

DATE IN 2.22.11	SUSPENSE	ENGINEER TW	LOGGED IN 2.22.11	TYPE IPI	APP NO. 1105338092
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ABOVE THIS LINE FOR DIVISION USE ONLY

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



Quantum Res.
 RECEIVED UCD
 293874

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]

21 wells
State

- [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.

David Catanach
 Print or Type Name

David Catanach
 Signature

Agent for Quantum Resources Management, LLC
 Title

2/21/2011
 Date

drcatanach@netscape.com
 E-Mail Address

R-2494, R-2495 WFX 180, 206, 324

February 21, 2011

Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Attention: Mr. Daniel Sanchez, Acting Division Director

HAND DELIVERED

Re: Application for Increased Injection Pressure
Quantum Resources Management, LLC
Cone Jalmat Yates Pool Unit Waterflood Project
Jalmat (Tansill-Yates-Seven Rivers) Oil & Gas Pool (33820)
Lea County, New Mexico

Dear Mr. Sanchez,

Quantum Resources Management, LLC ("Quantum") as current operator of the Cone Jalmat Yates Pool Unit Waterflood Project, located in portions of Sections 13, 23, 24, 25 and 36, Township 22 South, Range 35 East, NMPM, Lea County, New Mexico, hereby requests administrative approval to increase the surface injection pressure on a unit-wide basis for all injection wells within the unit area.

Waterflood operations within the Cone Jalmat Yates Pool Unit ("CJYPU") were initially approved by Division Order No. R-2495 dated June 11, 1963. Waterflood operations have been ongoing since that time. Additional injection wells within the unit area have subsequently been added and permitted by Division Orders No. WFX-180, WFX-206, WFX-324 and WFX-853. During the late 1990's, a program of infill drilling and waterflood expansion commenced within the CJYPU. There are currently twenty-one active or permitted injection wells within the unit area.

The currently authorized surface injection pressure for the newer permitted wells is approximately 740 psi. It should also be noted that Division Orders No. R-2495, WFX-180, WFX-206 and WFX-324 do not specify a maximum surface injection pressure. It is our understanding that prior to 1980, the Division did not impose a maximum surface injection pressure on permitted injection wells.

During January-February, 2011, Quantum conducted nine step rate tests on injection wells at various locations across the CJYPU area. The wells and their locations were chosen so as to obtain a representative sample of all injection wells within the unit area. The step rate tests generally indicate fracture pressures ranging from 700-1264 psi. Step rate tests conducted on the CJYPU Wells No. 304 and 110 indicate fracture pressures in the 700-800 psi range. These two particular tests appear to be anomalies since they indicate fracture pressures at or below the Division's conservative pressure allowable gradient of 0.2 psi/ft. Also, the results of these two tests are not consistent with

*Quantum Resources Management, LLC
Request for Surface Injection Pressure Increase
Cone Jalmat Yates Pool Unit WF Project
Lea County, New Mexico*

the results of the seven other tests conducted within the unit area. If these two tests are not considered, the average fracture pressure that was determined in the remaining seven wells was 1105 psi. **Consequently, Quantum hereby requests authority to increase the surface injection pressure on a unit-wide basis within the CJYPU to 1,100 psi.** The proposed pressure increase represents a conservative pressure gradient of approximately 0.29 psi/ft. Approval of the proposed pressure increase will allow Quantum to effectively and efficiently conduct secondary recovery operations within the CJYPU, thereby increasing the recovery of hydrocarbons from the Jalmat (Tansill-Yates-Seven Rivers) Oil & Gas Pool. Also, Quantum believes that the proposed surface injection pressure will not fracture the injection formation or confining strata, and will therefore protect fresh water resources within the unit area.

Please note that in late 2010, the Division authorized a unit-wide pressure increase to 1,400 psi within Quantum's Jalmat Field Yates Sand Unit Waterflood Project (See Order No. IPI-388 dated 12/27/2010). This secondary recovery project is adjacent to Quantum's CJYPU.

Attached is a table showing a list of the injection wells within the CJYPU, along with its API No., well location, currently authorized surface injection pressure, and test results on those wells recently tested.

Also attached is a map of the CJYPU showing the location of the injection wells within the unit area, as well as the location of the recently-tested injection wells.

Also attached is a graphical presentation of the step rate tests conducted.

If you should have any questions, please contact me at (505) 690-9453.

Sincerely,



Mr. David Catanach
Agent for Quantum Resources Management, LLC
1401 McKinney Street
Suite 2400
Houston, Texas 77010

Xc: OCD-Hobbs

Quantum Resources Management, LLC
Cone Jalmat Yates Pool Unit Injection Wells
Step Rate Test Results

Well Name	Well No.	API No.	Well Location UL-S-T-R	Authorized Pressure	Test Results
CJYPU	102	30-025-08647	Unit C, Section 24, T-22S, R-35E	742 psi	
CJYPU	103	30-025-08604	Unit K, Section 13, T-22S, R-35E	744 psi	900 psi
CJYPU	105	30-025-08606	Unit L, Section 13, T-22S, R-35E	*	995 psi
CJYPU	106	30-025-08607	Unit M, Section 13, T-22S, R-35E	752 psi	
CJYPU	107	30-025-08648	Unit D, Section 24, T-22S, R-35E	*	1264 psi
CJYPU	108	30-025-08608	Unit O, Section 13, T-22S, R-35E	742 psi	
CJYPU	110	30-025-08649	Unit F, Section 24, T-22S, R-35E	*	825 psi
CJYPU	111	30-025-08610	Unit P, Section 13, T-22S, R-35E	*	
CJYPU	127	30-025-38916	Unit J, Section 13, T-22S, R-35E	740 psi	
CJYPU	128	30-025-38917	Unit I, Section 13, T-22S, R-35E	740 psi	
CJYPU	146	Not Yet Drilled	Unit E, Section 24, T-22S, R-35E	740 psi	
CJYPU	201	30-025-08643	Unit A, Section 24, T-22S, R-35E	724 psi	
CJYPU	202	30-025-08644	Unit B, Section 24, T-22S, R-35E	*	
CJYPU	303	30-025-08645	Unit G, Section 24, T-22S, R-35E	739 psi	
CJYPU	304	30-025-08646	Unit H, Section 24, T-22S, R-35E	*	686 psi
CJYPU	502	30-025-08640	Unit L, Section 24, T-22S, R-35E	*	1234 psi
CJYPU	503	30-025-08641	Unit N, Section 24, T-22S, R-35E	*	1243 psi
CJYPU	602	30-025-08651	Unit J, Section 24, T-22S, R-35E	*	950 psi
CJYPU	701	30-025-08663	Unit H, Section 25, T-22S, R-35E	*	
CJYPU	702	30-025-08664	Unit B, Section 25, T-22S, R-35E	*	
CJYPU	804	30-025-08658	Unit K, Section 25, T-22S, R-35E	*	1150 psi

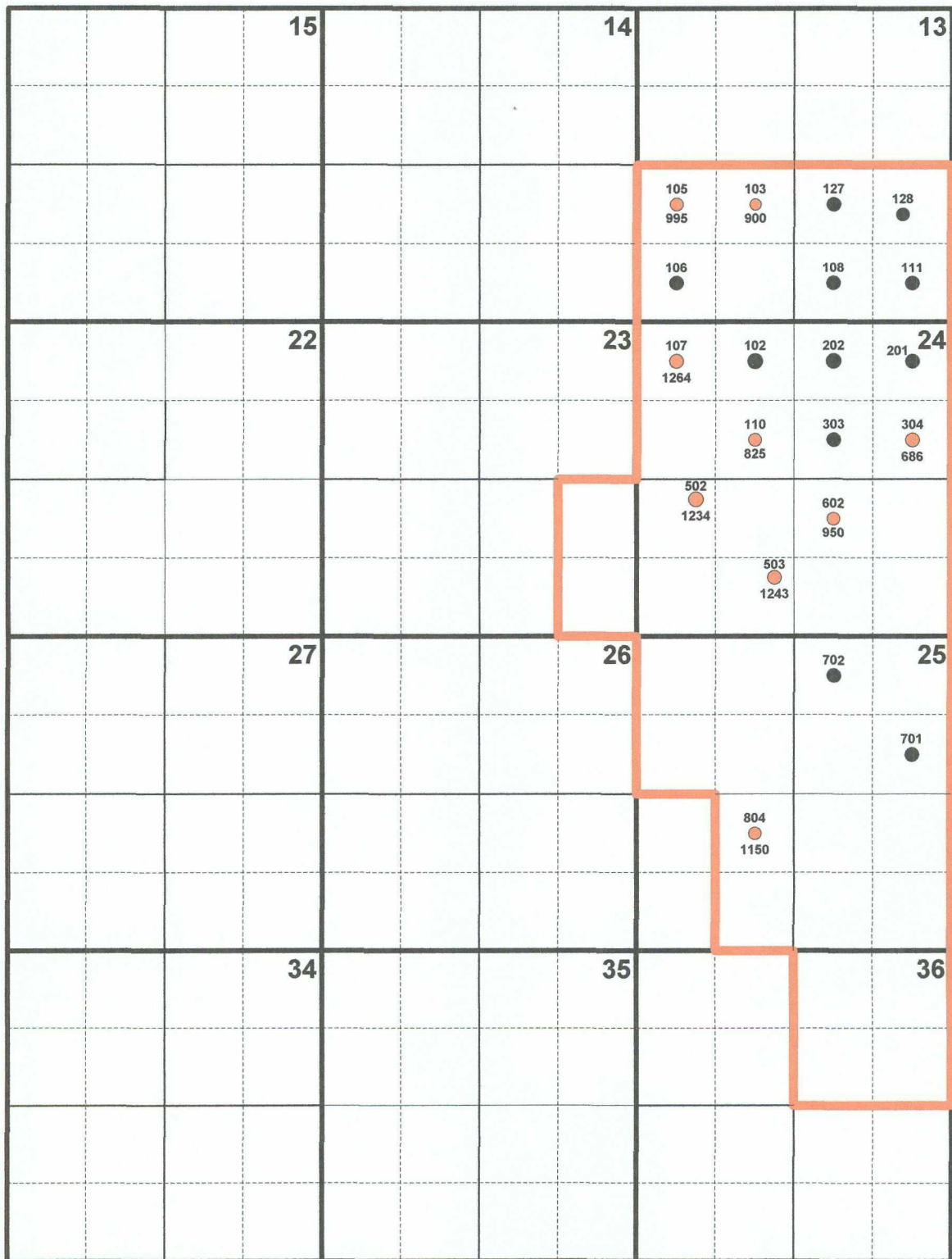
* Division Order Nos. R-2495, WFX-180, WFX-206 and WFX-324 did not establish a surface injection pressure limit for these wells.

