

ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
 - Engineering Bureau -  
 1220 South St. Francis Drive, Santa Fe, NM 87505



**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Application Acronyms:**

- [NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]**  
**[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]**  
**[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]**  
**[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]**  
**[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]**  
**[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]**

[1] **TYPE OF APPLICATION - Check Those Which Apply for [A]**

- [A] Location - Spacing Unit - Simultaneous Dedication  
 NSL  NSP  SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement  
 DHC  CTB  PLC  PC  OLS  OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
 WFX  PMX  SWD  IPI  EOR  PPR

[D] Other: Specify \_\_\_\_\_

[2] **NOTIFICATION REQUIRED TO: - Check Those Which Apply, or  Does Not Apply**

- [A]  Working, Royalty or Overriding Royalty Interest Owners  
 [B]  Offset Operators, Leaseholders or Surface Owner  
 [C]  Application is One Which Requires Published Legal Notice  
 [D]  Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office  
 [E]  For all of the above, Proof of Notification or Publication is Attached, and/or,  
 [F]  Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note: Statement must be completed by an individual with managerial and/or supervisory capacity.**

Mark Quintana  
 Print or Type Name

M. Quintana  
 Signature

ENGINEER ASSISTANT  
 Title

9-18-01  
 Date

Quintana@TEXACO.com  
 e-mail Address

Texaco E & P  
PO Box 3109  
Midland TX. 79702

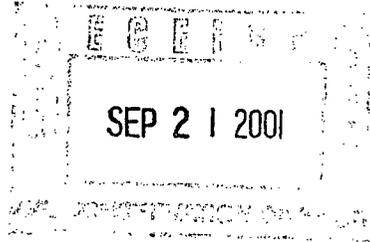


Texaco Exploration  
And Production Inc.  
Midland Division

P. O. Box 3109  
Midland, TX 79702

NMOCD

Engineering Bureau  
120 South St. Francis Drive  
Santa Fe, NM 87505  
Mr. David Catanach



RE: Injection Pressure increase

WDDU #120

Section 32, T-24-S R-38-E NMPM

Lea County, New Mexico

Dear Mr. Catanach,

In reference to your letter dated 9/7/01, ADMINISTRATIVE APPLICATION CHECKLIST, I'm sending a reply as you requested.

Mr. Nein is no longer working for Texaco, but I understand all we need is an increase on allowable injection pressure based on the step rate test that was done on WDDU well # 120.

Please let me know if I can be of further assistance.

Thanks,

Mike Quintana  
Engineer Assistant  
Texaco E & P  
Office 505-394-9307  
Mobile 505-631-9077

September 18, 2001

*New Mexico Oil Conservation Division---Engineering Bureau  
Administrative Application Process Documentation*

**Part I**

Date Application Received: 9/5/01

Date of Preliminary Review: 9/7/01  
(Note: Must be within 10-days of received date)

Results: \_\_\_\_\_ Application Complete  Application Incomplete

Date Incomplete Letter Sent: 9/7/01

Deadline to Submit Requested Information: 9/14/01

Date Additional Information Submitted: 9/21/01

RBDMS Updated:  Yes \_\_\_\_\_ No

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**Part II**

Phone Call Date: \_\_\_\_\_  
(Note: Only applies if requested data is not submitted within the 7-day deadline)

Phone Log Completed? \_\_\_\_\_ Yes \_\_\_\_\_ No

Date Application Processed: \_\_\_\_\_

Date Application Returned: \_\_\_\_\_  
(Note: Only as a last resort & only after repeated attempts by the Division to obtain the necessary information to process the application)



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**GARY E. JOHNSON**  
Governor  
**Jennifer A. Salisbury**  
Cabinet Secretary

**Lori Wrotenbery**  
Director  
Oil Conservation Division

September 7, 2001

Texaco Exploration & Production, Inc.  
P. O. Box 3109  
Midland, Texas 79702

Mr. Tim L. Nein

Re: Injection Pressure Increase  
WDDU No. 120  
Section 32, T-24 South, R-38 East, NMPM,  
Lea County, New Mexico

Dear Mr. Nein:

This letter acknowledges the receipt of your administrative application dated August 23 2001, to increase the surface injection pressure on the West Dollarhide Drinkard Unit No. 120. The Division received your application on September 5, 2001. Our preliminary review indicates that the information provided in the application is not sufficient to process the administrative order. The following information is necessary:

- a) **Administrative Application Checklist (Enclosed)**  
(Current Division policy regarding administrative applications stipulates that this checklist must be submitted with each application.)

