



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

June 28, 1994

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Tierra Environmental Corporation
909 W. Apache
Farmington, NM 87401

Attention: Connie Dinning

**RE: Injection Pressure Increase
Bloomfield Refining SWD Well No. 1,
San Juan County, New Mexico**

Dear Ms. Dinning:

Reference is made to your request dated May 13, 1994 to increase the surface injection pressure on the Bloomfield Refining SWD Well No. 1. This request is based on a step rate test conducted on this well on January 22, 1994. 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 Injection Surface Pressure
Bloomfield Refining SWD No. 1 Unit I, Section 27, Township 29 North, Range 11 West, San Juan County, New Mexico.	955 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

WJL/DRC/amg

cc: Oil Conservation Division - Aztec
File: SWD-528
D. Catanach

Bloomfield Refining Disposal #1 1-22-94
Test #2

	Time	RATE	RSL
START	12.50 PM	.5 BPM	515
1	1.05	1 BPM	580
2	1.20	2.1 BPM	645
3	1.35	3 BPM	733
4	1.50	4.1 BPM	860
5	2.05	5 BPM	1005
6	2.20	6 BPM	1170
7	2.35	7 BPM	1372
8	2.50	8 BPM	1612
9	3.05	9.1 BPM	1910
10	2.20	10 BPM	2185

ISIP 600 15 MIN 590

Bloomfield Ref. Disposal #1 7-10-94
Test #1

PERFS. 3276-3616

START 12.39 PM .3 BPM W 500 PSI

1 12.52 .4 BPM W 595 PSI

2 1.08 2.5 BPM W 700 PSI

3 1.23 2.9 BPM W 750 PSI

4 1.38 3.6 BPM W 880 PSI

5 1.53 4.3 BPM W 990 PSI

6 2.08 5 BPM W 1100 PSI

7 2.23 5.4 BPM W 1190 PSI

8 2.38 6 BPM W 1320 PSI

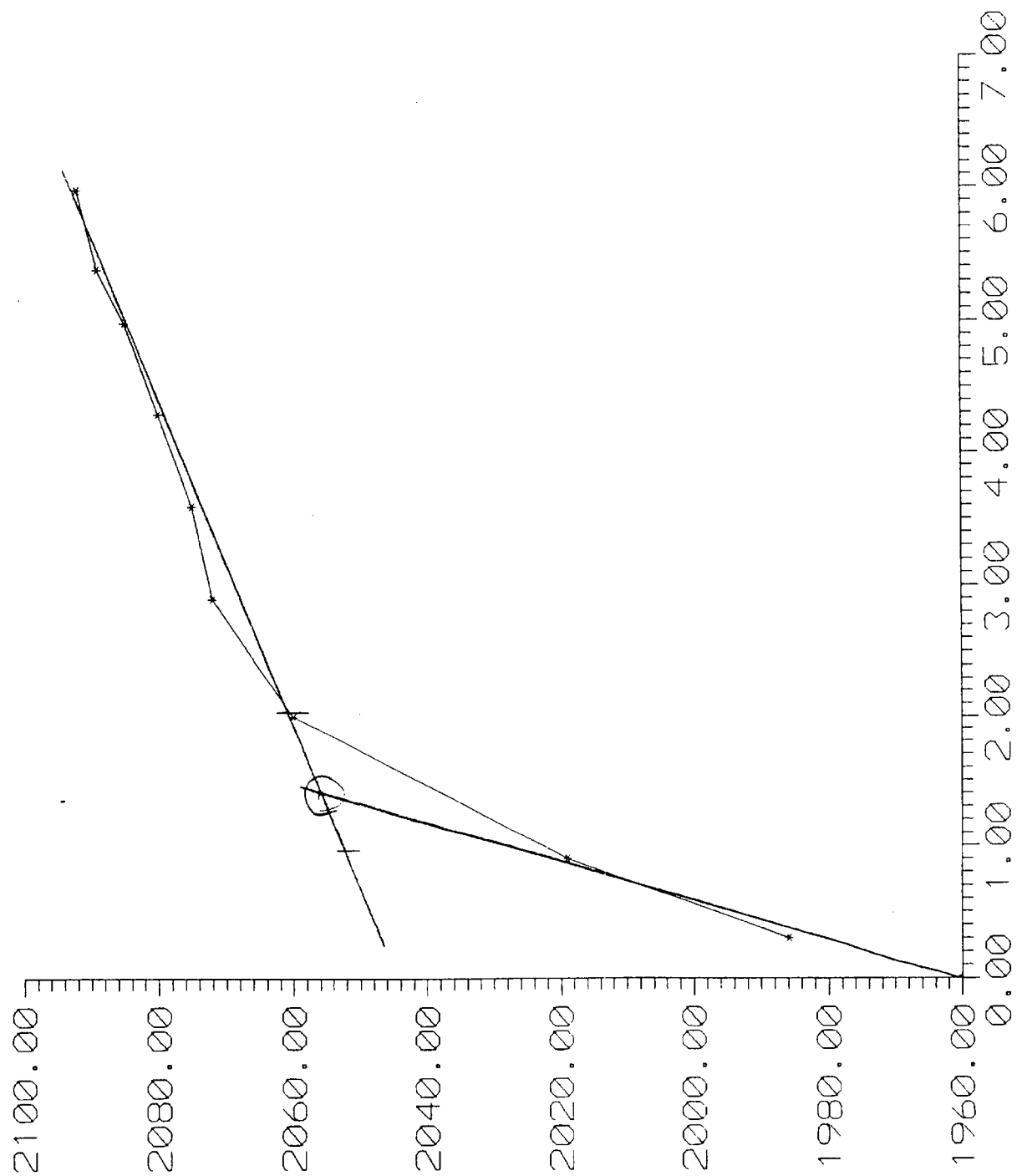
2.54 INSTANT SHUT IN 600 PSI AFTER
1.5 MIN. 600 PSI.

