



STATE OF NEW MEXICO  
 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
 OIL CONSERVATION DIVISION



BRUCE KING  
 GOVERNOR

ANITA LOCKWOOD  
 CABINET SECRETARY

August 20, 1993

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

Yates Petroleum Corporation  
 105 South Fourth Street  
 Artesia, NM 88210

Attention: Robert S. Fant

**RE:** *Injection Pressure Increase West Loco Hills Unit Tract 13 No. 12, Section 12, Township 18 South, Range 29 East, Eddy County, New Mexico*

Dear Mr. Fant:

Reference is made to your request dated July 28, 1993 to increase the surface injection pressure on the above-referenced well. This request is based on a step rate tests conducted on this well on July 23, 1993. The results of the test have been reviewed by my staff and we feel an increase in injection pressure on this well 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
West Loco Hills Unit Tract 13 Well No. 12 2408' FNL & 440' FEL Unit H, Section 12, Township 18 South, Range 29 East	1225 PSIG
This well located in Eddy County, New Mexico.	

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/BES/amg

cc: Oil Conservation Division - Artesia  
 File: PSI-X 3<sup>rd</sup> Qtr. 93  
 Case No. 10712

1st

NO WAITING PERIOD

COMPANY: **YATES PETROLEUM CORPORATION**  
ADDRESS: **105 South Fourth Street**  
CITY, STATE, ZIP: **Artesia, New Mexico 88210**  
ATTENTION: **Mr. Robert S. Fant**

*RE: Injection Pressure Increase  
West Loco Hills Unit Tr.13 No.12  
Section 12-T18S-R29E  
Eddy County, New Mexico*

Dear Sir:

Reference is made to your request dated **July 28, 1993**, to increase the surface injection pressure on **the above referenced well**. This request is based on a step rate test conducted on this well **July 23, 1993**. 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 well:

<u>Well &amp; Location</u>	<u>Maximum Injection Surface Pressure</u>
<b>West Loco Hills Unit Tract 13 Well No.12 2408' FNL &amp; 440' FEL Unit Letter "H", Section 12-T18S-R29E Eddy County, New Mexico</b>	<b>1225 psig</b>

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/BES/

xc: **OCD - Artesia**  
**FILES: PSI-X 3rd Qtr.93 - Case No.10712**



MARTIN YATES, III  
1912 - 1985  
FRANK W. YATES  
1936 - 1986



105 SOUTH FOURTH STREET  
ARTESIA, NEW MEXICO 88210  
TELEPHONE (505) 748-1471

N/R

S. P. YATES  
CHAIRMAN OF THE BOARD  
JOHN A. YATES  
PRESIDENT  
PEYTON YATES  
EXECUTIVE VICE PRESIDENT  
RANDY G. PATTERSON  
SECRETARY  
DENNIS G. KINSEY  
TREASURER

July 28, 1993

RECEIVED  
JUL 28 1993  
O. C. D.

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
Attention: David Catanach  
P.O. Box 2088  
Santa Fe, New Mexico 87504

Re: Request for Injection Pressure Increase, West Loco Hills Unit Tract 13 Well No. 12, Eddy County, New Mexico

Dear Mr. Catanach:

By this letter, Yates Petroleum Corporation is requesting that, based upon the step rate test conducted on the WLHU Tract 13 Well No. 12, Unit H, Section 12, Township 18 South, Range 29 East, Eddy County, New Mexico, the maximum surface injection pressure for this well be increased to 1225 psig.

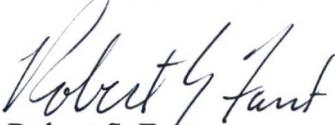
The test was run by John West Engineering on July 23, 1993, and witnessed by Mr. John Robinson of the Artesia NMOCD Office. Mr. Robinson indicated the day of the test that at least one point on the step rate test needed to be below the current 560 psig surface pressure limitation. As can be seen on the attached test summary, four test rates fell below the 560 psig limit.

