



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Betty Rivera
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

February 26, 2002

Richardson Operating Company
1700 Lincoln
Suite 1700
Denver, Colorado 80203

Attn: Mr. John Whisler

*Re: Injection Pressure Increase - 169
Salty Dog Well No. 1
San Juan County, New Mexico*

Dear Mr. Whisler:

Reference is made to your request dated February 18, 2002, to increase the surface injection pressure on the above referenced well. This request is based on a step rate test conducted on the well on February 18, 2002. 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
Salty Dog Well No. 1	1472 PSIG
Located in Lot 2, Section 1, Township 29 North, Range 15 West, NMPM, San Juan 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.

Injection Pressure Increase
Richardson Operating Company
Salty Dog Well No. 1
Page 2

Sincerely,

A handwritten signature in cursive script, appearing to read "Lori Wrotenberg by Dr".

Lori Wrotenberg
Director

cc: Oil Conservation Division - Aztec
Files: SWD-753; PSI-X, 2002 ✓

30-045-29946

753

FACSIMILE COVER SHEET

RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203Phone: (303) 830-8000
Fax: (303) 830-8009

1472 psi

TO: Dave C. COMPANY: _____FROM: John W. DATE: _____

FAX NUMBER: _____ PHONE: _____

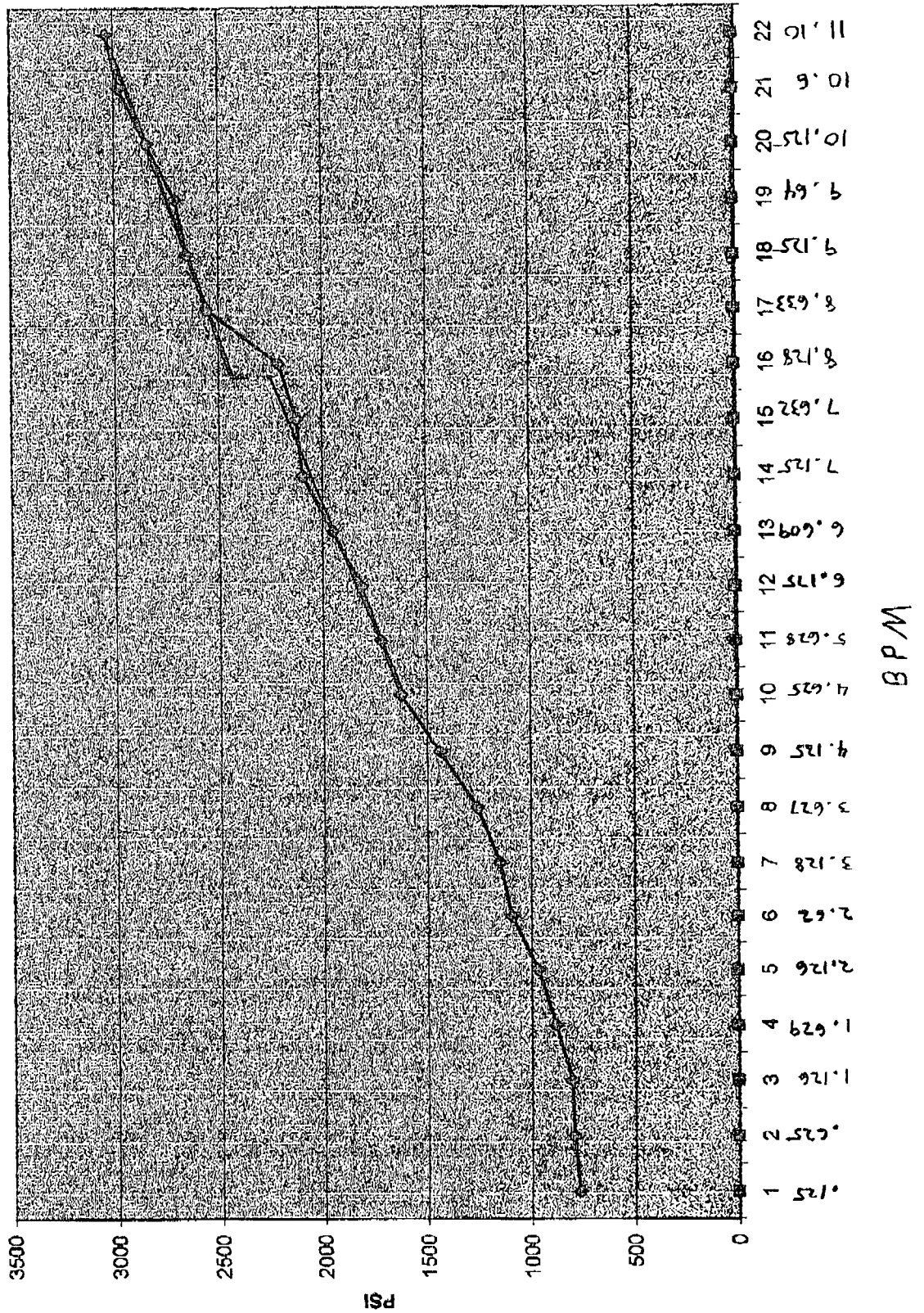
MESSAGE: Dave,After plotting the results, I believe
8.128 is our break over point. @ 2560#PSI
What is the max I can get?Can I get 15.5 BPM @ 1850 PSI