*WFX 880
IPE 358*

21 wells

35 East

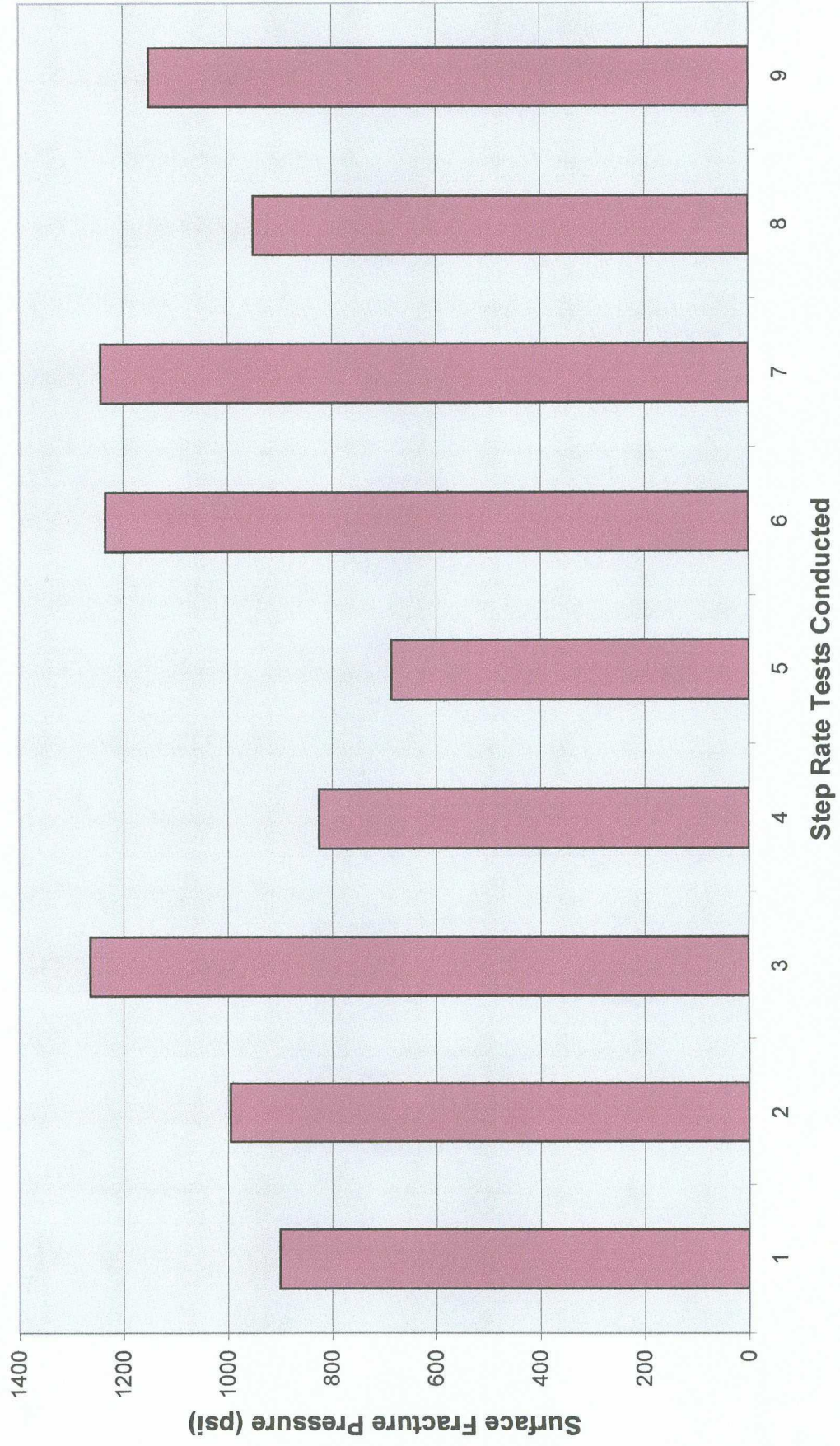
22 South



*Not yet drilled
1462
Not on map*

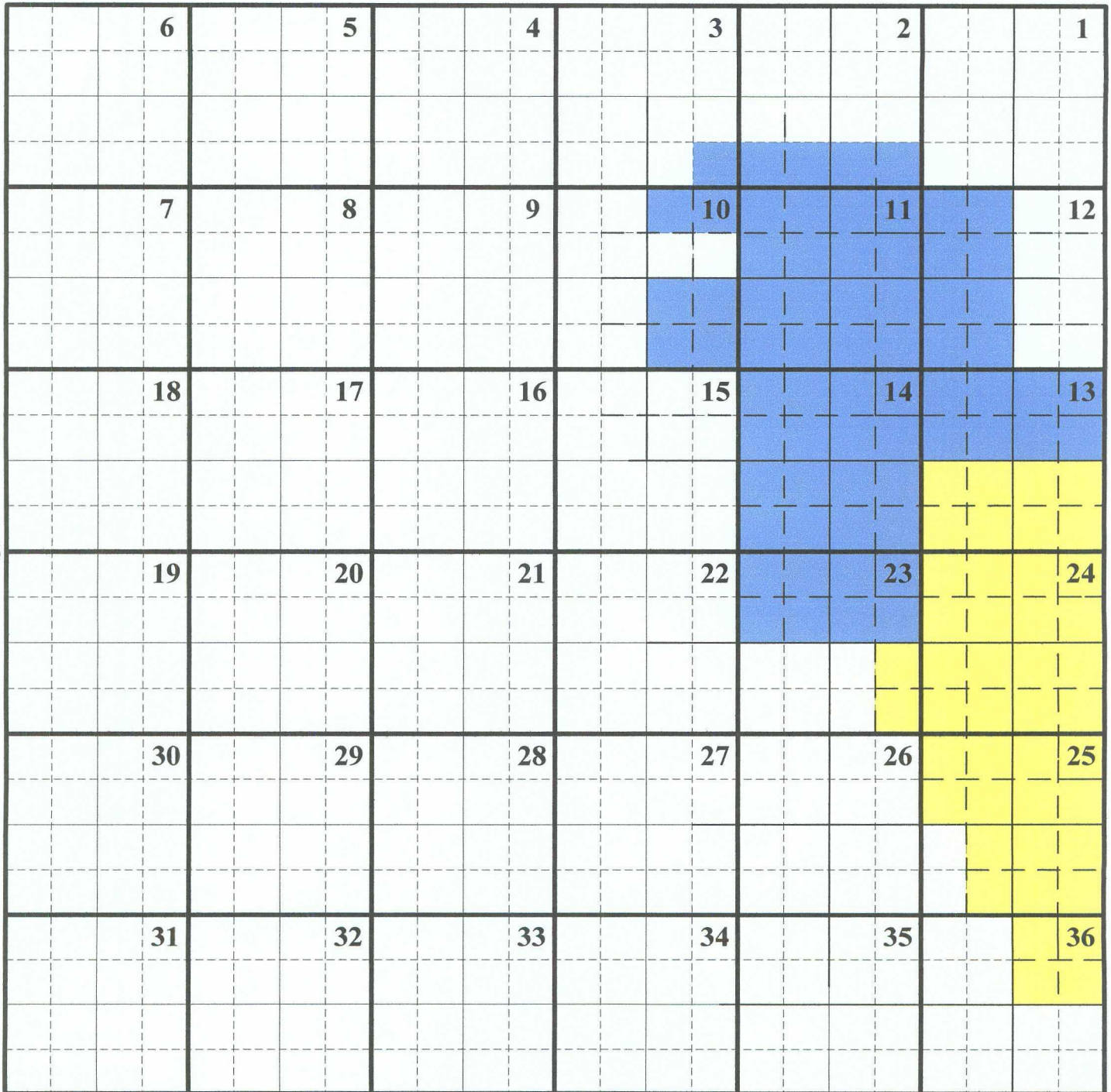
- Unit Boundary-Cone Jalmat Yates Pool Unit Area
- Existing Injection Well/Well Number
- Existing Injection Well-Step Rate Test Conducted 2011 (Well Number/Surface Fracture Pressure)

Quantum Resources Managment, LLC
Step Rate Tests Results



35 East

22S



Cone Jalmat Yates Pool Unit Area



Jalmat Field Yates Sand Unit Area

Quantum Resources Management, LLC

QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #103
LEA COUNTY, NEW MEXICO

TEST DATE
1/19/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,788' and surface pressure transducer.

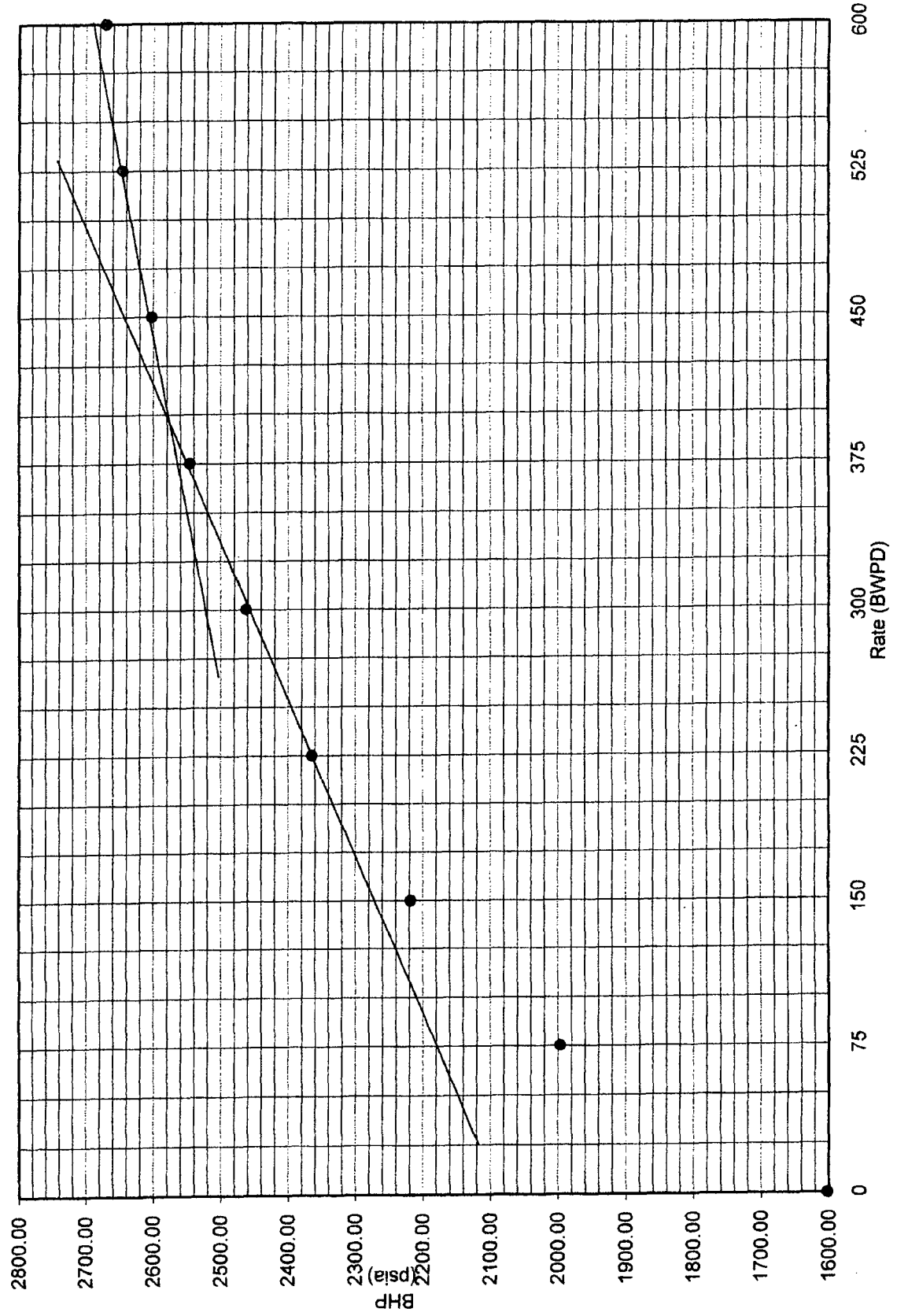
TEST DATE 1/19/2011

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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC
CJYSU #103
1/19/2011

PRECISION
PRESSURE
DATA, INC

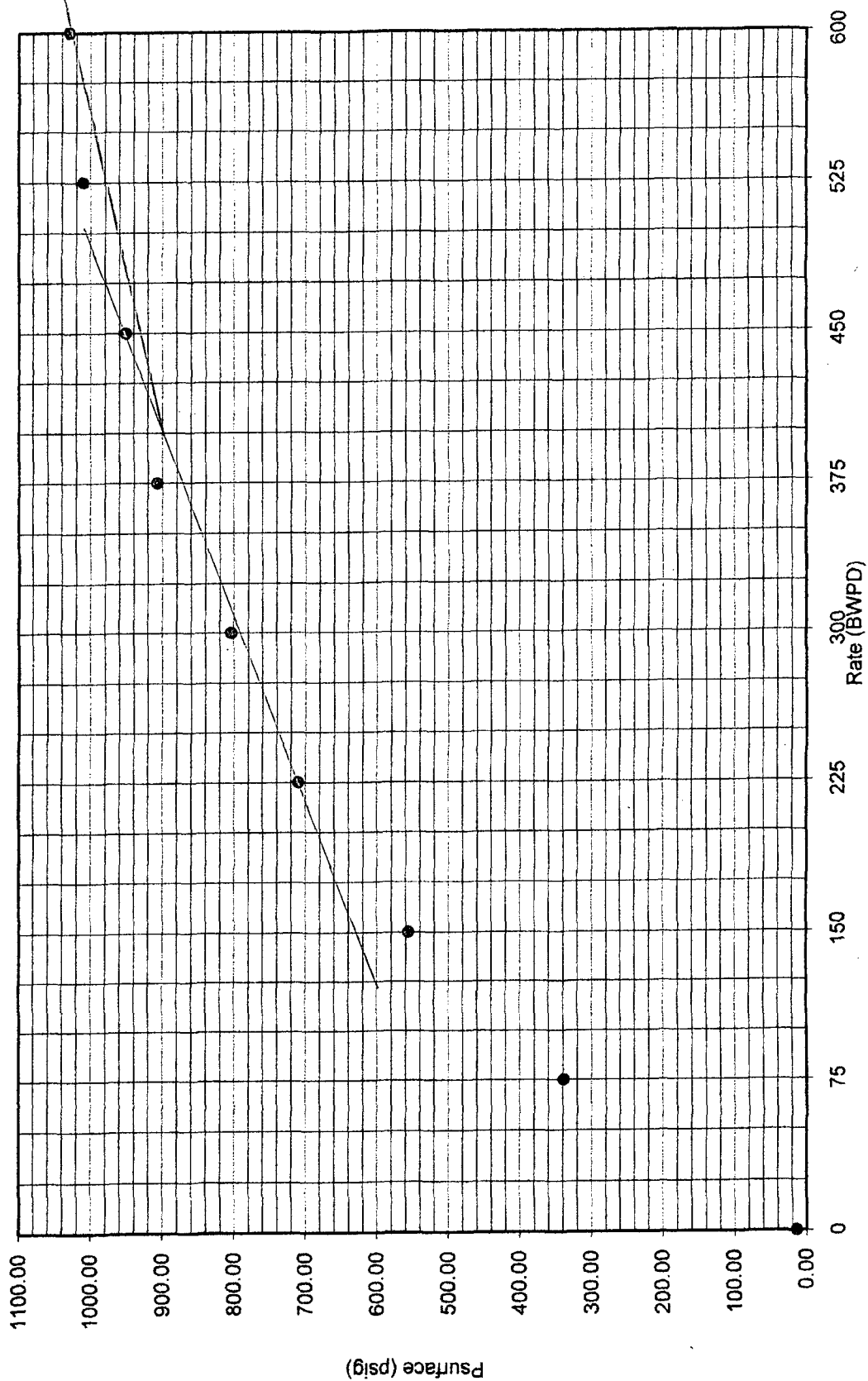
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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
C.JYSU #103
1/19/2011

