STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

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

WFX-630
PDEV0020600630
WFX-646
PDEV0020600646

February 1, 1994

Texaco Exploration & Production, Inc.
P.O. Box 730
Hobbs, NM 88241-0730

Attention: Terry L. Frazier

RE: Injection Pressure Increase, West Dollarhide Drinkard Unit Waterflood Project, Lea County, New Mexico

Dear Mr. Frazier:

Reference is made to your request dated December 14, 1993 to increase the surface injection pressure on the West Dollarhide Drinkard Unit Well Nos. 120 and 140. This request is based on a step rate test conducted on the WDDU Well No. 120 on August 23, 1993. The results of the test 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:

Well and Location	Maximum Injection Surface Pressure
WDDU Well No. 120 Unit F, Section 32, Township 24 South, Range 38 East	1550 PSIG
WDDU Well No. 140 Unit J, Section 32, Township 24 South, Range 38 East	1550 PSIG
Both wells located in Lea 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/DRC/amg

cc: Oil Conservation Division - Hobbs
D. Catanach
R. Brown
File: WFX-630
WFX-646

NO WAITING PERIOD

COMPANY: Texaco Exploration and Production Inc.

ADDRESS: P.O. Box 730

CITY, STATE, ZIP: Hobbs New Mexico 88241-0730

ATTENTION: Terry L. Frazier

Re: Injection Pressure Increase
West Dollarhide Drinkard Unit
Waterflood Project
Lea County, New Mexico

Dear Sir:

Reference is made to your request dated December 14, 1993, to increase the surface injection pressure on the West Dollarhide Drinkard Unit Well Nos. 120 & 140. This request is based on step rate tests conducted on ~~these wells~~ the WDDU No. 120 on August 23, 1993. The results of the test 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:

Well & Location	Maximum Injection Surface Pressure
WDDU Well No. 120 Unit F, Section 32, T-24 South, R-38 East, NMPM	1550 PSIG
WDDU Well No. 140 Unit J, Section 32, T-24 South, R-38 East, NMPM.	1550 PSIG
Lea 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.

xc: ~~T. CANEGOS~~ R. Brown D. CATANACH FILE- WFX-638 WFX-646 OCD- Hobbs

PSI-X N/R

Texaco E & P
PO Box 730
Hobbs NM 88241-0730
505 393 7191

OIL CONSERVATION DIVISION
RECEIVED
'93 DEC 16 AM 8 16

December 14, 1993

New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 88240

Attention: David R. Catanach

Re: Request for Increase in Surface Injection Pressure Limits
Texaco Exploration and Production Inc.
West Dollarhide Drinkard Unit, Dollarhide Tubb-Drinkard
T-24/25-S, R-38-E, Lea County, New Mexico

Gentlemen:

Texaco Exploration and Production Inc. requests that the surface injection pressure limits be increased for the two wells on the attached list. The increases are based on initial shut in pressures (ISIPs) and step rate tests. Numerous step rate tests have been run on unit wells but they are often inconclusive for two reasons:

1) The injection is confined to the Lower Drinkard which is a highly discontinuous limy dolomite. Within a short time, the net pressure at the surface increases above the inferred parting pressure as the individual lenses fill up. The corresponding injection rate rapidly decreases even though the step-rate data shows the formation should be fractured past that point.

2) The near-wellbore tortuosity and bimodal porosity result in multiple break-over points on step-rate tests.

The pressure increases are necessary to maintain nominal injection rates. This will greatly enhance the performance of the infill drilled wells as the patterns are closed. If additional information is needed, please contact Robert McNaughton at 505-397-0428.