- | | | |
|--|--|---|
| ☐ Call Me | ☐ F.Y.I. | ☐ For Your Approval |
| ☐ Urgent | ☐ By Your Request | ☐ Per Our Conversation |
| ☐ Did You Know? | ☐ Call upon receipt | ☐ Comments Requested |

NUMBER OF PAGES INCLUDING THIS COVER PAGE: _____

SALTY DOG #1

Series1 Series2



FACSIMILE COVER SHEET**RICHARDSON OPERATING COMPANY**

1700 Lincoln, Suite 1700
Denver, Colorado 80203

Phone: (303) 830-8000

Fax: (303) 830-8009

TO: Dave Catanach COMPANY: _____

FROM: _____ DATE: _____

FAX NUMBER: 505-476-3471 PHONE: _____

MESSAGE: This is my step injection test
rate that I want to run. Please
call & let me know if this is OK
w/ you. Thank you

John Whisler

☐ Call Me

☐ F.Y.I.

☐ For Your Approval

☐ Urgent

☐ By Your Request

☐ Per Our Conversation

☐ Did You Know?

☐ Call upon receipt

☐ Comments Requested

NUMBER OF PAGES INCLUDING THIS COVER PAGE: _____

RICHARDSON OPERATING COMPANY

STEP INJECTION RATE

SALTY DOG #2

SEC. 1 T29N, R15W
1200' FNL 1380' FEL

API 30-045-29946

PERFS: POINT LOOKOUT 3088'-3220'
PBTD 3349' CASING 5 1/2" 15.5#

TUBING 2 7/8" @ 2100

BPM	STAGE	CUM	CUM BBL
0.125	15	15 MIN.	1.875
0.625	15	30 MIN.	9.375
1.125	15	45 MIN.	16.875
1.625	15	1:00 HR	24.375
2.125	15	1:15 HR	31.875
2.625	15	1:30 HR	39.375
3.125	15	1:45 HR	46.875
3.625	15	2:00 HR	54.375
4.125	15	2:15 HR	61.875
4.625	15	2:30 HR	69.375
5.125	15	2:45 HR	76.875
5.625	15	3:00 HR	84.375
6.125	15	3:15 HR	91.875
6.625	15	3:30 HR	99.375
7.125	15	3:45 HR	106.875
7.625	15	4:00 HR	114.375
8.125	15	4:15 HR	121.875
8.625	15	4:30 HR	129.375
9.125	15	4:45 HR	136.875
9.625	15	5:00 HR	144.375
10.125	15	5:15 HR	151.875
10.625	15	5:30 HR	159.375
11.125	15	5:45 HR	166.875
11.625	15	6:00 HR	174.375
12.125	15	6:15 HR	181.875
			0
			0
		TOTAL BBL	2296.875

FACSIMILE COVER SHEET**RICHARDSON OPERATING COMPANY**

1700 Lincoln, Suite 1700
Denver, Colorado 80203

Phone: (303) 830-8000

Fax: (303) 830-8009

TO: Dave Caranach COMPANY: _____

FROM: John Whisler DATE: _____

FAX NUMBER: _____ PHONE: _____

MESSAGE: I'm sending you a copy of Sgty
dog #1 Stop Test. Please look as soon
as possible. I have half my field shot
in waiting for approval to inject. Please
call me at 303-830-8000. Thank you very much.

☐ Call Me

☐ F.Y.I.

☐ For Your Approval

☐ Urgent

☐ By Your Request

☐ Per Our Conversation

☐ Did You Know?