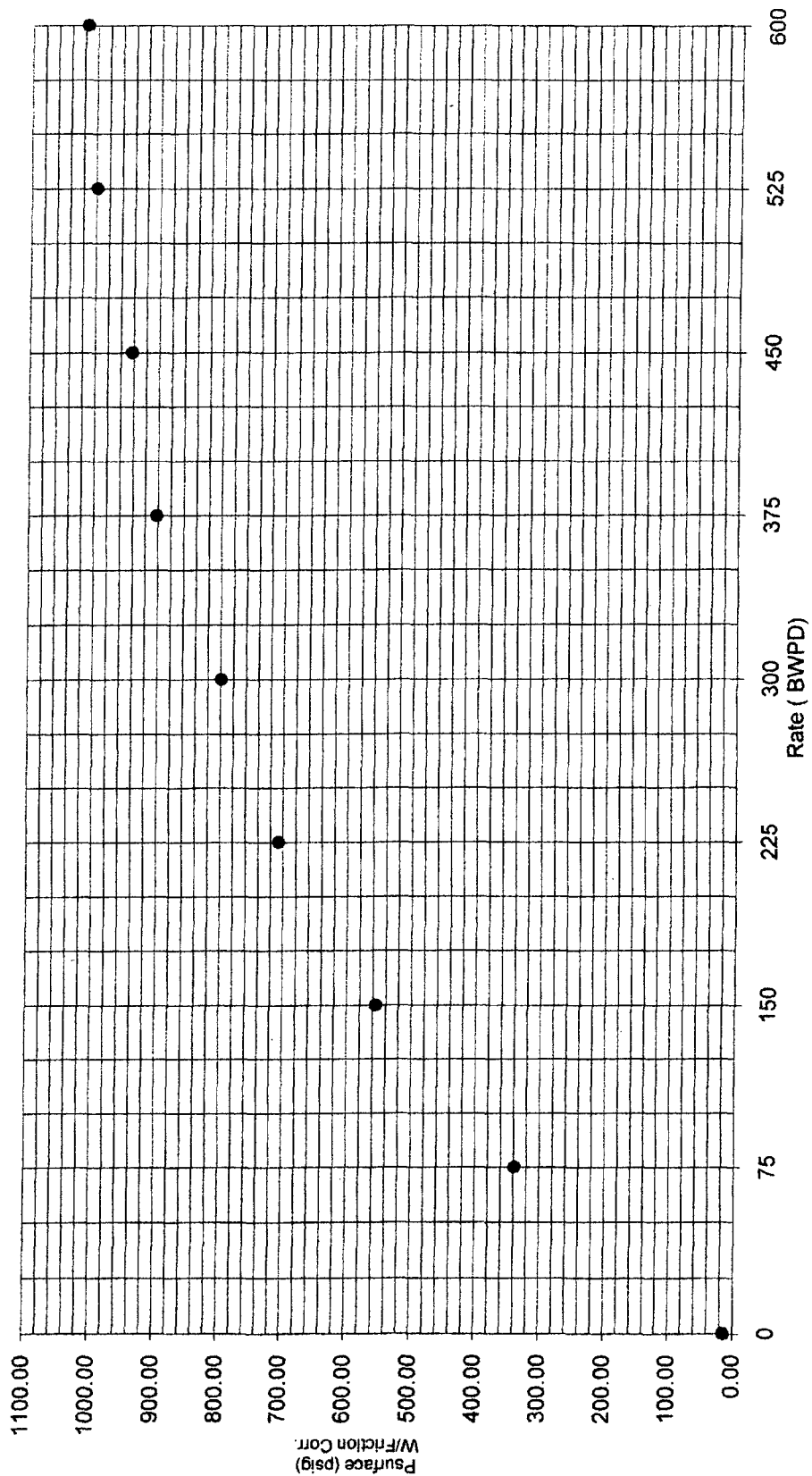
PRECISION
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DATA, INC.

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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #103
1/19/2011

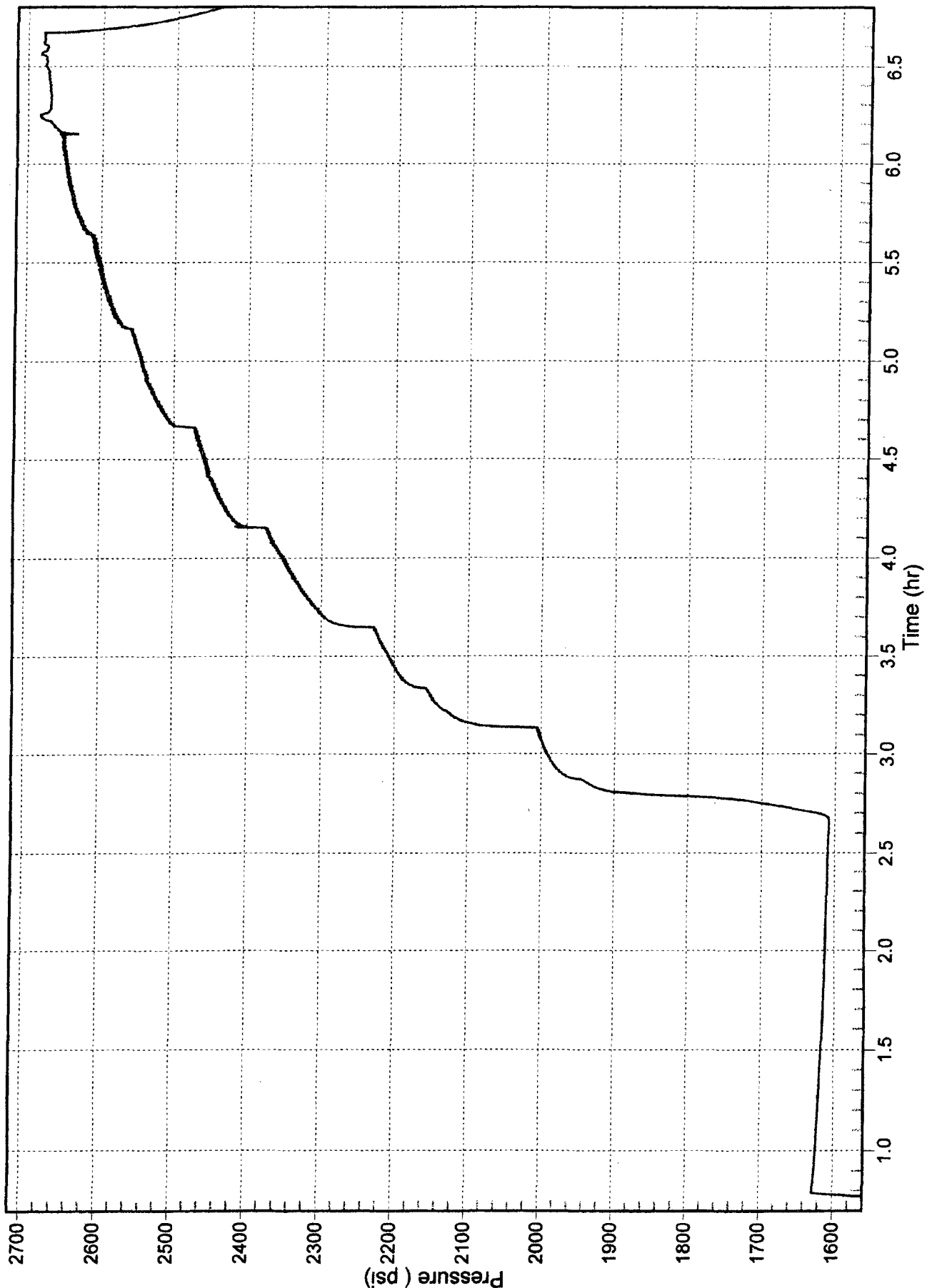
PRECISION
PRESSURE
DATA



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #103

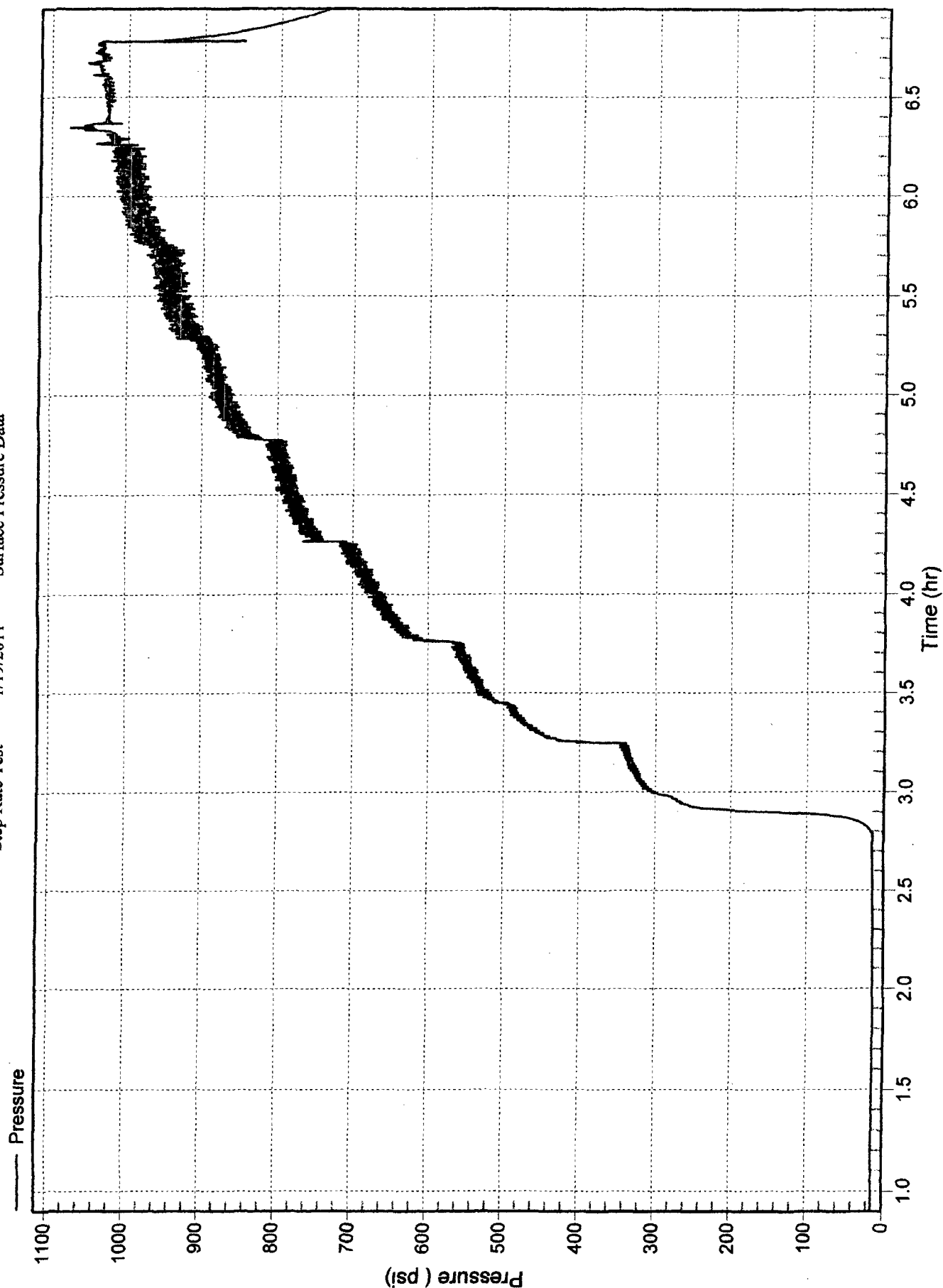
Step Rate Test 1/19/2011 Bottom Hole Pressure Data

Pressure



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #103

Step Rate Test 1/19/2011 Surface Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #105
LEA COUNTY, NEW MEXICO

TEST DATE
1/20/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,775' and surface pressure transducer.

STEP RATE TEST

QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #105

TEST DATE 1/20/2011

[illegible]

Run Depth: 3775

Perforations: 3766-3906

Formation: San Andres

Total Depth: 3989/Tagged 3797

Tubing Depth: 3691

Pkr. Depth: 3691

Tested By: Jim Chesshir

Instrument #: 78665

TEST RESULTS

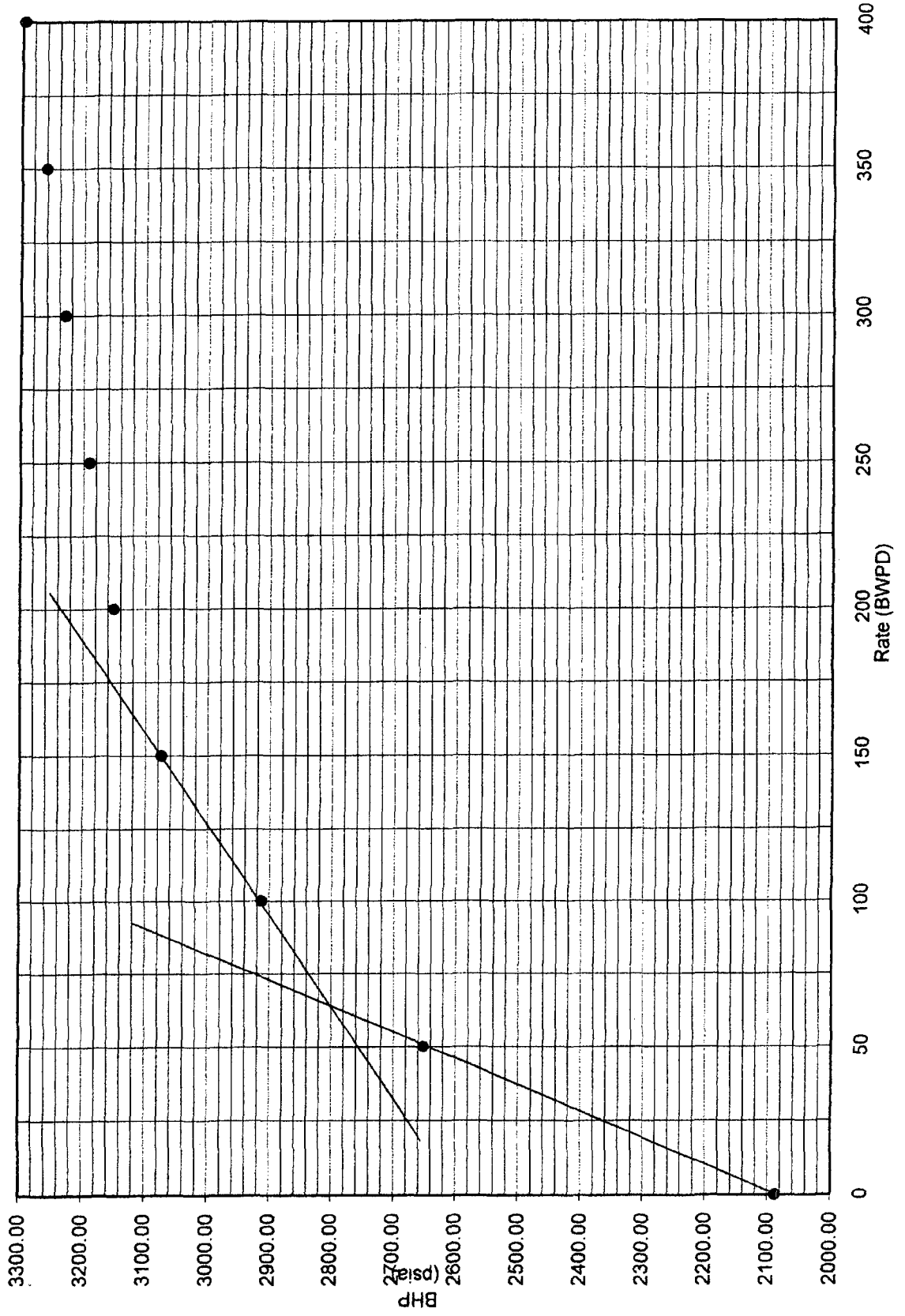
Tagged up at 3797 tool trying to stick a little. Pulled up to 3775 to run steprate test. I started out with 50 bpd rate and looks like it broke on first rate. That is the smallest rate I can pump.