Yours very truly,

Terry L. Frazier
Hobbs Area Manager

TLF:rtm

cc: Mr. Jerry Sexton
Hobbs NMOCD

attachments

West Dollarhide Drinkard Unit

Texaco Exploration and Production

Lea County, New Mexico

Well No.	Present Injection Rate & Pressure	Observed Surface Parting Pressure	Requested Injection Pressure Limit
120 (WFX-630)	SI @ 1200 psi (1330 psi)	1710 psi (S.R)	1650 psi
140 (WFX-646)	310 @ 1540 psi (1277 psi)	1690 psi (ISIP)	1640 psi

NOTE: The maximum system pressure is about 1620 psi at the injection station. Drinkard wells in the Dollarhide AB and North Dollarhide fields in Texas have a maximum injection pressure limit at around 1800 psi. ISIPs from Lower Drinkard fracture stimulations range from 1400 to 1845 psi. Most of the older WDDU wells are injecting at an average pressure in the range of 1400 to 1550 psi. Therefore, with the concurrence of the Hobbs NMOCD, we plan on retesting the recent conversion and redrilled wells when they start to pressure up and drop their rates. Otherwise, most of the wells are usually shut-in because they stop taking water at the .2 psi/ft limit. The indicated parting pressure from the step rate tests is eventually exceeded as the micro fractures and discontinuous layers fill up.

