



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

SWD-472
PDEV00209 00472

June 22, 1995

Texaco Exploration & Production, Inc.
3300 North Butler Avenue
Farmington, New Mexico 87401

Attn: Mr. Ted A. Tipton

**RE: Injection Pressure Increase H.J. Loe Federal 'B'
Well No.2, San Juan County, New Mexico**

Dear Mr. Tipton:

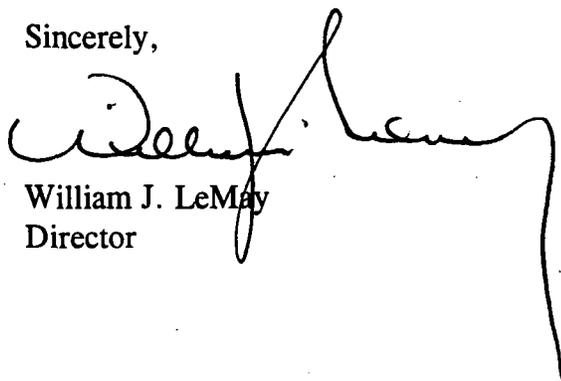
Reference is made to your request dated May 18, 1995 to increase the surface injection pressure on the above referenced well. This request is based on step rate tests conducted on May 8, 1995. The results of the test have been reviewed by my staff and we feel an increase in injection pressure on this well is justified at this time.

You are therefore authorized to increase the surface injection pressure on the following well:

Well and Location	Maximum Surface Injection Pressure
H.J. Loe Federal 'B' Well No.2 Unit Letter G, Section 23, Township 29 North, Range 12 West	630 psig

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

Injection Pressure Increase
Texaco Exploration & Production, Inc.
June 22, 1995
Page 2

WJL/BES

cc: Oil Conservation Division - Hobbs
Files: SWD-472; PSI-X 2nd QTR 95

4/20



Texaco Exploration and Production Inc

3300 N Butler
Farmington NM 87401

OIL CONSERVATION DIVISION *N/R*
RECEIVED
'95 MAY 23 AM 8 52

May 18, 1995

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505

Attention: David Catanach

**RE: Application for NMOCD Rule 704-C: Step-Rate Tests, Notice to the Division,
Requests for Injection Pressure Limit Increases; H.J. Loe Federal B No. 2
1850' FNL & 2310' FEL, Unit G, Sec. 23-T29N-R12W, NMPM,
San Juan County, New Mexico**

Dear Mr. Catanach:

Texaco Exploration and Production Inc. respectfully requests a minor modification to our water disposal permit for the subject well allowing surface injection pressure of up to 680 psi. This request is based on a recent step rate test verifying a "breakdown" or fracture pressure of 680 psi. This compares to a surface injection pressure of 500 psi determined from a step rate test performed October 19, 1992. This increase in fracture pressure corresponds to an increase in reservoir pressure. Reservoir pressure has increased due to water injection over the passed two years. Cumulative water injection to date is 100,632 barrels. The following summarizes the test data collected during the step rate test:

Date of Test	05/08/95
Fracture Gradient psi/ft	0.68
BH Frac Pressure (@ 3575'), psi	2440
Surface Frac Pressure, psi	680
Injection Rate, BPM (BPD)	0.56 (800)
Tubing Friction Pressure, psi	17
ISIP @ surface, psi	610

Attachment I is a plot of the injection rate versus bottomhole and wellhead pressures. The bottomhole pressure was obtained with a bottomhole gauge. Fracture pressure is indicated at 2440 psi (bottomhole) and 680 psi (wellhead) with a rate of 0.56 BPM (800 BWPD). Attachment II and III are the wellhead and bottomhole pressures used to create the data points in attachment I. Also attached is a wellbore schematic showing the well completion, Attachment IV.

If you have any questions concerning this matter please contact Mr. Robert Schaffitzel at (505) 325-4397, ext. 27. Your attention to this matter is greatly appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted A. Tipton", with a long horizontal flourish extending to the right.