Parting Pressure @ 2800 BHP(psia) @ 50 BWPD

STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #105
1/20/2011

PRECISION
PRESSURE
DATA, INC.

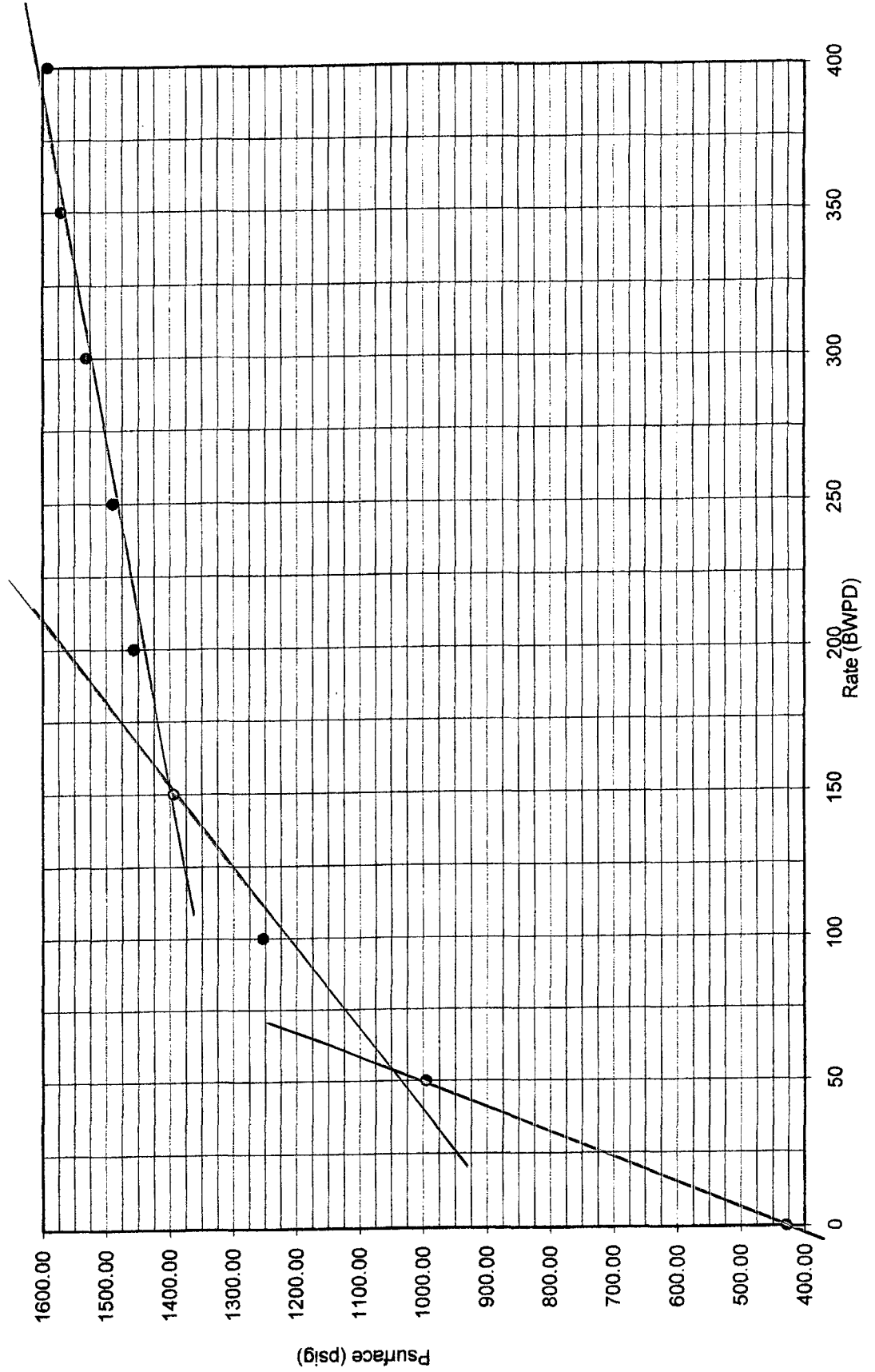
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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC
CJYSU #105
1/20/2011

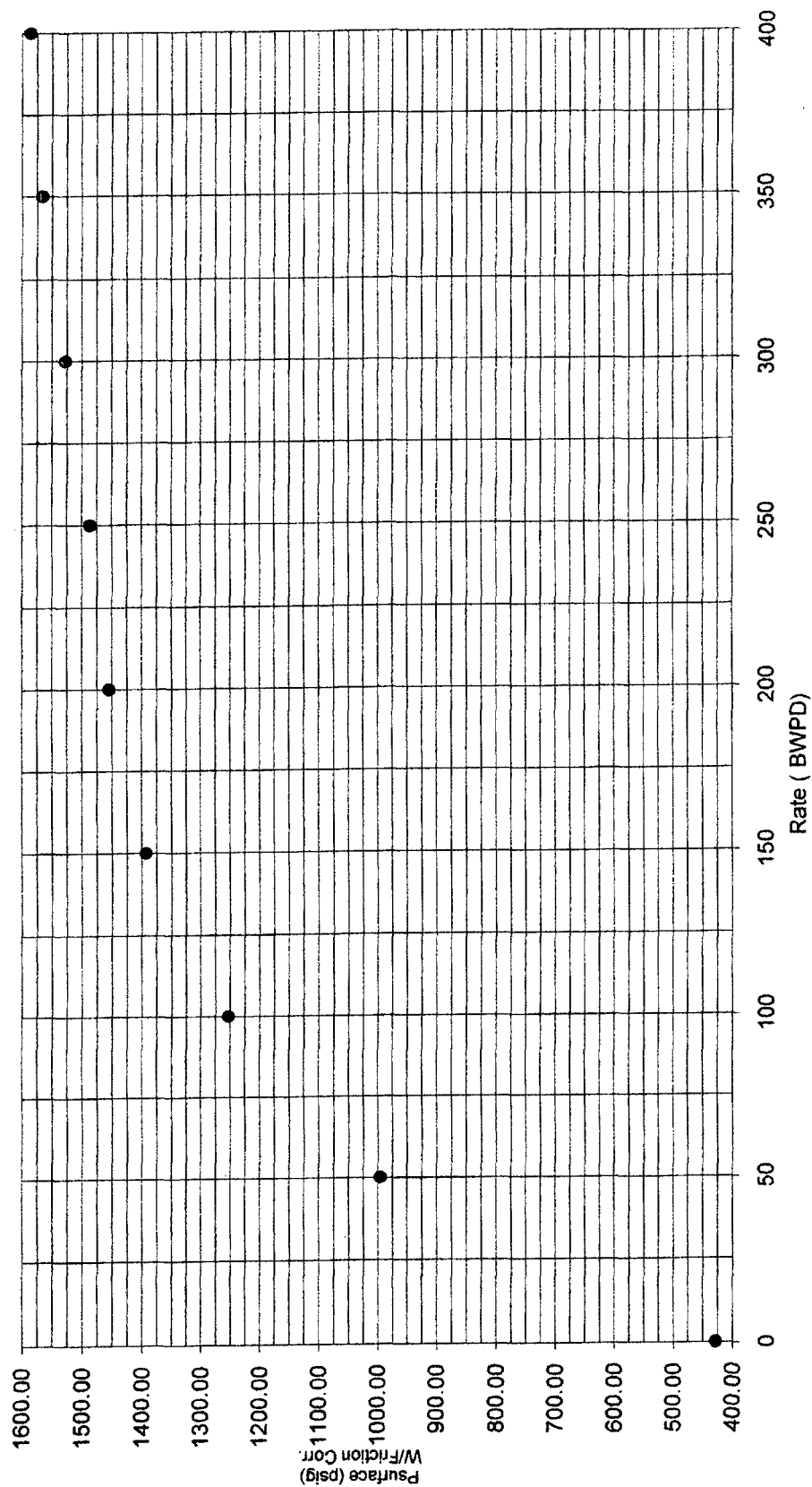
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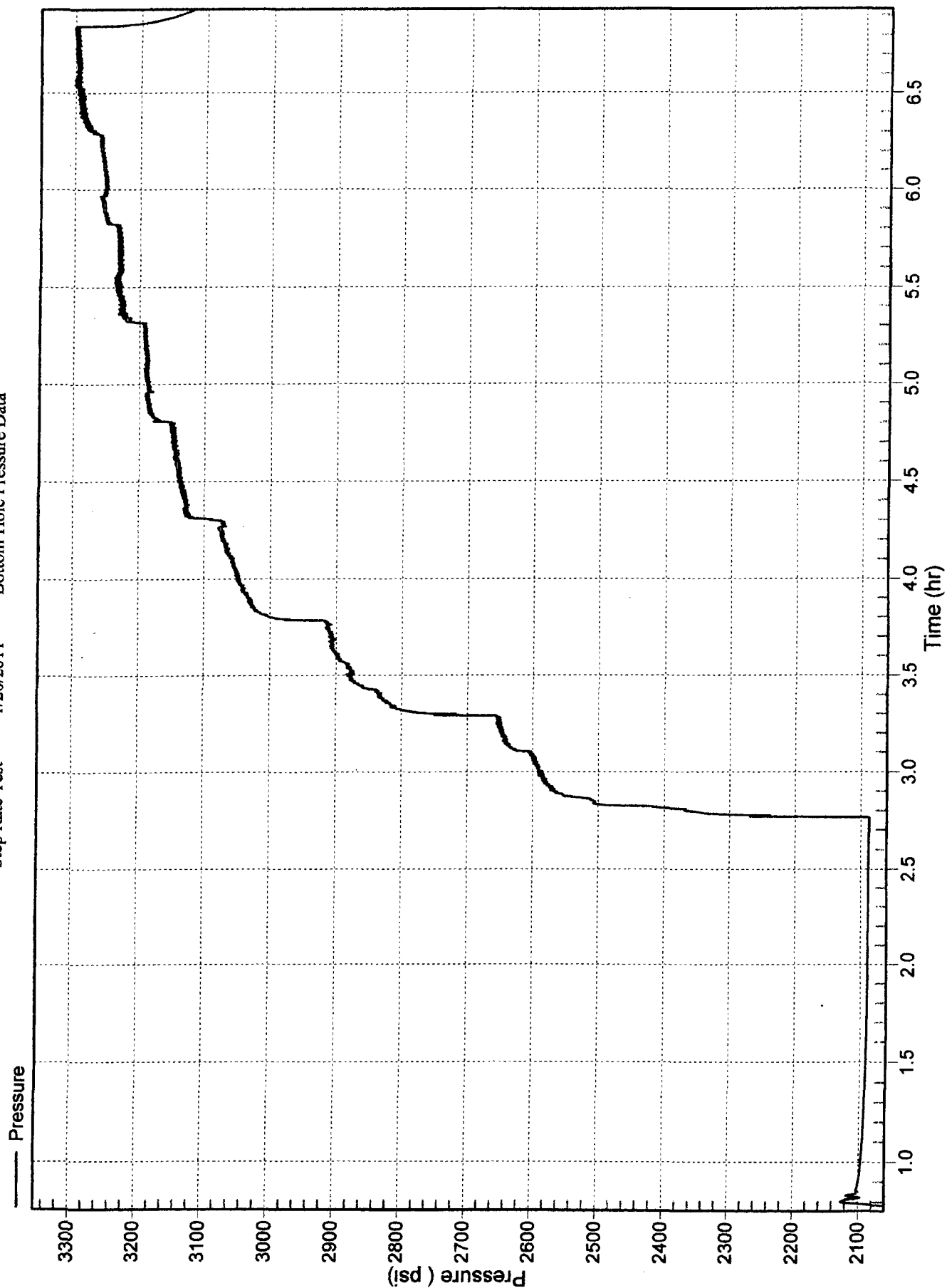
STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #105
1/20/2011

PRECISION
PRESSURE
DATA, INC.



