



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
ARTESIA DISTRICT OFFICE

TONEY ANAYA
GOVERNOR

February 25, 1985

P.O. DRAWER DO
ARTESIA, NEW MEXICO 88210
(505) 748-1283

Anadarko Production Co.
P.O. Drawer 130
Artesia, New Mex. 88210

Case 8381
R-7773

Gentlemen:

A review by Mike Williams and Leslie Clements of the P & A wells within the area of the Anadarko Ballard Grbg. SA Unit finds that five wells need to be re-entered and re-plugged. This work should be completed before Andarko expands their injection program.

The five wells which need to be re-plugged are as follows:

Ballard GSA Unit #10-2 4-18-29

Re-enter and clean out to 2395' and spot 35 Sx cement and tag.

Spot 35 Sx cement 1325-1425'.

Spot 35 Sx cement 700-800 inside & outside of 5 1/2" and 7" csg.

Spot 35 Sx cement 250-350' inside & outside of 5 1/2" and 7" csg.

Surface plug.

Ballard GSA Unit #10-3 4-18-29

Re-enter and clean out to 2395' & spot 35 Sx cement and tag.

Spot 35 Sx cement at 1750-1850'.

Spot 35 Sx cement at 750-850' inside & outside 7" csg.

Spot 35 Sx cement at 250-350' inside & outside 7" csg.

Surface plug.

Ballard GSA Unit #26-2 4-18-29

Re-enter and clean out to 2346' & spot 35 Sx cement and tag.

Spot 35 Sx cement at 100-1200'

Spot 35 Sx cement at 750-850' inside & outside 7" csg.

Spot 35 Sx cement at 300-400' inside & outside 7" csg.

Surface plug.

Continued on page 2

Page 2

Yates 4 #1 5-18-29

Re-enter and clean out to 2340' and spot 35 Sx cement and tag.
Spot 35 Sx cement at BX inside and outside 7" csg.
Spot 35 Sx cement at TX inside and outside 7" csg.
Surface plug.

Ballard GSA Unit #5-1 8-18-29

Re-enter and clean out to plug in shoe of 7" csg.
If there is not a plug in shoe of 7" csg.
Spot 35 Sx cement at 2267' and tag.
Spot 35 Sx cement at 750-850'
Spot 35 Sx cement at 550-650'
Spot 35 Sx cement at 300-400'
Surface plug.

Sincerely,

A handwritten signature in cursive script that reads "Mike Williams".

Mike Williams
Oil & Gas Inspector

MW:br

OCT 1 1984

APPLICATION FOR AUTHORIZATION TO INJECT

OIL CONSERVATION DIVISION
Storage

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☐ no
- II. Operator: ANADARKO PRODUCTION COMPANY
Address: P.O. Box 2497 MIDLAND, TEXAS 79702
Contact party: MR. B. BRIDGES Phone: 915-682-1666
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☒ yes ☐ no
If yes, give the Division order number authorizing the project R-4443 R-7000
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- * VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- * X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- * XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: D. G. KERKAGHAN Title: Div. Operations Manager
Signature: D. G. Kerkaghan Date: (CRG) SEPT 21, 1984
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.



TONEY ANAYA
GOVERNOR

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

May 27, 1986



1935 - 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Anadarko Production Company
P. O. Drawer 130
Artesia, New Mexico 88210

Attn: Jerry E. Buckles

Re: Injection Pressure Increase
Ballard Grayburg-San Andres Unit
Eddy County, New Mexico

Dear Sir:

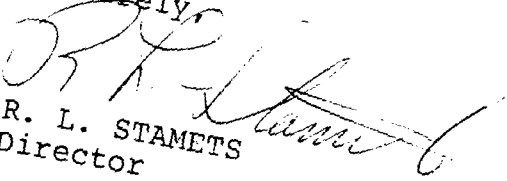
Reference is made to your request of May 21, 1986 to increase the surface injection pressure on three wells in your Ballard Grayburg San Andres Unit. This request is based on step rate tests conducted on the wells May 13-15, 1986. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on these wells is justified at this time.

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

<u>Well & Location</u>	<u>Maximum Injection Surface Pressure</u>
BGSAU No. 5-9 Section 8, T-18S, R-29E	1032 PSIG
BGSAU No. 5-14 Section 8, T-18S, R-29E	925 PSIG
BGSAU No. 10-9 Section 4, T-18S, R-29E	895 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 it is endangering any fresh water aquifers.

Sincerely,


R. L. STAMETS
Director

RLS/DRC/et

cc: Oil Conservation Division - Artesia
Case File - 8381
D. McDonald
D. Catanach

DATE: May 27, 1986

COMPANY: Anadarko Production Company
ADDRESS: P.O. Drawer 130
CITY, STATE, ZIP: Artesia, New Mexico 88210
ATTENTION: Jerry E. Buckles

Re: Injection Pressure Increase

Ballard Grayburg - San Andres Unit

Eddy County, New Mexico

Dear Sir:

Reference is made to your request of May 21, 1986 to increase the surface injection pressure on ~~your~~ three wells in your Ballard Grayburg San Andres Unit. This request is based on ~~step~~ step rate tests conducted on the wells ~~SAU~~ SAU May 13-15, 1986. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on ~~this well~~ these wells is justified at this time.

You are therefore authorized to increase your surface injection pressure on the following well(s).

<u>Well & Location</u>	<u>Maximum Injection Surface Pressure</u>
<u>BGSAU No. 5-9</u> <u>Section 8, T-18S, R-29E</u>	<u>1032 PSIG</u>
<u>BGSAU No. 5-14</u> <u>Section 8, T-18S, R-29E</u>	<u>925 PSIG</u>
<u>BGSAU No. 10-9</u> <u>Section 4, T-18S, R-29E</u>	<u>895 PSIG</u>

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 it is endangering any fresh water aquifers.

Sincerely,

R.L. Stamets
Director



May 21, 1986

State of New Mexico
Department of Energy and Minerals
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attn: R. L. Stamets
UIC Director

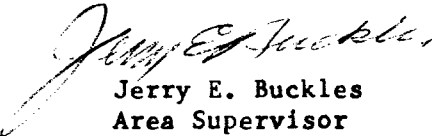
Re: Case No. 8381 dated 8-1-85)
(Order No. R7773)
Ballard Grayburg-San Andres Unit
Eddy County, New Mexico

Dear Sir:

Anadarko Petroleum Corporation, as operator of the Ballard Grayburg-San Andres Unit Waterflood in Eddy County, New Mexico, requests administrative approval to increase the surface injection pressure limitation on three water injection wells located in the Ballard (GSA) Unit. The three Ballard (GSA) Unit injection wells (i.e., #'s 5-9, 5-14 & 10-9) are currently limited to wellhead pressures of 600 psig, 535 psig & 615 psig respectively (as shown in table No. 1).

Enclosed please find copies of three step rate tests conducted during January, 1986 as well as three subsequent step rate tests ran in May, 1986, on the subject wells. The requested injection pressure limitation increase for each well is based on the fracture pressures indicated by the step rate tests less a safety factor of approximately 50 psig. Table No. 1 lists both the current pressure limitation and the requested increased limitation for each of the three subject wells. Should any additional information be necessary to process these requests, please contact me at 505-748-3368.

Yours very truly,



Jerry E. Buckles
Area Supervisor

JEB/rk
cc: Mike Williams
NMOCD

BALLARD GSA UNIT
EDDY COUNTY, NEW MEXICO

TABLE 1

<u>WELL NAME & NO.</u>	<u>CURRENT SURFACE PRESSURE LIMITATION (psig)</u>	<u>REQUESTED SURFACE PRESSURE LIMITATION (psig)</u>
BGSAU #5-9	600	1350
BGSAU #5-14	535	925
BGSAU #10-9	615	800

May 22, 1986

WELL	PERF'S	CALC. PSI LIMIT	PRESENT PSI LIMIT	REQUESTED PSI LIMIT
5-9	2490-2708	491	600	1350
5-14	2447-2728	489	535	925
10-9	2602-2806	520	615	800

STEP RATE TESTS

WELL	DATE	START PRESSURE	FRAC PRESSURE
5-9	1-16-86	314	650
5-14	1-16-86	365	575
10-9	1-14-86	475	660

5-9	5-14-86	490	1080	Graph Shows Starting Pressure For Test 590
5-14	5-15-86	345	965	440
10-9	5-13-86	560	945	745

B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko						Test Date 1-16-86		Unit
Total Depth						Plug Back TD		Lease Ballard Grayburg San
Elevation						Well # 5-9		Andres
Csg size 5 1/2		Wt	d	Set at	Perfs: From 2490 To 2708	Sec	Twp-Blk	Rge
Tbg size 2 3/8"		Wt	d	Set at	Perfs: From To	County Eddy	State New Mexico	
Producing thru						Packer set at		Co. Rep Jimmy Fletcher

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLs Per Day	Total BBLs Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
9:00				314			
9:05		50		300			
9:10		50		320			
9:15	:15	50		325			
9:20		100		330			
9:25		100		338			
9:30	:30	100		345			
9:35		150		355			
9:40		150		362			
9:45	:45	150		370			
9:50		200		385			
9:55		200		390			
10:00	1:00	200		398			
10:05		300		415			
10:10		300		427			
10:15	1:15	300		440			
10:20		400		460			
10:25		400		475			
10:30	1:30	400		485			
10:35		600		520			
10:40		600		540			
10:45	1:45	600		559			
10:50		700		575			
10:55		700		590			
11:00	2:00	700		585			
11:05		800		610			
11:10		800		630			
11:15	2:15	800		650			

Step Rate Test

Page #2

Phone (505) 397-3914

Hobbs, New Mexico 88240

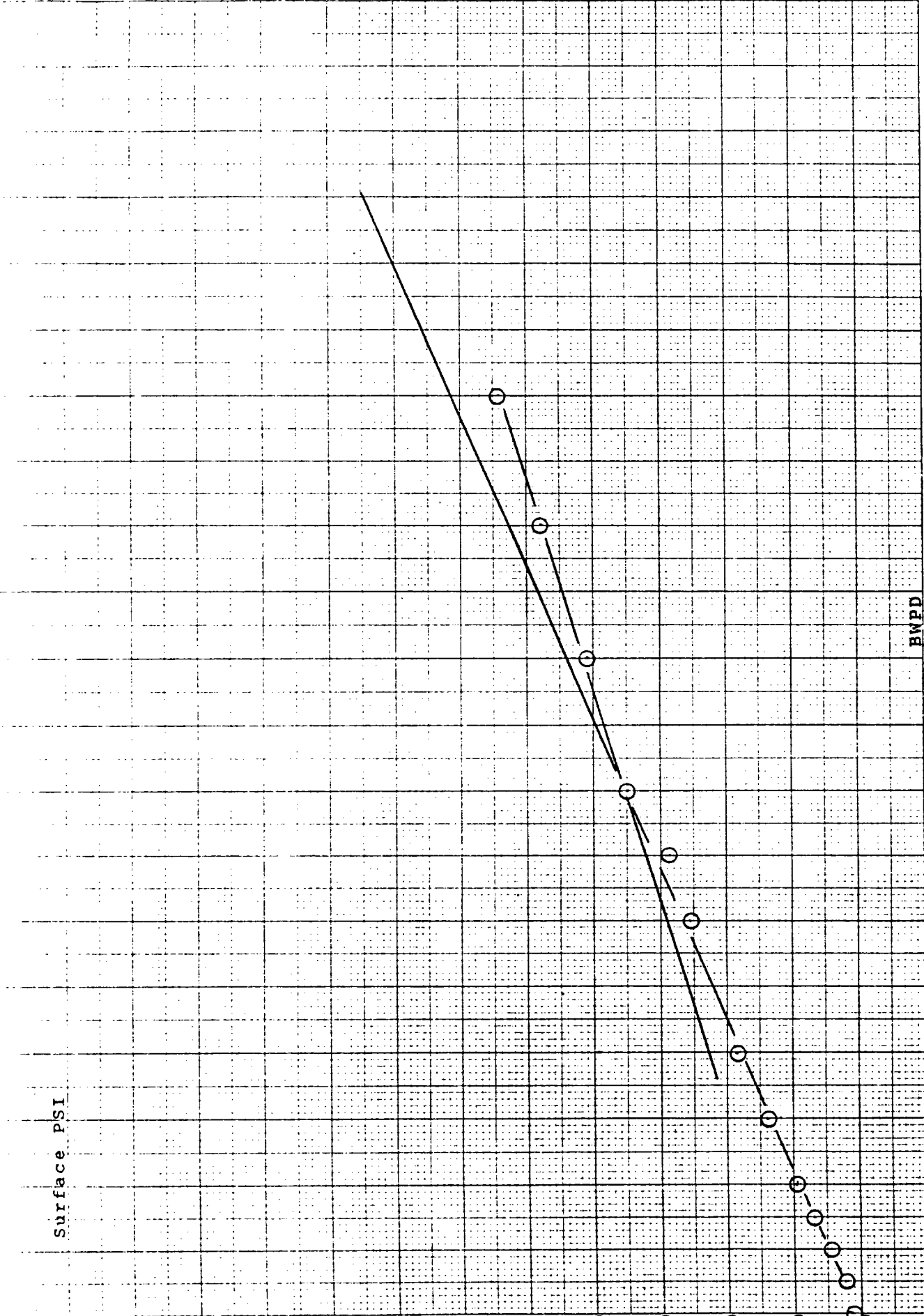
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Surface PSI