Since the submitted information is insufficient to review, the application was **Ruled Incomplete** on September 7, 2001. Please submit the above stated information by September 14, 2001.

The Division cannot proceed with your application until the required information is submitted. Upon receipt, the division will continue to process your application. The additional information can be faxed, or mailed to the Division. If the necessary information is not submitted, your application will be returned to you.

If you have any questions, please contact me in Santa Fe, at (505) 476-3466.

Sincerely,

A handwritten signature in cursive script that reads "David Catanach".

David Catanach  
Petroleum Engineer

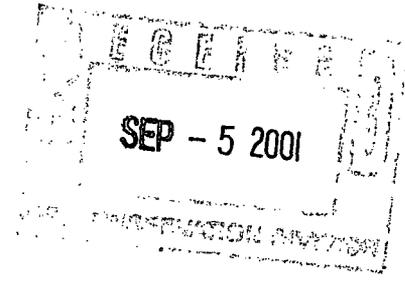


Texaco Exploration and Production Inc  
Permian Basin Business Unit  
Hobbs Operating Unit

P. O. Box 3109  
Midland TX 79702-3019  
505 688 4100

August 23, 2001

New Mexico Oil Conservation Division  
P.O. Box 2088  
Santa Fe NM 87501  
Attention: Mr. David R. Catanach



RE: **Request for Increase in Surface Injection Pressure Limits**

Texaco Exploration and Production Inc

West Dollarhide Drinkard Unit Well No. 68; T 24S, R 38E, Sec 32; API # 30-025-35212

West Dollarhide Drinkard Unit Well No. 120; T 24S, R 38E, Sec 32; API # 30-025-31487

West Dollarhide Drinkard Unit Waterflood Authorization: R-3768, WFX-608, WFX-621, WFX-646

Dear Mr. Catanach,

Texaco requests permission to increase surface injection pressure limits in these three wells. Step rate tests were performed on the three above-captioned wells on August 14<sup>th</sup> and August 15<sup>th</sup>, 2001 respectively. Ms. Sylvia Dickey of the District 1 office was notified about these tests by phone.

These wells were completed as part of the West Dollarhide Drinkard Unit Waterflood located 5 miles NW of Jal, NM. Both wells are located towards the crest of the structure and have the potential to drastically reduce the recovery of the reserves in their respective patterns. However, because of the allowable surface injection pressures are low and prevent adequate injection, neither well currently injects a sufficient amount of water.

WDDU #68 injected water until it reached a break-over point at a reservoir pressure of 4307 psi (as can be seen on the attached diagram). At this point, the corresponding surface pressure was 1740 psi. Our highest typical range for water injection in the Dollarhide Drinkard field is 1650 psi. Therefore, we request increasing our permitted injection pressure to this limit of 1650 psi.

WDDU #120 injected water during the test up to reservoir fracture pressure of 4600 psi (as can be seen on the attached diagram). The corresponding surface pressure at this point was 1888 psi. As mentioned, the highest typical range for water injection in this field is 1650 psi. Therefore, we are also requesting that WDDU #120's allowable surface injection pressure be increased to 1650 psi.

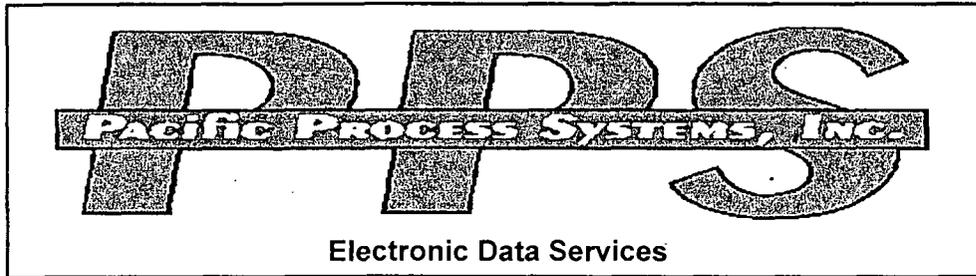
Thank you for your consideration. Please call Denise Wann at (915) 688-2982 or myself at (915) 688-4639 if you have questions or concerns.