☐ Call upon receipt

☐ Comments Requested

NUMBER OF PAGES INCLUDING THIS COVER PAGE: _____

AMERICAN ENERGY SERVICES

Treatment Report

Date: <u>15-Feb-02</u>		District: <u>Farmington</u>		Job No: <u>70023668</u>		Customer: <u>Richardson Operating</u>	
Well Name: <u>Salty Dog</u>		Lease: <u>#1</u>		Field: <u></u>		Location: <u>Sect1,T29N,R15W</u>	
County: <u>San Juan</u>		State: <u>N.M.</u>		Stage #: <u>1 of 2</u>			

WELL DATA		Formation: <u>Mesaverde</u>	TD: <u>PB: 3420'</u>	Other Well Data	
Casing Size: <u>5 1/2 in. OD</u>	Weight: <u>15.50 #</u>	Set From/To: <u>0 to 3420</u>	Teffeller Wire Line Bomb		
Liner Size: <u></u>	Weight: <u></u>	Set From/To: <u></u>			
Tubing Size: <u>2 7/8 in. OD</u>	Weight: <u>7 #</u>	Set at: <u></u>			
Packer Type: <u></u>	Set at: <u>2100'</u>				
No. of Perfs: <u>226</u>	Perf Size: <u>0.41"</u>	Interval: <u>3088' to 3154'</u>			

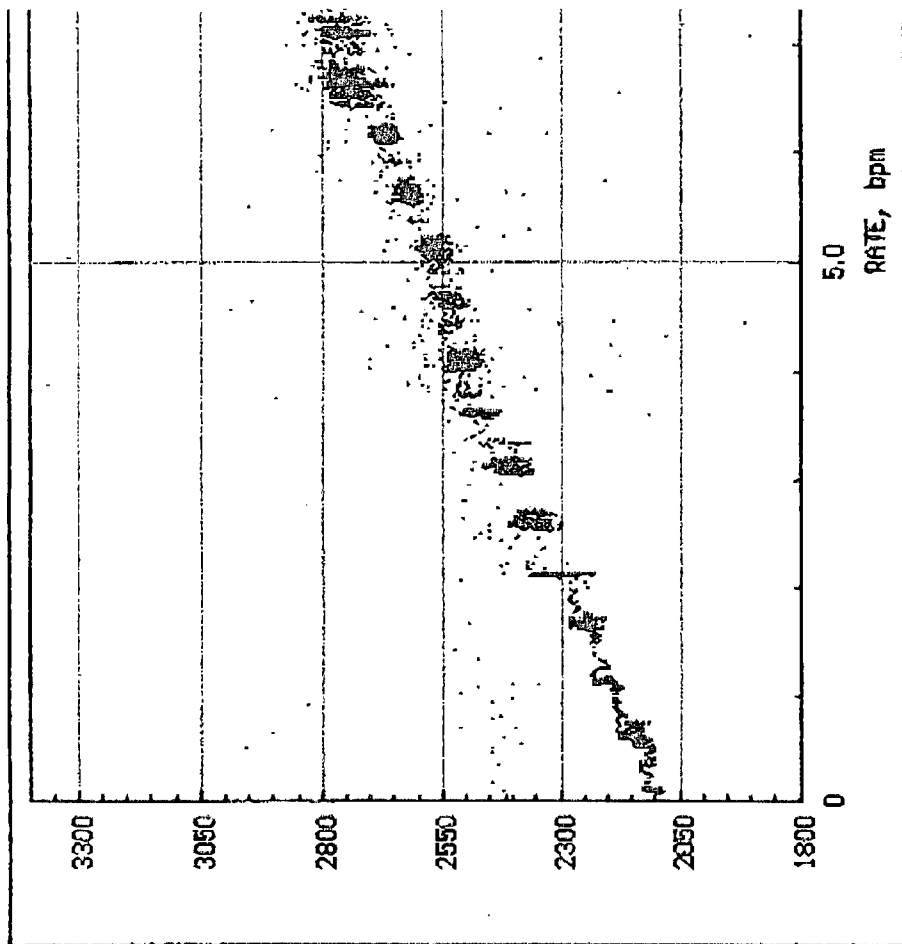
TREATMENT DATA		Job Type: ☐ Acid ☐ Frac ☒ Other	Foam (Y/N): <u>N</u>	Capacities and Ttl Liquid/Gas Pumped	
Pad Type: <u>Produced H2O</u>	Pad Volume: <u></u>	Tubing Cap. <u>12.39 bbl</u> Casing Cap. <u>21.6 bbl</u> Annular Cap.: <u></u> Open Hole Cap.: <u></u>			
Base Fluid Type: <u>Produced H2O</u>	Base Fluid Vol.: <u></u>				
Foam Quality: <u></u>	Mitchell or CIP: <u></u>				
Prop Types: <u></u>	Prop Mesh: <u></u> Prop Quantity: <u></u>				
Treat Via: <u>Tubing</u>	☒ Tubing ☐ Casing ☐ Annulus ☐ Tubing & Annulus				
Hole Loaded With: <u>Produced H2O</u>		Fluid to load: <u>3.0 bbl</u>			
Procedure Summary	See attached procedure / 1 thru 22			Flush Vol.: <u></u>	
				Fluid to Recover: <u>75943 bbl</u>	
		Total CO ₂ / N ₂ : <u></u>			