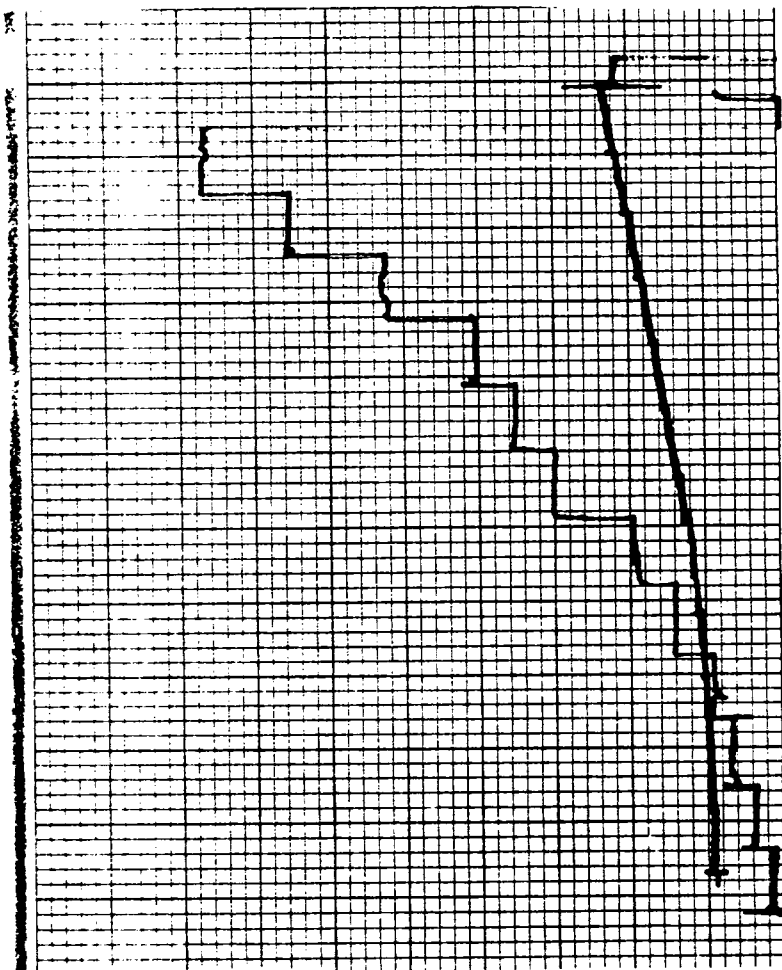
BWPD

100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900

1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300



Anadarko
Ballard Grayburg San Andres #5-9
1-16-86



NO. 59018

B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko						Test Date 1-16-86		Unit
Total Depth						Plug Back TD		Elevation
Csg size 4 1/2 Wt d Set at						Perfs: From 2447 To 2728		Lease Ballard Grayburg San
Tbg size 2 3/8 Wt d Set at						Perfs: From To 		Well # 5-14 Andres
Producing thru						Packer set at		Sec Twp-Blk Rge
								County Eddy State New Mexic
								Co. Rep Jimmy Fletcher
Time of Reading	Elap Time Hrs.	Well Information					Remarks	
		Rate BBLs Per Day	Total BBLs Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP		
12:35				365				
12:40		50		378				
12:45		50		385				
12:50	:15	50		390				
12:55		100		400				
1:00		100		409				
1:05	:30	100		415				
1:10		150		425				
1:15		150		435				
1:20	:45	150		440				
1:25		200		451				
1:30		200		470				
1:35	1:00	200		480				
1:40		300		502				
1:45		300		518				
1:50	1:15	300		525				
1:55		400		545				
2:00		400		560				
2:05	1:30	400		570				
2:10		600		610				
2:15		600		625				
2:20	1:45	600		640				
2:25		800		675				
2:30		800		700				
2:35	2:00	800		710				
2:40		1000		755				
2:45		1000		775				
2:50	2:15	1000		780			Total BBLs 37.4	

Step Rate Test

Hobbs, New Mexico 88240

Phone (505) 397-3914

is €515

Anadarko

Ballard Grayburg San Andres #5-14

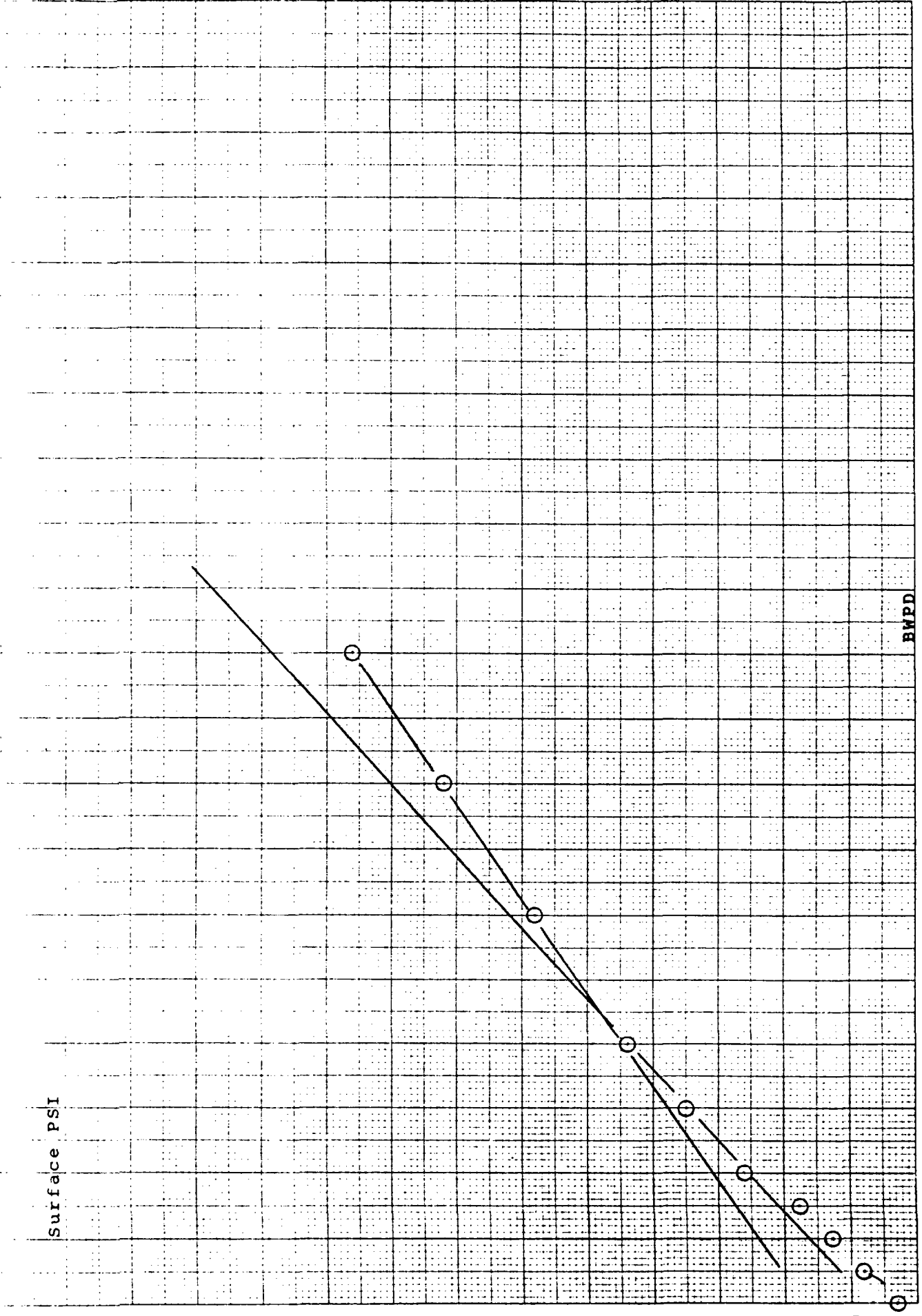
1-16-86

Surface PSI

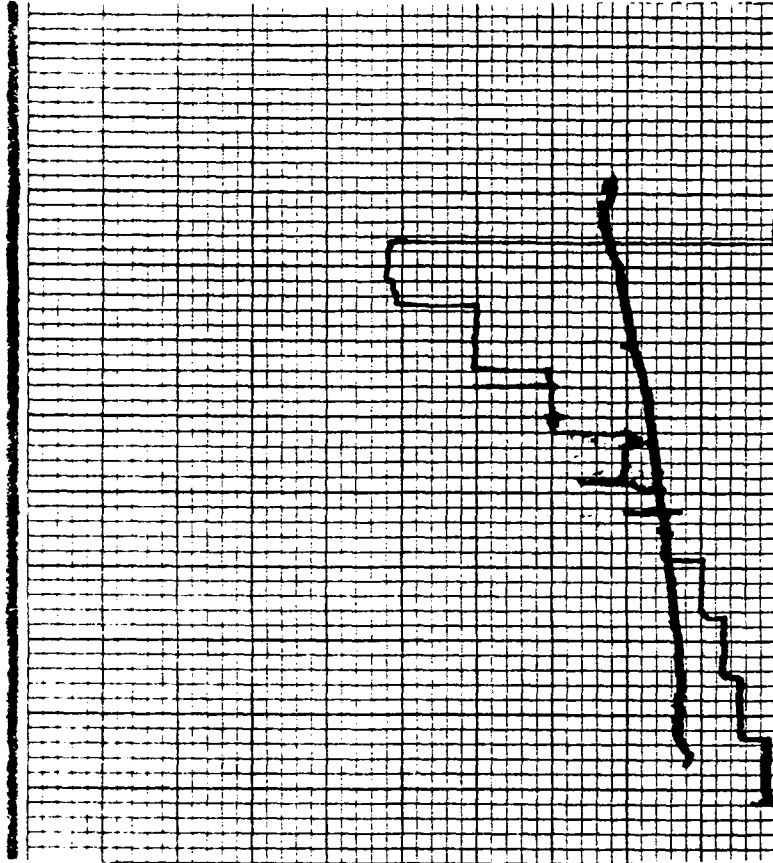
BWPD

100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900

1000
950
900
850
800
750
700
650
600
550
500
450
400



Anadarko
Ballard Grayburg San Andres #5-14
1-16-86



■ GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK

Step Rate Test

Hobbs, New Mexico 88240

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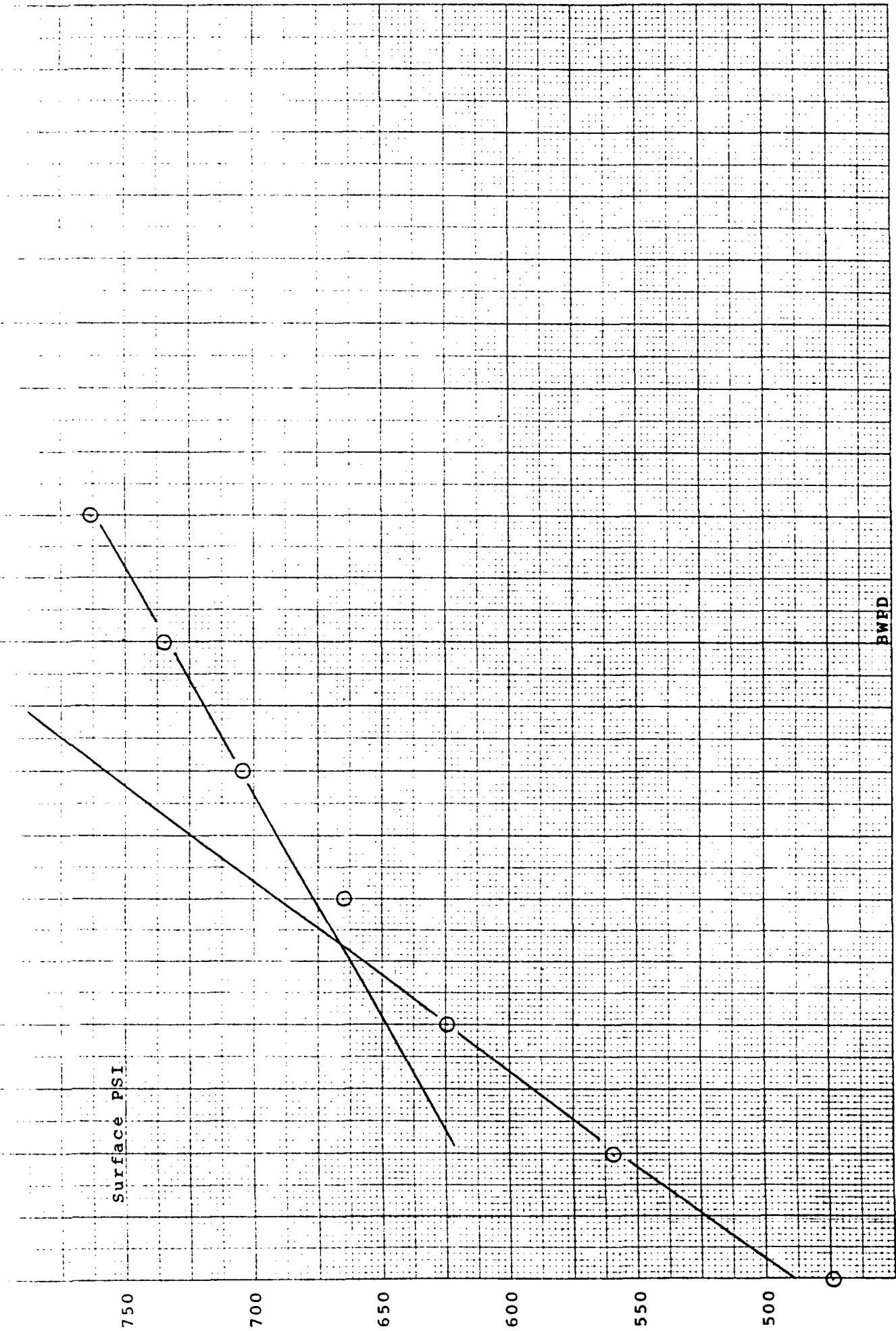
Anadarko

Ballard Grayburg San Andres #10-9

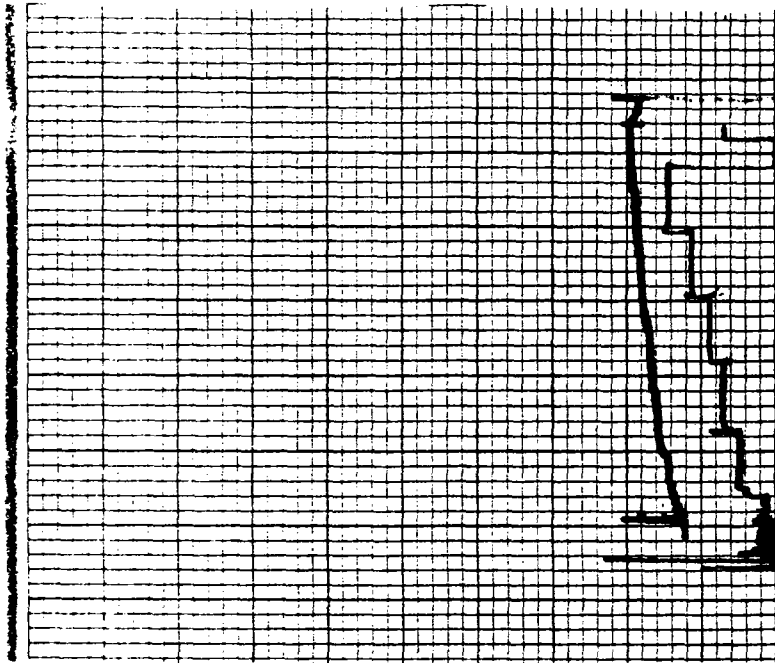
1-14-86

Surface PSI

BWPD



Anadarko
Ballard Grayburg San Andres #10-9
1-14-86



B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko						Test Date 5-14-86		Unit
Total Depth						Plug Back TD		Lease Ballard Grayburg San Andres
Csg size 5½						Wt d		Well # 5-9
Tbg size						Set at		Sec Twp-Blk Rge
Producing thru						Perfs: From 2490 To 2708		County Eddy State New Mexico
Packer set at						To		Co. Rep Jerry Buckles