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #105

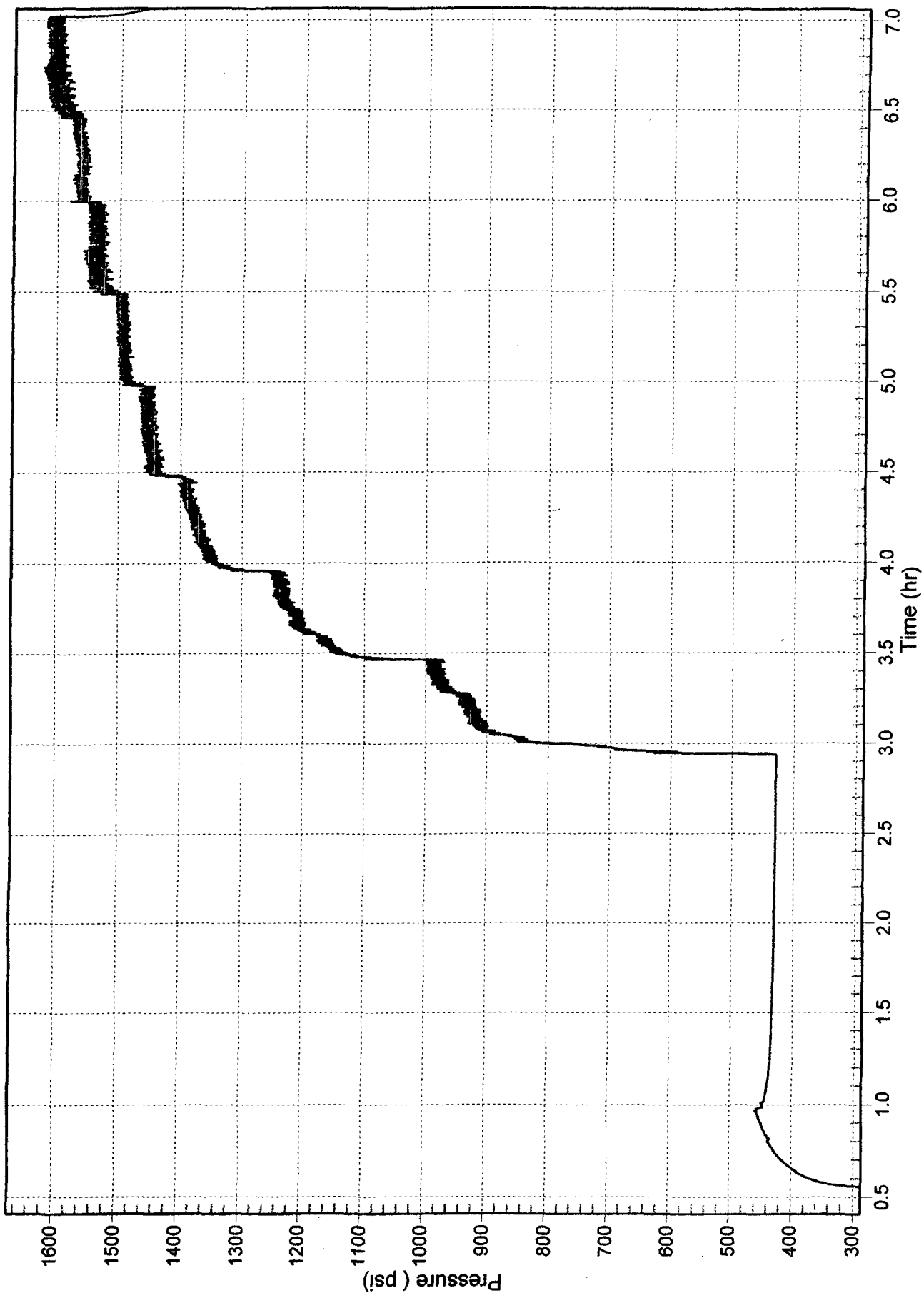
Step Rate Test 1/20/2011 Bottom Hole Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #105

Step Rate Test 1/20/2011 Surface Pressure Data

— Pressure



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #107
LEA COUNTY, NEW MEXICO

TEST DATE
1/21/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,836' and surface pressure transducer.

STEP RATE TEST

QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #107

TEST DATE 1/21/2011

[illegible]

Run Depth: 3836

Perforations: 3773-3900

Formation: San Andres

Total Depth: 3956

Tubing Depth: 3697

Pkr. Depth: 3697

Tested By: Jim Chesshir

Instrument #: 78665

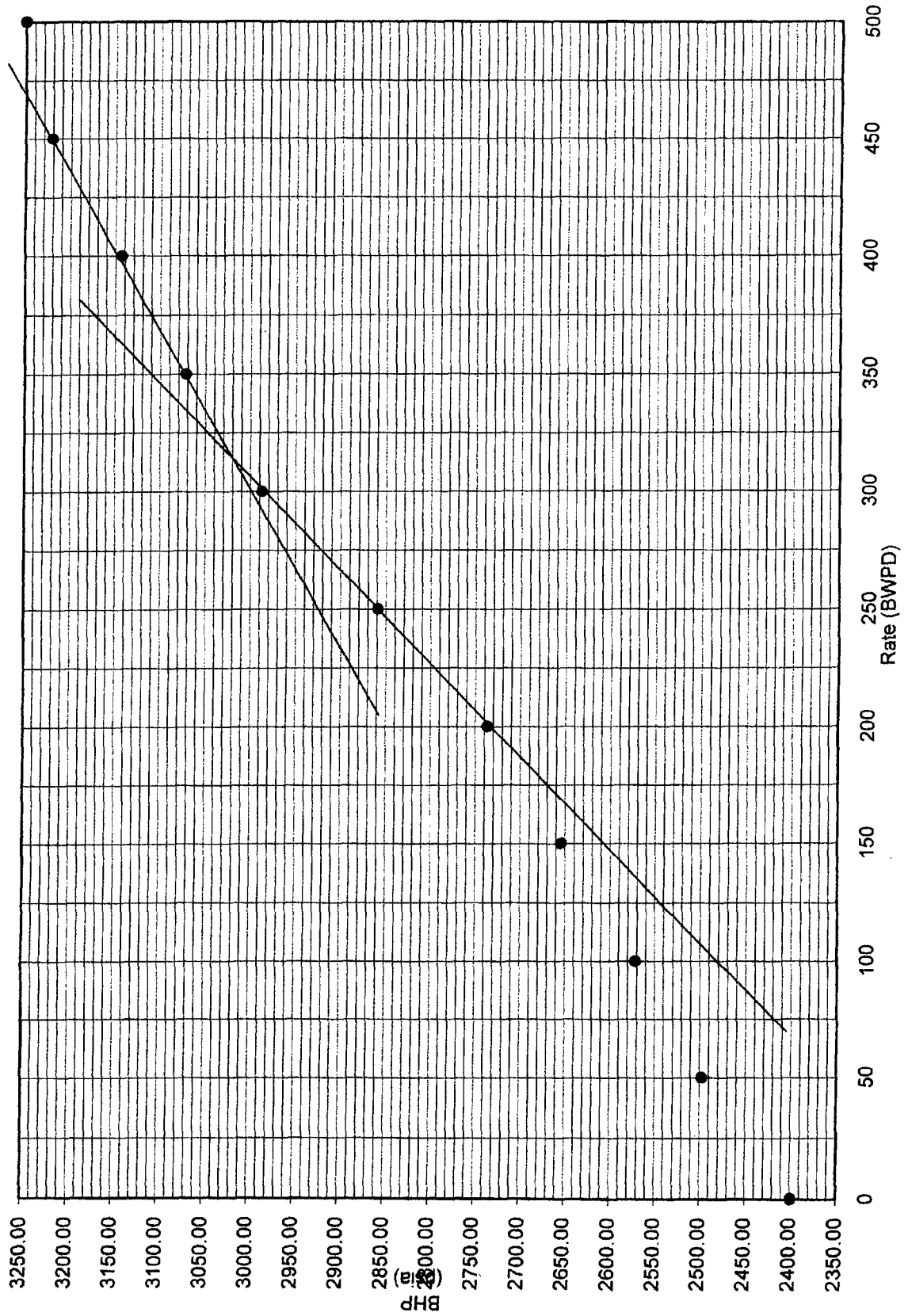
TEST RESULTS

Parting Pressure @ 3020 BHP (psia) @ 300 BWPD

STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC
CJYSU #107
1/21/2011

PRECISION
PRESSURE
DATA, INC.

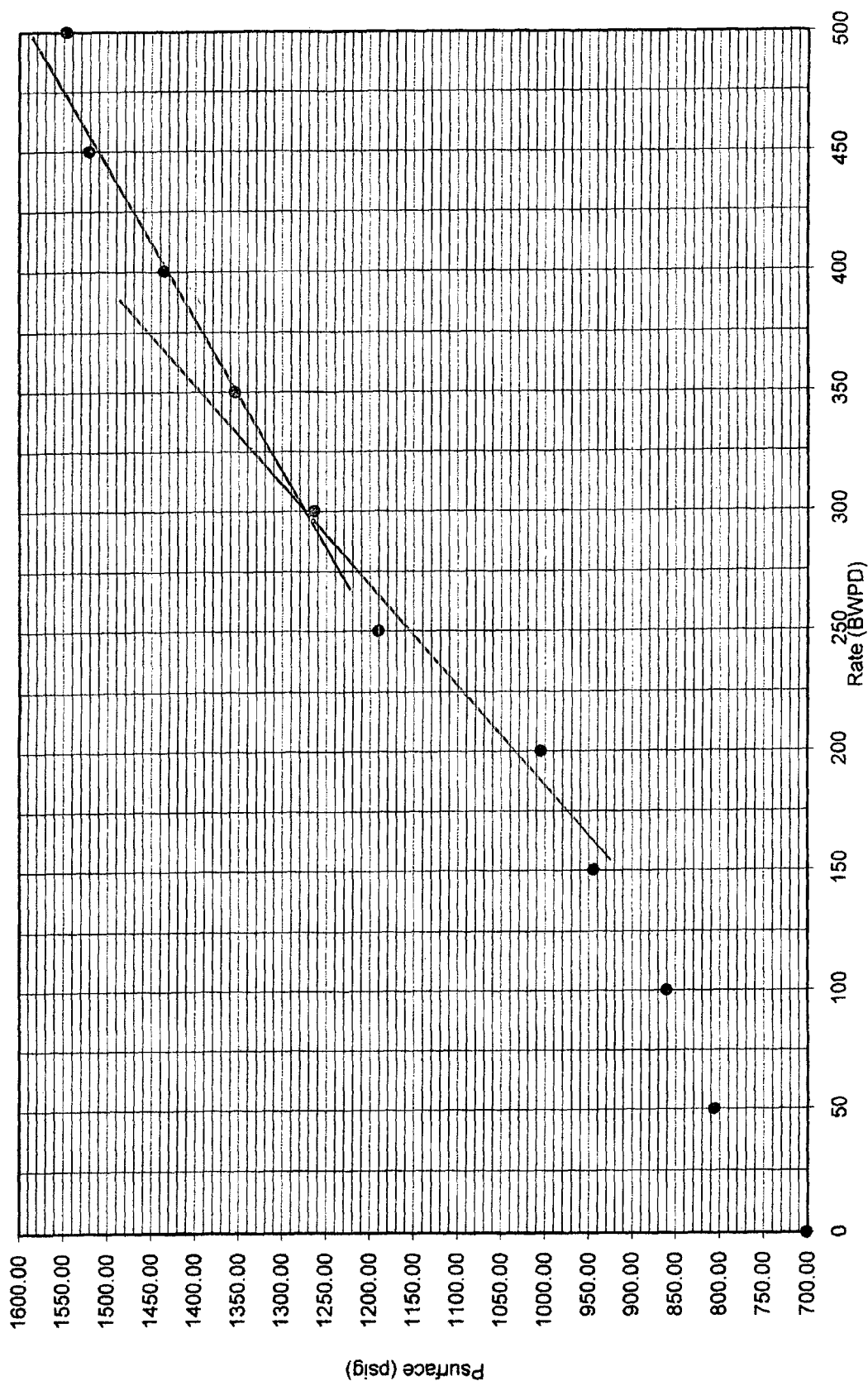
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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #107
1/21/2011