A review of the graph prepared by John West Engineering of the test indicates that points 5 through 9 represent the non-fracturing portion of the test while points 13 through 16 represent the stabilized fractured portion of the test. The intersection of these two lines is indicated at 1270 psig for the corrected wellhead pressure points. This value is extremely close to the 1275 psig maximum surface pressure limitation placed on the West Loco Hills Unit Tract 1 Well No. 9 based upon a March 1993 step rate test. Analysis of the post-test fall-off data indicates that the 5 minute fall-off pressure was 1238 psig. According to John West Engineering, the 5 minute fall-off pressure is one of the best indicators of the fracture extension/closure pressure.

I have also included a copy of the porosity log for the injection interval. Review of this log will show that the nearest zone with any porosity is some 86 feet below the bottom perforation (2802').

On the basis of this, Yates Petroleum Corporation requests that the maximum surface injection pressure for the West Loco Hills Unit Tract 13 Well No. 12 be increased to 1225 psig.

If you have any question regarding my analysis or data, please contact me at (505) 748-1471 extension 185.

A handwritten signature in cursive script that reads "Robert S. Fant".

Robert S. Fant  
Engineer

RSF/rsf

# JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

## STEP RATE INJECTION TEST

CLIENT: YATES PETROLEUM CORPORATION

DATE: JULY 23, 1993

WELL NAME: WEST LOCO HILLS UNIT 13-12

WO#: 93-14-1415

Edra County, New Mexico

MID-PERFS. =

PACKER DEPTH =

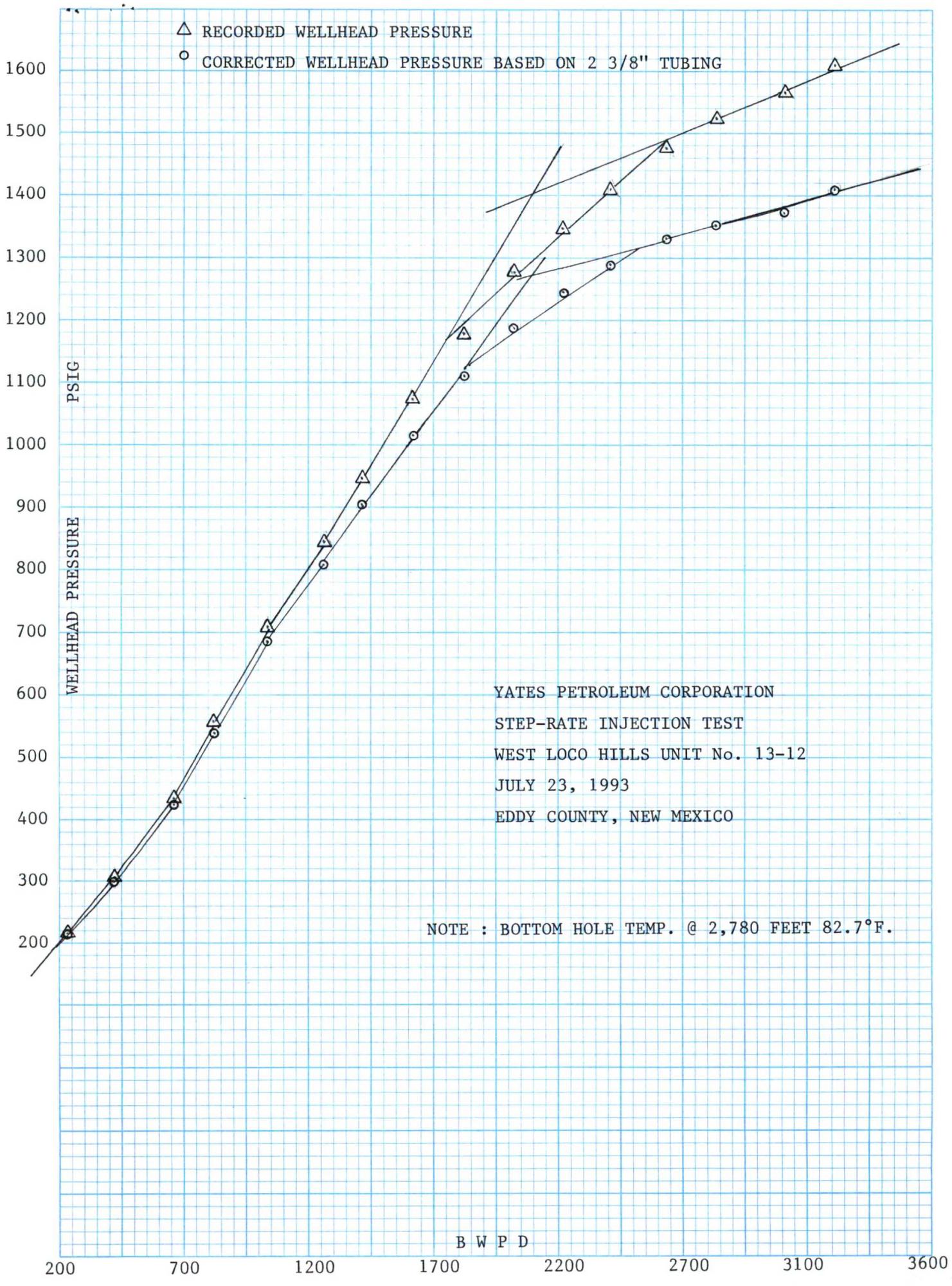
BHP GAUGE DEPTH = 2780

STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbbls)	(3) INJECTION RATE (bbbls/day)	(4) FRICTION HEAD LOSS (psf)	(5) CORRECTED TUBING PRESS. (psf) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2867	(7) MEASURED BHP (psf)
	9:40	129.7				129.7		
	9:45	186.8	0.9	259.2	1.973	184.8	7.56	
	9:50	199.3	1.6	201.6	1.239	198.1	5.88	
1	9:55	214.5	2.4	230.4	1.587	212.9	6.72	
				230.4				
	10:00	268.4	3.9	432.0	5.076	263.3	12.60	
	10:05	291.7	5.3	403.2	4.468	287.2	11.76	
2	10:10	307.0	6.8	432.0	5.076	301.9	12.60	
				422.4				
	10:15	385.8	9.1	662.4	11.193	374.6	19.32	
	10:20	409.8	11.4	662.4	11.193	398.6	19.32	
3	10:25	437.6	13.6	633.6	10.310	427.3	18.48	
				652.8				
	10:30	501.5	16.5	835.2	17.187	484.3	24.36	
	10:35	557.7	19.2	777.6	15.059	542.6	22.68	
4	10:40	557.5	22.2	864.0	18.300	539.2	25.20	
				825.6				
	10:45	635.3	25.8	1036.9	25.644	609.7	30.24	
	10:50	690.2	29.5	1065.6	26.974	663.2	31.08	
5	10:55	708.1	33.1	1036.8	25.640	682.5	30.24	
				1046.4				
	11:00	783.4	37.5	1267.2	37.167	746.2	36.96	
	11:05	815.1	41.8	1238.4	35.619	779.5	36.12	
6	11:10	841.9	46.2	1267.2	37.167	804.7	36.96	
				1257.6				
	11:15	892.9	51.0	1382.4	43.658	849.2	40.32	
	11:20	940.1	56.1	1468.8	48.839	891.3	42.84	
7	11:25	947.7	61.0	1411.2	45.355	902.3	41.16	
				1420.0				