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLS Per Day	Total BBLS Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
10:45	Start			490			
10:50		75		520			
10:55		75		550			
11:00	:15	75		580			
11:05		100		585			
11:10		100		590			
11:15	:30	100		600			
11:20		150		605			
11:25		150		615			
11:30	:45	150		620			
11:35		200		625			
11:40		200		630			
11:45	1:00	200		635			
11:50		300		650			
11:55		300		660			
12:00	1:15	300		670			
12:05		400		685			
12:10		400		695			
12:15	1:30	400		705			
12:20		500		720			
12:25		500		730			
12:30	1:45	500		743			
12:35		600		765			
12:40		600		775			
12:45	2:00	600		785			
12:50		700		805			
12:55		700		815			
1:00	2:15	700		825			
1:05		800		845			
1:10		800		855			
1:15	2:30	800		870			

B & D WELL TESTERS

Step Rate Test

Page #2

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company <u>Anadarko</u>						Test Date <u>5-14-86</u>		Unit
Total Depth						Plug Back TD		Lease <u>Ballard Grayburg San Andres</u>
Csg size						Perfs: From <u>2490</u> To <u>2708</u>		Well # <u>5-9</u>
Tbg size						Perfs: From		Sec <u>Twp-Blk</u> Rge
Producing thru						Packer set at		County <u>Eddy</u> State <u>New Mexico</u>
								Co. Rep <u>Jerry Buckles</u>
Time of Reading	Elap Time Hrs.	Well Information					Remarks	
		Rate BBLS Per Day	Total BBLS Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP		
1:20		900		890				
1:25		900		900				
1:30	2:45	900		910				
1:35		1000		930				
1:40		1000		935				
1:45	3:00	1000		945				
1:50		1100		960				
1:55		1100		970				
2:00	3:15	1100		980				
2:05		1200		995				
2:10		1200		1005				
2:15	3:30	1200		1010				
2:20		1300		1025				
2:25		1300		1035				
2:30	3:45	1300		1050				
2:35		1400		1065				
2:40		1400		1070				
2:45	4:00	1400		1085				
2:50		1600		1100				
2:55		1600		1110				
3:00	4:15	1600		1120				
3:05		1800		1140				
3:10		1800		1150				
3:15	4:30	1800		1160				
3:20		2000		1170				
3:25		2000		1178				
3:30	4:45	2000		1185				
3:35		2100		1195				
3:40		2100		1200				
3:45	5:00	2100		1210			Total BBLS. 188.9	

Step Rate Test

Hobbs, New Mexico 88240

[illegible]

5-14-86

Ballard Grayburg San Andres #5-9

Anadarko

Surface PSI

BWPD

1800

1700

1600

1500

400

300

200

100

000

900

800

700

600

200

300

400

500

600

700

800

900

1000

1100

1200

1300

1400

1500

1600

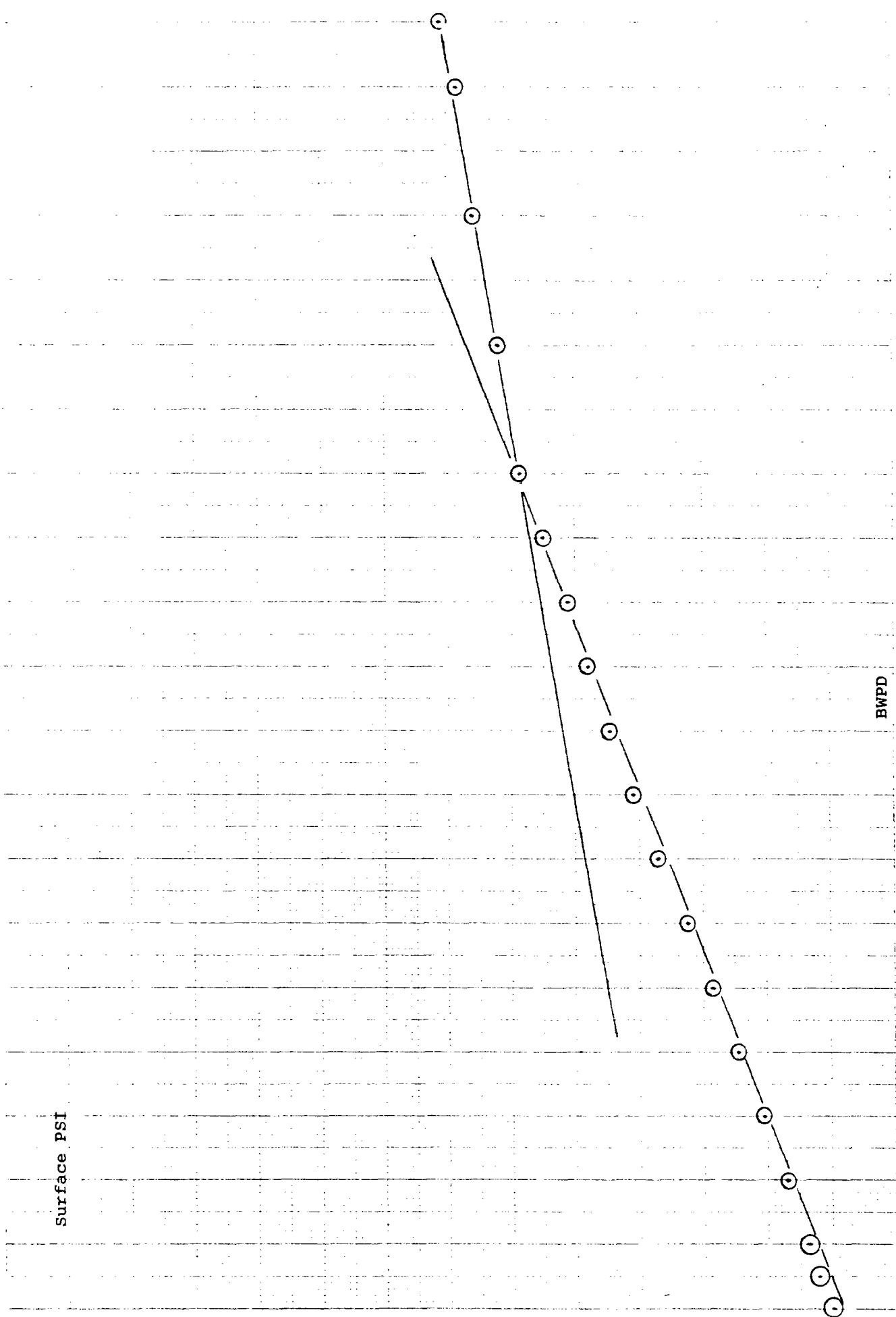
1700

1800

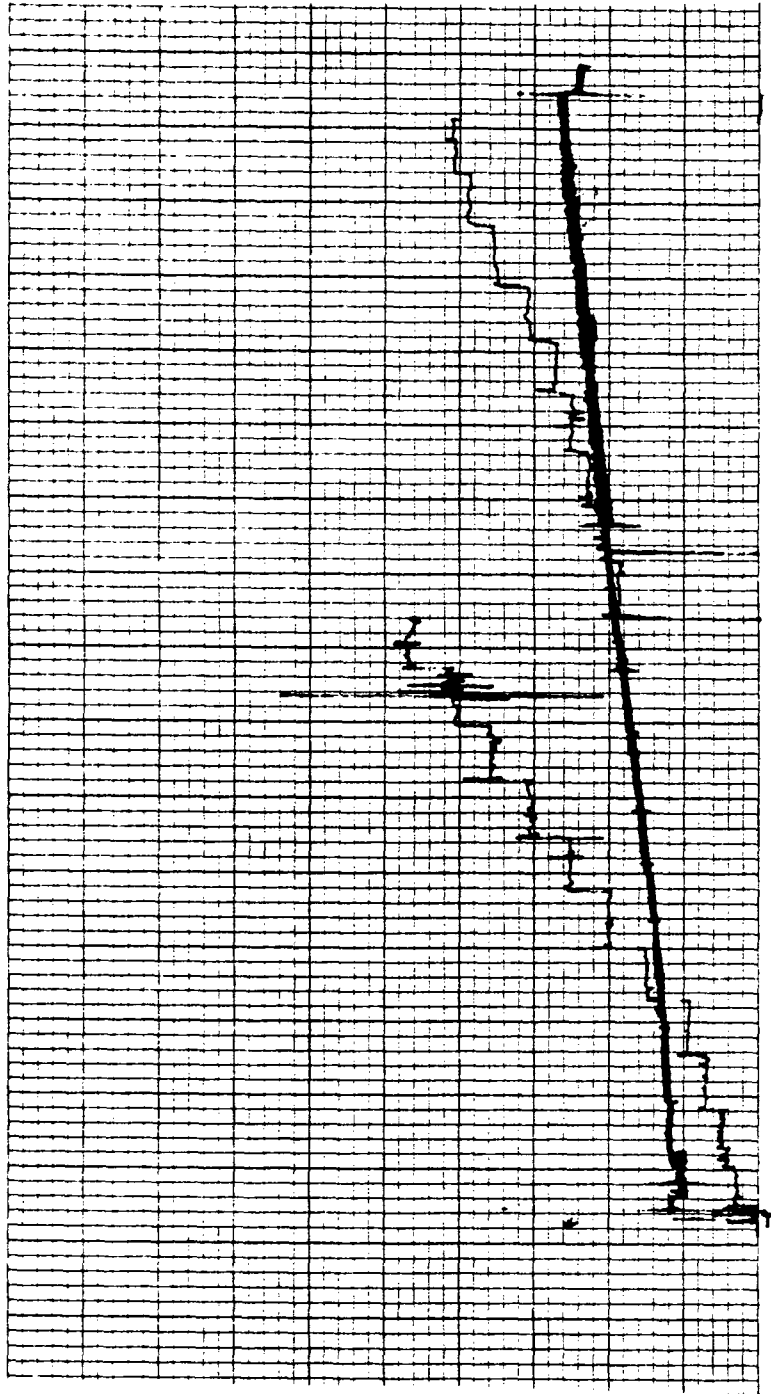
1900

2000

2100



Anadarko
Ballard Grayburg San Andres #5-9
5-14-86



O. 59018

B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko						Test Date 5-15-86		Unit
Total Depth						Plug Back TD		Lease Ballard Grayburg San Andres
Csg size 4 1/2 Wt d Set at						Perfs: From 2447 To 2728		Well # 5-14
Tbg size 2 3/8 Wt d Set at						Perfs: From To		Sec Twp-Blk Rge
Producing thru						Packer set at		County Eddy State New Mexico
								Co. Rep Jerry Buckles

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLS Per Day	Total BBLS Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
8:15	Start			345			
8:20		100		380			
8:25		100		410			
8:30	:15	100		435			
8:35		200		460			
8:40		200		490			
8:45	:30	200		510			
8:50		300		540			
8:55		300		560			
9:00	:45	300		575			
9:05		400		600			
9:10		400		620			
9:15	1:00	400		640			
9:20		500		665			
9:25		500		680			
9:30	1:15	500		695			
9:35		600		725			
9:40		600		740			
9:45	1:30	600		755			
9:50		700		780			
9:55		700		800			
10:00	1:45	700		825			
10:05		800		840			
10:10		800		860			
10:15	2:00	800		880			
10:20		900		900			
10:25		900		920			
10:30	2:15	900		930			
10:35		1000		960			
10:40		1000		980			
10:45	2:30	1000		990			

Step Rate Test

Hobbs, New Mexico 88240

[illegible]

5-15-86

Ballard Grayburg San Andres #5-14

Anadarko

Surface PSI

BWPD

1600

1500

1400

1300

1200

1100

1000

900

800

700

600

500

400

200

300

400

500

600

700

800

900

1000

1100

1200

1300

1400

1500

1600

1700

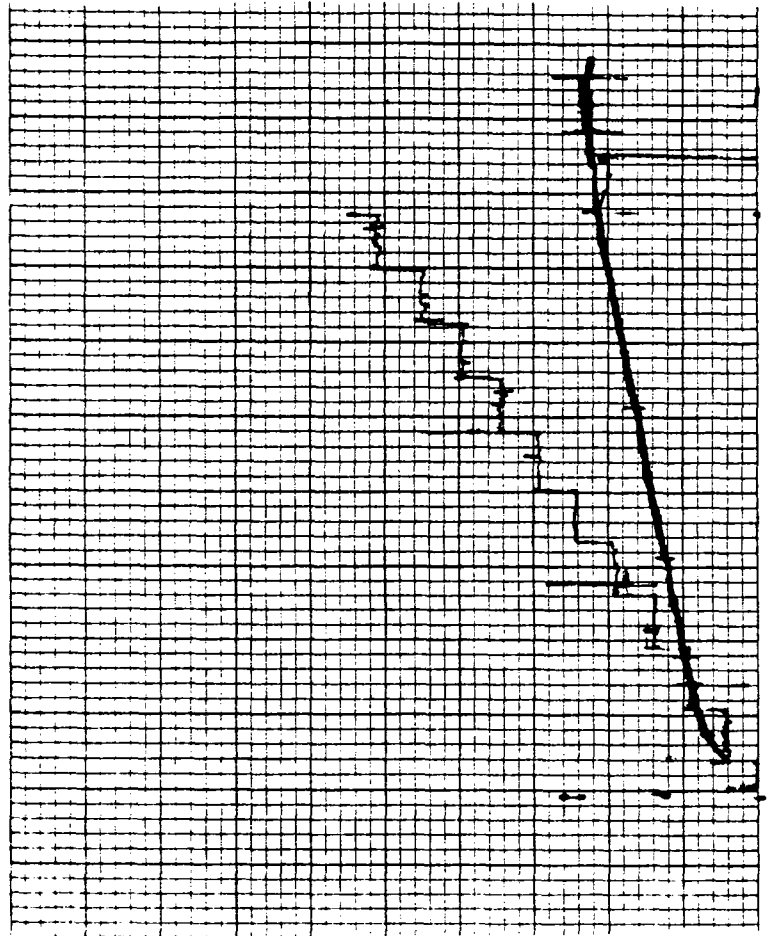
1800

1900

2000

2100

Anadarko
Ballard Grayburg San Andres #5-14
5-15-86



GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK

B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko						Test Date 5-13-86		Unit
Total Depth						Plug Back TD		Lease Ballard Grayburg San Andres
Csg size 4 1/2						Wt d		Well # 10-9
Tbg size 2 3/8						Wt d		Sec Twp-Blk Rge
Producing thru						Packer set at		County Eddy State New Mexico
								Co. Rep Jerry Buckles

