
2	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
	11:55	549.5	15.8	1008.0	26.212	523.3	29.40	1816
3				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
	12:10	656.0	32.0	1555.2	58.466	597.5	45.36	1904
				1555.2				
4	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
	12:25	791.0	53.4	2044.8	97.006	694.0	59.64	2003
				2054.4				
5	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
	12:40	947.8	80.0	2534.4	144.300	803.5	73.92	2116
				2553.6				
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
	12:55	1127.7	111.8	3024.0	200.066	927.6	88.20	2236
				3052.8				
7	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
	1:10	1319.6	148.5	3484.8	260.091	1059.5	101.64	2351
				3523.2				

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APR 02 1992

OCD HOBBS 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)
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	4079.9				
	1:35	1679.8	222.0	4435.2	406.337	1235.6	129.36	2509
	1:40	1700.0	237.7	4492.8	416.153	1263.6	131.04	2544
10	1:45	1846.8	255.2	4521.6	421.102	1278.9	131.88	2573
	1:50	1862.3	272.8	4483.2				
	1:55	1886.5	290.1	5040.0	514.746	1332.1	147.00	2613
11	2:00	2029.7	309.5	5068.8	520.201	1342.1	147.84	2641
	2:05	2050.1	328.9	4982.4	503.916	1382.6	145.32	2668
	2:10	2065.3	348.2	5030.4				
12	2:15	2368.3	370.8	5587.2	622.882	1406.8	162.96	2703
	2:20	2370.9	393.9	5587.2	622.882	1427.2	162.96	2728
	2:25	2398.9	416.7	5558.4	616.955	1448.3	162.12	2751
Fall-Off	2:26	1498.4		5577.6				
	2:27	1485.7		6508.8	826.178	1542.1	189.84	2788
	2:28	1474.4		6652.8	860.310	1510.6	194.04	2812
	2:29	1464.3		6566.4	839.754	1559.1	191.52	2833
	2:30	1454.2		6576.0				
	2:35	1412.4				1498.4		2802
	2:40	1377.9				1485.7		2789
						1474.4		2774
						1464.3		2766
						1454.2		2756
						1412.4		2714
						1377.9		2679

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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:

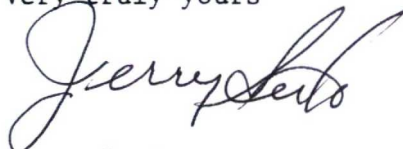
Yates Drilling Company	Doyal	#4-M	26-12-31
Operator	Lease & Well No.	Unit	S-T-R

(Request on attached C-103)

and my recommendations are as follows:



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.

30-005-20998

5. Indicate Type of Lease

STATE ☐

FEE ☒

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name

Doyal

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 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:

PERFORM REMEDIAL WORK ☐

PLUG AND ABANDON ☐

TEMPORARILY ABANDON ☐

CHANGE PLANS ☐

PULL OR ALTER CASING ☐

OTHER: Request increase in Allowable Injection ☒
Pressure

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

John West

TITLE

Petroleum Engineer

DATE

4-1-92

TYPE OR PRINT NAME

TELEPHONE NO.