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 (psf)	CORRECTED TUBING PRESS. (psf) (1)-(4)	INJECTION RATE (gpm) (8)/34.2857	MEASURED BHP (psf)
8	11:30	1025.6	66.7	1641.6	59.998	965.6	47.88	
	11:35	1048.4	72.3	1612.8	58.065	990.3	47.04	
	11:40	1072.6	77.9	1612.8	58.065	1014.5	47.04	
9				1622.4				
	11:45	1130.2	84.3	1843.2	74.336	1055.9	53.76	
	11:50	1157.1	90.7	1843.2	74.336	1082.8	53.76	
10	11:55	1178.9	96.9	1785.6	70.096	1108.8	52.08	
				1824.0				
	12:00	1237.9	103.9	2016.0	87.740	1150.2	58.80	
11	12:05	1255.9	110.9	2016.0	87.740	1168.2	58.80	
	12:10	1275.1	118.0	2044.8	90.073	1185.0	59.64	
				2025.6				
12	12:15	1321.2	125.9	2275.2	109.743	1211.5	66.36	
	12:20	1340.5	133.5	2188.8	102.158	1238.3	63.84	
	12:25	1344.4	141.1	2188.8	102.158	1242.2	63.84	
13				2217.6				
	12:30	1387.9	149.5	2419.2	122.937	1265.0	70.56	
	12:35	1403.1	157.9	2419.2	122.937	1280.2	70.56	
14	12:40	1410.8	166.2	2390.4	120.243	1290.6	69.72	
				2409.6				
	12:45	1454.1	175.3	2620.8	142.558	1311.5	76.44	
15	12:50	1469.4	184.5	2649.6	145.470	1323.9	77.28	
	12:55	1477.0	193.7	2649.6	145.470	1331.5	77.28	
				2640.0				
16	1:00	1505.2	203.6	2851.2	166.606	1338.6	83.16	
	1:05	1517.9	213.3	2793.6	160.433	1357.5	81.48	
	1:10	1523.0	223.2	2851.2	166.606	1356.4	83.16	
17				2832.0				
	1:15	1558.8	233.6	2995.2	182.506	1376.3	87.36	
	1:20	1560.1	244.0	2995.2	182.506	1377.6	87.36	
18	1:25	1562.5	254.6	3052.8	189.052	1373.4	89.04	
				3014.4				
	1:30	1602.1	265.9	3254.4	212.795	1389.3	94.92	
19	1:35	1604.5	277.0	3254.4	212.795	1391.7	94.92	
	1:40	1608.2	288.0	3110.4	195.704	1412.5	90.72	
				3206.4				

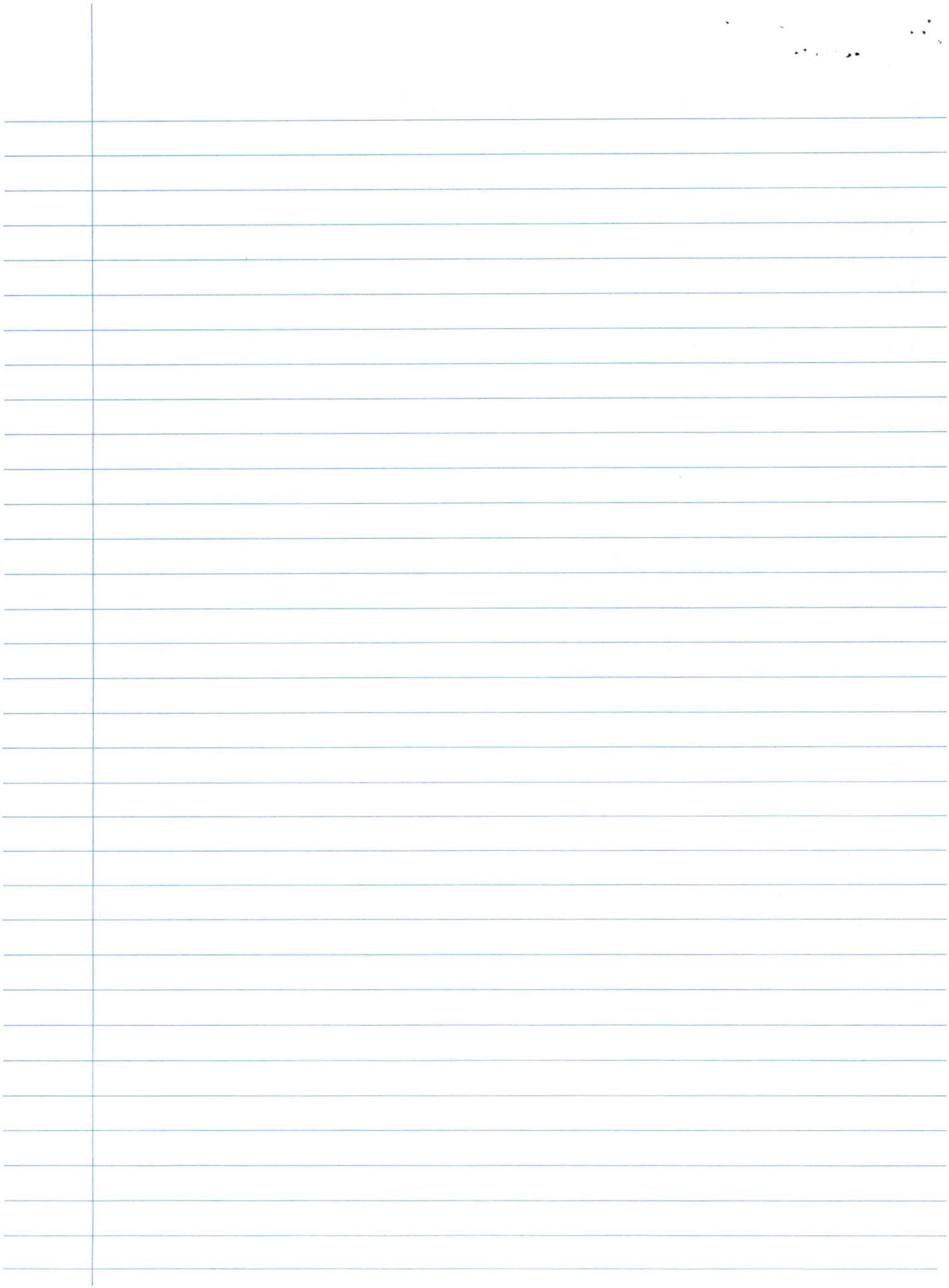
STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS. (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS. (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
FALLOFF	1:41	1275.3				1275.3		
	1:42	1259.9				1259.9		
	1:43	1251.0				1251.0		
	1:44	1245.9				1245.9		
	1:45	1238.2				1238.2		
	1:50	1221.5				1221.5		
	1:55	1206.4				1206.4		