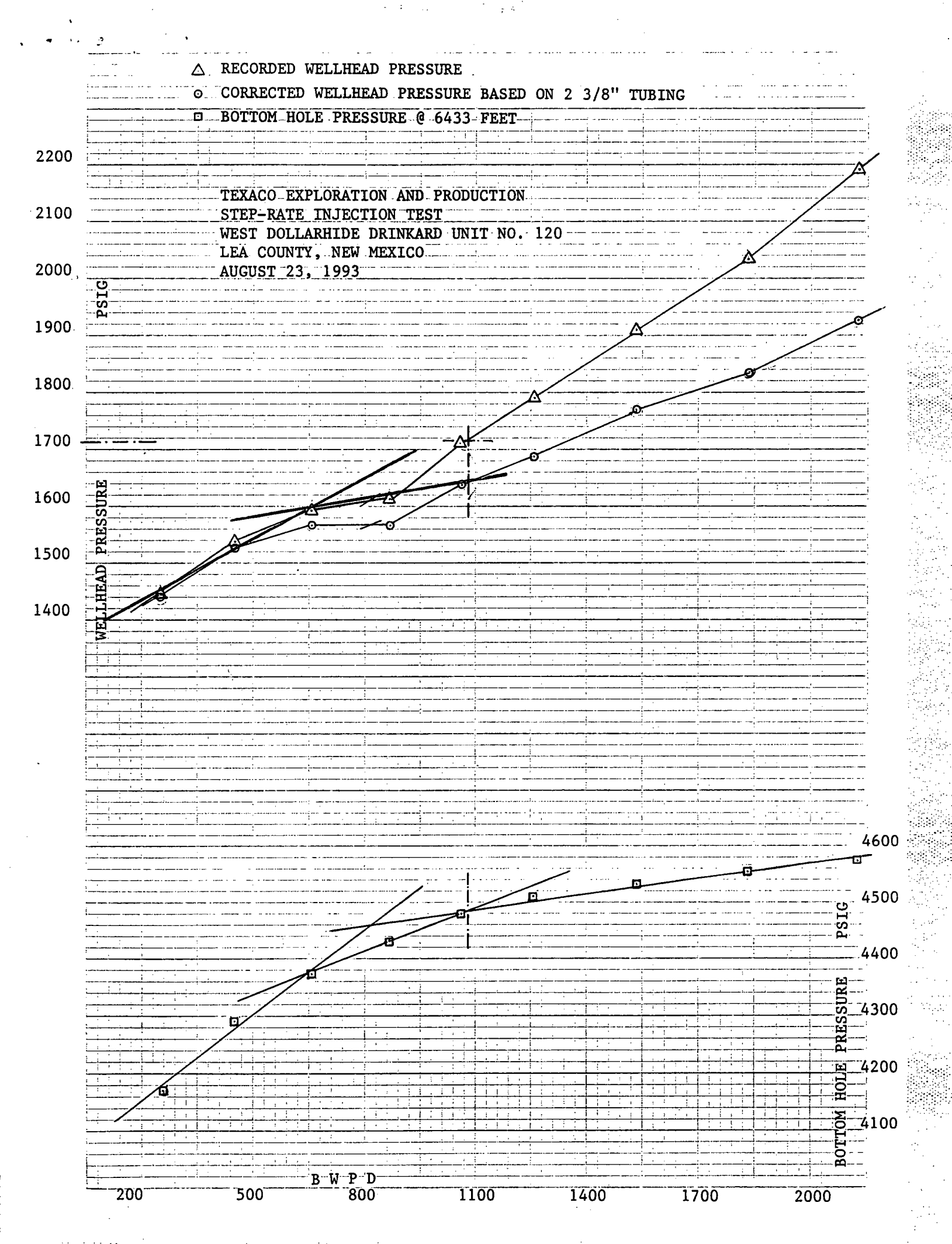
West Dollarhide Drinkard Unit

Texaco Exploration and Production

Lea County, New Mexico

Well No.	Present Injection Rate & Pressure	Observed Surface Parting Pressure	Requested Injection Pressure Limit
~~120~~ 120	SI @ 1200 psi	1710 psi (S.R)	1650 psi
(WFX-630)	(1330 psi)		
140	310 @ 1540 psi	1690 psi (ISIP)	1640 psi
(WFX-646)	(1277 psi)		

NOTE: The maximum system pressure is about 1620 psi at the injection station. Drinkard wells in the Dollarhide AB and North Dollarhide fields in Texas have a maximum injection pressure limit at around 1800 psi. ISIPs from Lower Drinkard fracture stimulations range from 1400 to 1845 psi. Most of the older WDDU wells are injecting at an average pressure in the range of 1400 to 1550 psi. Therefore, with the concurrence of the Hobbs NMOCD, we plan on retesting the recent conversion and redrilled wells when they start to pressure up and drop their rates. Otherwise, most of the wells are usually shut-in because they stop taking water at the .2 psi/ft limit. The indicated parting pressure from the step rate tests is eventually exceeded as the micro fractures and discontinuous layers fill up.


△ RECORDED WELLHEAD PRESSURE
⊙ CORRECTED WELLHEAD PRESSURE BASED ON 2 3/8" TUBING
⊡ BOTTOM HOLE PRESSURE @ 6433 FEET
TEXACO EXPLORATION AND PRODUCTION
STEP-RATE INJECTION TEST
WEST DOLLARHIDE DRINKARD UNIT NO. 120
LEA COUNTY, NEW MEXICO
AUGUST 23, 1993
PSIG
WELLHEAD PRESSURE
2200
2100
2000
1900
1800
1700
1600
1500
1400
4600
4500
4400
4300
4200
4100
PSIG
BOTTOM HOLE PRESSURE
B W P D
200
500
800
1100
1400
1700
2000