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLs Per Day	Total BBLs Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
12:45	Start			560			
12:50		100		720			
12:55		100		725			
1:00	:15	100		730			
1:05		200		755			
1:10		200		770			
1:15	:30	200		780			
1:20		400		820			
1:25		400		830			
1:30	:45	400		840			
1:35		600		870			
1:40		600		880			
1:45	1:00	600		890			
1:50		800		915			
1:55		800		920			
2:00	1:15	800		930			
2:05		1000		950			
2:10		1000		955			
2:15	1:30	1000		960			
2:20		1200		970			
2:25		1200		970			
2:30	1:45	1200		975			
2:35		1400		985			
2:40		1400		990			
2:45	2:00	1400		995			
			ISIP	930			
2:46				910			
2:47				910			
2:48				900			
2:49				900			
2:50				900			Total BBLs. 58.1

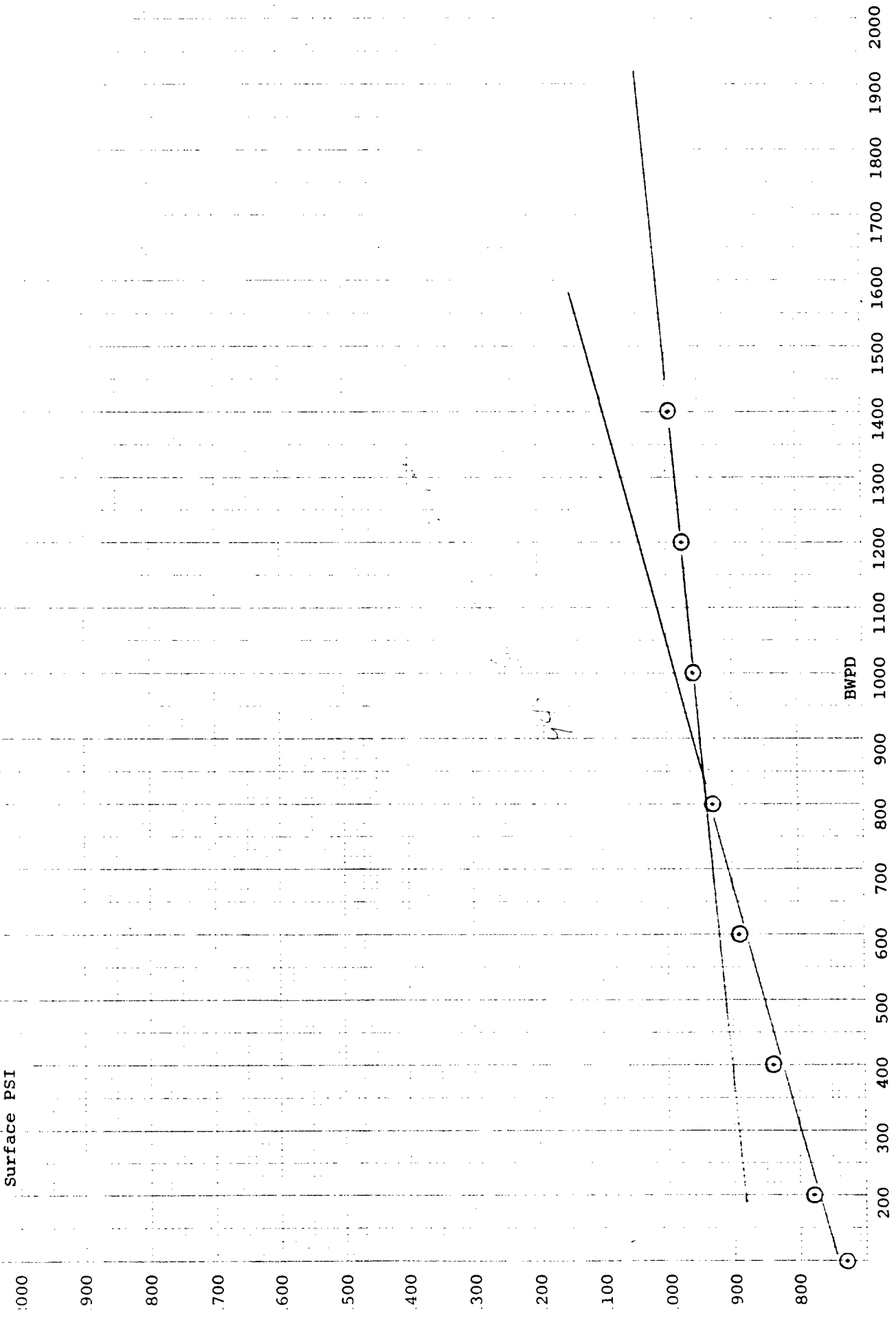
5-13-86

Ballard Grayburg San Andres #10-9

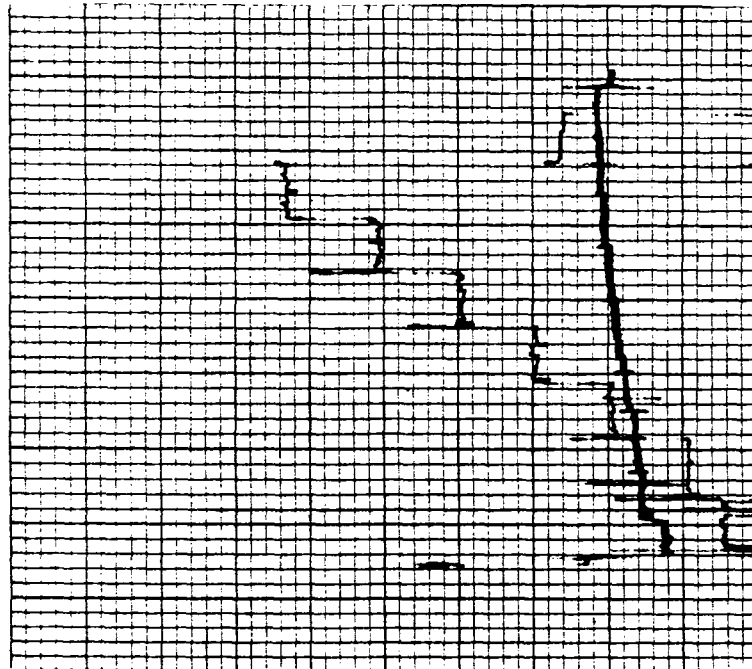
Anadarko

Surface PSI

BWPD



Anadarko
Ballard Grayburg San Andres #10-9
5-13-86





TONEY ANAYA
GOVERNOR

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

March 25, 1986

50 YEARS



1935 - 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Anadarko Petroleum Corporation
P. O. Box 2497
Midland, Texas 79702

Attn: Tommy W. Thompson

Re: Injection Pressure
Increase
Ballard Grayburg -
San Andres Unit,
Eddy, County, New Mexico

Dear Sir:

Reference is made to your request of February 6, 1986 to increase the surface injection pressure on ten injection wells located in your Ballard Grayburg San Andres Unit. This request is based on step rate tests conducted on the wells in January, 1986. The results of these tests have been reviewed by my staff and we feel an increase in injection pressure on these wells well is justified at this time.

You are therefore authorized to increase your surface injection pressure on the following well(s):

<u>Well & Location</u>	<u>Maximum Injection Surface Pressure PSIG</u>
BGSAU No. 5-9 Section 8, T-18S, R-29E, Eddy County, New Mexico	600
BGSAU No. 5-14 Section 8, T-18S, R-29E Eddy County, New Mexico	535
BGSAU No. 8-4 Section 5, T-18S, R-29E, Eddy County, New Mexico	737

BGSAU No. 9-2 Section 5, T-18S, R-29E, Eddy County, New Mexico	770
BGSAU No. 10-1 Section 5, T-18S, R-29E Eddy County, New Mexico	520
BGSAU No. 10-9 Section 4, T-18S, R-29E, Eddy County, New Mexico	615
BGSAU No. 11-1 Section 6, T-18S, R-29E Eddy County, New Mexico	475
BGSAU No. 13-2 Section 5, T-18S, R-29E Eddy County, New Mexico	750
BGSAU No. 24-2 Section 5, T-18S, R-29E, Eddy County, New Mexico	655
BGSAU No. 26-4 Section 4, T-18S, R-29E Eddy County, New Mexico	1290

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 it is endangering any fresh water aquifers.

Sincerely,



R. L. STAMETS
Director

RLS/DRC/et

cc: \ OCD - Artesia
Case File 8381
Donna McDonald

Step Rate Test

Hobbs, New Mexico 88240

45615

Step Rate Test

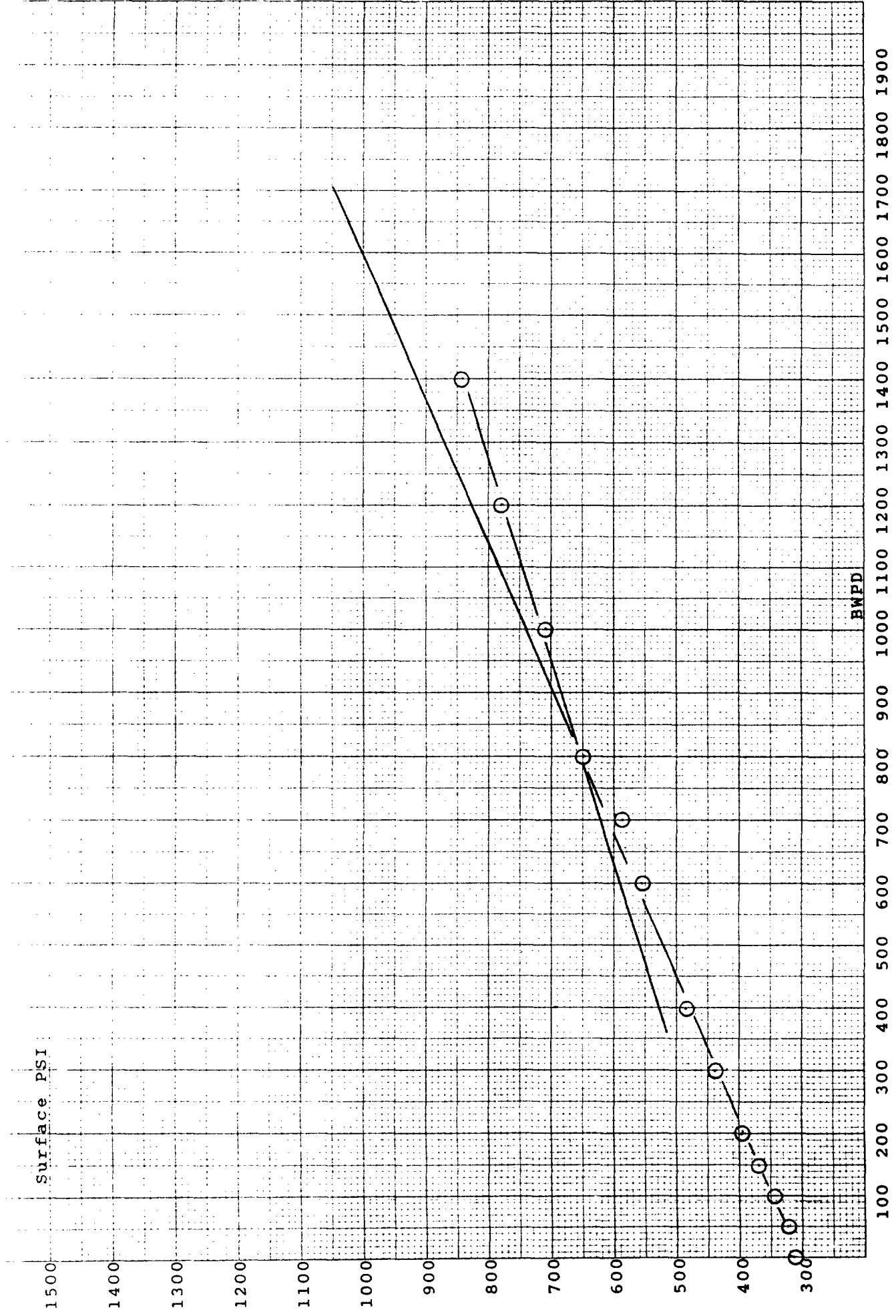
Page #2

Hobbs, New Mexico 88240

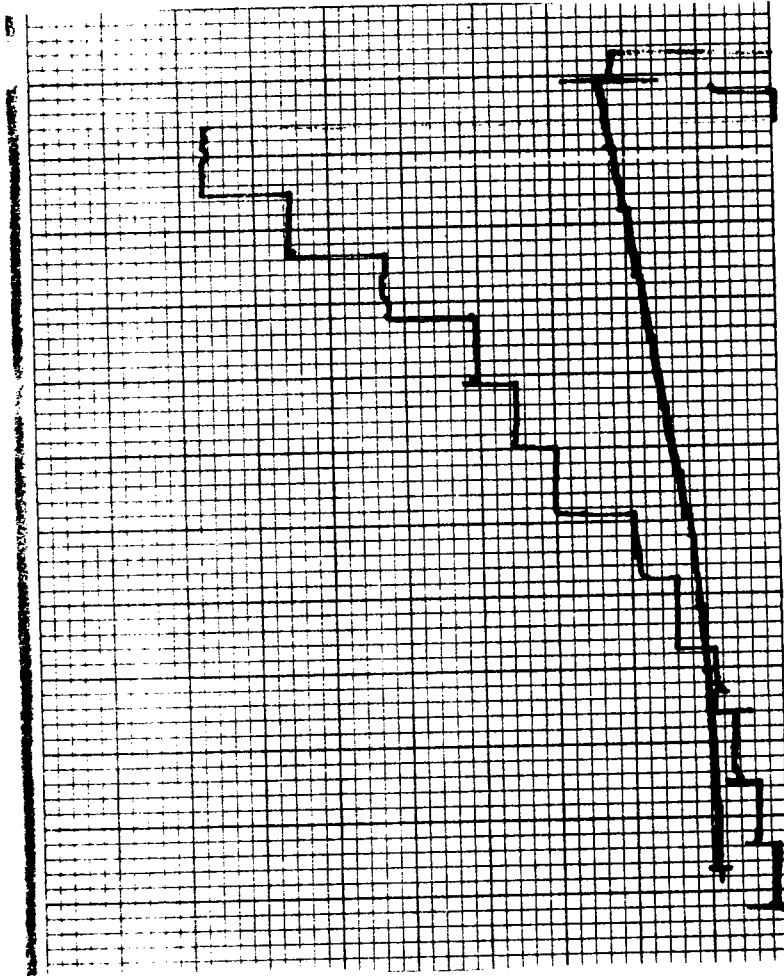
Phone (505) 397-3914

						Unit			
Company		Anadarko		Test Date		1-16-86		Lease	Ballard Grayburg San
Total Depth		Plug Back TD		Elevation		Well #		5-9	Andres
Csg size		5 1/2	Wt	d	Set at	Perfs: From 2490 To 2708		Sec	Twp-Blk Rge
Tbg size		2 3/8	Wt	d	Set at	Perfs: From To		County	Eddy State New Mexico
Producing thru				Packer set at				Co. Rep	Jimmy Fletcher