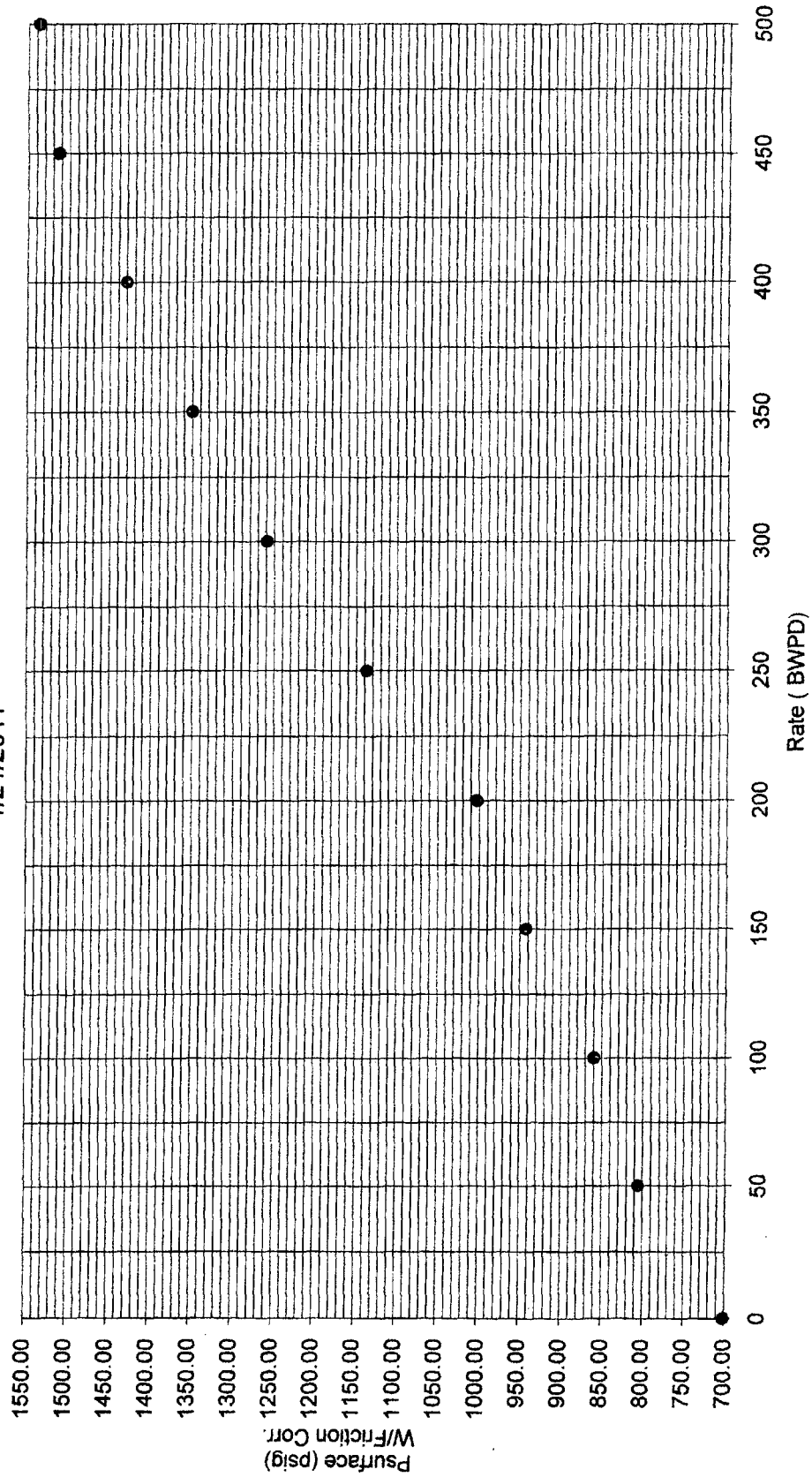
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PRESSURE
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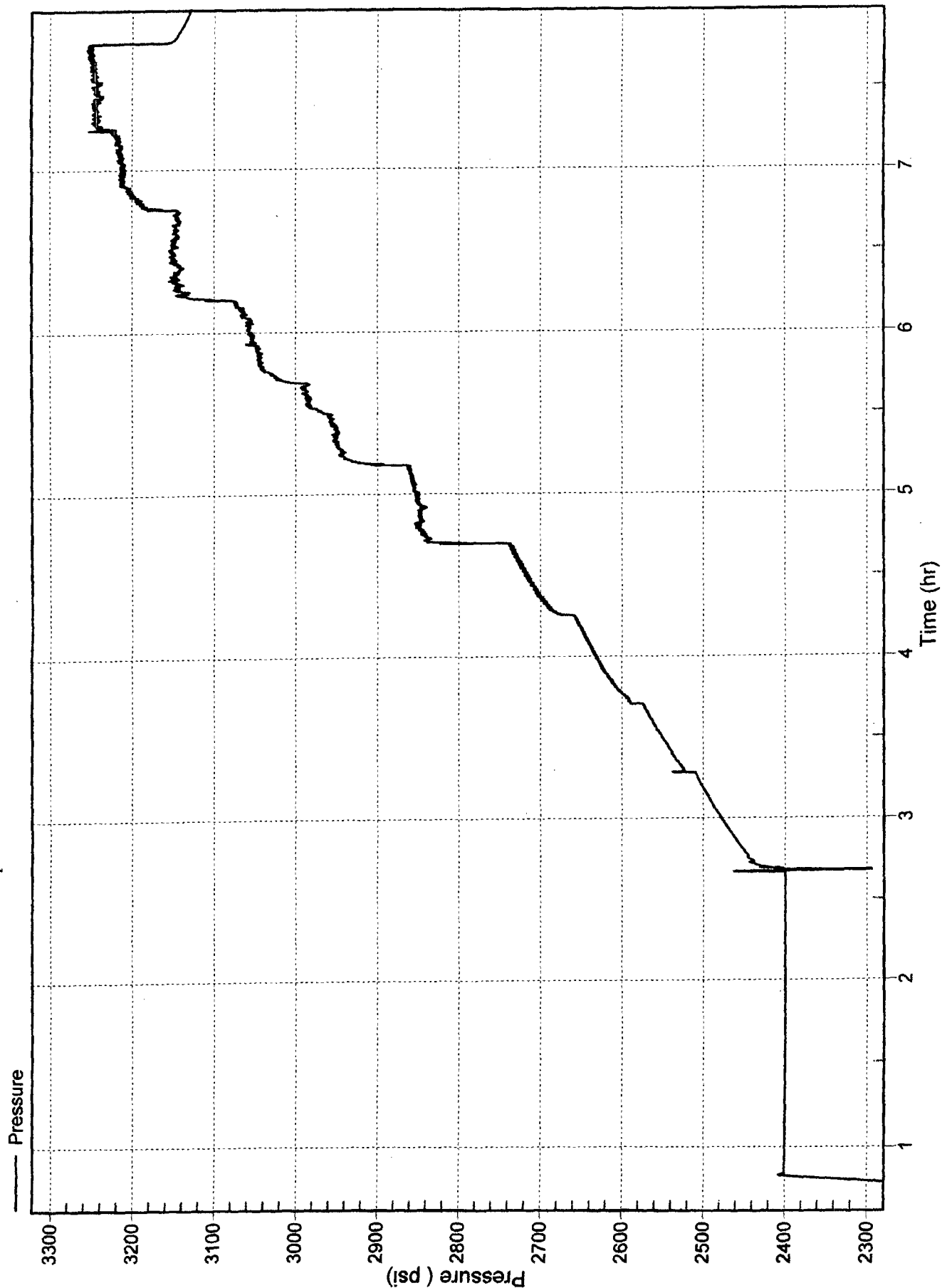
STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #107
1/21/2011

PRECISION
PRESSURE
DATA INC.



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #107

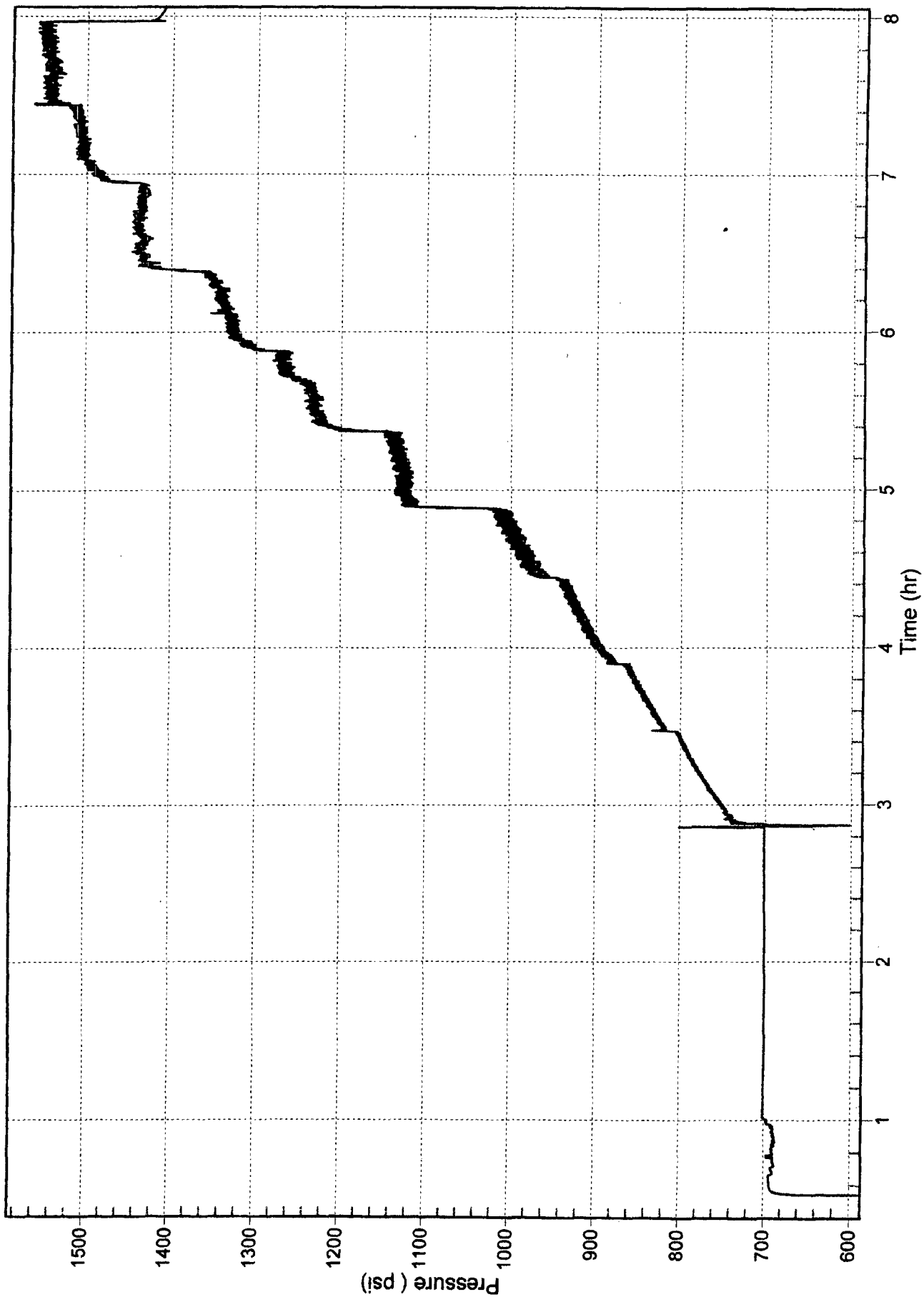
Step Rate Test 1/21/2011 Bottom Hole Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #107

Step Rate Test 1/21/2011 Surface Pressure Data

— Pressure



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #110
LEA COUNTY, NEW MEXICO

TEST DATE
2/15/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,850' and surface pressure transducer.

STEP RATE TEST

QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #110

TEST DATE 2/15/2011

[illegible]

Run Depth: 3850

Perforations: 3714-3930

Formation: San Andres

Total Depth: 3880 Tagged

Tubing Depth: 3649

Pkr. Depth: 3649

Tested By: Jim Chesshir

Instrument #: 78665

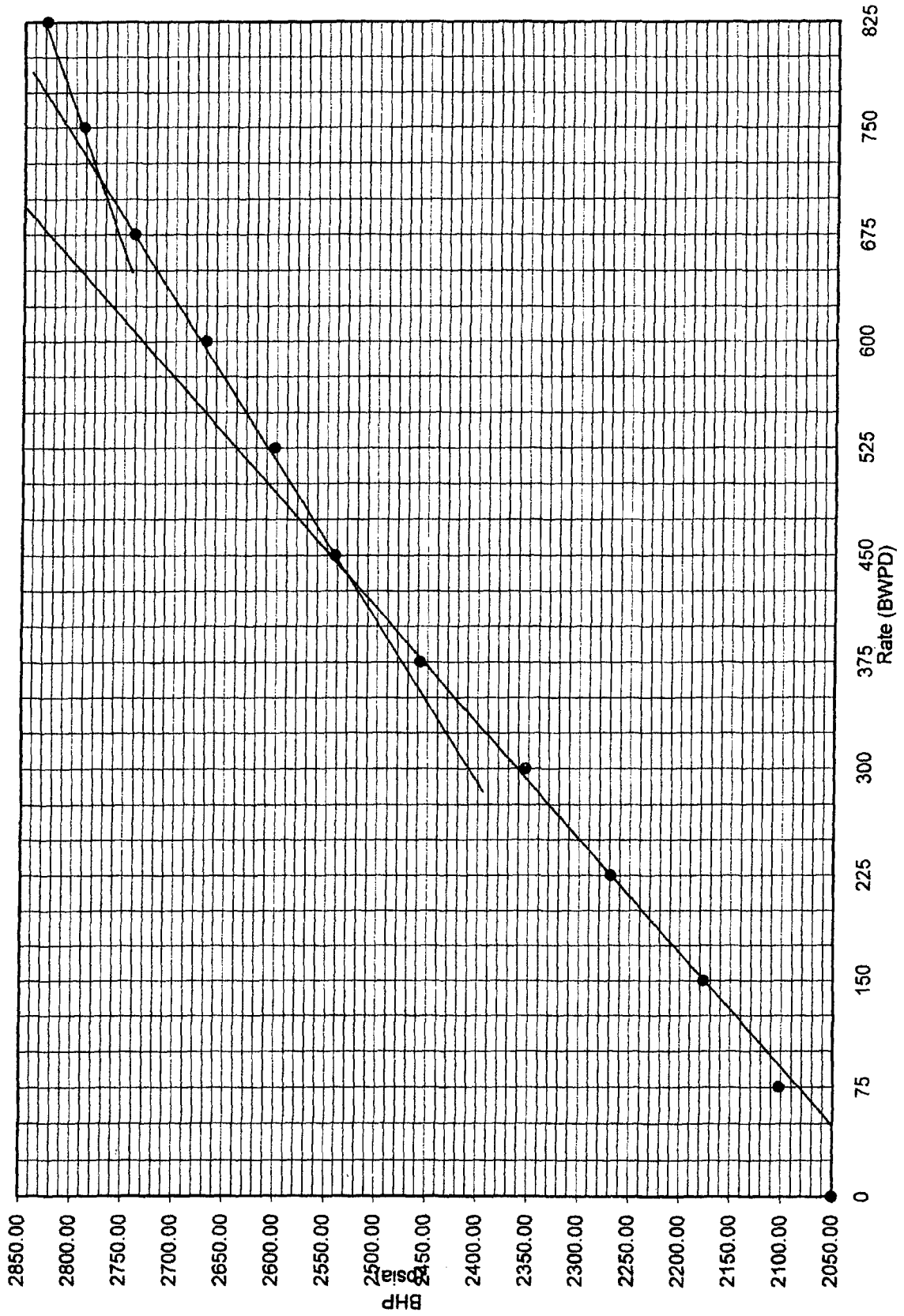
TEST RESULTS

Parting Pressure @ 2530 BHP (psia) @ 430 BWPD & @ 2775 BHP @ 715 BWPD

STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #110
2/15/2011

PRECISION
PRESSURE
DATA, INC.