JOHN WEST ENGINEERING COMPANY

Hobbs, New Mexico

STEP RATE INJECTION TEST

CLIENT: TEXACO EXPLORATION AND PRODUCTION DATE: August 23, 1993

WELL NAME: WEST DOLLARHIDE DRINKARD UNIT 120 WO#: 93-14-1589

Lea County, New Mexico

MID-PERFS. = 6570

PACKER DEPTH = 6437 MDR = 6433

BHP GAUGE DEPTH = 6400

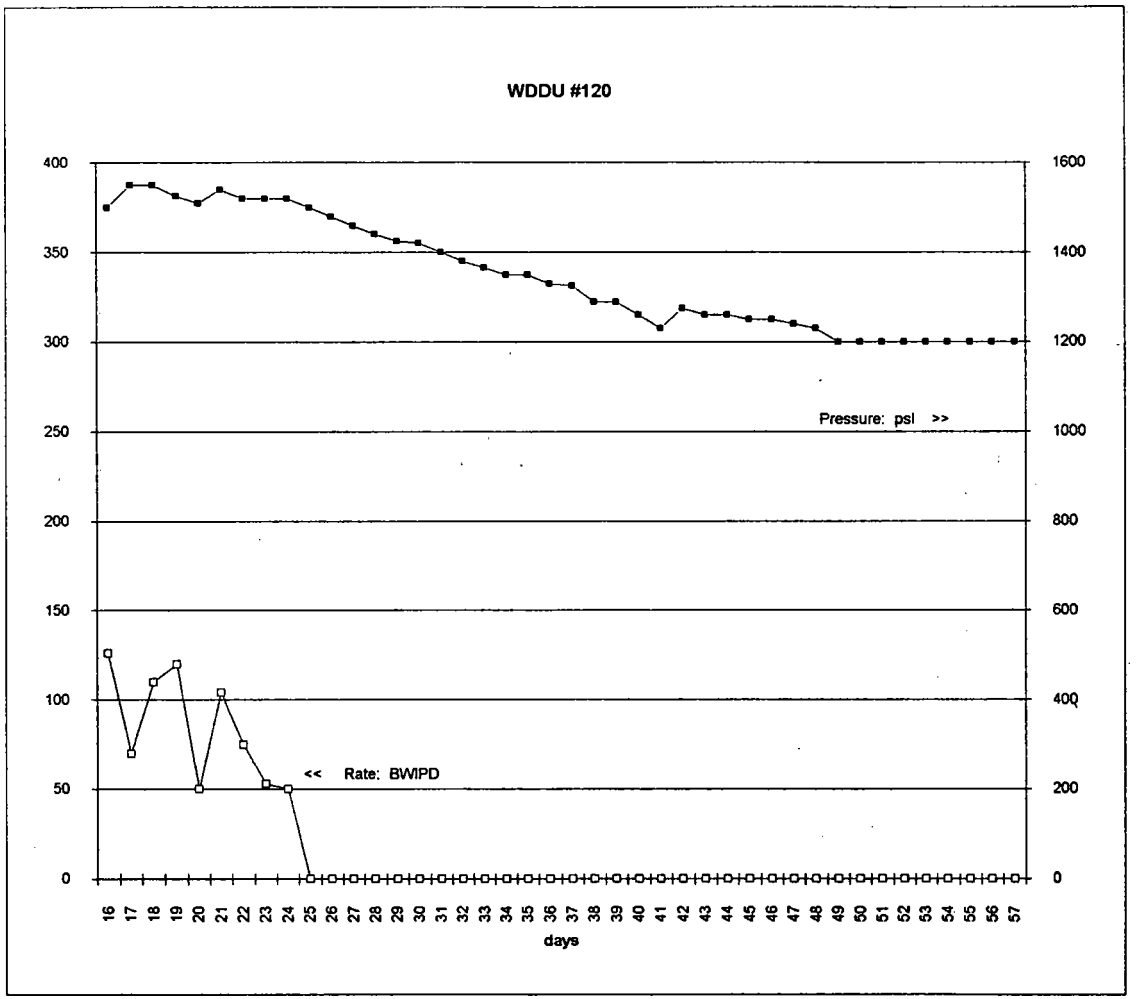
STEP NO. & REMARKS	TIME	(1) SURFACE TUBING PRESS (psig)	(2) CUMMULATIVE VOL. INJECTED (bbls)	(3) INJECTION RATE (bbls/day)	(4) FRICTION HEAD LOSS (psi)	(5) CORRECTED TUBING PRESS (psi) (1)-(4)	(6) INJECTION RATE (gpm) (3)/34.2857	(7) MEASURED BHP (psi)
	8:35	1270.8				1270.8		3984
	8:40	1384.5	0.9	259.2	5.434	1379.1	7.56	4095
	8:45	1423.9	1.8	259.2	5.434	1418.5	7.56	4142
1	8:50	1445.4	2.7	259.2	5.434	1440.0	7.56	4172
				259.2				
	8:55	1523.2	4.3	460.8	15.755	1507.4	13.44	4239
	9:00	1529.4	5.9	460.8	15.755	1513.6	13.44	4270