Yours truly,

Tim L. Nein  
Production Engineer

Attachments

Cc: Mr. Chris Williams  
Hobbs NMOCD



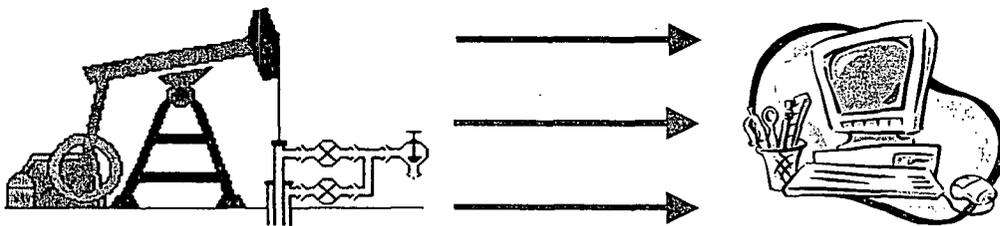
*Step Rate Injection Test Report*

*for*

***Texaco E & P Inc.***

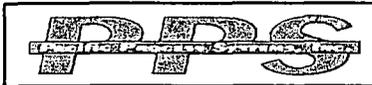
***WDDU #120***

***8/15/01***



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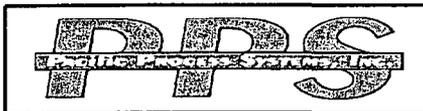


COMPANY: Texaco E & P Inc.  
WELL: WDDU #120  
COMPANY REP: Tim Nein  
PERFORATIONS: 6467' - 6493'

6396

SERVICE DATES : 8/15/01  
TEST TYPE : Step Rate  
PPS TECHNICIANS : D. Ginanni  
BHP GAUGE DEPTH: N/A

DATE	TIME	REMARKS
08/15/01	13:16	Open well, start pumping @ 500 BPD
08/15/01	13:46	Increase to 1000 BPD
08/15/01	14:16	Increase to 1500 BPD
08/15/01	14:46	Increase to 2000 BPD
08/15/01	15:16	Increase to 2500 BPD
08/15/01	15:51	Cease pumping



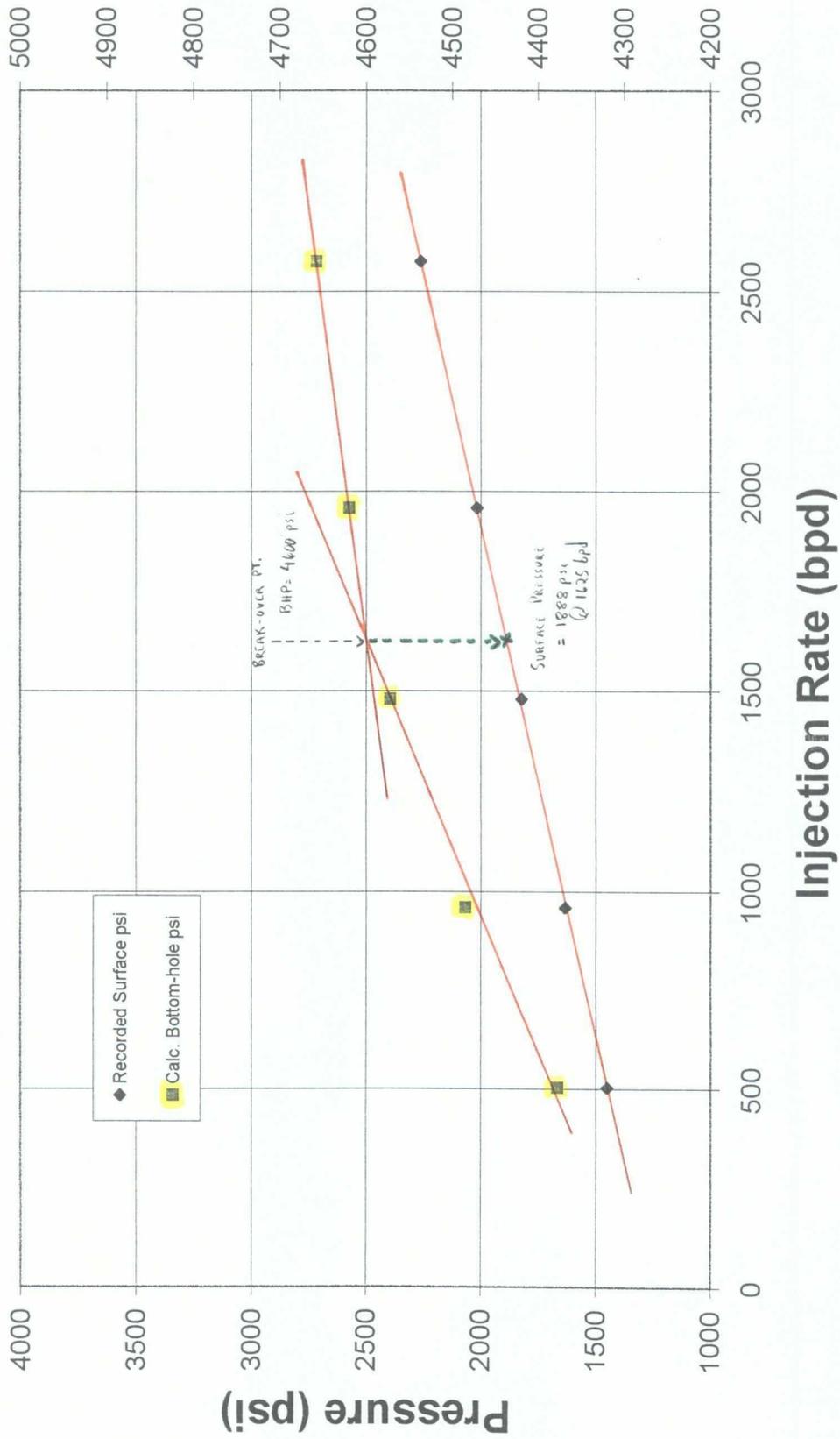
COMPANY : Texaco E & P Inc.  
 WELL: WDDU #120  
 COMPANY REP: Tim Nein  
 PERFORATIONS: 6467' - 6493'