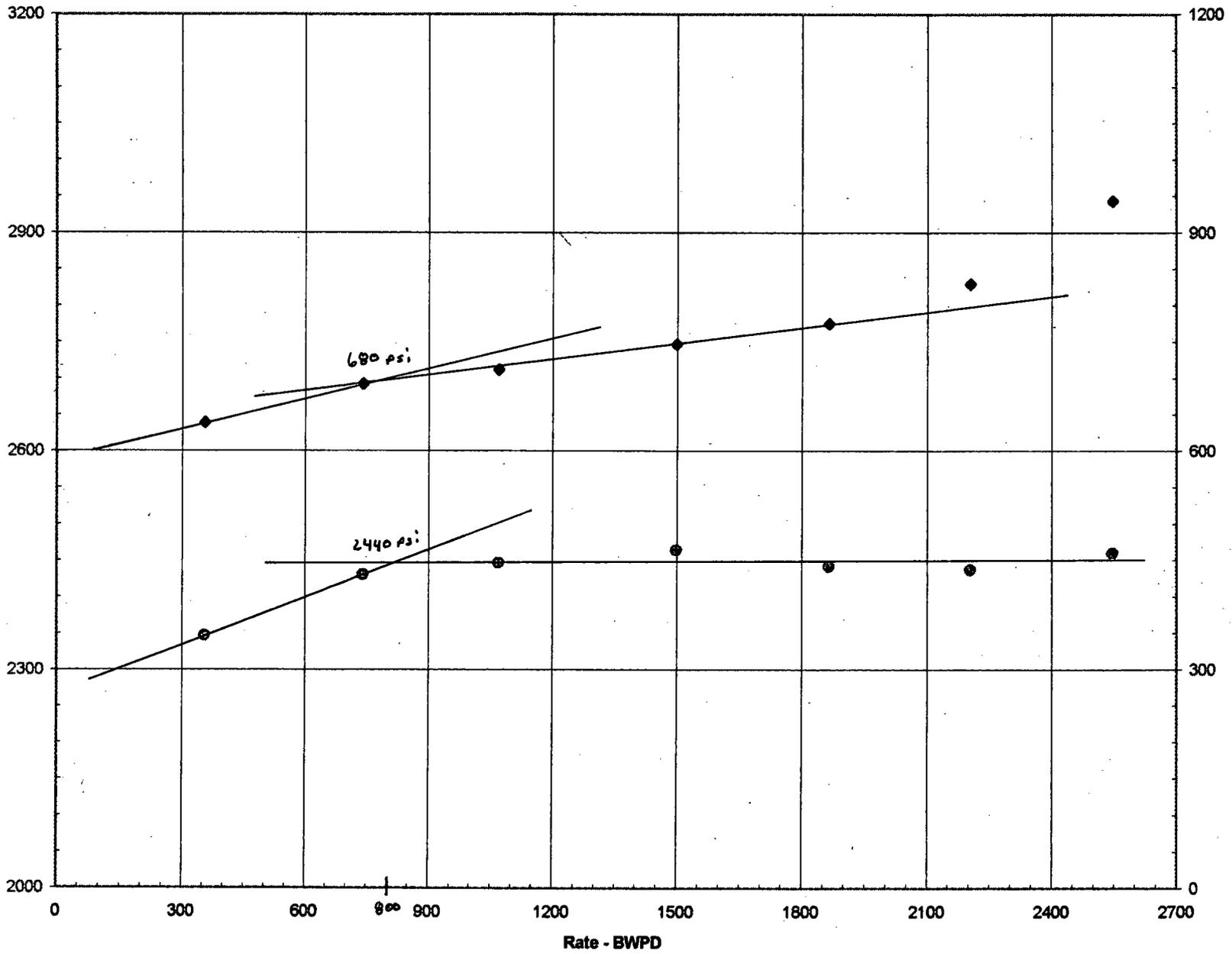
Ted A. Tipton
Operating Unit Manager

RFS/s

Attachments
NMOCD-Aztec
file

Step Rate Test
H.J. LOE Federal B #2

Attachment I



Surface Recorded Pressure

 * B & R SERVICE. INC. *
 * FARMINGTON, NM 87401 *
 * (505) 325-2393 *

COMPANY NAME...: TEXACO INC.
 DATE: 05/08/95
 WELL I.D.: H.J. LOE FEDERAL "B" #2
 FIELD I.D.: MESA VERDE
 RUN #: 1
 ENGINEER:
 ZERO REFERENCE: K.B.
 START DATE: 05/08/95
 START TIME: 09:45:00
 WELL STATUS...: STEP-RATE TEST
 GAUGE INFO:
 I.D.: RPG-3 PRESSURE
 SERIAL #.....: 51767
 RANGE.....: 5100 PSIG @ 175F
 COMMENTS: BHP RECORDED @ 3563' K.B.
 FILE #: 1

NO.	TIME		PRESSURE	
	DEFL (IN)	HRS.	DEFL (IN)	PSIG
1	0.0000	0.000	0.7166	2184.19
2	0.0704	0.079	0.7168	2184.81
3	0.1483	0.167	0.7168	2184.80
4	0.2221	0.250	0.7168	2184.30
5	0.2971	0.335	0.7183	2184.36
6	0.3708	0.418	0.7585	2311.55
7	0.4439	0.501	0.7667	2336.47
8	0.5185	0.585	0.7703	2347.42
9	0.5914	0.667	0.7928	2415.81
10	0.6653	0.750	0.7943	2420.36
11	0.7390	0.833	0.7979	2431.31
12	0.8136	0.917	0.8175	2490.88
13	0.8885	1.002	0.8124	2475.38
14	0.9617	1.084	0.8133	2477.81
15	1.0351	1.167	0.8096	2466.87
16	1.1090	1.251	0.8074	2460.18
17	1.1829	1.334	0.8088	2464.44
18	1.2566	1.417	0.8072	2459.57
19	1.3309	1.501	0.8045	2451.37
20	1.4047	1.584	0.8016	2442.55
21	1.4789	1.668	0.8010	2440.73
22	1.5527	1.751	0.8003	2438.60
23	1.6265	1.834	0.7999	2437.59
24	1.7002	1.917	0.8026	2445.57
25	1.7740	2.000	0.8053	2453.80
26	1.8482	2.084	0.8075	2460.49
27	1.9221	2.167	0.7933	2417.33
28	1.9949	2.250	0.7904	2408.51