Bottom per 3514

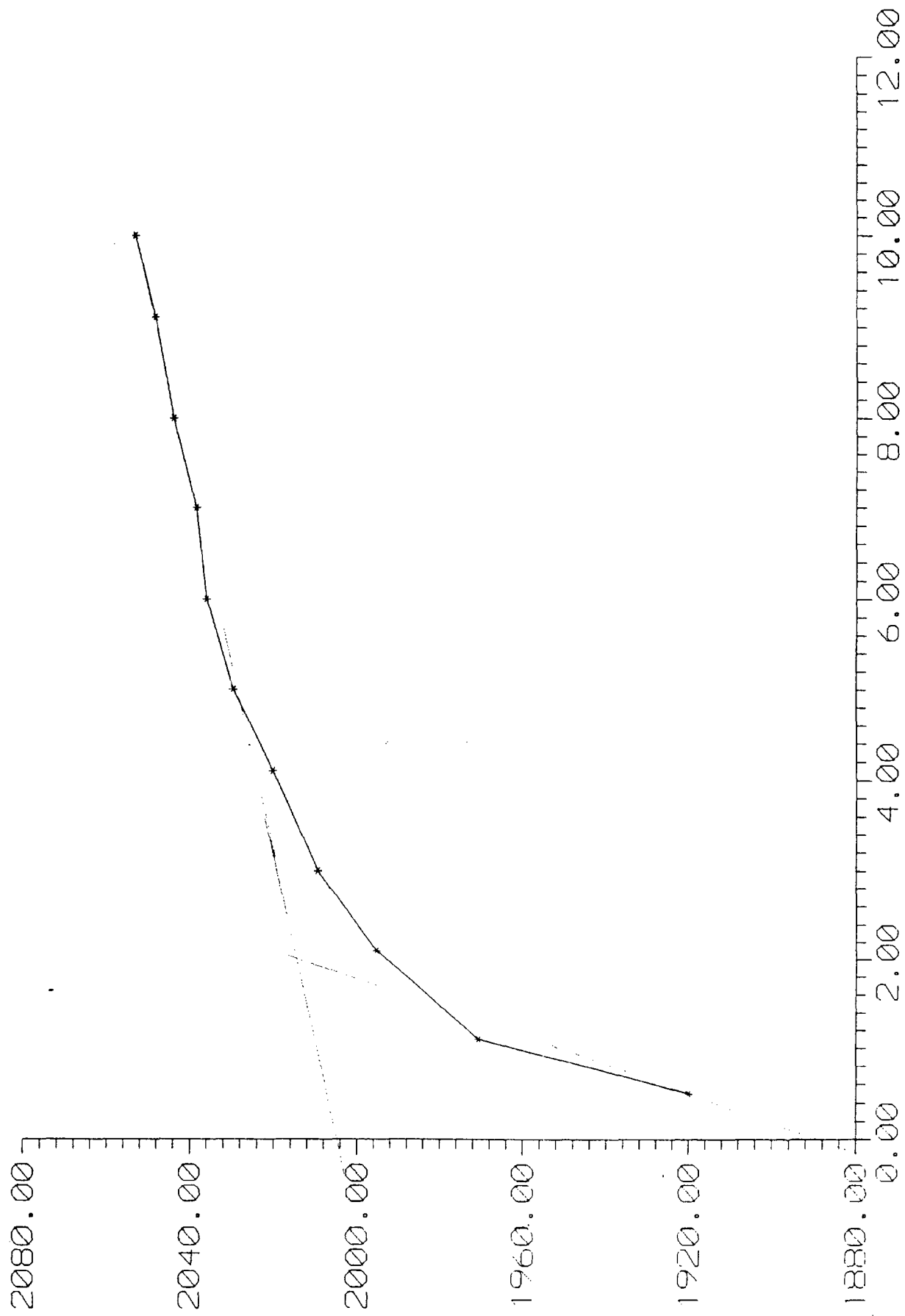
TD 3589

70827

Test 1 1-10-1991
Bottom Hole



Test #2 1-22-11

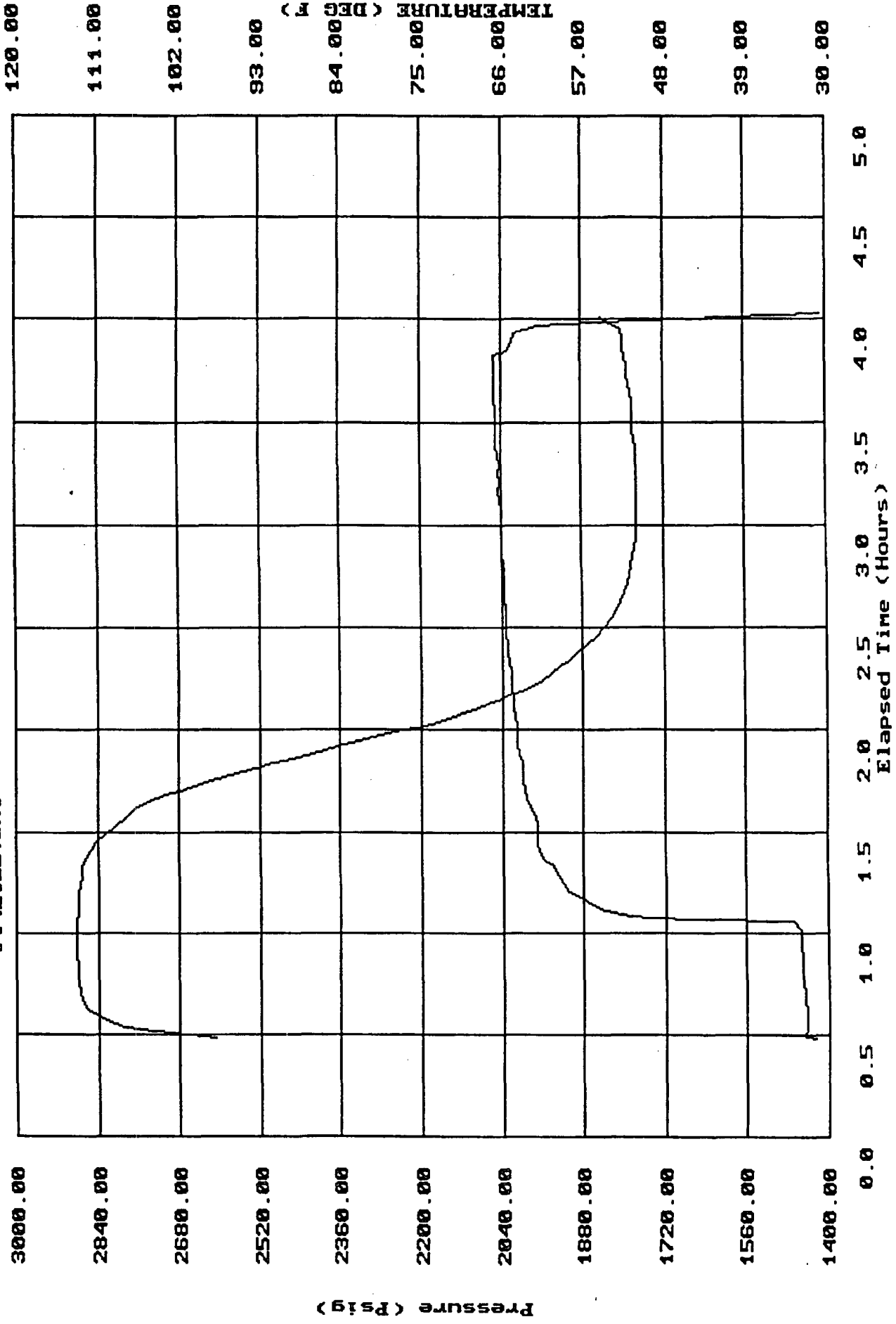


BLOOMFIELD REFINING COMPANY

Pressure vs Elapsed Time

BLOOMFIELD REFINING CO. NO. 1
SAN JUAN COUNTY, NM
F142122.DRY

TEETELLER, INC.
1-22-84
STEP RATE TEST

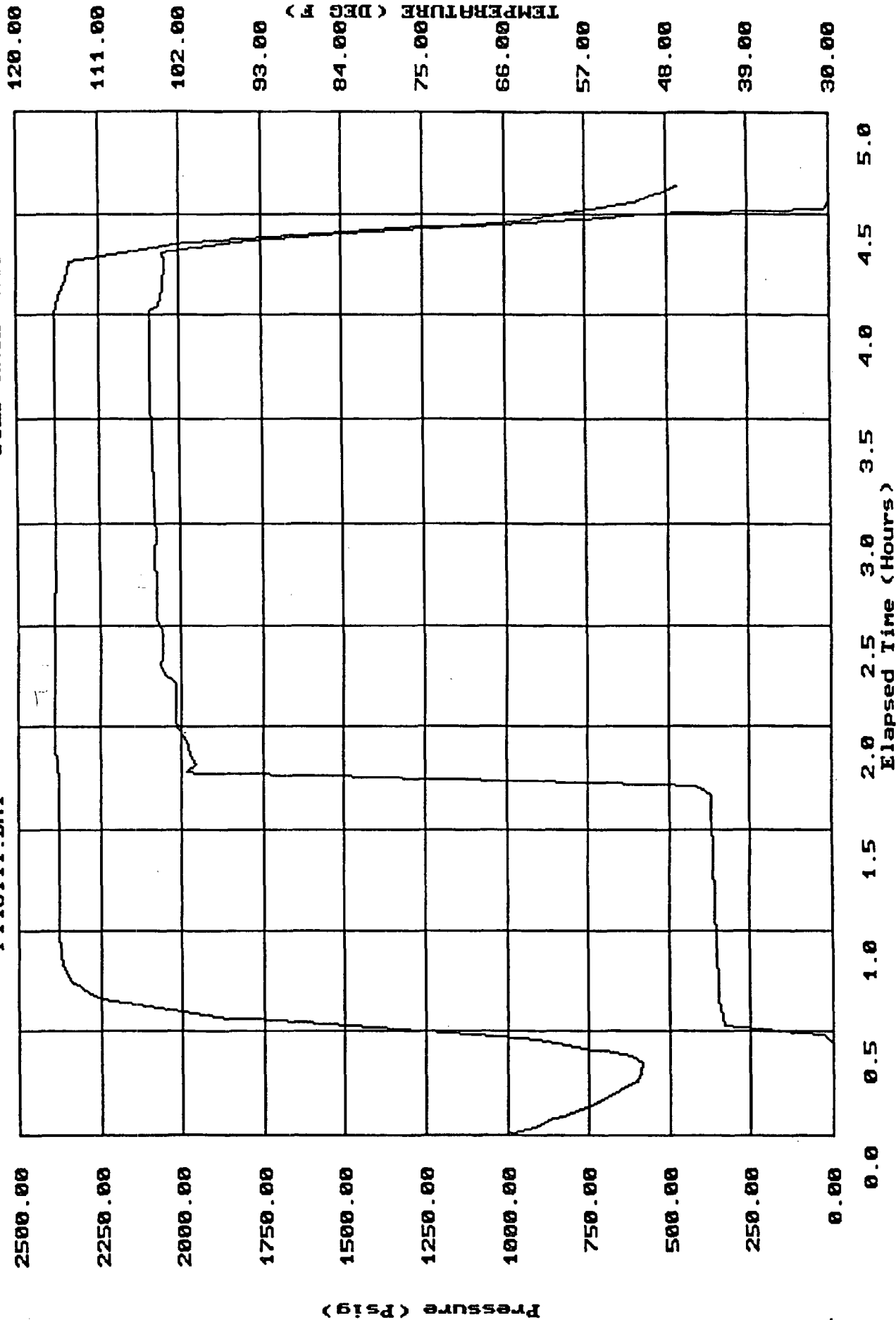


BLOOMFIELD REFINING COMPANY

Pressure vs Elapsed Time

BLOOMFIELD REFINING WD NO. 1
SAN JUAN COUNTY, NM
F113111-DH

TEFTTELLER, INC.
1-10-84
STEP RATE TEST



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 * EVENT SUMMARY *