Time	Treating Pressure (psi)		Slurry Rate BPM	Surface Slurry BBLs Pumped		CO ₂ or N ₂ Rate BPM or SCFM	Surface CO ₂ or N ₂ Pumped		Comments
	STP	Annulus		Stage	Total		Stage	Total	
530									Rig Up
700									Rig Down / Run Bomb
1018	4600								PT Line
1028	768		0.125	1.8					Start Water
1044	796		0.625	8.6	10.4				Change Rate
1057	806		1.126	16.8	27.2				Change Rate
1112	892		1.629	24.3	51.5				Change Rate
1153	966		2.126	31.3	82.8				Change Rate
1144	1093		2.82	39.3	122.1				Change Rate
1159	1159		3.128	46.8	168.9				Change Rate
1228	1255		3.627	54.3	223.2				Change Rate
1243	1438		4.125	61.8	285				Change Rate
1258	1522		4.128	69.3	354.3				Change Rate
1312	1625		4.625	76.8	431.1				Change Rate
1228	1814		5.628	84.3	515.4				Change Rate
1244	1950		6.175	91.8	607.2				Change Rate
1269	2095		6.609	99.38	706.56				Change Rate
1414	2123		7.125	106.8	813.68				Change Rate
1429	2210		7.632	114.3	927.68				Change Rate
1444	2560		8.128	121.8	1049.48				

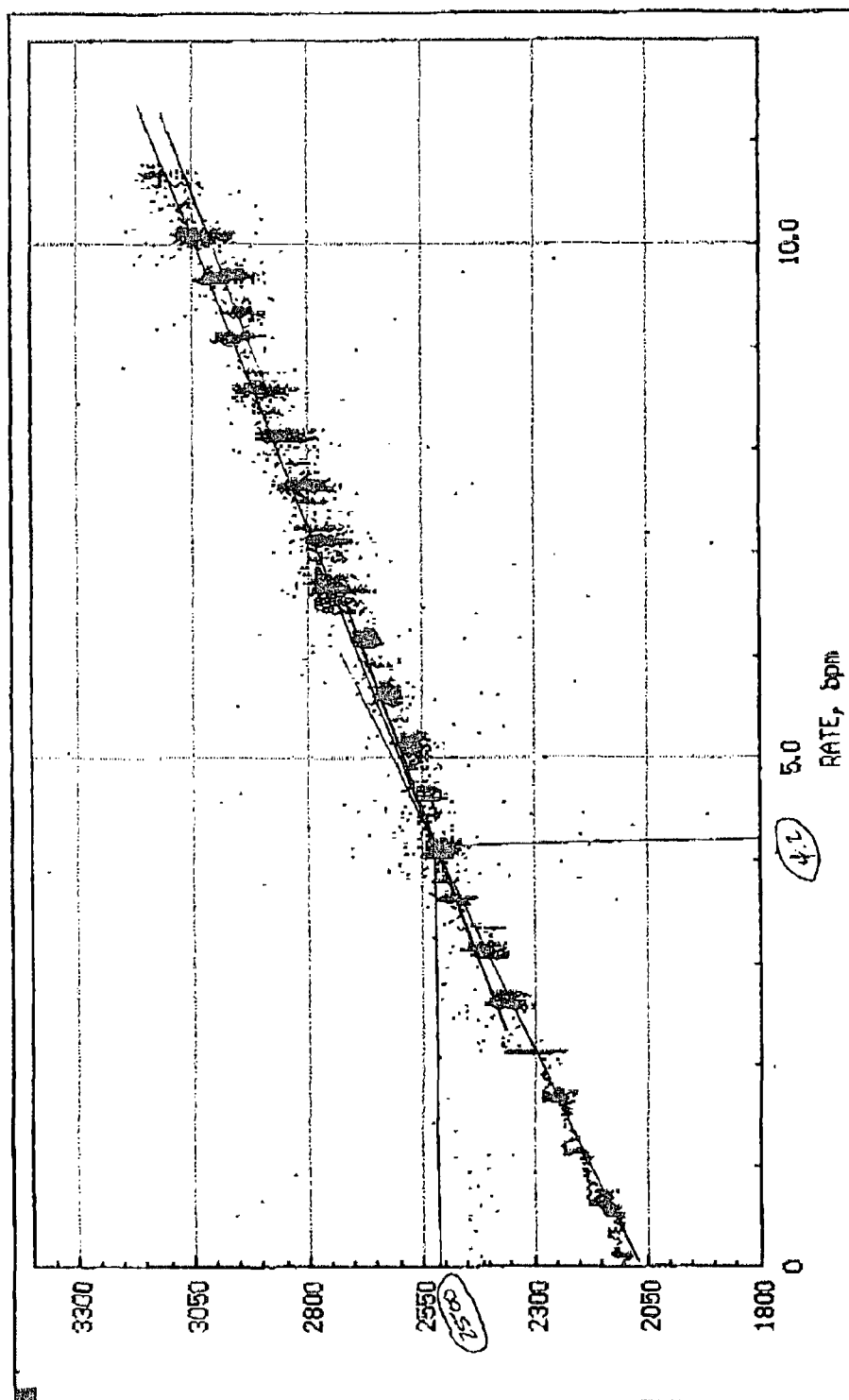
Treating Rate: Minimum: <u>0.125 bpm</u>	Maximum: <u>3,076 psi</u>	Average: <u>1921.60</u>
Initial Shut Down Pressure: <u>1,030 psi</u>	Maximum: <u>10.6 bpm</u>	Average: <u>5.38</u>
Operators Maximum Pressure: <u>3,500 psi</u>	Final Shut-In Pressure: <u>1050 15 MINUTES</u>	
Customer Representative: <u>MR. Jim Richardson</u>	American Energy Services Rep: <u>Steve Grindle</u>	