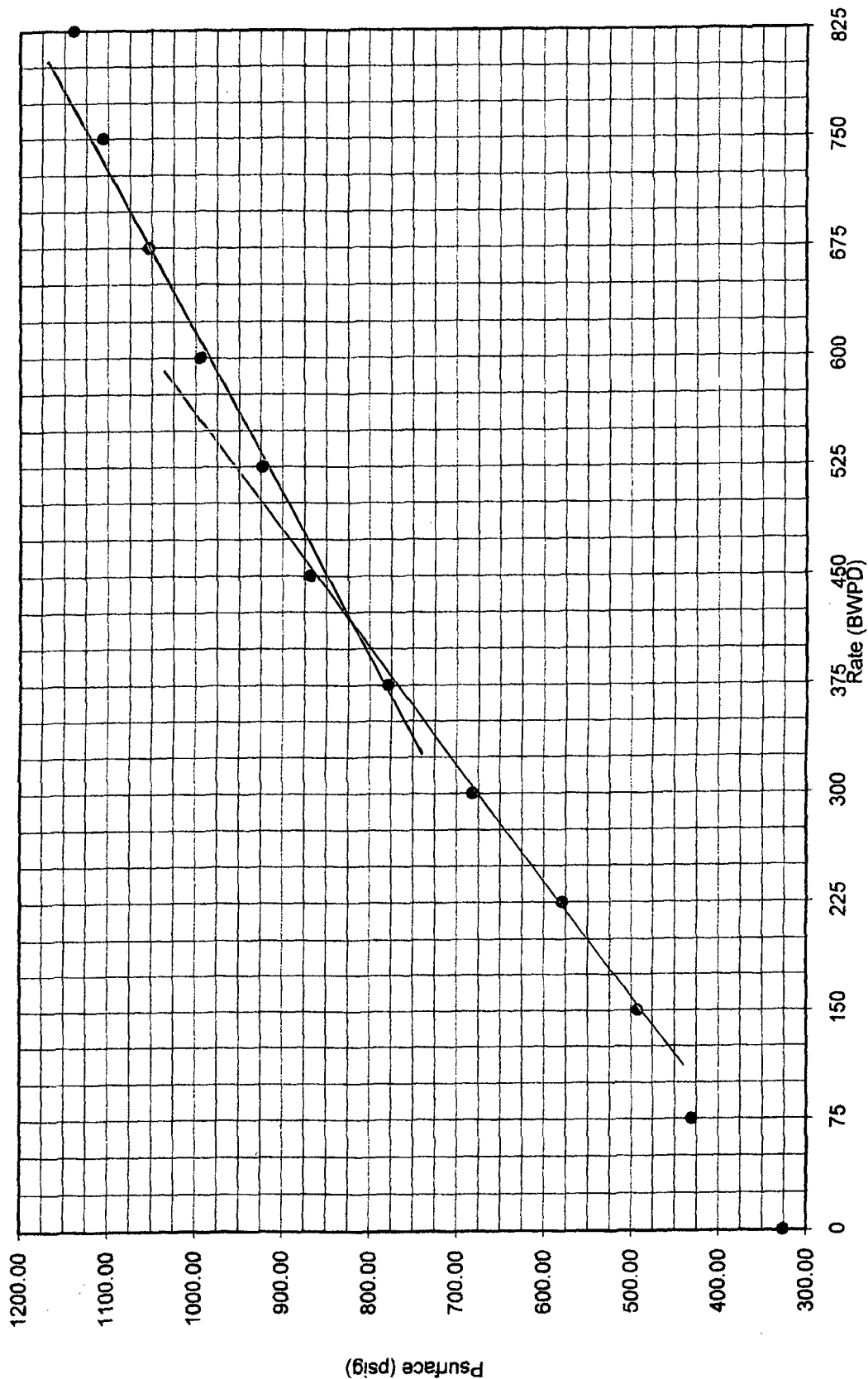
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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #110
2/15/2011

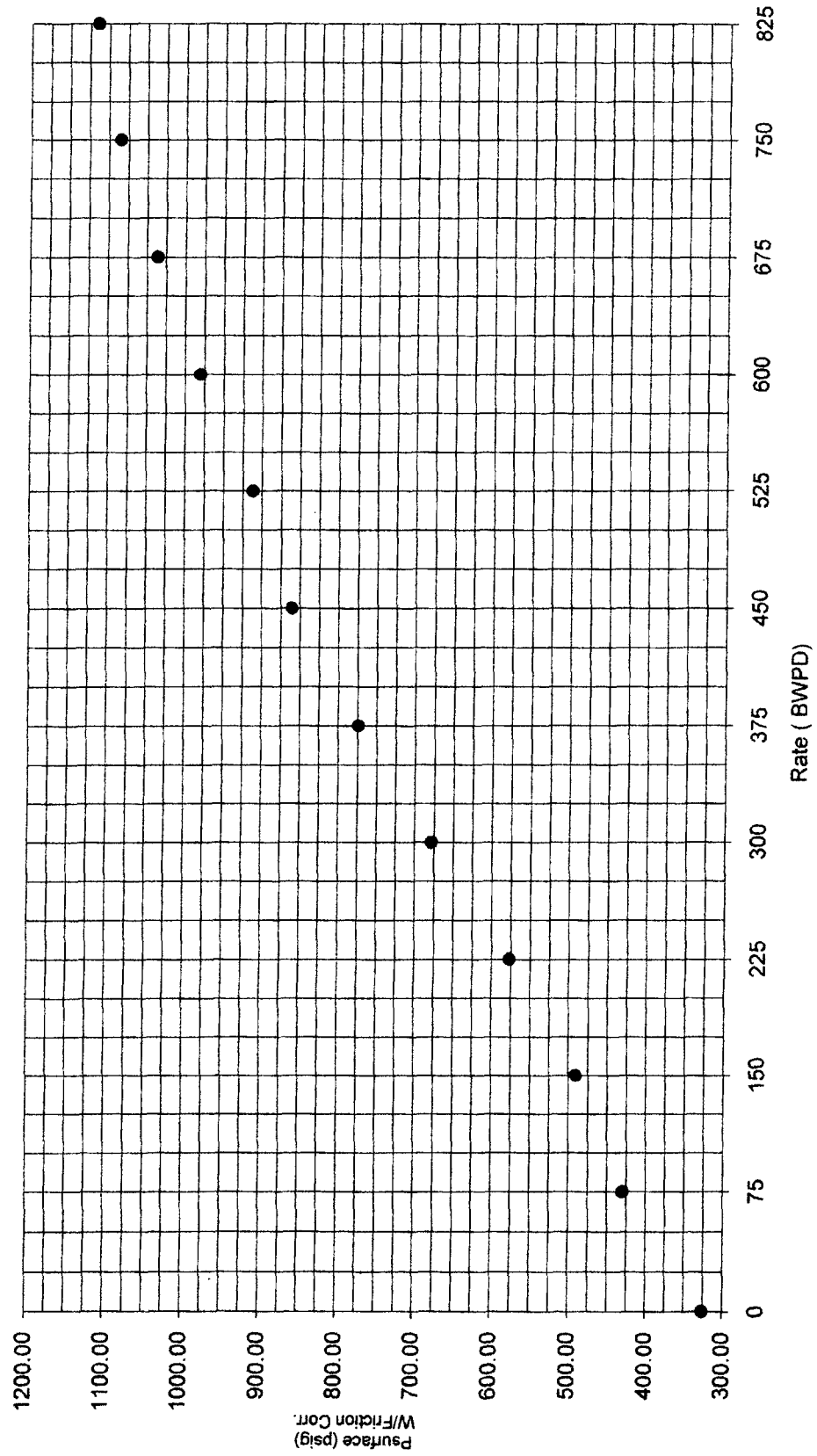
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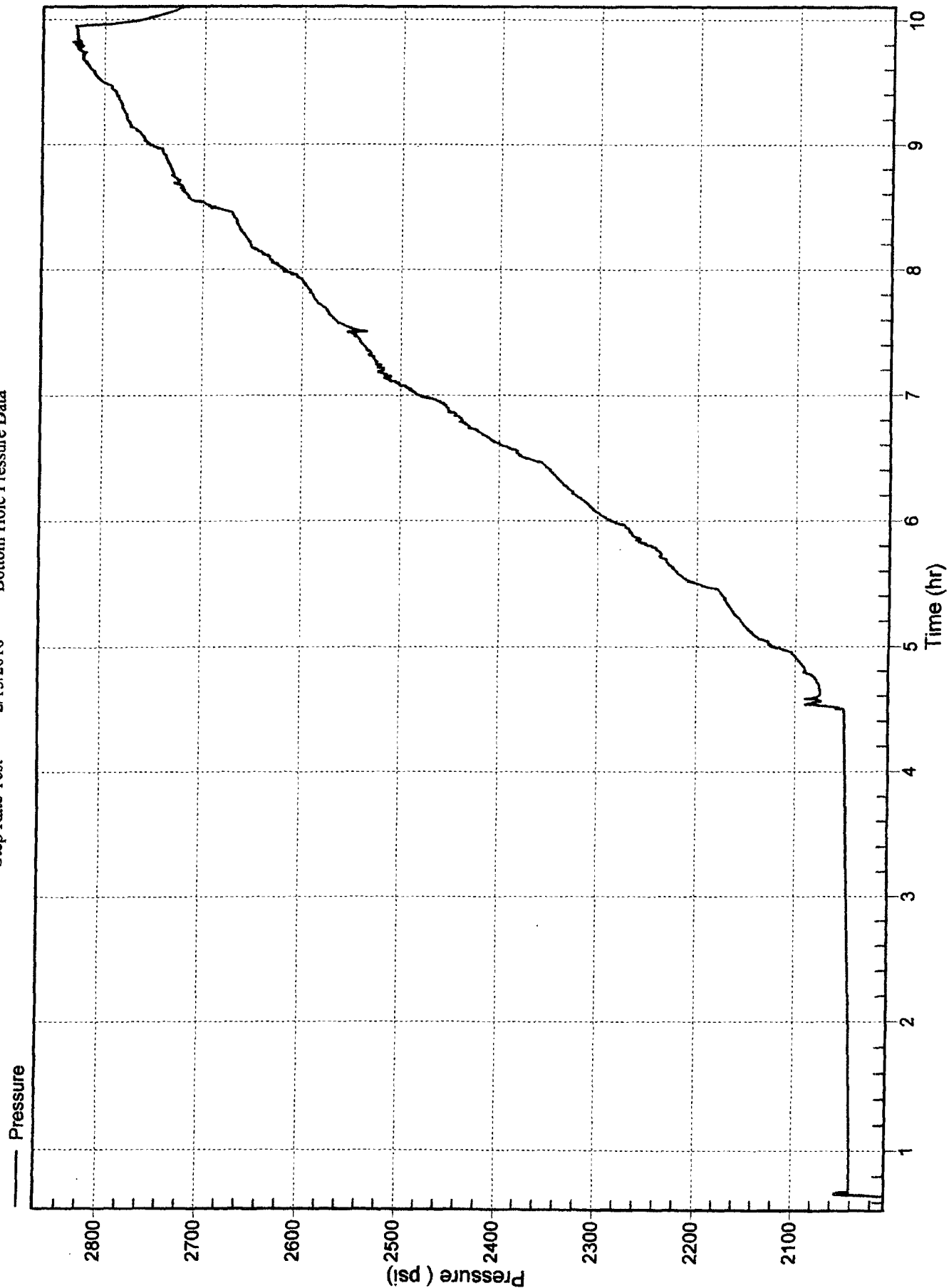


STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #110
2/15/2011

PRECISION
PRESSURE
DATA, INC.

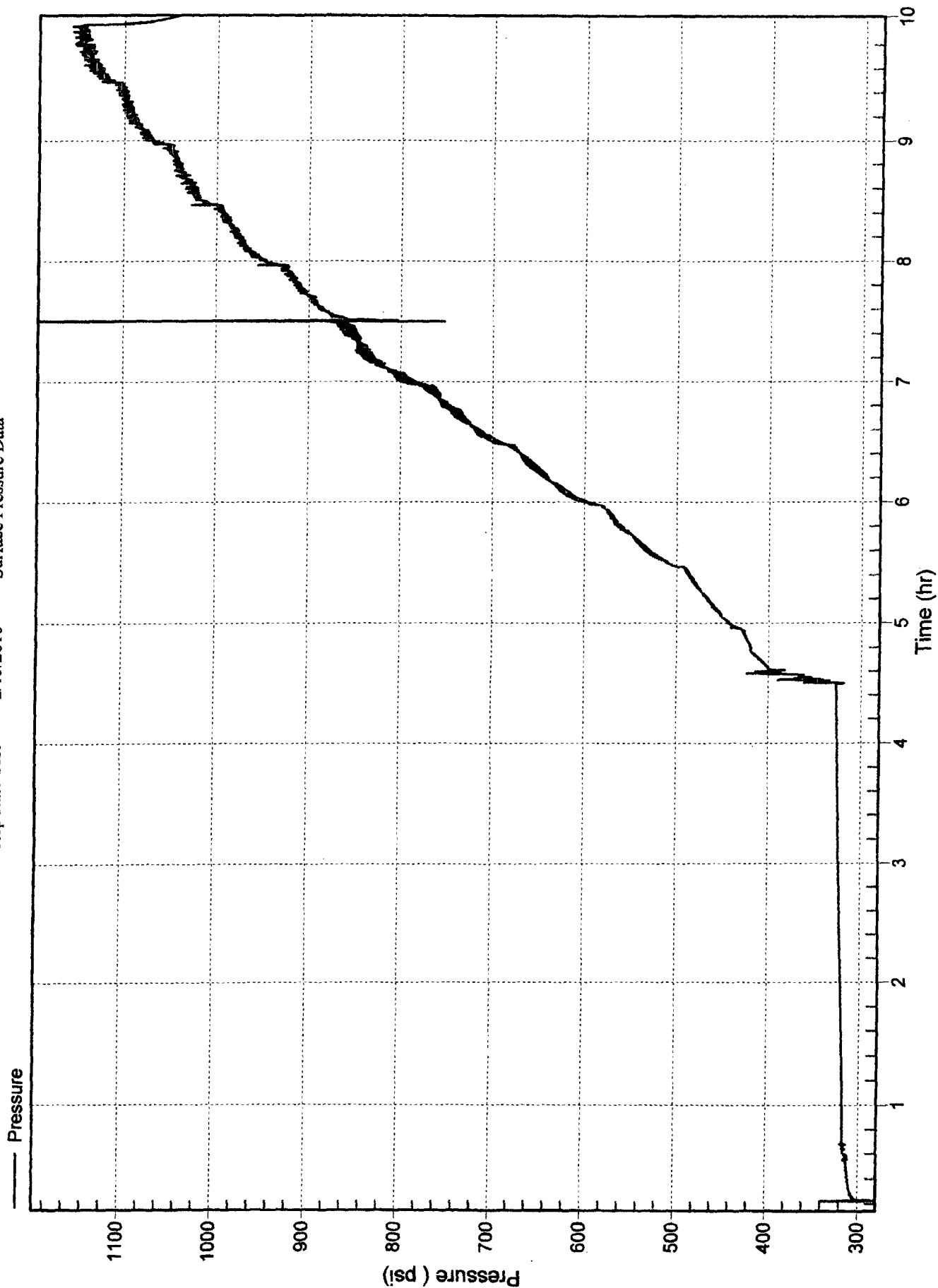


QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #110
Step Rate Test 2/15/2010 Bottom Hole Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #110

Step Rate Test 2/15/2010 Surface Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #304
LEA COUNTY, NEW MEXICO

TEST DATE
1/24/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,688' and surface pressure transducer.