2	9:05	1539.4	7.4	432.0	13.982	1525.4	12.60	4294
				451.2				
	9:10	1582.7	9.7	662.4	30.831	1551.9	19.32	4336
	9:15	1578.6	12.0	662.4	30.831	1547.8	19.32	4361
3	9:20	1592.5	14.2	633.6	28.397	1564.1	18.48	4374
				652.8				
	9:25	1639.6	17.2	864.0	50.404	1589.2	25.20	4409
	9:30	1606.1	20.2	864.0	50.404	1555.7	25.20	4424
4	9:35	1613.6	23.2	864.0	50.404	1563.2	25.20	4434
				864.0				
	9:40	1683.8	26.9	1065.6	74.295	1609.5	31.08	4457
	9:45	1701.7	30.6	1065.6	74.295	1627.4	31.08	4470
5	9:50	1713.0	34.3	1065.6	74.295	1638.7	31.08	4480
				1065.6				
	9:55	1774.2	38.7	1267.2	102.370	1671.8	36.96	4496
	10:00	1786.8	43.0	1238.4	98.108	1688.7	36.12	4504
6	10:05	1790.5	47.4	1267.2	102.370	1688.1	36.96	4512
				1257.6				
	10:10	1899.2	52.7	1526.4	144.443	1754.8	44.52	4526
	10:15	1905.3	58.1	1555.2	149.526	1755.8	45.36	4532
7	10:20	1912.7	63.4	1526.4	144.443	1768.3	44.52	4536
				1536.0				