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COMPANY : BLOOMFIELD REFINING COMPANY

PAGE : 8

WELL NAME : BLOOMFIELD REFINING WD NO. 1

DATE : 01/11/94

WELL LOCATION : SAN JUAN COUNTY, NM

FILE REF: F113111.DAT

Date MM/DD	Time hh:mm:ss	Test Time hhhh.hhhh	Key Event	Pressure Psig	Temp Deg F
01/10	11:27:00	.5333	INSTRUMENT @ 3346'	336.71	86.30
01/10	12:38:00	1.7167	START PUMP RATE #1 - SURFACE 500 PSI	415.70	115.61
01/10	12:53:00	1.9667	RATE #1/.3 BPM - SURFACE 500 PSI	1985.61	116.00
01/10	13:08:00	2.2167	RATE #2/.9 BPM - SURFACE 590 PSI	2018.37	115.96
01/10	13:23:00	2.4667	RATE #3/2.0 BPM - SURFACE 700 PSI	2058.49	115.91
01/10	13:38:00	2.7167	RATE #4/2.9 BPM - SURFACE 790 PSI	2072.51	115.86
01/10	13:53:00	2.9667	RATE #5/3.6 BPM - SURFACE 880 PSI	2076.02	115.82
01/10	14:08:00	3.2167	RATE #6/4.3 BPM - SURFACE 990 PSI	2080.83	115.77
01/10	14:23:00	3.4667	RATE #7/5.0 BPM - SURFACE 1100 PSI	2085.20	115.74
01/10	14:38:00	3.7167	RATE #8/5.4 BPM - SURFACE 1200 PSI	2088.79	115.72
01/10	14:53:00	3.9667	RATE #9/6.0 BPM - SURFACE 1300 PSI	2092.20	115.72

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 * EVENT SUMMARY *
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COMPANY : BLOOMFIELD REFINING COMPANY