AMERICAN ENERGY SERVICES

[illegible]



Mesaverde
 Richardson Operating
 Step Rate Test / February 15, 2001
 PAGE : 4-G (2/15/2002 16:12:28) Data stored in C:\SMARTS\DATADIR\SD1STE

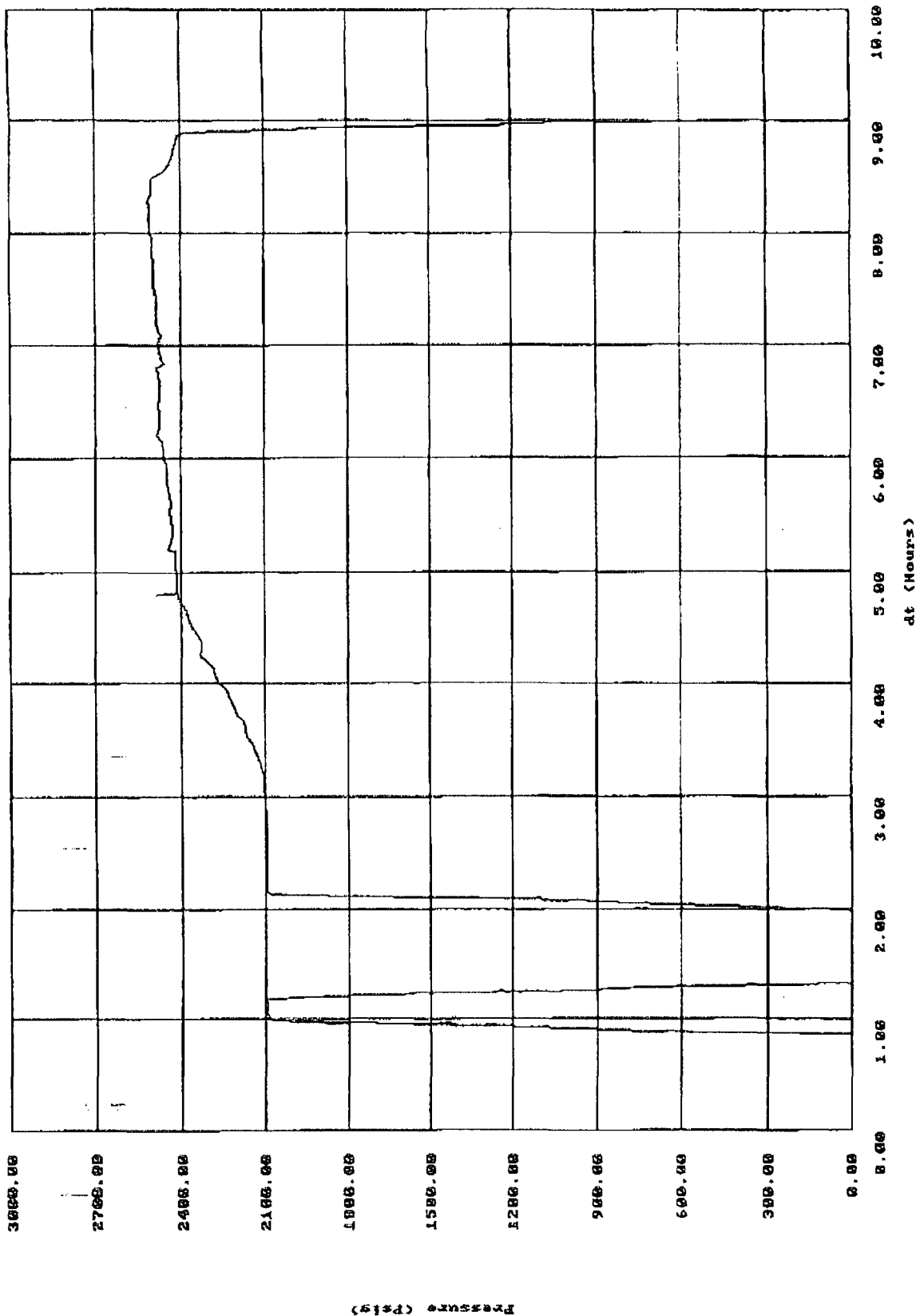


RICHARDSON OPERATING COMPANY

SALTY DOG NO. 1
SAN JUAN COUNTY, NM
F154216.DAT

Pressure vs dt

TEFFELER, INC.
2-15-02
STEP RATE TEST



FAX FROM

NEW MEXICO
OIL CONSERVATION DIVISION
1000 RIO BRAZOS ROAD
AZTEC NM 87410

PHONE: 505-334-6178

FAX: 505-334-6170

NUMBER OF PAGES INCLUDING COVER 4

CHARGE IF ANY _____

PLEASE SEND PAYMENT TO

ENERGY MINERALS & NATURAL RESOURCES DEPT
NM OIL CONSERVATION DIVISION
1000 RIO BRAZOS ROAD
AZTEC NM 87410

DATE: 2/10/02

TO: David Colanach

ADDRESS _____

FROM: Bruce Martin

COMMENTS Info

Richardson Safety Dept #1 SWD

 *
 * EVENT SUMMARY *
 *

COMPANY : RICHARDSON OPERATING COMPANY

PAGE : B1

WELL NAME : SALTY DOG NO. 1

DATE : 02/18/02

WELL LOCATION : SAN JUAN COUNTY, NM

FILE REF: F154218.DAT

Date MM/DD	Time hh:mm:ss	Test Time mm:ss	Key Event	Pressure Psig	Temp Deg F
02/15	10:31:00	170.0000	BEGAN PUMPING	2094.95	84.77
02/15	10:47:00	186.0000	END RATE #1 - .140 BPM	2105.76	97.73
02/15	11:03:00	202.0000	END RATE #2 - .609 BPM	2132.53	98.11