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)
	10:25	2036.7	69.8	1843.2	204.748	1832.0	53.76	4548
	10:30	2040.4	76.2	1843.2	204.748	1835.7	53.76	4553
8	10:35	2036.5	82.5	1814.4	198.869	1837.6	52.92	4557
				1833.6				
	10:40	2187.7	89.9	2131.2	267.834	1919.9	62.16	4568
	10:45	2190.1	97.2	2102.4	261.177	1928.9	61.32	4572
9	10:50	2192.5	104.6	2131.2	267.834	1924.7	62.16	4573
				2121.6				
FALLOFF	10:52	1622.0				1622.0		4543
	10:53	1617.2				1617.2		4537
	10:54	1612.1				1612.1		4531
	10:55	1608.2				1608.2		4527
	11:00	1592.6				1592.6		4511
	11:05	1580.9				1580.9		4499

ISIP = 1370#

10/1/1993

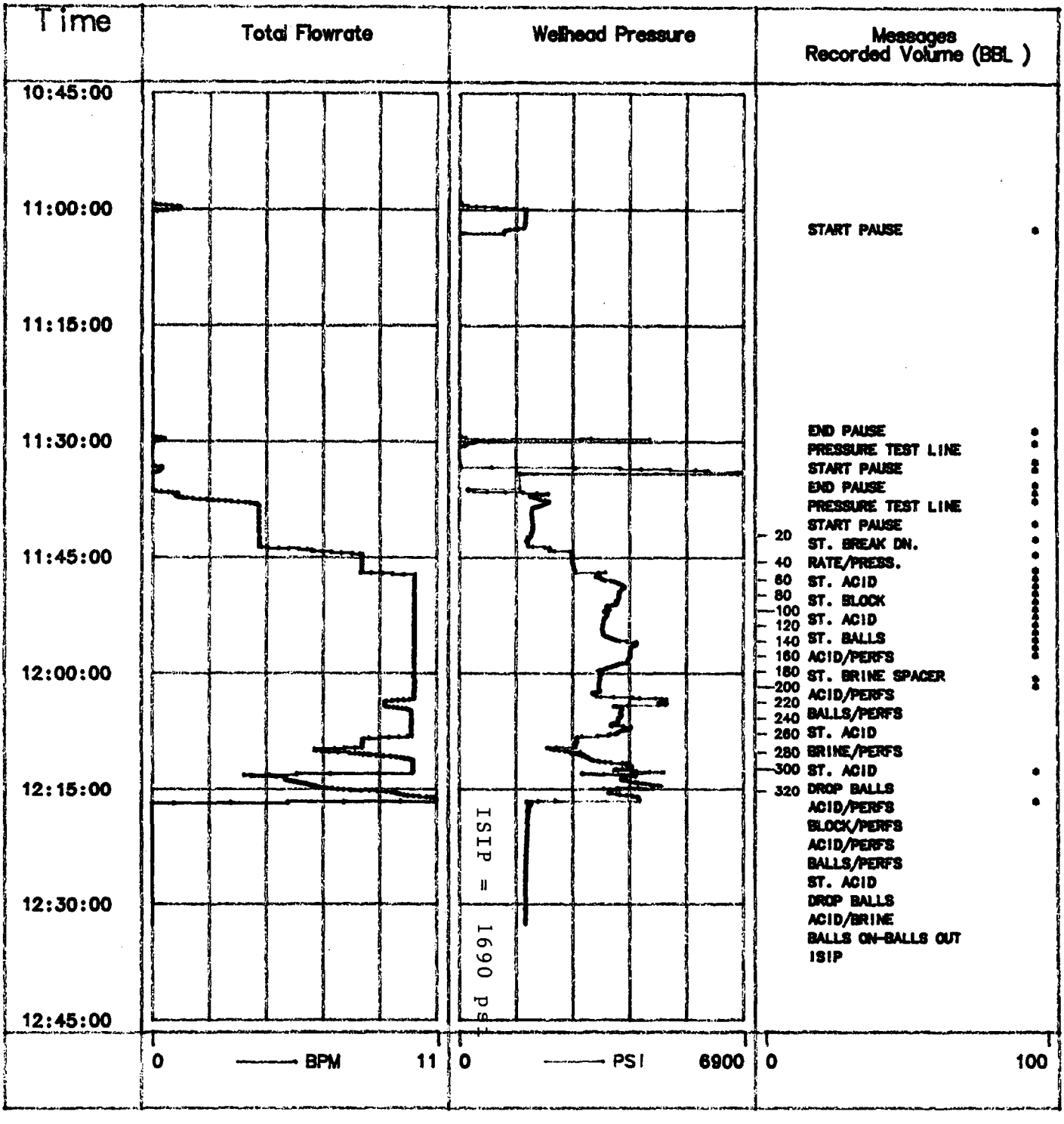
	#120	
DATE	RATE	PRESSURE
16	126	1500
17	70	1550
18	110	1550
19	120	1525
20	50	1510
21	104	1540
22	75	1520
23	53	1520
24	50	1520
25	0	1500
26	0	1480
27	0	1460
28	0	1440
29	0	1425
30	0	1420
31	0	1400
32	0	1380
33	0	1365
34	0	1350
35	0	1350
36	0	1330
37	0	1325
38	0	1290
39	0	1290
40	0	1260
41	0	1230
42	0	1275
43	0	1260
44	0	1260
45	0	1250
46	0	1250
47	0	1240
48	0	1230
49	0	1200
50	0	1200
51	0	1200
52	0	1200
53	0	1200
54	0	1200
55	0	1200
56	0	1200
57	0	1200