***** end data *****

WELL TREATMENT REPORT

Schlumberger

Dowell

DOWELL SCHLUMBERGER INCORPORATED

DATE

05/08/95

DS-484-C PRINTED IN U.S.A.

WELL NAME AND NUMBER H.J. Low Fed. B # 2		LOCATION (LEGAL) S 23 T 29 N R 12 W		DS LOCATION Formington		TREATMENT NUMBER 5804	
POOL/FIELD		FORMATION Mesa Verde		BOTTOM HOLE TEMPERATURE		AGE OF WELL NEW <input type="checkbox"/> REWORK <input checked="" type="checkbox"/>	
COUNTY/PARISH San Juan		STATE N. Mexico		ALLOWABLE PRESSURE TBG: 2500 CSG:		PERFORATED INTERVALS	
TYPE OF SERVICE <input type="checkbox"/> MATRIX TREATMENT <input type="checkbox"/> SAND CONTROL <input checked="" type="checkbox"/> OTHER		PRIMARY TREATING FLUID Step Rate + Acid		CASING SIZE WT DEPTH 5 1/2 5.50 4250		OIL <input type="checkbox"/> GAS <input type="checkbox"/> WATER <input type="checkbox"/> INJ. <input checked="" type="checkbox"/>	
OPERATOR NAME Texaco				TUBING SIZE WT DEPTH 7 3/8 4.7 3184		TOP TO BOTTOM NO. OF HOLES	
SERVICE INSTRUCTIONS Do Step Rate Test, from .25 bbl/min, to 1.75 bbl/min 15 min/Step. Record I.S.I.P. Pull Pressure Bomb. Do 1000 gal Acid Job + Displ.				PACKER TYPE PACKER DEPTH 3184		TO TO TO	
FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS				TUBING VOLUME ANNULAR VOL 14.5		PERF. DIAMETER- IN.	
ARRIVED ON LOCATION: 0800 LEFT LOCATION: 1400				DISPLACEMENT 14.5		PERFORATED INTERVAL TOTAL- FT.	
				C. TBG. <input type="checkbox"/> TUBING <input checked="" type="checkbox"/> JOB DONE DOWN CASING <input type="checkbox"/> ANNULUS <input type="checkbox"/> BOTH <input type="checkbox"/>			