02/15	11:18:00	217.0000	END RATE #3 - 1.124 BPM	2171.27	92.43
02/15	11:33:00	232.0000	END RATE #4 - 1.627 BPM	2225.67	79.68
02/15	11:48:00	247.0000	END RATE #5 - 2.104 BPM	2283.80	86.40
02/15	11:52:00	251.0000	END RATE #6 - 2.633 BPM	2290.95	64.00
02/15	12:07:00	266.0000	END RATE #7 - 3.144 BPM	2330.90	58.00
02/15	12:22:00	281.0000	END RATE #8 - 3.630 BPM	2383.19	55.18
02/15	12:37:00	296.0000	END RATE #9 - 4.064 BPM	2414.15	53.89
02/15	12:52:00	311.0000	END RATE #10 - 4.610 BPM	2416.93	52.90
02/15	13:07:00	326.0000	END RATE #11 - 5.199 BPM	2430.73	54.75
02/15	13:22:00	341.0000	END RATE #12 - 5.699 BPM	2439.33	55.81
02/15	13:37:00	356.0000	END RATE #13 - 6.139 BPM	2451.54	56.58
02/15	13:52:00	371.0000	END RATE #14 - 6.828 BPM	2466.91	56.94
02/15	14:07:00	386.0000	END RATE #15 - 7.128 BPM	2472.87	52.42
02/15	14:22:00	401.0000	END RATE #16 - 7.635 BPM	2474.85	52.04
02/15	14:37:00	416.0000	END RATE #17 - 8.178 BPM	2472.00	53.52
02/15	14:52:00	431.0000	END RATE #18 - 8.611 BPM	2480.69	58.71
02/15	15:22:00	461.0000	END RATE #20 - 9.710 BPM	2494.00	58.05
02/15	15:27:00	466.0000	END RATE #19 - 9.127 BPM	2500.20	55.76
02/15	15:37:00	476.0000	END RATE #21 - 10.107 BPM	2499.98	55.95
02/15	16:33:00	532.0000	TANDEM INSTRUMENTS OFF BOTTOM	2410.10	55.50