Acidizing Job Report

WELL : WDDU 140
FIELD
CLIENT : TEXACO
COUNTRY : USA
JOB DATE : 10/16/93

EXECUTION SUMMARY

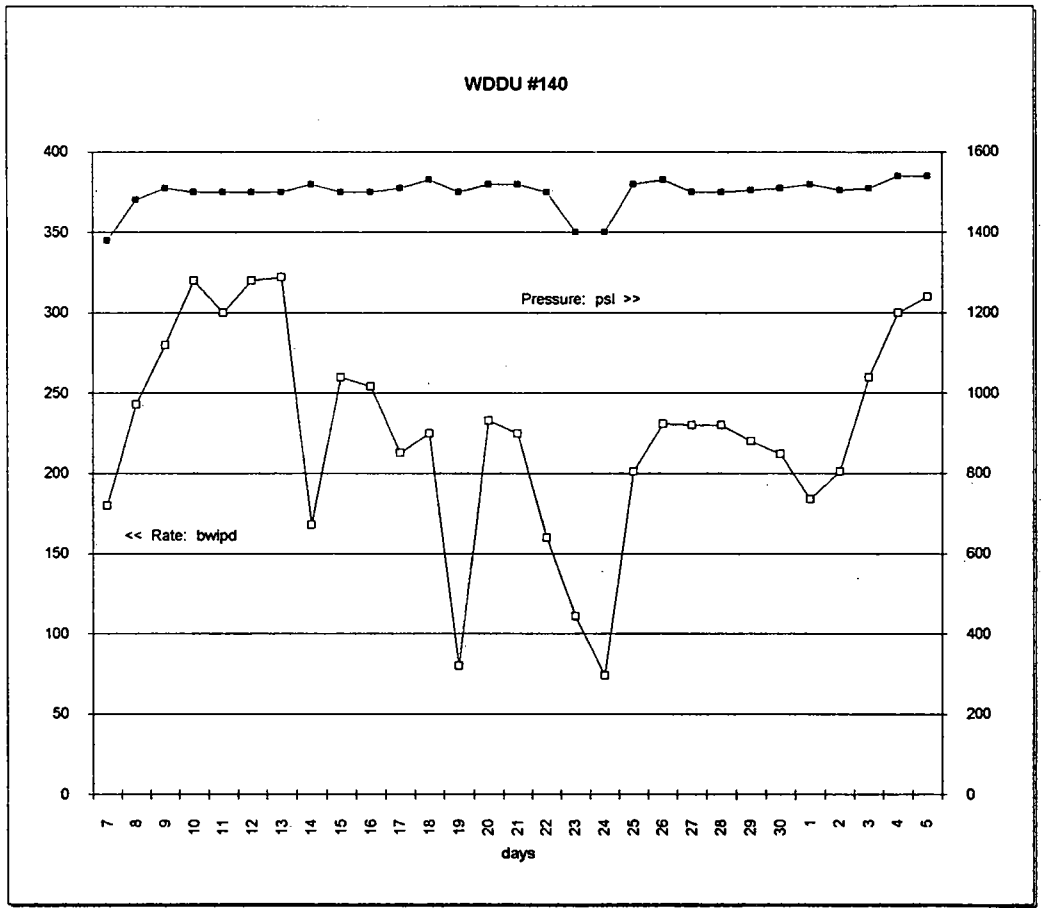


Dowell

WEST DOLLARHIDE DRINKARD UNIT #140

TIME	IDTY PPG	WHP PSI	TOFL BPM	CUVO BBL	MESSAGES
12:16:28	0	1906	7.408	334.9	
12:16:32	0	1616	5.217	335.3	
12:16:36	0	1644	3.025	335.5	
12:16:40	0	1754	0.822	335.5	
12:16:44	0	1713	0	335.5	
12:16:48	0	1649	0	335.5	
12:16:52	0	1708	0	335.5	
12:16:56	0	1722	0	335.5	
12:17:00	0	1690	0	335.5	ISIP
12:17:04	0	1662	0	335.5	
12:17:08	0	1695	0	335.5	
12:17:12	0	1690	0	335.5	
12:17:16	0	1672	0	335.5	
12:17:20	0	1658	0	335.5	
12:17:24	0	1681	0	335.5	
12:17:28	0	1672	0	335.5	
12:17:32	0	1662	0	335.5	
12:17:36	0	1685	0	335.5	
12:17:40	0	1681	0	335.5	
12:17:44	0	1639	0	335.5	
12:17:48	0	1667	0	335.5	
12:17:52	0	1667	0	335.5	
12:17:56	0	1672	0	335.5	
12:18:00	0	1653	0	335.5	
12:18:04	0	1662	0	335.5	
12:18:08	0	1662	0	335.5	
12:18:12	0	1658	0	335.5	
12:18:16	0	1653	0	335.5	
12:18:20	0	1658	0	335.5	
12:18:24	0	1658	0	335.5	
12:18:28	0	1653	0	335.5	
12:18:32	0	1653	0	335.5	
12:18:36	0	1658	0	335.5	
12:18:40	0	1653	0	335.5	
12:18:44	0	1649	0	335.5	
12:18:48	0	1653	0	335.5	
12:18:52	0	1639	0	335.5	
12:18:56	0	1644	0	335.5	
12:19:00	0	1649	0	335.5	
12:19:04	0	1649	0	335.5	
12:19:08	0	1644	0	335.5	
12:19:12	0	1635	0	335.5	
12:19:16	0	1649	0	335.5	
12:19:20	0	1649	0	335.5	
12:19:24	0	1649	0	335.5	
12:19:28	0	1639	0	335.5	