TIME (0001 to 2400)	INJECTION RECORD							PRESSURE		NOTATIONS
	TYPE OF FLUID	RATE BPM	CO ₂ RATE	INCREMENT VOL. BBLS	CUM. VOL. BBLS	PROP. TYPE	PROP. PPA	CSG.	TBG.	
										Pre-Job Safety Meeting
										Pressure Test To 3000 psi
1002	H ₂ O	.25		3.75				600		1st Rate 335.6 bbl/day
1017	H ₂ O	.5		7.5	3.75			670		2nd Rate 770
1032	H ₂ O	.75		11.25	11.25			690		3rd Rate 1080
1047	H ₂ O	1.0		15.45	22.5			730		4th Rate 1400
1102	H ₂ O	1.28		19.20	37.95			780		5th Rate 1845
1117	H ₂ O	1.52		22.8	57.15			830		6th Rate 2188
1132	H ₂ O	1.77		26.55	79.95			940		7th Rate 2548
										TSIP 600*
1211	15% MSR	.6		24	106.5			670		Start Acid. Bull Head
1232	15% MSR	.6						600		12 bbl's Away
1301	H ₂ O	.6		14.5	130.5			570		Start Displacement
1321	H ₂ O	.25			145			550		Lower Rate Last 4 bbl's
										PSI Bomb During treatment Step Rate @ 3560
										Perfs Cover w/ fill
1338								610		Shut Down

FLUID		BPM AVERAGE INJECTION RATES			WATER/ACID		VOLUME FLUID INJECTED		CARBON DIOXIDE		
NITROGEN		CARBON DIOXIDE			TOTAL W/PROP		NITROGEN		CARBON DIOXIDE		
							CCF		TONS		
TREATING PRESSURE SUMMARY		TOTAL INJECTED		QUANTITY PROPANT PLACED		TOTAL ORDERED/DESIGNED					
MAXIMUM	FINAL	AVERAGE	IMMED. S.D.P.	15 MIN S.I.P.	LBS		LBS				
940	930	800	610								



5/12/85

H. J. LOE FEDERAL B No. 2

CURRENT COMPLETION

LOCATION:

Unit G, 1850' FNL & 2310' FEL
 Sec. 23, T28N, R12W
 San Juan County

SPUD DATE: 4/09/60

COMPL DATE: 5/24/60

FORMATION TOPS:

San Jose Surface
 Ojo Alamo 440
 Fruitland 511
 Kirtland 540
 Pictured Cliffs 1698
 Cliff House 3238

PICTURED CLIFFS PERFS (10/90):
 SQZ'd w/ 50 SXS CMT
 1703'-15', 1722'-30'

MESA VERDE PERFS:
INJECTION INTERVAL
 3290'-3350', 4005'-4015',
 4090'-4120', 4190'-4210'
 4 JSPF, 480 Shots

PARTED CSG (1/75) - Plugged Back
 W/ 120 SXS @ 4505' (Parted CSG)

CIBP @ 6150'

DAKOTA PERFS (6/60):
 (Abandoned 1/77)
 6170'-79', 6244'-78', 6300'-10'