YATES PETROLEUM CORPORATION  
 STEP-RATE INJECTION TEST  
 WEST LOCO HILLS UNIT No. 13-12  
 JULY 23, 1993  
 EDDY COUNTY, NEW MEXICO

NOTE : BOTTOM HOLE TEMP. @ 2,780 FEET 82.7°F.



**COMPANY: Yates Petroleum**

**WELL: West Loco Hills 13-12**

**FIELD: West Loco Hills**

**COUNTY: Eddy**

**STATE: New Mexico**

COUNTY: Eddy Field: West Loco Hills Location: 2408 FNL & 440 FEL Well: West Loco Hills 13-12 Company: Yates Petroleum			<b>Compensated Neutron Litho-Density</b>			
	LOCATION 2408 FNL & 440 FEL S12 T18S R29E			Elev.: K.B. 3532 F G.L. 3524 F D.F. 3531 F		
	Permanent Datum: <u>GROUND LEVEL</u>			Elev.: <u>3524 F</u>		
	Log Measured From: <u>kb</u>			8.0 F above Perm. Datum		
Drilling Measured From: <u>kb</u>						
API Serial No. na		SECTION 12	TOWNSHIP 18S	RANGE 29E		
Logging Date		June 28 1993				
Run Number		1				
Depth Driller		2950 F				
Schlumberger Depth		2950 F				
Bottom Log Interval		2930 F				
Top Log Interval		200 F				
Casing Driller Size @ Depth		8.625 IN @		370 F @		
Casing Schlumberger		370 F				
Bit Size		7.875 IN				
Type Fluid In Hole		Brine				
MUD	Density	Viscosity	10.4 LB/G	35 S		
	Fluid Loss	PH	8 C3	10		
	Source Of Sample		Flowline			
RM @ Measured Temperature		0.040 OHMM	@	88 DEGF	@	
RMF @ Measured Temperature		0.040 OHMM	@	88 DEGF	@	
RMC @ Measured Temperature			@		@	
Source RMF	RMC	Press				
RM @ BHT	RMF @ BHT	0.041 @ 85	0.041 @ 85	@	@	
Maximum Recorded BHT		85 DEGF	85	85		
Circulation Stopped Time		June 28 1993	1100			
Logger On Bottom Time		June 28 1993				
Unit Number	Location	2030	Hobbs			
Recorded By		Billingsley				
Witnessed By		Bob Fant				