SERVICE DATES : 8/15/01  
 TEST TYPE : Step Rate  
 PPS TECHNICIANS : D. Ginanni  
 BHP GAUGE DEPTH: N/A

STEP NO	TIME	SURFACE TUBING PRESS (psig)	CUMULATIVE VOL INJECTED (bbls)	INJECTION RATE (bbls/day)	INJECTION RATE (gpm) (3/34 2857)	MEASURED BHP (psi)
	13:16	1473.5				
	13:21	1461.4	1.6	473.4	13.81	
	13:26	1435.8	3.4	504.5	14.71	
	13:31	1442.3	5.1	500.6	14.60	
	13:36	1510.9	6.9	502.8	14.66	
	13:41	1594.6	8.7	531.4	15.50	
1	13:46	1632.3	10.5	521.0	15.20	
	13:51	1638.6	13.8	946.3	27.60	
	13:56	1627.3	17.0	918.9	26.80	
	14:01	1636.9	20.3	959.7	27.99	
	14:06	1628.8	23.7	964.4	28.13	
	14:11	1665.2	27.1	970.6	28.31	
2	14:16	1710.7	32.2	1483.9	43.28	
	14:21	1725.1	37.4	1485.1	43.32	
	14:26	1737.0	42.5	1477.7	43.10	
	14:31	1805.5	47.6	1477.8	43.10	
	14:36	1798.3	52.8	1476.9	43.08	
	14:41	1969.2	58.0	1513.4	44.14	
3	14:46	1986.2	64.8	1967.6	57.39	
	14:51	2014.3	71.6	1959.0	57.14	
	14:56	2014.6	78.5	1967.0	57.37	
	15:01	2018.8	85.3	1953.7	56.98	
	15:06	2014.7	92.1	1962.4	57.24	
	15:11	2361.7	99.1	2019.7	58.91	
4	15:16	2324.5	107.9	2542.8	74.17	
	15:21	2256.1	116.9	2579.0	75.22	
	15:26	2264.8	125.8	2580.1	75.25	
	15:31	2265.0	134.8	2571.8	75.01	
	15:36	2264.9	143.7	2574.3	75.08	
	15:46	2310.7	152.7	2590.1	75.54	
5	15:51	2589.5	161.7	2580.8	75.27	