PAGE : 8

WELL NAME : BLOOMFIELD REFINING WD NO. 1

DATE : 01/22/94

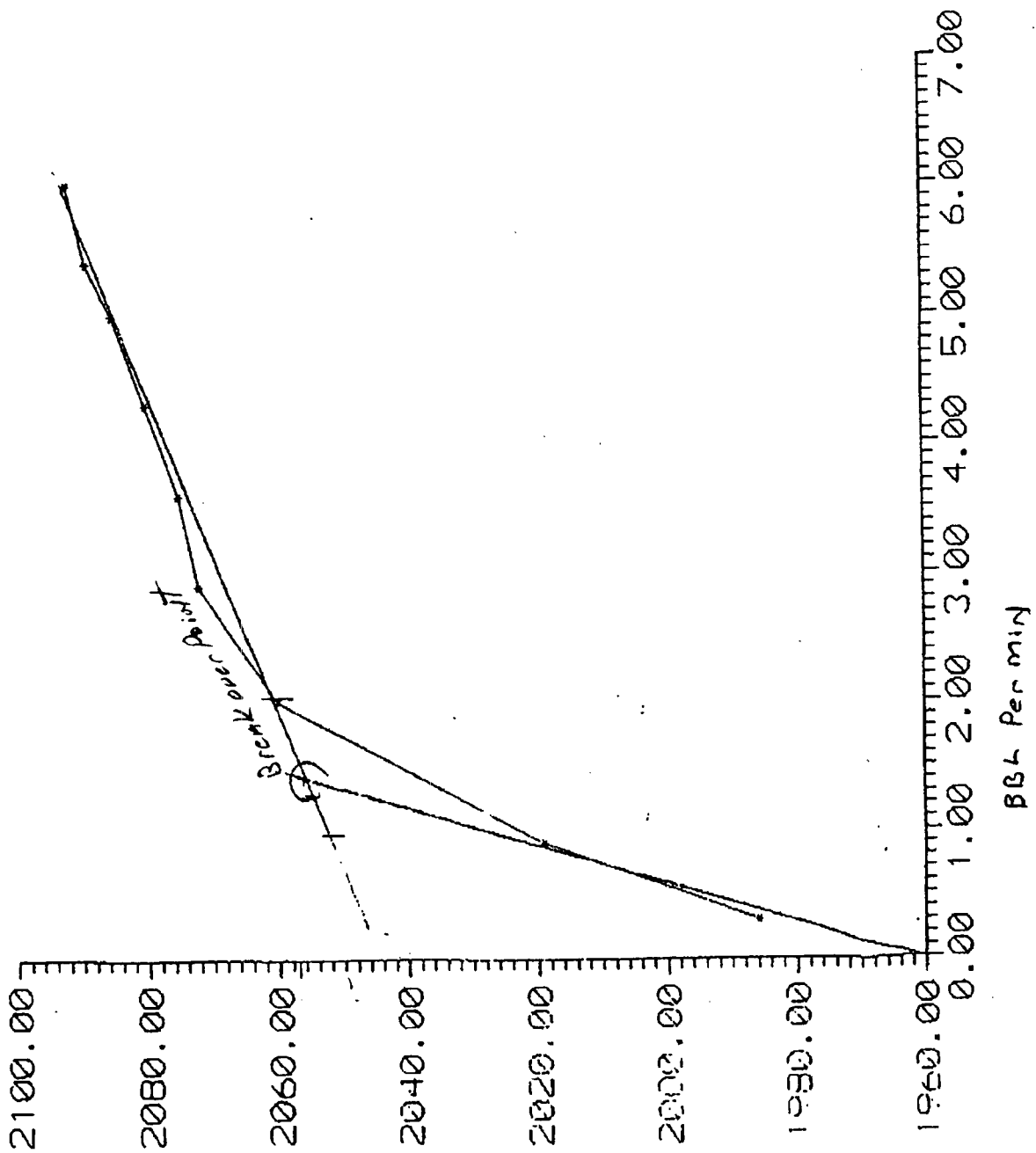
WELL LOCATION : SAN JUAN COUNTY, NM

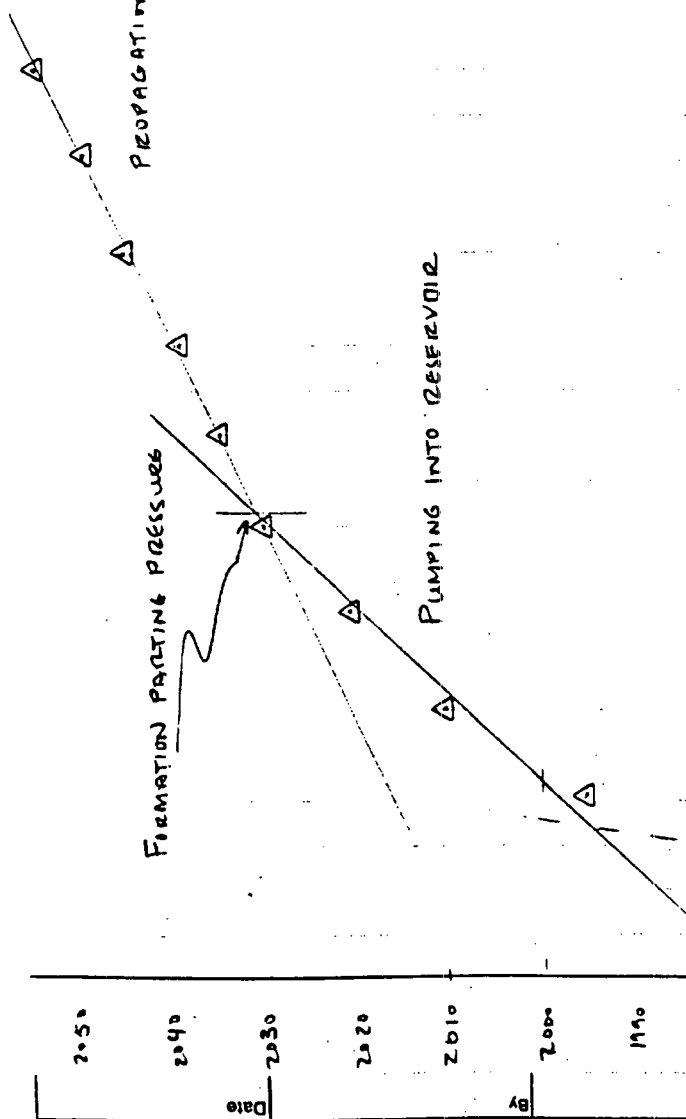
FILE REF: F142122.DAT

Date MM/DD	Time hh:mm:ss	Test Time hhhh.hhhh	Key Event	Pressure Psig	Temp Deg F
01/22	12:20:00	.5000	INSTRUMENT @ 3250'	1445.76	100.76
01/22	12:50:00	1.0000	START RATE #1	1454.03	113.26
01/22	13:05:00	1.2500	RATE #1/.5 BPM - SURFACE 515 PSI	1920.09	112.93
01/22	13:20:00	1.5000	RATE #2/1.1 BPM - SURFACE 580 PSI	1970.65	110.05
01/22	13:35:00	1.7500	RATE #3/2.1 BPM - SURFACE 645 PSI	1995.34	99.02
01/22	13:50:00	2.0000	RATE #4/3.0 BPM - SURFACE 733 PSI	2009.50	76.98
01/22	14:05:00	2.2500	RATE #5/4.1 BPM - SURFACE 860 PSI	2020.32	61.11
01/22	14:20:00	2.5000	RATE #6/5.0 BPM - SURFACE 1005 PSI	2029.79	54.52
01/22	14:35:00	2.7500	RATE #7/6.0 BPM - SURFACE 1170 PSI	2034.17	51.77
01/22	14:50:00	3.0000	RATE #8/7.0 BPM - SURFACE 1372 PSI	2038.64	50.93
01/22	15:05:00	3.2500	RATE #9/8.0 BPM - SURFACE 1612 PSI	2044.07	50.99
01/22	15:20:00	3.5000	RATE #10/9.1 BPM - SURFACE 1910 PSI	2048.46	51.38
01/22	15:35:00	3.7500	RATE #11/10.0 BPM	2053.33	52.03

Pressure break at Rate #7.