[illegible]



Anadarko
Ballard Grayburg San Andres #5-9
1-16-86



NO. 59018

B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

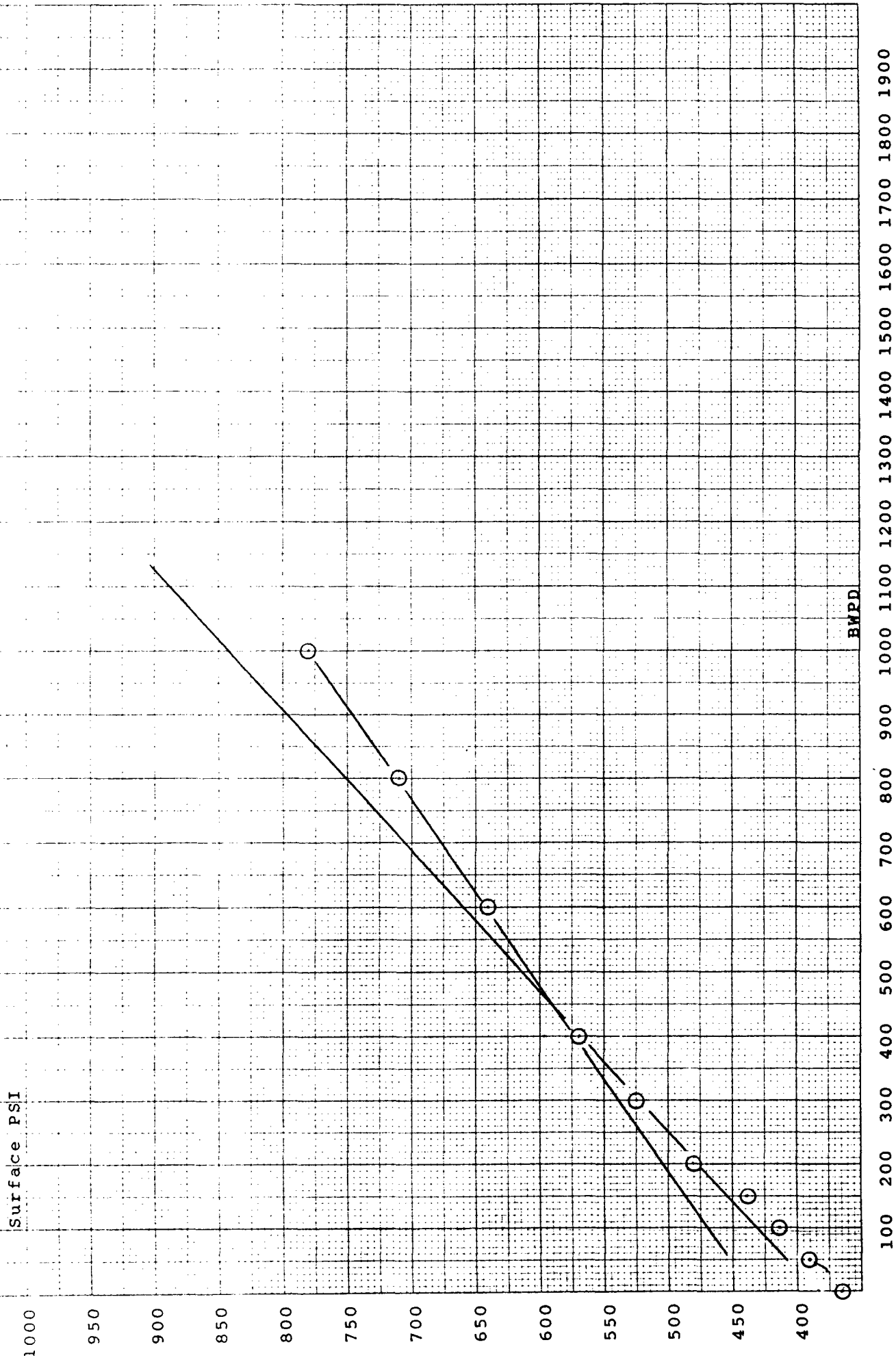
Company Anadarko						Unit
Test Date 1-16-86						Lease Ballard Grayburg San
Total Depth		Plug Back TD		Elevation		Well # 5-14 Andres
Csg size 4 1/2	Wt d	Set at	Perfs: From 2447	To 2728	Sec Twp-Blk	Rge
Tbg size 2 3/8	Wt d	Set at	Perfs: From	To	County Eddy	State New Mexico
Producing thru		Packer set at				Co. Rep Jimmy Fletcher

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLs Per Day	Total BBLs Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
12:35				365			
12:40		50		378			
12:45		50		385			
12:50	:15	50		390			
12:55		100		400			
1:00		100		409			
1:05	:30	100		415			
1:10		150		425			
1:15		150		435			
1:20	:45	150		440			
1:25		200		451			
1:30		200		470			
1:35	1:00	200		480			
1:40		300		502			
1:45		300		518			
1:50	1:15	300		525			
1:55		400		545			
2:00		400		560			
2:05	1:30	400		570			
2:10		600		610			
2:15		600		625			
2:20	1:45	600		640			
2:25		800		675			
2:30		800		700			
2:35	2:00	800		710			
2:40		1000		755			
2:45		1000		775			
2:50	2:15	1000		780			Total BBLs 37.4

Phone (505) 397-3914

Hobbs, New Mexico 88240

[illegible]



Anadarko
Ballard Grayburg San Andres #5-14
1-16-86



GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK

B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

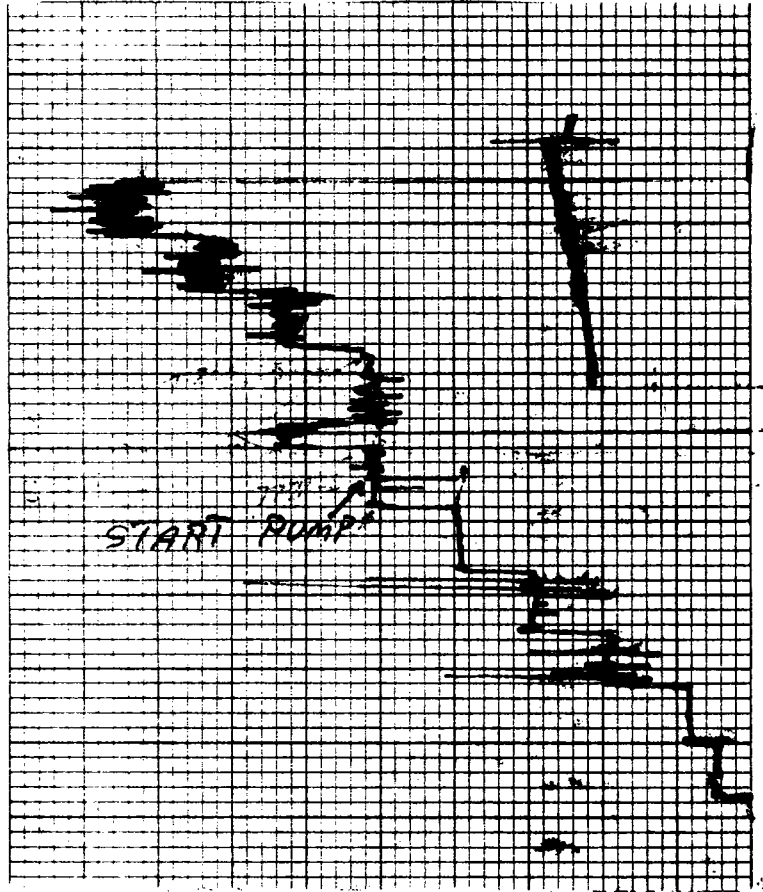
Company Anadarko						Test Date 1-14-86		Unit
Total Depth						Plug Back TD		Lease Ballard Grayburg San
Csg size						Perfs: From 2572 To 2752		Well # 8-4
Tbg size 2 3/8						Perfs: From		Sec Twp-Blk
Producing thru						Packer set at		County Eddy State New Mexico
								Co. Rep Tommy Thompson
Time of Reading	Elap Time Hrs.	Well Information					Remarks	
		Rate BBLs Per Day	Total BBLs Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP		
2:25	Start			443				
2:30		100		450				
2:35		100		452				
2:40	:15	100		455				
2:45		200		463				
2:50		200		469				
2:55	:30	200		474				
3:00		400		502			Having trouble with trash	
3:05		400		518			in inj. system	
3:10	:45	400		532				
3:15		600		569				
3:20		600		595			Having trouble with trash	
3:25	1:00	600		609			in system	
3:30		800		648				
3:35		800		673				
3:40	1:15	800		694				
3:45		1000		736				
3:50		1000		759				
3:55	1:30	1000		777				
		Ran out of data tape Having to use strip chart						
4:20		1200		800				
4:25		1200		815				
4:30	1:45	1200		830				
4:35		1400		860				
4:40		1400		870				
4:45	2:00	1400		880				
4:50		1600		910				
4:55		1600		929				
5:00		1600		939			115 BBLs total	

Phone (505) 397-3914

Hobbs, New Mexico 88240

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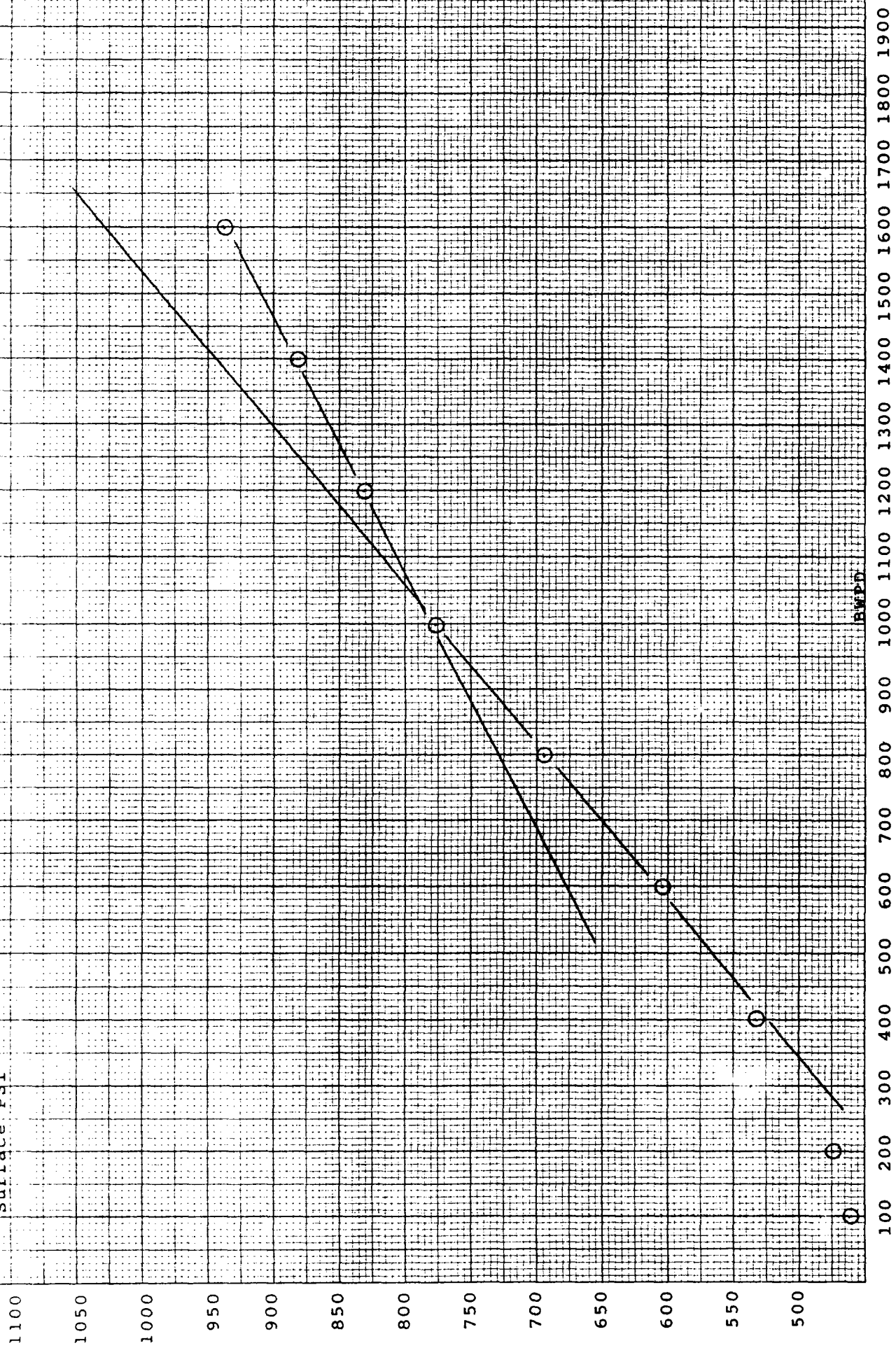
Anadarko
Ballard Grayburg San Andres #8-4
1-14-86



PRINTED IN U.S.A.