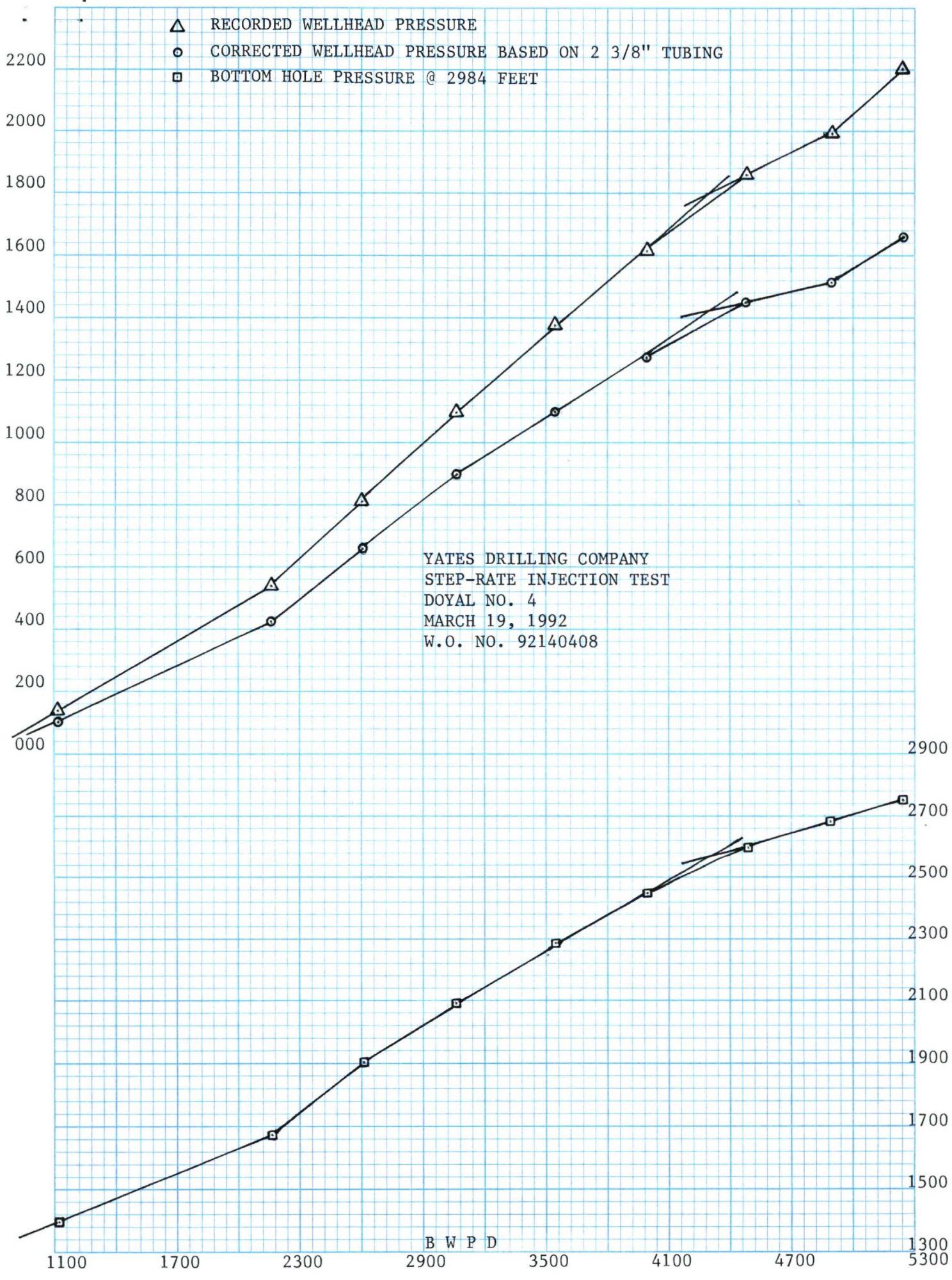
(This space for State Use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:



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APR 02 1992

OOD #10330 072105

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: Yates Drilling Company

DATE: March 19, 1992

WELL NAME: Doyal No. 4

WO#: 92140408

Chaves County, New Mexico

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)
1	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
	8:15	138.1	11.7	1152.0	33.445	104.7	33.60	1393
				1123.2				
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
	8:30	533.6	34.3	2160.0	107.000	426.6	63.00	1677
3				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
	8:45	809.3	61.4	2563.2	146.856	662.4	74.76	1901
				2601.6				
4	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
	9:00	1095.2	93.4	3052.8	202.925	892.3	89.04	2096
				3071.9				
5	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
	9:15	1367.5	130.4	3542.4	267.205	1100.3	103.32	2285
				3551.9				
6	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
	9:30	1609.4	172.0	4003.2	335.040	1274.4	116.76	2449
				3993.6				
7	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
	9:45	1856.3	218.8	4492.8	414.763	1441.5	131.04	2596
				4492.8				

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OCD HOUSES 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)
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
Fall-Off				5241.6				
	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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