OCD





TIER 2A
ENVIRONMENTAL
WORK

1005 psi (SURFACE PRESSURE) 5.2 bpm, 2030 psi (BOTTOM HOLE)

The Western Company—Treatment Report

Date	01-10-94	District	FARMINGTON	F. Receipt	L256193	Operator	BLOOMFIELD REFINERY
Use	WD	Well No.	#1	Field	BASIN	Location	SEC 26 T29N R11W
County	SAN JUAN	State	NM	Stage Number	1	This Zone	☐ This Well ☐

WELL DATA	OG	NG	NO	OO	WD	IWD	Misc.	Depth TD/PB	3589	Formation	MESA VERDE
	Tubing Size		2 7/8	WT.	6.4	Set at:	3000	Type Packer	FB	Set At	3010
	Casing Size	5 1/2	WT.	15 1/2	Set From	SURFACE	To	TD	Liner Size		Wt.
	Liner Set From		To		Open Hole: Size		From		To		Casing Perforations: Size
	Holes Per Foot	2	Intervals	3276 - 3410	58 HOLES						
	Previous Treatment	Prior Production									

TREATMENT DATA		LIQUID/GAS PUMPED AND CAPACITIES IN BBL'S.	
Pad Used: Yes ☐ No ☒	Pad Type _____		
Treating Fluid Type: Foam ☐ Water ☒ Acid ☐ Oil ☐		Treat. Fluid Vol.	20538 Gal.
Base Fluid Type	2% KCL	Base Fluid Vol.	20538 Gal.
Foam Qual.: _____%	Mitchell ☐ Slurry ☐ Surface ☐ Downhole ☐	Total Prop Qty.	_____ Lbs.
Prop Type: Sand ☐ WP-1 ☐ WP-3 ☐ Baux. ☐ Other _____			
Prop Mesh Sizes, Types and Quantities _____			
Hole Loaded With	DRY	Treat Via: Tubing ☒ Casing ☐ Anul. ☐ Tubing & Anul. ☐	
Ball Sealers:	_____ In _____	Stages of _____	
Types and Number of Pumps Used		1 ACID FRAC - 700	
Auxiliary Materials			
		Tubing Cap.	17.8
		Casing Cap.	6.3
		Annular Cap.	59.1
		Open Hole Cap.	_____
		Fluid to Load	_____
		Pad Volume	_____
		Treating Fluid	489
		Flush	_____
		Overhead	_____

LIQUID/GAS PUMPED AND
CAPACITIES IN BBLS.

Tubing Cap. 17.8
Casing Cap. 6.3
Annular Cap. 59.1
Open Hole Cap. _____
Fluid to Load _____
Pad Volume _____
Treating Fluid 489
Flush _____
Overflush _____
Fluid to Recover 489
Total N² _____
Total CO₂ _____