		#140	
	DATE	RATE	PRESSURE
11-01-93	1	0	1690 * ISIP *
	2	0	1690
	3	0	0
	4	0	0
	5	0	0
	6	0	0
	7	180	1380
	8	243	1480
	9	280	1510
	10	320	1500
	11	300	1500
	12	320	1500
	13	322	1500
	14	168	1520
	15	260	1500
	16	254	1500
	17	213	1510
	18	225	1530
	19	80	1500
	20	233	1520
	21	225	1520
	22	160	1500
	23	111	1400
	24	74	1400
	25	201	1520
	26	231	1530
	27	230	1500
	28	230	1500
	29	220	1505
	30	212	1510
	1	184	1520
	2	201	1505
	3	260	1510
	4	300	1540
	5	310	1540



Texaco E & P
PO Box 730
Hobbs NM 88241-0730
505 393 7191

January 13, 1994

New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 88240

Attention: David R. Catanach

Re: Request for Increase in Surface Injection Pressure Limits
Texaco Exploration and Production Inc.
West Dollarhide Drinkard Unit, Dollarhide Tubb-Drinkard
T-24/25-S, R-38-E, Lea County, New Mexico

Mr. Catanach,

While reviewing our step-rate data on the Dollarhide, I noticed an error on our application dated 12/13/93. The request for higher injection limits covers WDDU No. 120 and No. 140. However, No. 120 is incorrectly listed as No. 121 on the data table. The attached information is for WDDU No. 120. I will be submitting data for No. 121 on a separate application. If additional information is needed, please contact Robert McNaughton at 505-397-0428.

Yours very truly,

Robert McNaughton
Production Engineer

RTM/

cc: Mr. Jerry Sexton
Hobbs NMOCD

attachment

West Dollarhide Drinkard Unit

Texaco Exploration and Production

Lea County, New Mexico

Well No.	Present Injection Rate & Pressure	Observed Surface Parting Pressure	Requested Injection Pressure Limit
120	SI @ 1200 psi	1710 psi (S.R)	1650 psi
(WFX-630)	(1330 psi)		
140	310 @ 1540 psi	1690 psi (ISIP)	1640 psi
(WFX-646)	(1277 psi)		

NOTE: The maximum system pressure is about 1620 psi at the injection station. Drinkard wells in the Dollarhide AB and North Dollarhide fields in Texas have a maximum injection pressure limit at around 1800 psi. ISIPs from Lower Drinkard fracture stimulations range from 1400 to 1845 psi. Most of the older WDDU wells are injecting at an average pressure in the range of 1400 to 1550 psi. Therefore, with the concurrence of the Hobbs NMOCD, we plan on retesting the recent conversion and redrilled wells when they start to pressure up and drop their rates. Otherwise, most of the wells are usually shut-in because they stop taking water at the .2 psi/ft limit. The indicated parting pressure from the step rate tests is eventually exceeded as the micro fractures and discontinuous layers fill up.