# WDDU #120 Step Rate Test

Test Data



PERFS: 6500'

TUBING: 2 7/8" POLY-LINED  $\epsilon = 0.00005$  ft

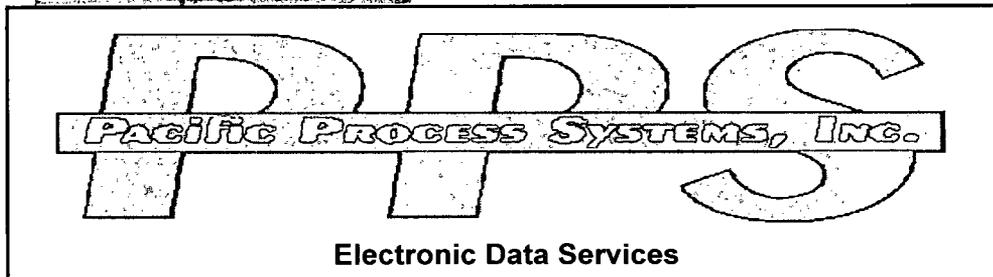
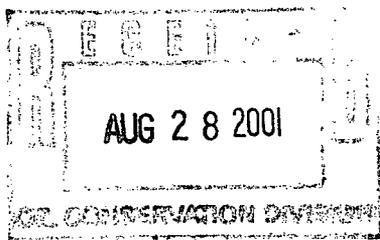
★ BOTTOM-HOLE PRESSURE CALCULATED BASED ON THE FANNING FORMULA

$$\Delta P = \frac{2.5 V^2 L \rho}{g_c D} + L \rho g$$

124835832

1 P1

N/R



## Step Rate Injection Test Report

for

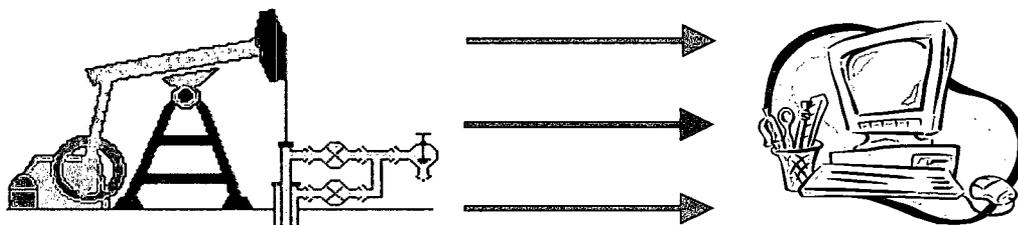
30-025-31487

**Texaco E & P Inc.**

WDDU #120

- F- 32-245-38e  
2190/N & 2224/W

8/15/01



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COMPANY REP: Tim Nein  
PERFORATIONS: 6467' - 6493'

6396

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TEST TYPE: Step Rate  
PPS TECHNICIANS: D. Ginanni  
BHP GAUGE DEPTH: N/A