Surface PSI

BWPD



B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko						Unit
Test Date 1-13-86						Lease Ballard Grayburg San
Total Depth		Plug Back TD		Elevation		Well # 9-2
Csg size 4 1/2	Wt	d	Set at	Perfs: From 2532	To 2718	Sec Andres
Tbg size 2 3/8	Wt	d	Set at	Perfs: From	To	County Eddy State New Mexico
Producing thru						Co. Rep Jimmy Fletcher

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLs Per Day	Total BBLs Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
8:40	Shut in			295			
8:45	Start			295			
8:50		50		335			
8:55		50		285			
9:00	:15	50		285			
9:05		100		305			
9:10		100		305			
9:15	:30	100		305			
9:20		300		365			
9:25		300		390			
9:30	:45	300		420			
9:35		500		490			
9:40		500		530			
9:45	1:00	500		555			
9:50		700		625			
9:55		700		645			
10:00	1:15	700		675			
10:05		900		730			
10:10		900		755			
10:15	1:30	900		780			
10:20		1100		830			
10:25		1100		855			
10:30	1:45	1100		870			
10:35		1300		915			
10:40		1300		930			
10:45	2:00	1300		945			
10:50		1500		980			
10:55		1500		995			
11:00	2:15	1500		1005			
See Page #2							

Page #2

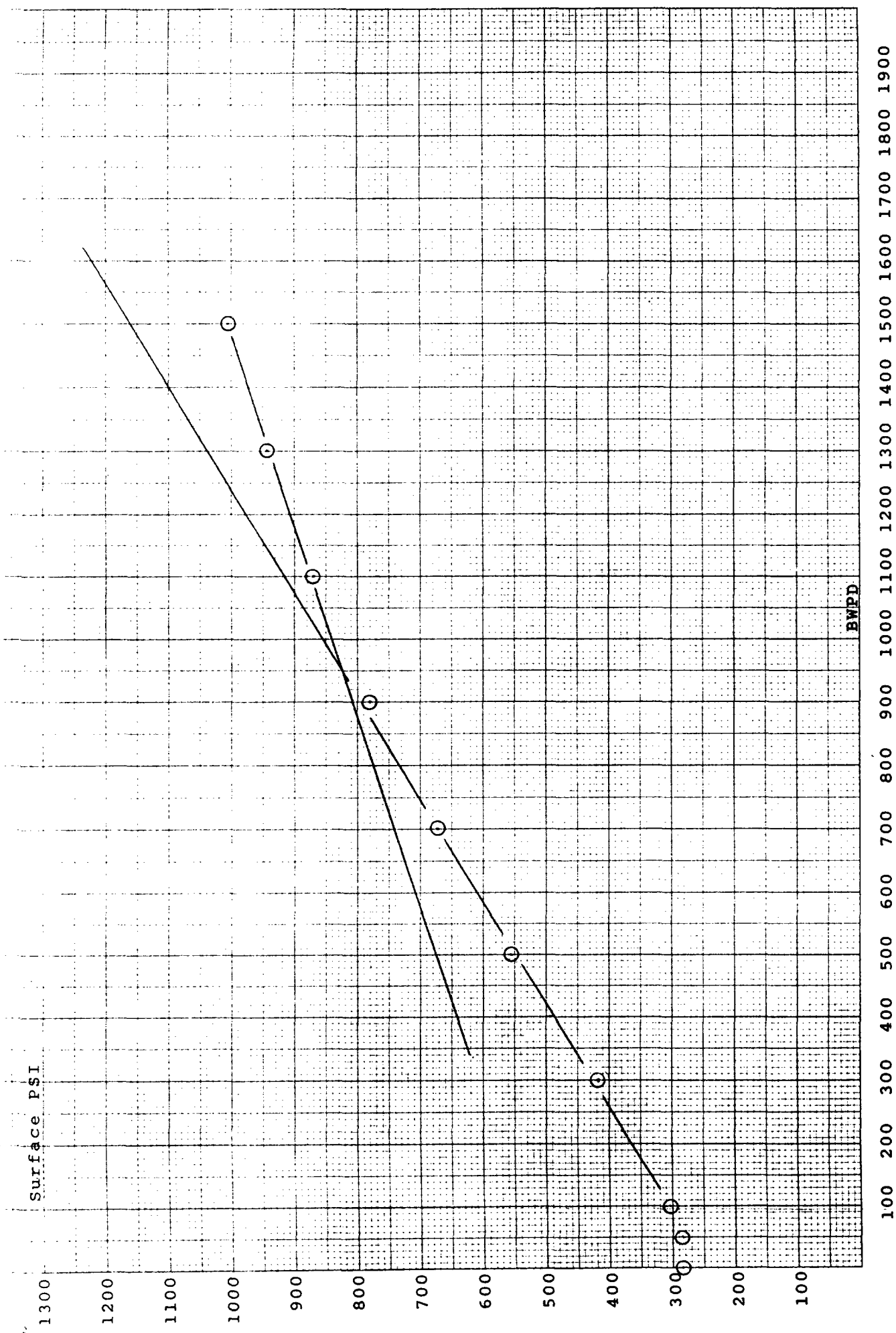
Hobbs, New Mexico 88240

8-6615

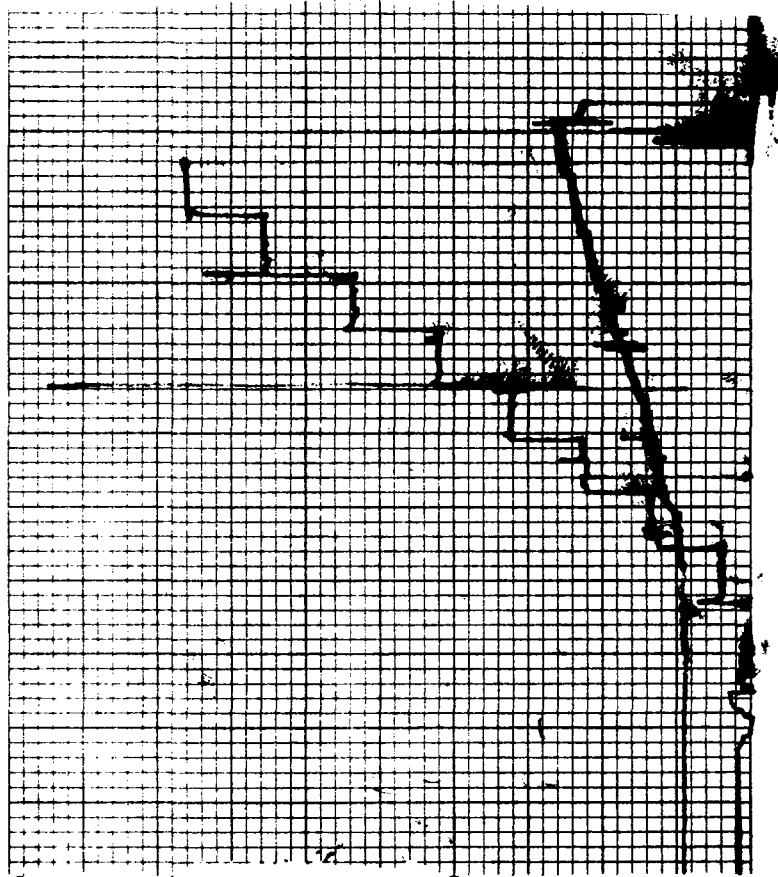
Anadarko

Pallard Grayburg San Andres #9-2

1-13-86



Anadarko
Ballard Grayburg San Andres #9-2
1-13-86



GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK

Step Rate Test

Phone (505) 397-3914

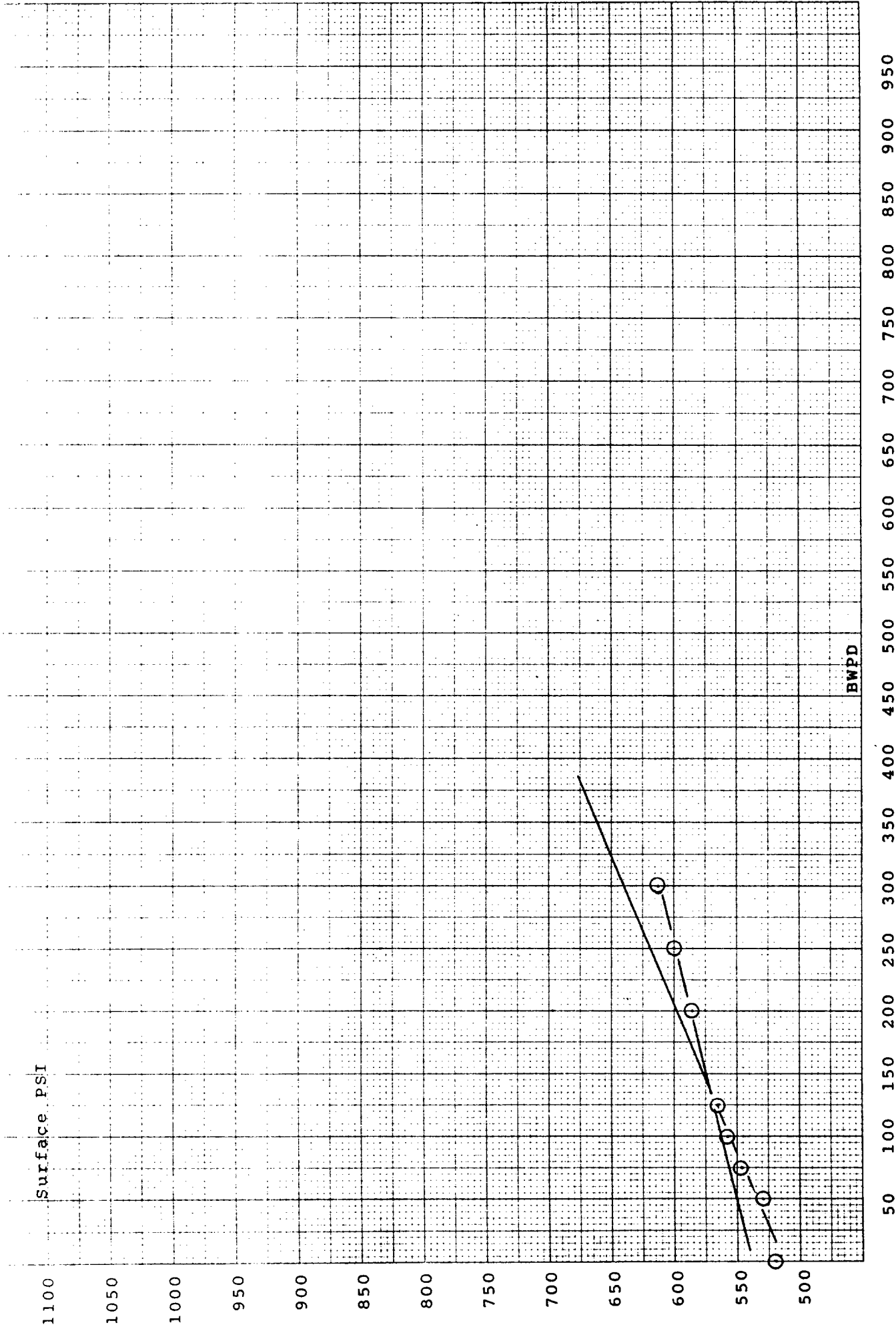
Hobbs, New Mexico 88240

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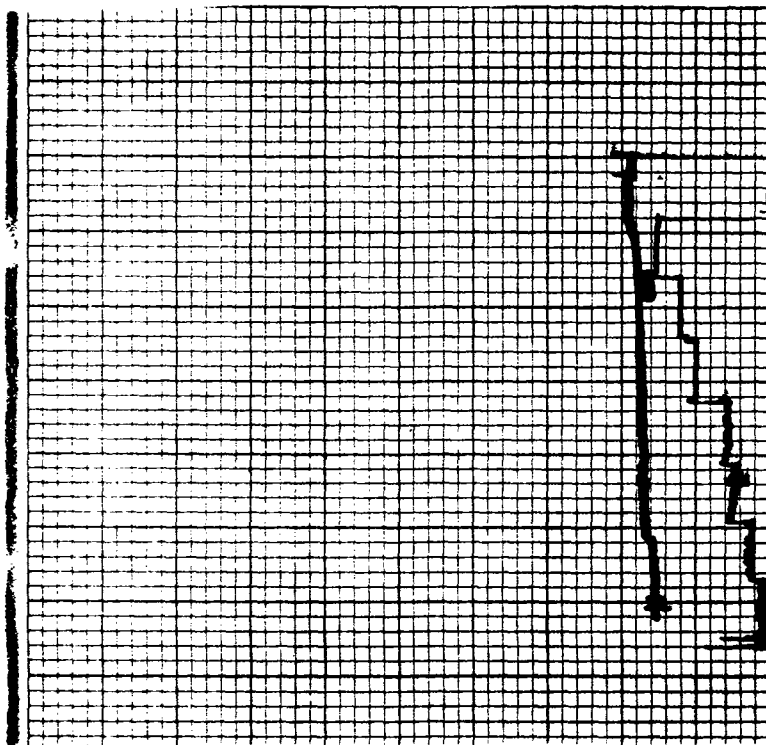
Anadarko

Ballard Grayburg San Andres #10-1

1-15-86



Anadarko
Ballard Grayburg San Andres #10-1
1-15-86



PRINTED IN U.S.A.