PROCEDURE: TEST ANNULUS, LOAD HOLE, START STEP RATE, SET 8 POINTS

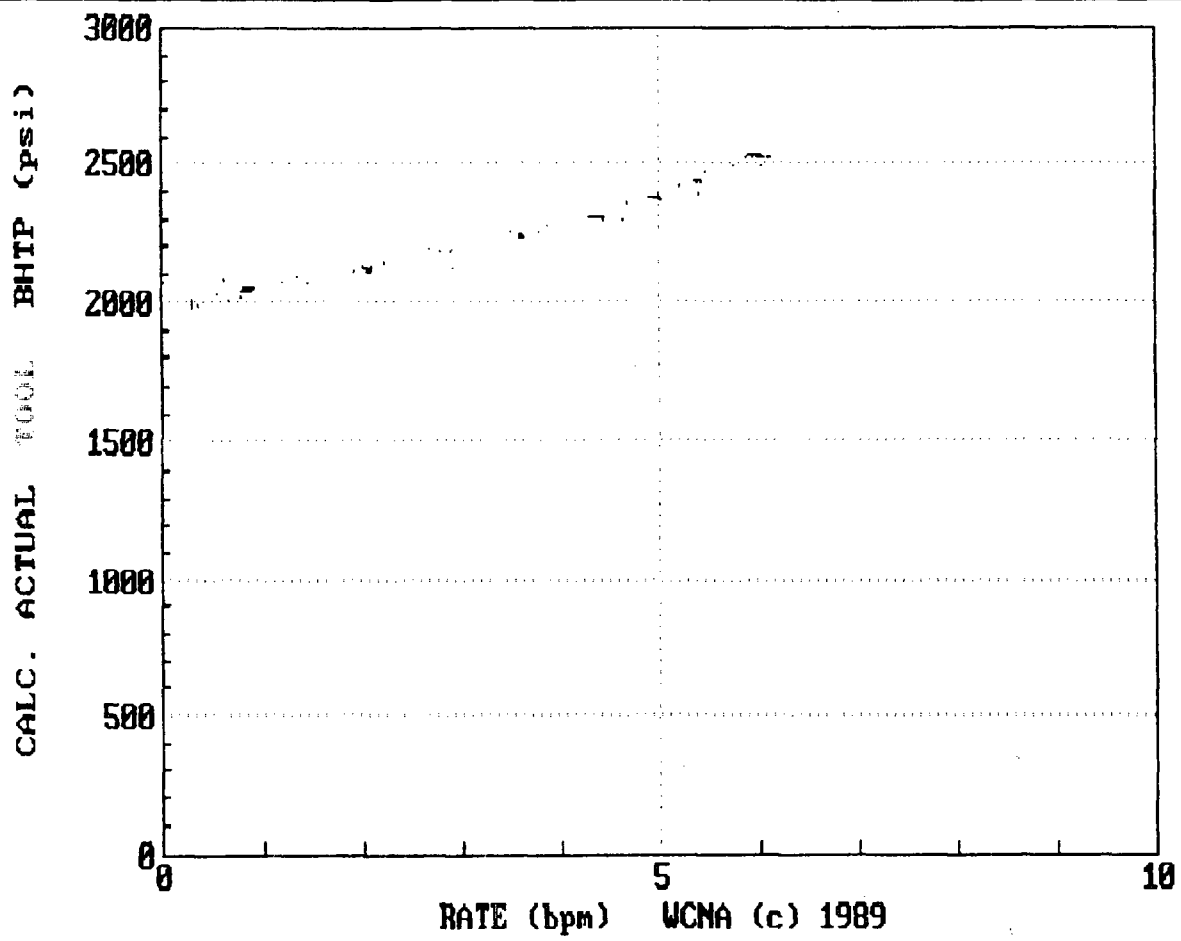
SUMMARY

[illegible]

Operating Pressure: Min.	500	Max.	1330	Avg.	1000	Customer Representative	BOB IVY
Rate on Treating Fluid	4	-	6	Rate on Flusn		Western Representative	HARRY MITCHELL
...g. Inj. Rate		I.S.D.P.	600	Flusn Dens. lb./gal.		Distribution	
Final Shut-in Pressure	600	in	15	Minutes			
Operator's Maximum Pressure	2500 PSI						

Job Number:

Recommendation ID #



The Western Company—Treatment Report

Date 01-22-94 District FARMINGTON F. Receipt L272508 Operator BLOOMFIELD REFINERY
 e WD Well No. #1 Field BASIN Location SEC 26 T29N R1W
 County SAN JUAN State NM Stage Number 2 This Zone ☐ This Well ☐

WELL DATA CGG ☐ NGG ☐ NOG ☐ DOG ☐ WDG ☐ IWD ☐ Misc. ☒ Depth TD/PB 3589 Formation MESA VERDE
 Tubing Size 2 7/8 WT. 6.4 Set at: 3215 Type Packer FB Set At 3215
 Casing Size 5.5 WT. 15.5 Set From SURFACE To TD Liner Size Wt.
 Liner Set From To Open Hole Size From To Casing Perforations: Size .50
 Holes Per Foot Intervals 3276 - 3514 320 HOLES
 Previous Treatment Prior Production

TREATMENT DATA Pad Used: Yes ☐ No ☒ Pad Type
 Treating Fluid Type: Foam ☐ Water ☒ Acid ☐ Oil ☐ Treat. Fluid Vol. 35154 Gal.
 Base Fluid Type 2% H2O Base Fluid Vol. 35154 Gal.
 Foam Qual.: % Mitchell ☐ Slurry ☐ Surface ☐ Downhole ☐ Total Prop Qty. Lbs.
 Prop Type: Sand ☐ WP-1 ☐ WP-3 ☐ Baux. ☐ Other
 Prop Mesh Sizes, Types and Quantities
 Hole Loaded With H2O Treat Via: Tubing ☒ Casing ☐ Anul. ☐ Tubing & Anul. ☐
 Ball Sealers: In Stages of
 Types and Number of Pumps Used 1 ACID FRAC 700, 1 ACID MASTER
 Auxiliary Materials H2O TEMP 42 DEGREES

LIQUID/GAS PUMPED AND CAPACITIES IN BBLs.

Tubing Cap. .00592 - 19
 Casing Cap. .0238 - 1.4
 Annular Cap. .0158
 Open Hole Cap.
 Fluid to Load 1.5
 Pad Volume
 Treating Fluid 35154
 Flush
 Overflush
 Fluid to Recover 839
 Total N₂
 Total CO₂