DATE	TIME	REMARKS
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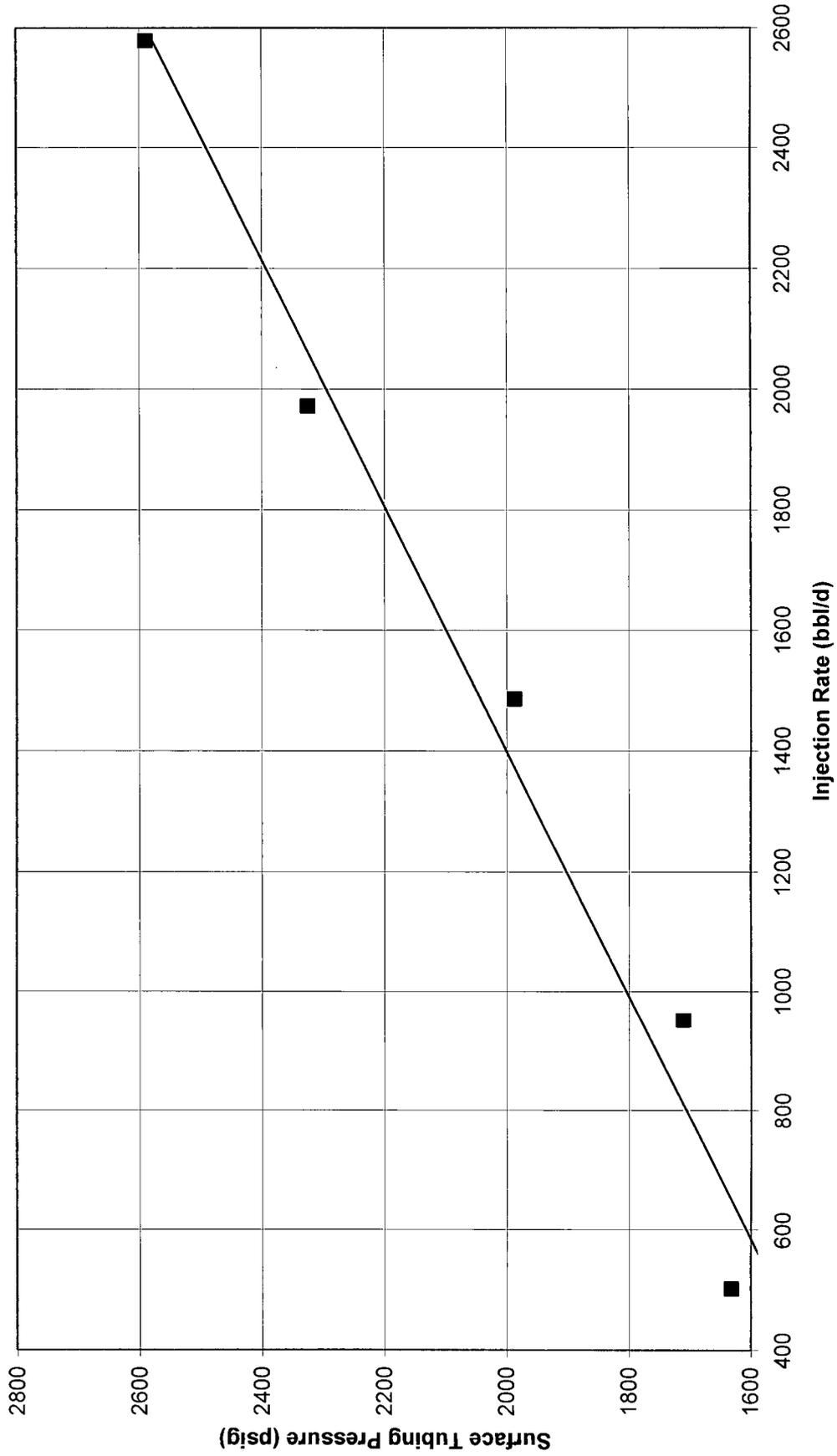
COMPANY : Texaco E & P Inc.  
 WELL: WDDU #120  
 COMPANY REP: Tim Nein  
 PERFORATIONS: 6467' - 6493'

SERVICE DATES : 8/15/01  
 TEST TYPE : Step Rate  
 PPS TECHNICIANS : D. Ginanni  
 BHP GAUGE DEPTH: N/A

STEP NO.	TIME	SURFACE TUBING PRESS. (psig)	CUMULATIVE VOL INJECTED (bbls)	INJECTION RATE (bbls/day)	INJECTION RATE (gpm) (3)/34.2857	MEASURED BHP (psi)
	13:16	1473.5				
	13:21	1461.4	1.6	473.4	13.81	
	13:26	1435.8	3.4	504.5	14.71	
	13:31	1442.3	5.1	500.6	14.60	
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	13:41	1594.6	8.7	531.4	15.50	
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	14:21	1725.1	37.4	1485.1	43.32	
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	14:51	2014.3	71.6	1959.0	57.14	
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	15:11	2361.7	99.1	2019.7	58.91	
<b>4</b>	15:16	2324.5	107.9	2542.8	74.17	
	15:21	2256.1	116.9	2579.0	75.22	
	15:26	2264.8	125.8	2580.1	75.25	
	15:31	2265.0	134.8	2571.8	75.01	
	15:36	2264.9	143.7	2574.3	75.08	
	15:46	2310.7	152.7	2590.1	75.54	
<b>5</b>	15:51	2589.5	161.7	2580.8	75.27	

# Pacific Process Systems, Inc.

## Step Rate Injection Test



Phone: (505) 392-8813  
Fax: (505) 392-6612

3406 Lovington Hwy.  
Hobbs, NM 88240