Phone (505) 397-3914

							Unit		
Company		Anadarko			Test Date		1-14-86		
Total Depth		Plug Back TD			Elevation		Lease Ballard Grayburg San Andres		
Csg size		4 1/2		Wt	d	Set at	Perfs: From	2602	To 2806
Tbg size		2 3/8		Wt	d	Set at	Perfs: From	To	
Producing thru					Packer set at		Well # 10-9		
							Sec Twp-Blk Rge		
							County State		
							Co. Rep Jimmy Fletcher		

E 6615

Anadarko

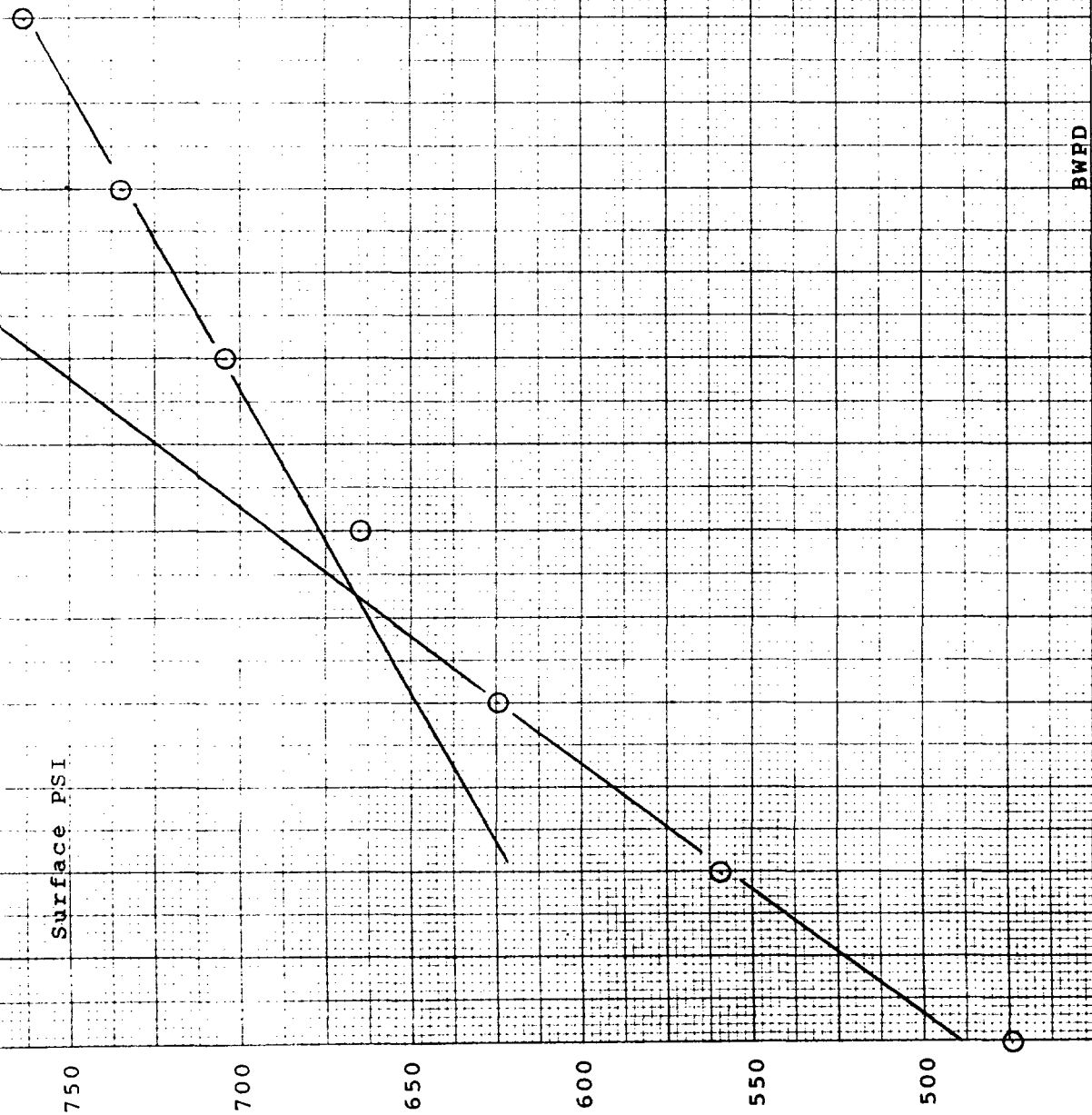
Ballard Grayburg San Andres #10-2

1-14-86

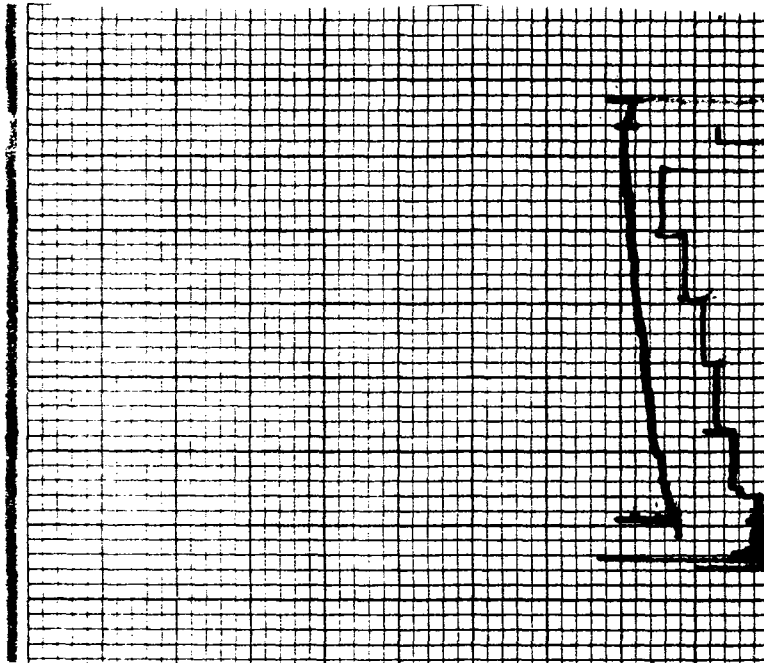
Surface PSI

BWPD

50 100 150 200 250 300 350 400 450



Anadarko
Ballard Grayburg San Andres #10-9
1-14-86



B & D WELL TESTERS

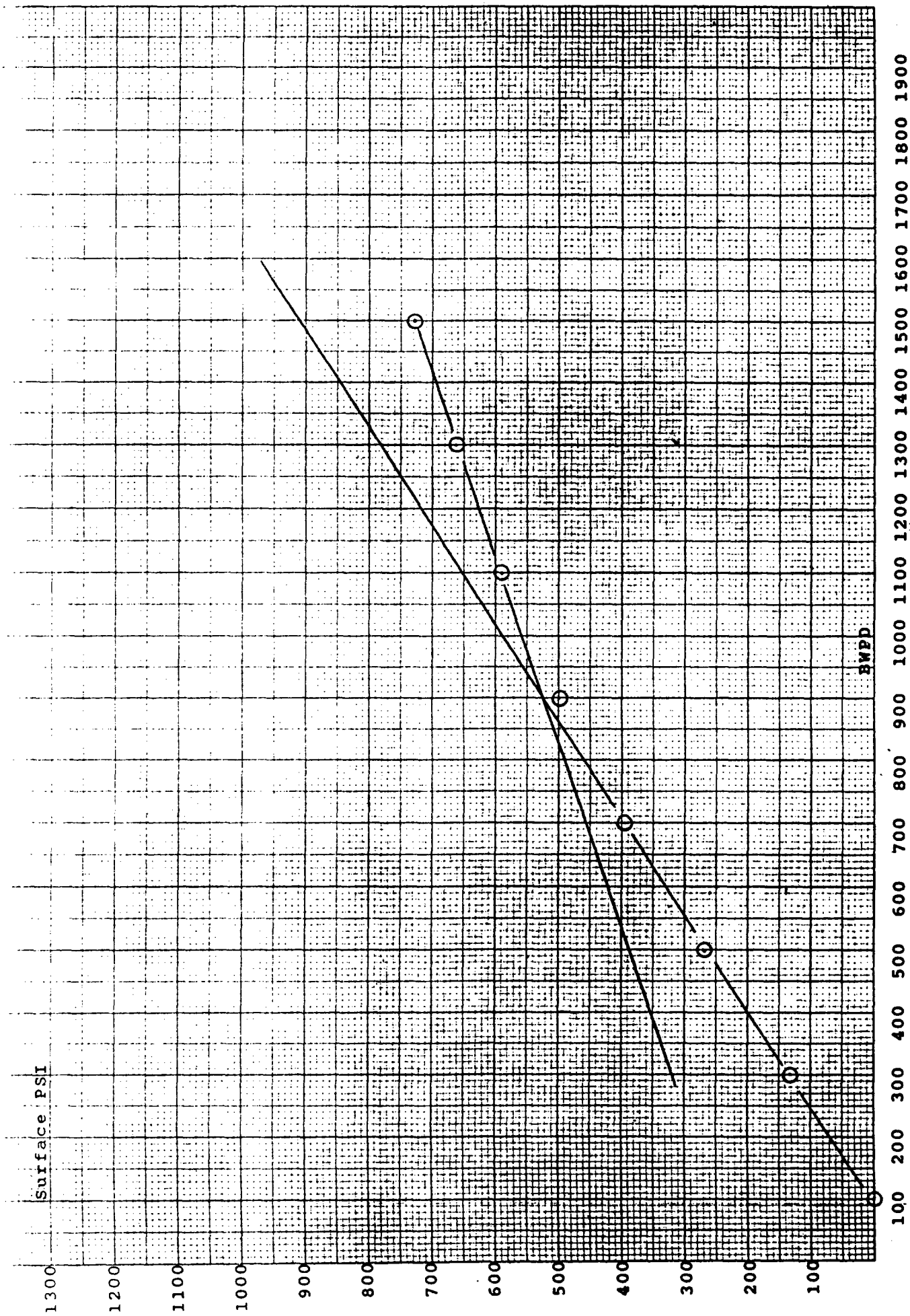
Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko					Test Date 1-13-86		Unit
Total Depth		Plug Back TD		Elevation		Lease Ballard Grayburg San	Andres
Csg size 4 1/2		Wt	d	Set at	Perfs: From 2508 To 2680	Well # 11-1	
Tbg size 2 3/8		Wt	d	Set at	Perfs: From	Sec	Twp-Blk Rge
Producing thru					Packer set at	County Eddy	State New Mexico
						Co. Rep Jimmy Fletcher	

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLs Per Day	Total BBLs Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
11:30				Vac			
11:35	Start			Vac			
11:40		100		Vac			
11:45		100		Vac			
11:50	:15	100		Vac			
11:55		300		0			
12:00		300		85			
12:05	:30	300		135			
12:10		500		205			
12:15		500		235			
12:20	:45	500		270			
12:25		700		335			
12:30		700		365			
12:35	1:00	700		395			
12:40		900		460			
12:45		900		480			
12:50	1:15	900		500			
12:55		1100		555			
1:00		1100		575			
1:05	1:30	1100		590			
1:10		1300		640			
1:15		1300		654			
1:20	1:45	1300		665			
1:25		1500		705			
1:30		1500		720			
1:35	2:00	1500		730			
5 minute fall-off							
1:36				585			
1:37				575			
1:38				565			
1:39				555			
1:40				560			



Anadarko
Ballard Grayburg San Andres #11-1
1-13-86



NO. 55018

B & D WELL TESTERS

Step Rate Test

Phone (505) 397-3914

Hobbs, New Mexico 88240

Company Anadarko					Test Date 1-14-86		Unit
Total Depth		Plug-Back TD		Elevation		Lease Ballard Grayburg San Andres	
Csg size	Wt	d	Set at	Perfs: From 2526 To 2707		Sec	Twp-Blk Rge
Tbg size	2 3/8 Wt	d	Set at	Perfs: From To		County Eddy	State New Mexico
Producing thru					Packer set at		Co. Rep Jimmy Fletcher

Time of Reading	Elap Time Hrs.	Well Information					Remarks
		Rate BBLS Per Day	Total BBLS Per Rate	Surface PSIG	Surface PSI Cor for Friction	BHP	
8:30	Start			567			
8:35		50		573			
8:40		50		578			
8:45	:15	50		583			
8:50		100		591			
8:55		100		595			
9:00	:30	100		604			
9:05		200		621			
9:10		200		632			
9:15	:45	200		641			
9:20		300		657			
9:25		300		668			
9:30	1:00	300		677			
9:35		400		693			
9:40		400		697			
9:45	1:15	400		702			
9:50		500		715			
9:55		500		726			
10:00	1:30	500		737			
10:05		600		755			
10:10		600		769			
10:15	1:45	600		780			
10:20		800		805			
10:25		800		820			
10:30	2:00	800		831			
10:35		1000		857			
10:40		1000		870			
10:45	2:15	1000		881			
10:50		1200		906			
10:55		1200		916			
11:00	2:30	1200		926			