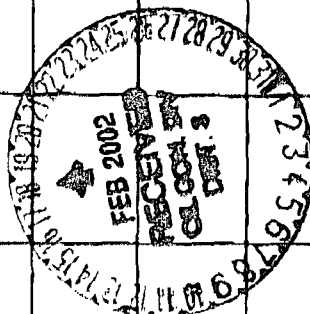
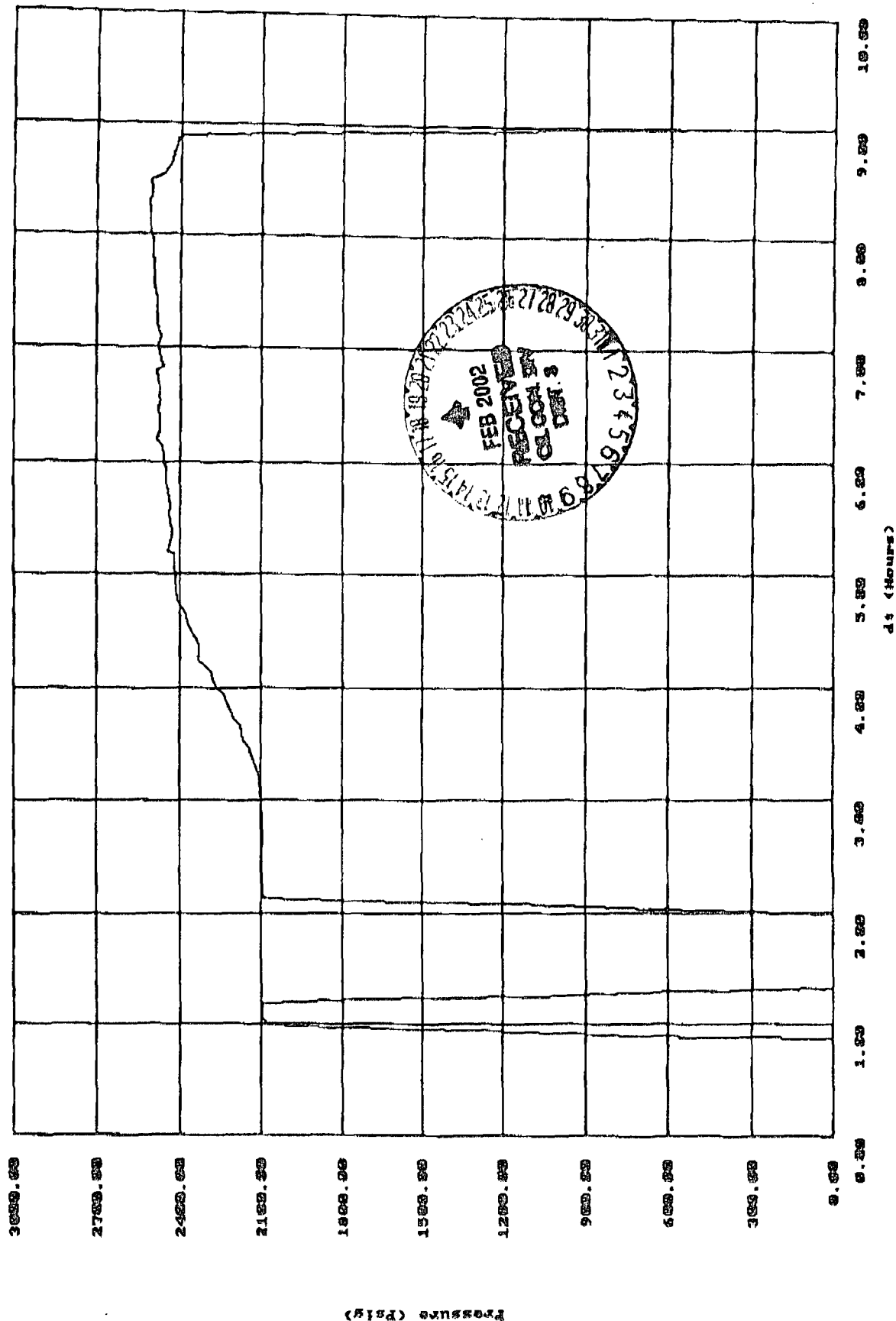