PROCEDURE SUMMARY

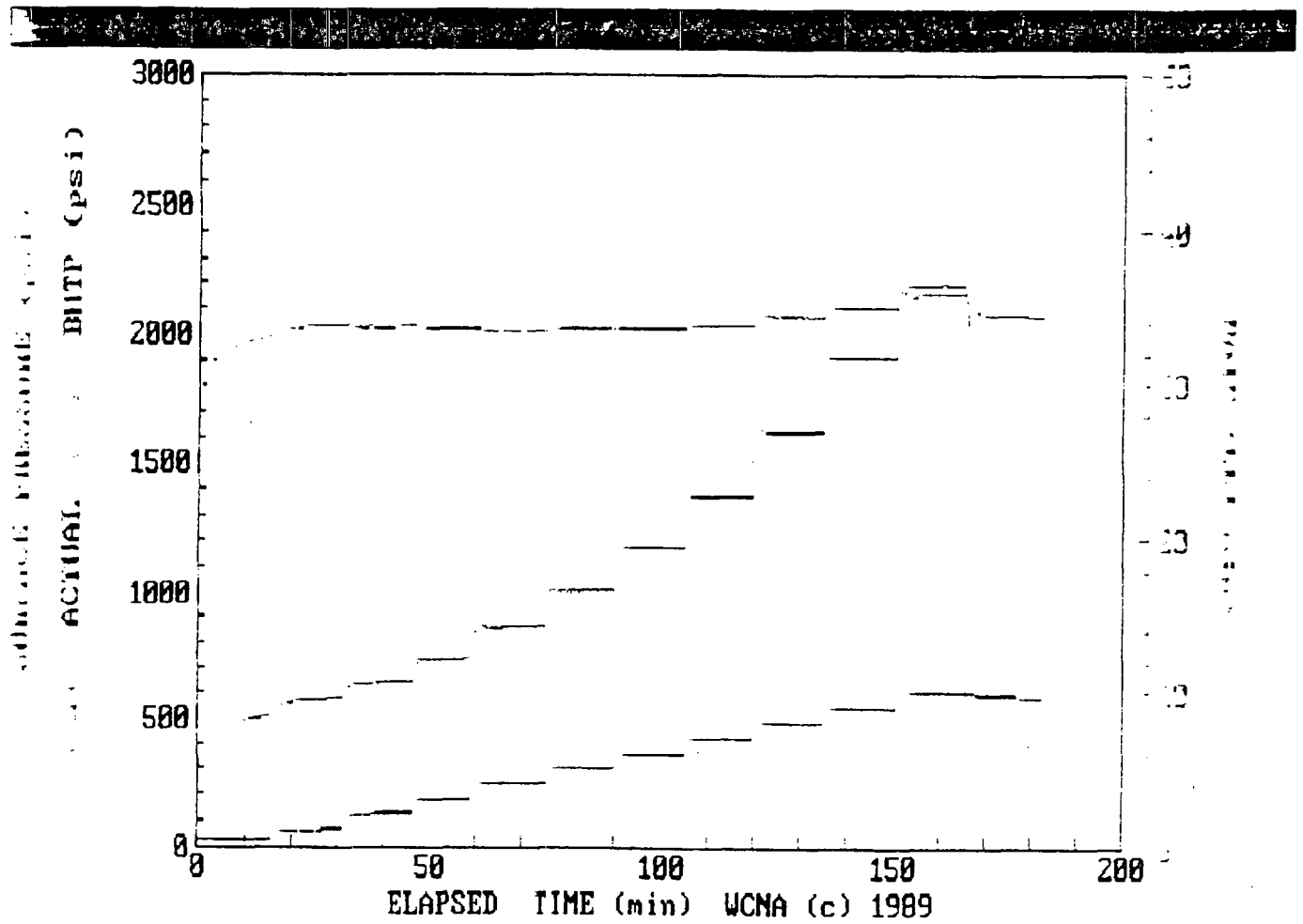
AM/PM	Treating Pressure-Psi	Surface Slurry BBLs Pumped	Slurry Rate BPM	Surface CO ₂ BBLs Pumped	CO ₂ Rate BPM	Surface N ₂ MSCF Pumped	N ₂ Rate SCFM	Comments
	STP	Annulus	Stage	Total	Stage	Total	Stage	Total
10:46	0				1.5			PUMP DOWN ANNULUS
10:49	30		7	7	2			LOAD ANNULUS
10:51	110		10	10				CAME AROUND SHUTDOWN
11:59	0				.3			PRESSURE UP BACKSIDE
	200		1.5	1.5				SHUTDOWN
12:00					.2			PRESSURE UP BACKSIDE
12:01	400		.3	.3				SHUTDOWN
12:50	0		0	9	.5			START PUMPING .5 BPM
1:08	550		16	25	1			START 1 BPM
1:23	630		32	57	2			START 2 BPM
1:38	720		35	92	3			START 3 BPM
1:52	840		68	161	4			START 4 BPM
2:07	1000		73	234	5			START 5 BPM
2:22	1150		91	325	6			START 6 BPM
2:37	1370		101	426	6			START 7 BPM
2:52	1630		121	547	7			START 8 BPM
3:07	1910		140	687	8			START 9 BPM
3:22	2180		150	837	9			START 10 BPM
3:37	600			837	10			SHUTDOWN

Treating Pressure: Min. 550 Max. 2180 Avg. 1000 Customer Representative MR SCHOFF
 Rate on Treating Fluid .5 - 10 BPM Rate on Flush Western Representative AARON HEPWORTH
 Inj. Rate .5 - 10 BPM I.S.D.P. 600 Flush Dens. lb./gal. Distribution
 Final Shut-in Pressure in Minutes 5 MIN - 590 PSI
 Operator's Maximum Pressure 3000 PSI 10 MIN - 590
15 MIN - 580

Job Number

Recommendation ID #

WESTERN CO



"""""""" THE WESTERN COMPANY OF NORTH AMERICA -- STEP RATE ANALYSIS """"""""
ELAPSED TIME = 182.00 min. AVE. STP. = 1213 psi. AVE. RATE = 5.9 bpm.

POINT #	RATE bpm.	PRESSURE psi.
1	1.0	2023
2	3.0	2016
3	6.0	2016
4	7.0	2027
5	10.0	2147
6	9.1	2102

ESTIMATED BOTTOMHOLE CLOSURE PRESSURE = 1746 psi.
BOTTOMHOLE FRACTURE EXTENSION PRESSURE = 2014 psi.
FRACTURE EXTENSION RATE = 6.6 bpm.