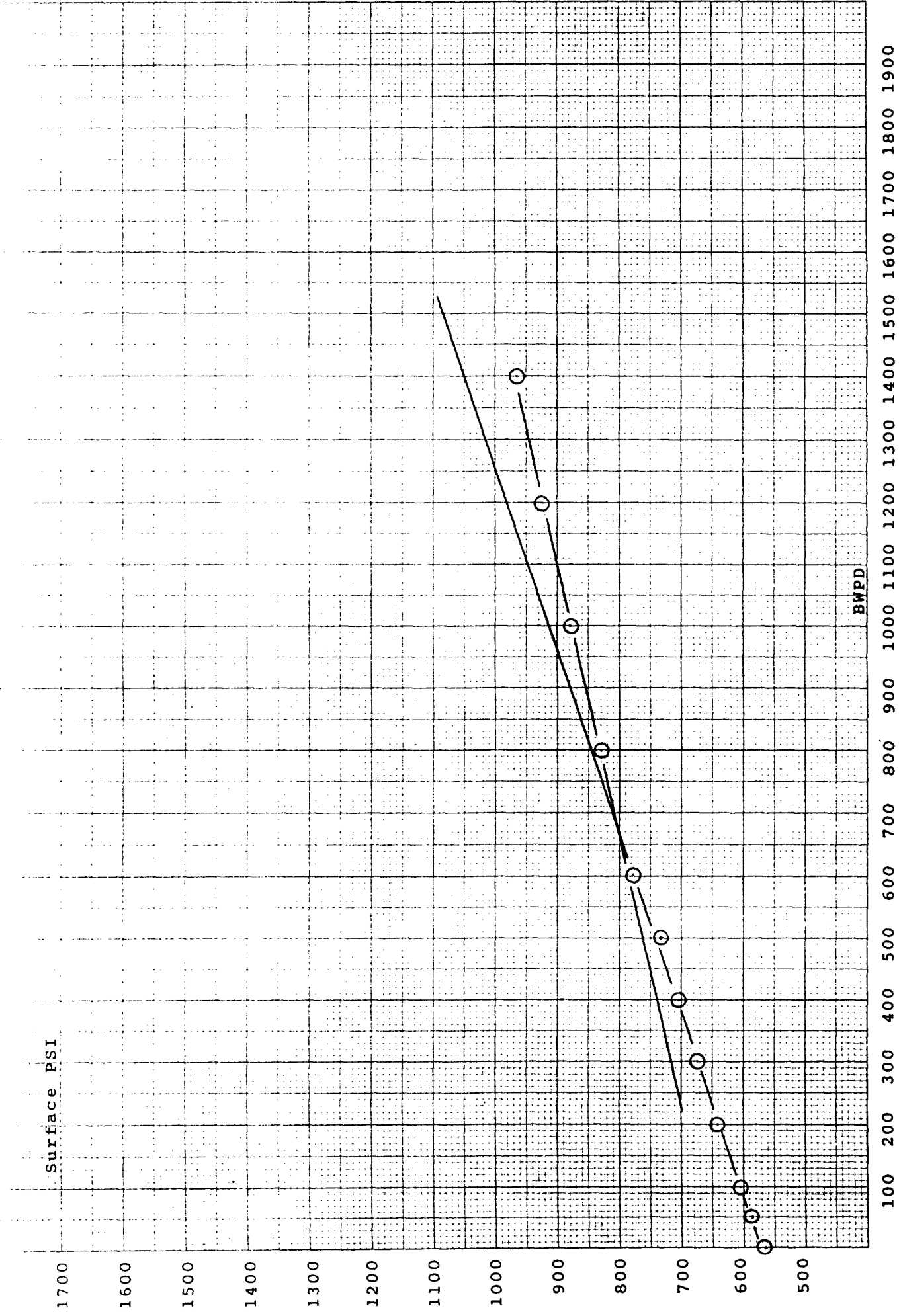
Step Rate Test

Phone (505) 397-3914

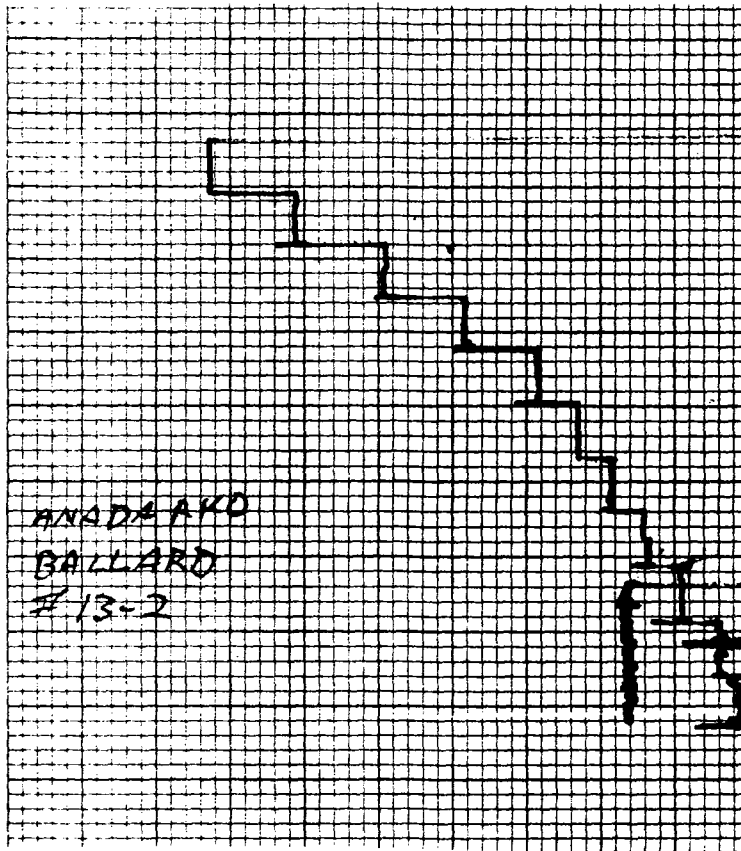
Page #2
Hobbs, New Mexico 88240

Company Anadarko					Test Date 1-14-86		Unit	
Total Depth		Plug Back TD		Elevation		Lease Ballard Grayburg San		
Csg size		Wt	d	Set at	Perfs: From 2526 To 2707	Well # 13-2	Andres	
Tbg size 2 3/8		Wt	d	Set at	Perfs: From To	Sec Twp-Blk Rge		
Producing thru					Packer set at		County State	
							Co. Rep Jimmy Fletcher	

[illegible]



Anadarko
Ballard Grayburg San Andres #13-2
1-14-86



Hobbs, New Mexico 88240

3-6615

Step Rate Test

Hobbs, New Mexico 88240

Company Anadarko

Test Date 1-14-86

Unit

Lease Ballard Grayburg San

Total Depth

Plug-Back TD

Elevation

Well # 24-2

Andres

Csg size 5 1/2

Wt

d

Set at _____

Perfs: From 2511 To 2756

Sec

Twp-Blk

Rge

Tbg size 2 3 / 8 Wt

d

Set at

Perts: From

To

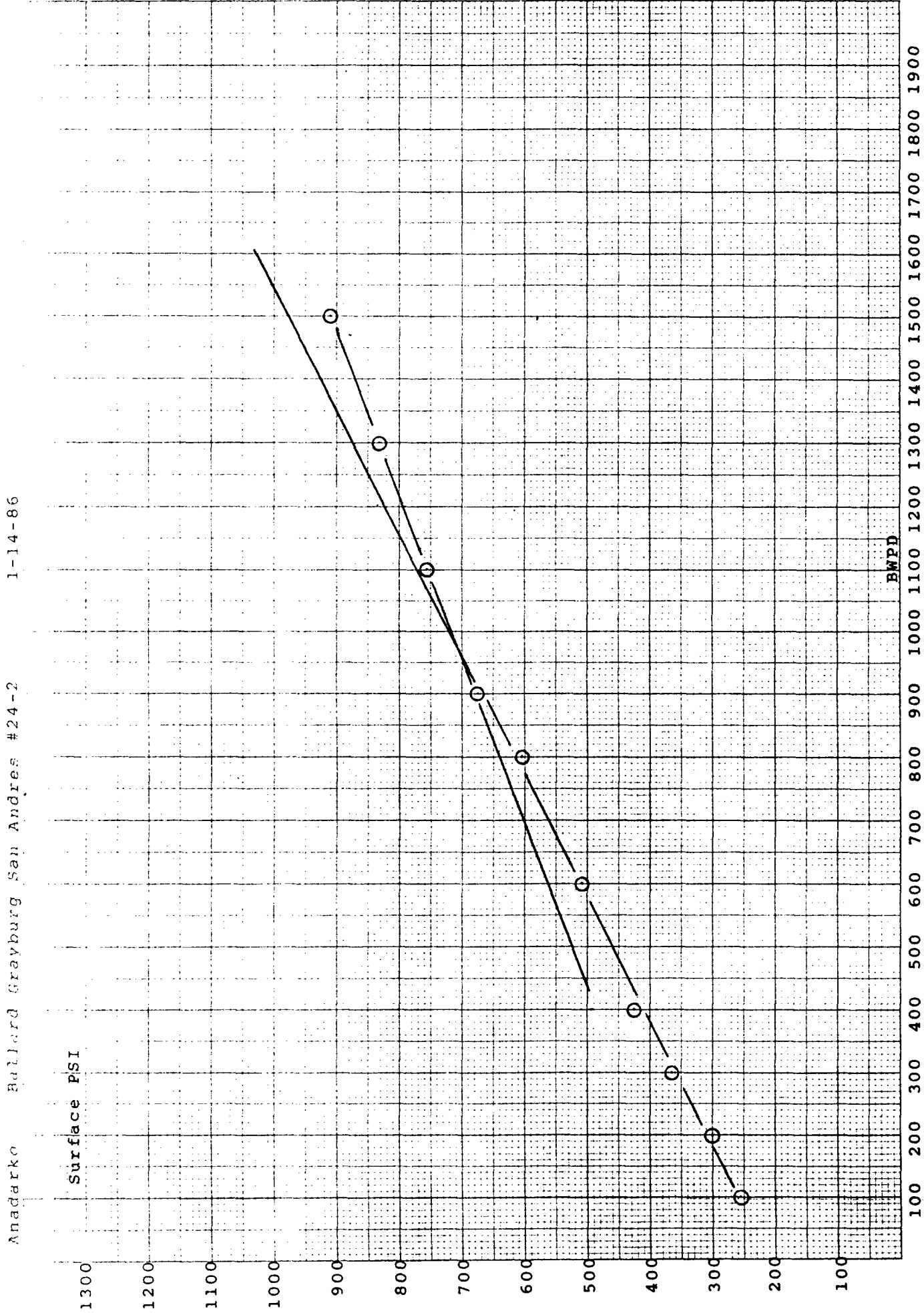
County Eddy State New Mexico

Producing thru

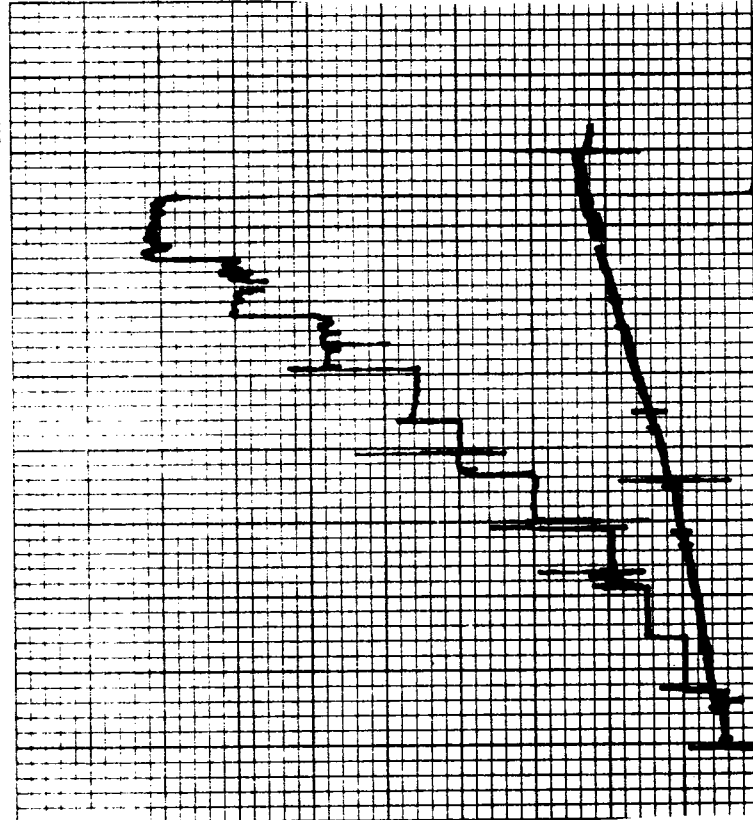
Packer set at

Co. Rep Jimmy Fletcher

3 615



Anadarko
Ballard Grayburg San Andres #24-2
1-14-86



NO. 59018

B & D WELL TESTERS

Step Rate Test

Pioneer (505) 397-3914

Hobbs, New Mexico 88240

[illegible]

Anadarko

Ballard Grayburg San Andres # 26-4

1-15-86

Surface PSI

BWPD

50 100 150 200 250 300 350 400 450 500

1500

1450

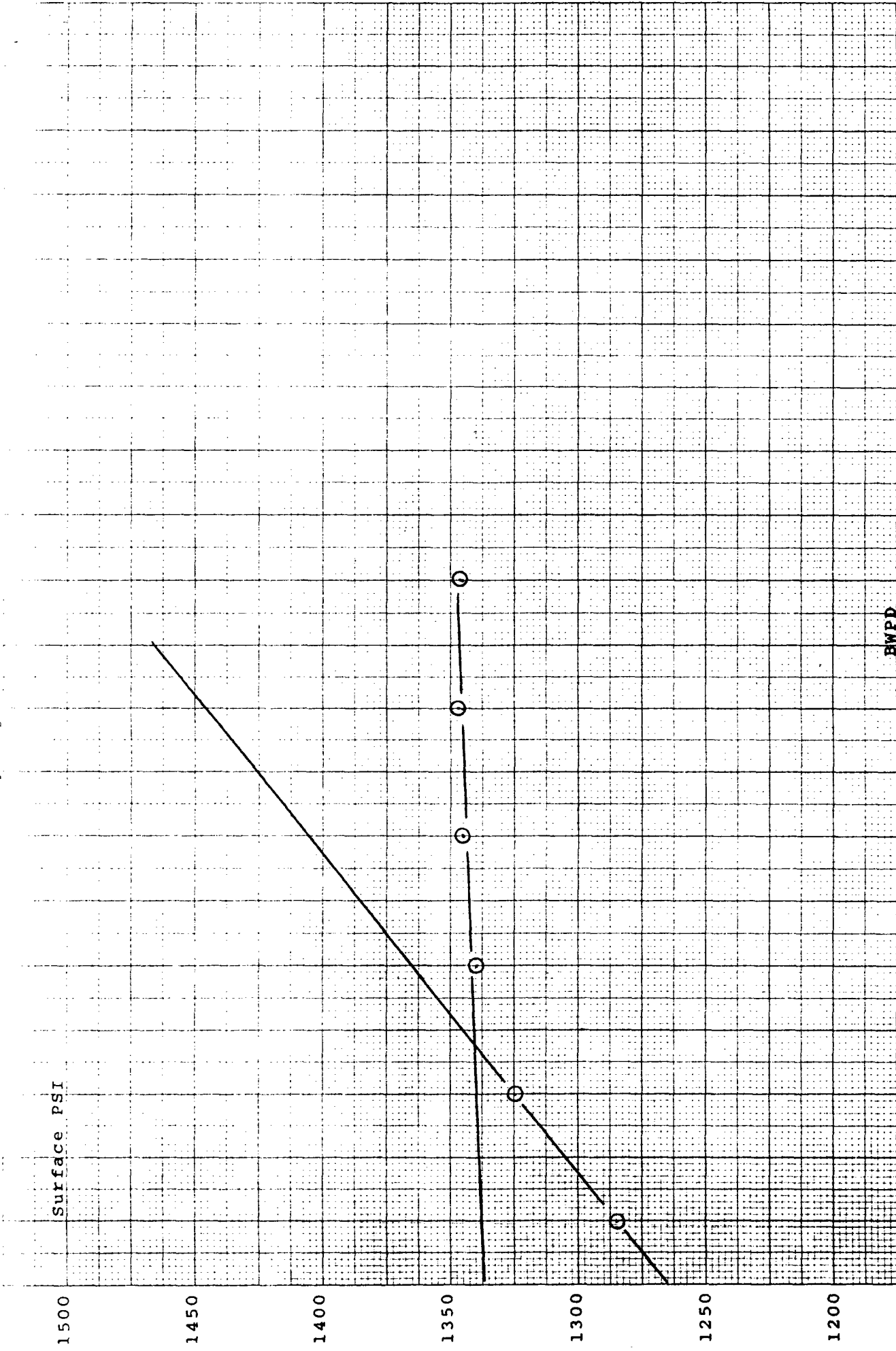
1400

1350

1300

1250

1200



Anadarko
Ballard Grayburg San Andres #26-4
1-15-86