RICHARDSON OPERATING COMPANY

Pressure vs dt

SALTY BOG NO. 1
SAN JUAN COUNTY, NM
F154216.DAT

TEFTLELLER, INC.
2-15-02
STEP RATE TEST



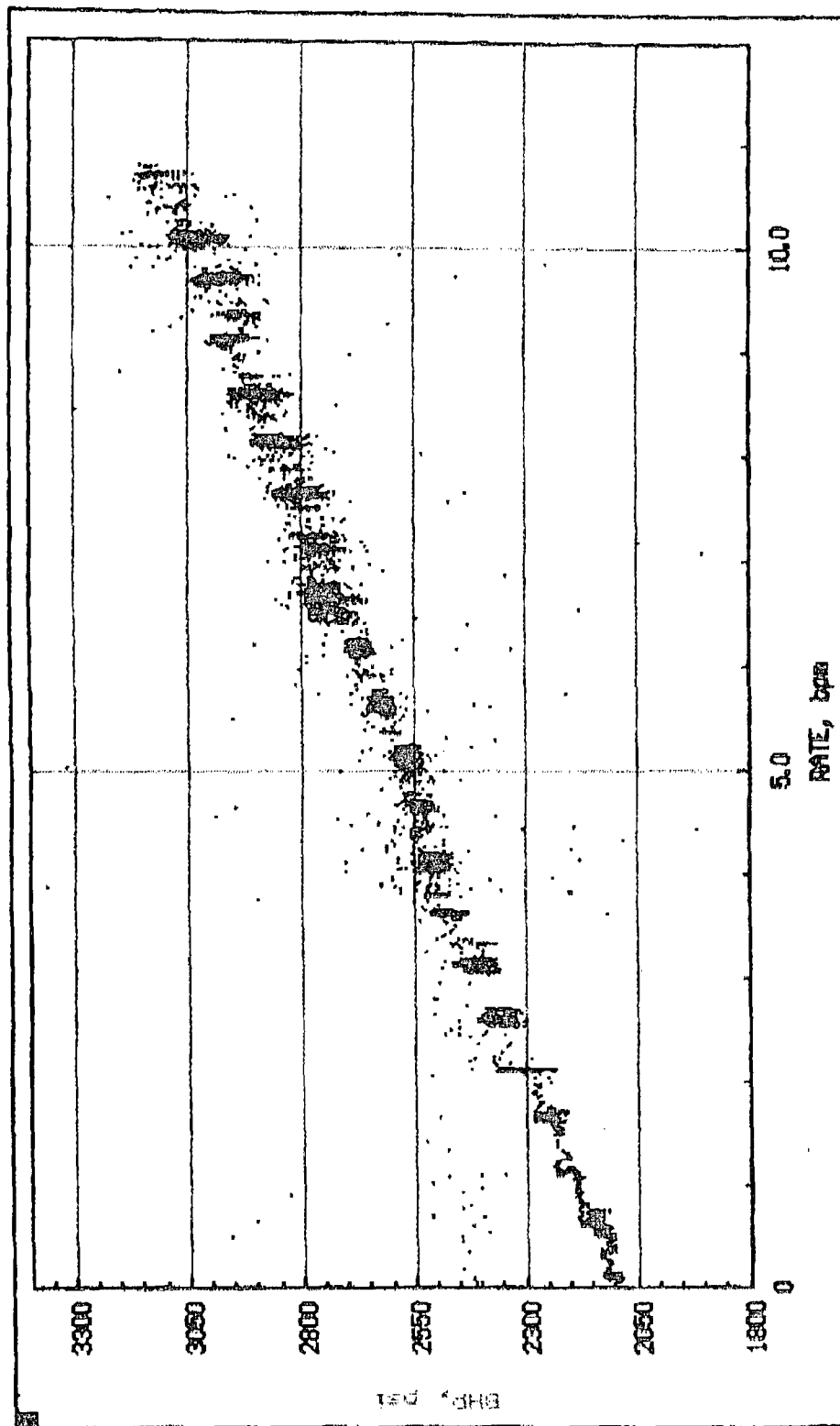
DESC: Salty Dog #1

Mesaverde

Richardson Operating

Step Rate Test / February 15, 2001

PAGE : 3-G (2/15/2002 16:12:28) Data stored in C:\SMARTS\DATADIR\SD1STE



0.14	2105
0.609	2132
1.124	2171
1.627	2225
2.104	2283
2.633	2290
3.144	2330
3.63	2383
4.064	2414
5.199	2430
5.699	2439
6.139	2451
8.628	2466
7.128	2472
7.635	2474
8.178	2472
8.611	2480
9.71	2494
9.127	2500
10.107	2499