STEP RATE TEST

QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #304

TEST DATE 1/24/2011

[illegible]

Run Depth: 3688

Perforations: 3593-3782

Formation: San Andres

Total Depth: 3800

Tubing Depth: 3543

Pkr. Depth: 3543

Tested By: Jim Chesshir

Instrument #: 78665

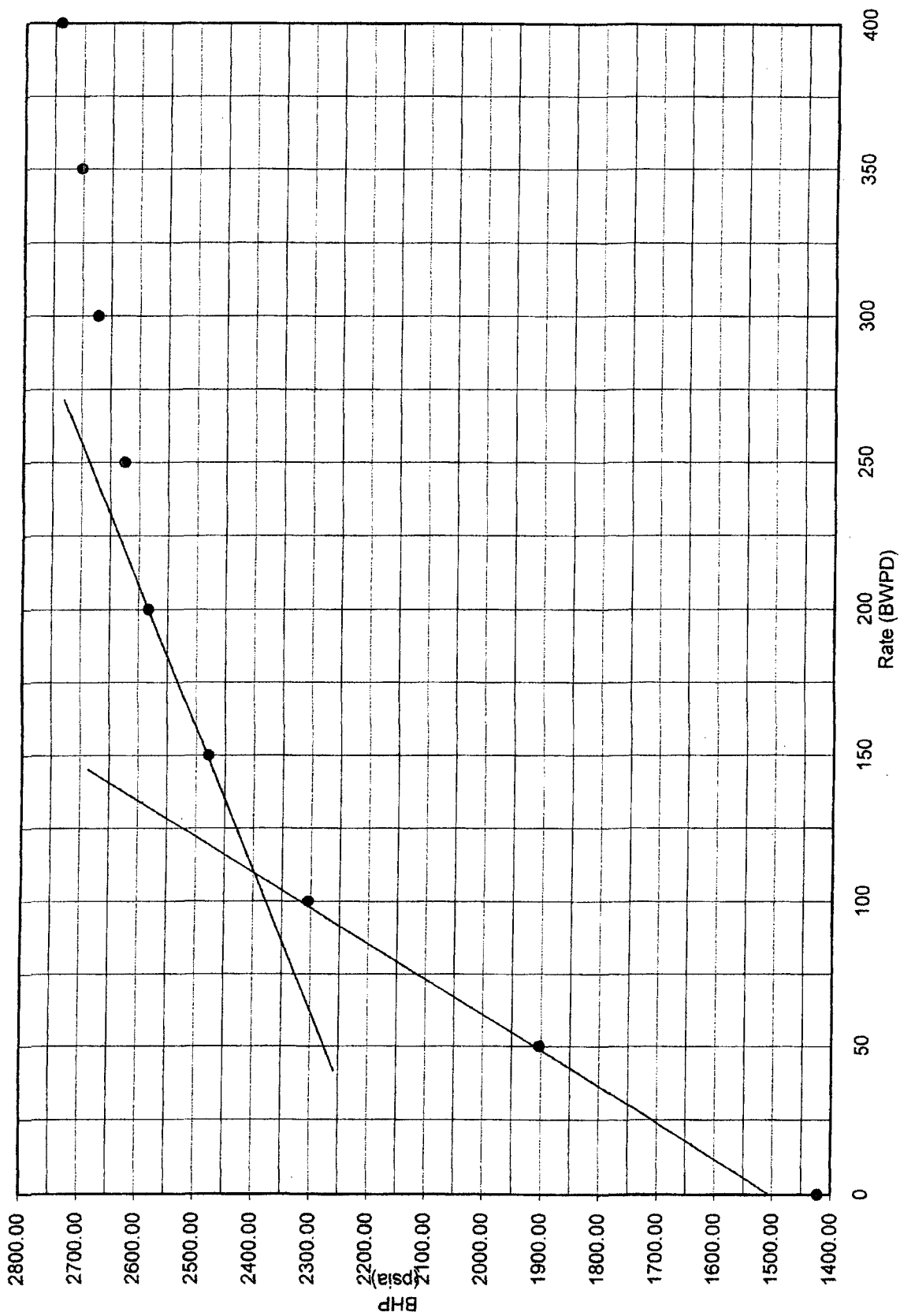
TEST RESULTS

Parting Pressure @ 2400 BHP (psia) @ 100 BWPD

STEP RATE TEST
 QUANTUM RESOURCES
 MANAGEMENT, LLC.
 CJYSU #304
 1/24/2011

PRECISION
 PRESSURE
 DATA, INC.

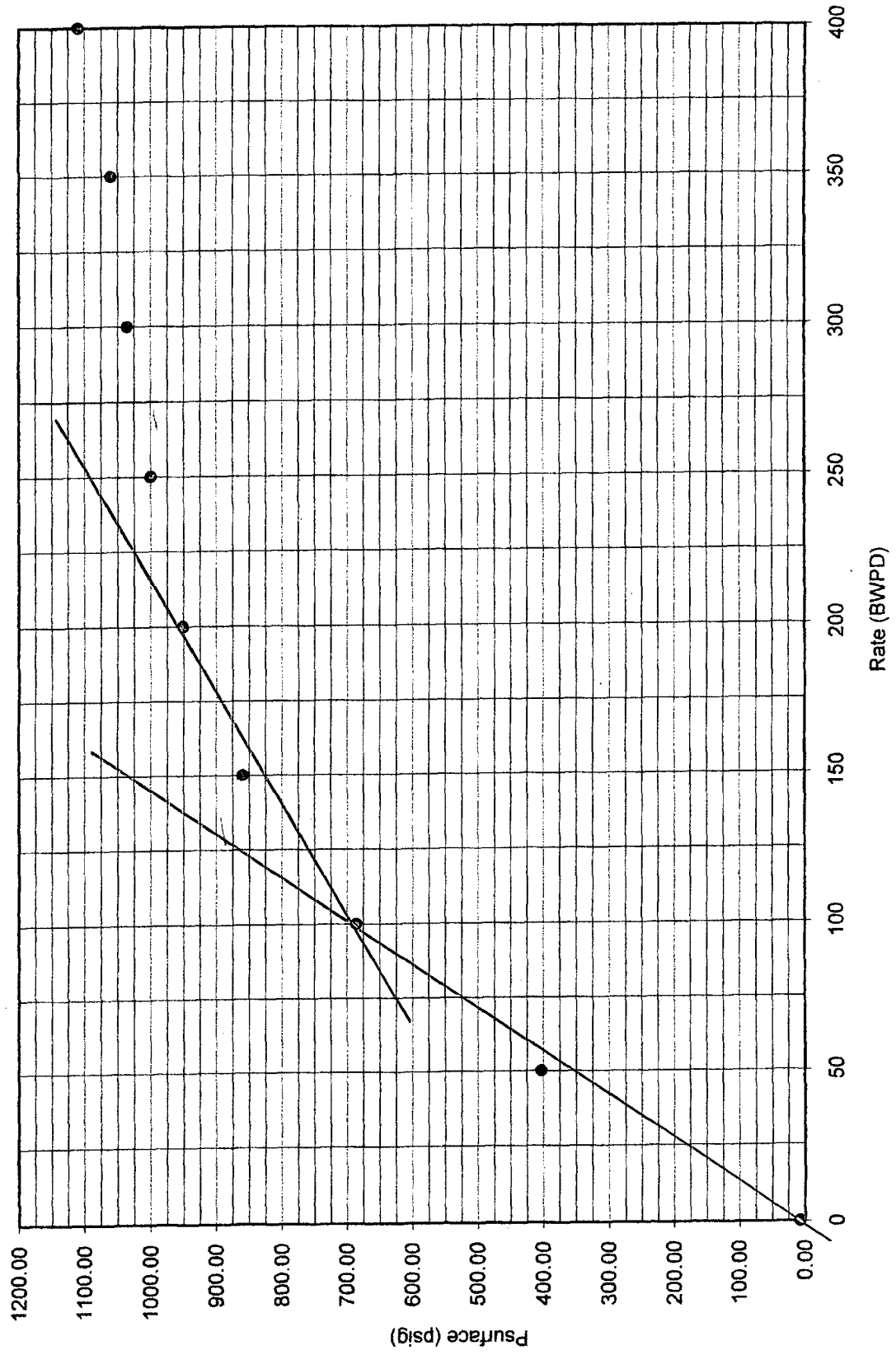
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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #304
1/24/2011

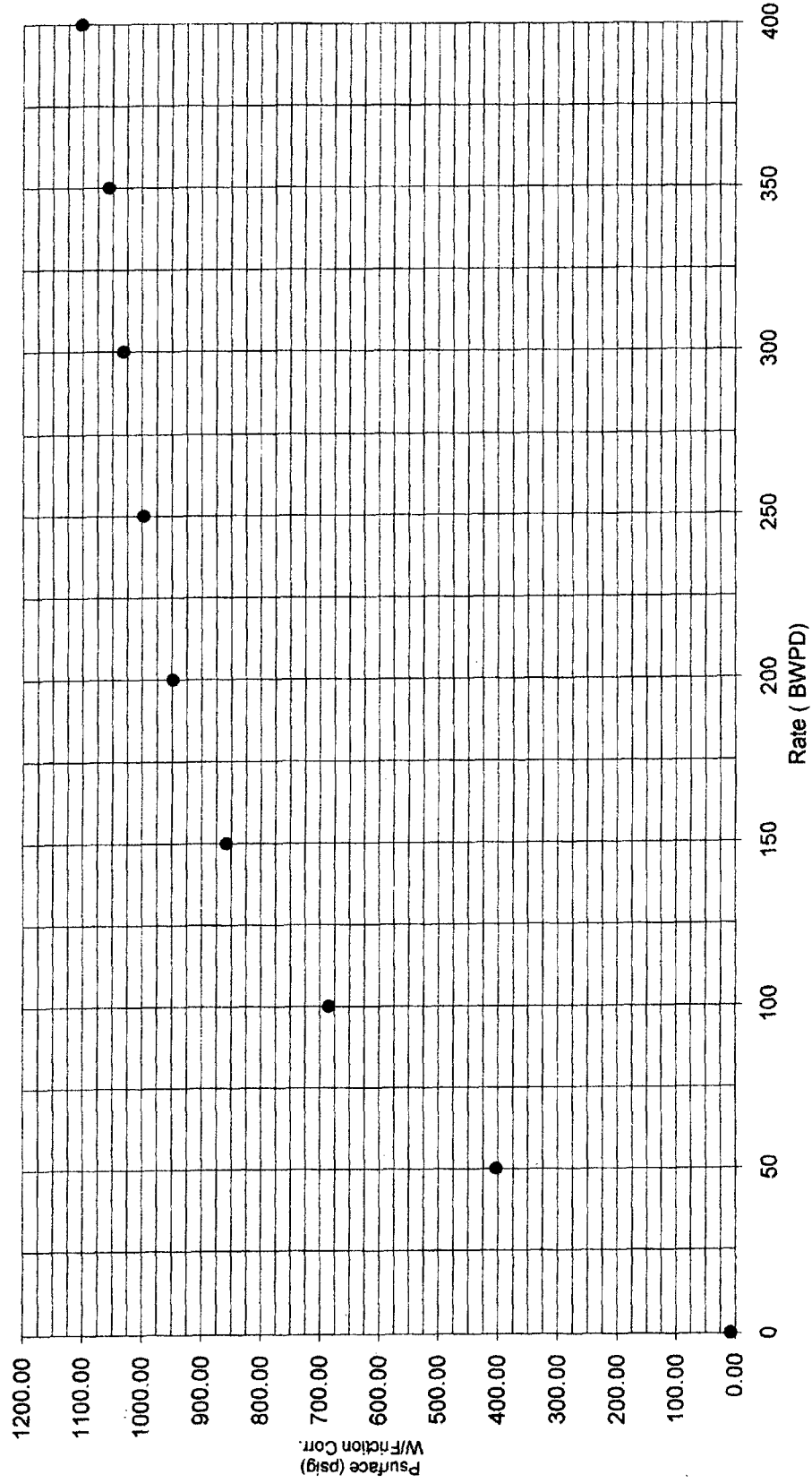
PRECISION
PRESSURE
DATA, INC.

PRECISION PRESSURE DATA, INC. • P.O. BOX 8571 • MIDLAND, TEXAS 79708-8571 • (432) 580-8200



STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #304
1/24/2011

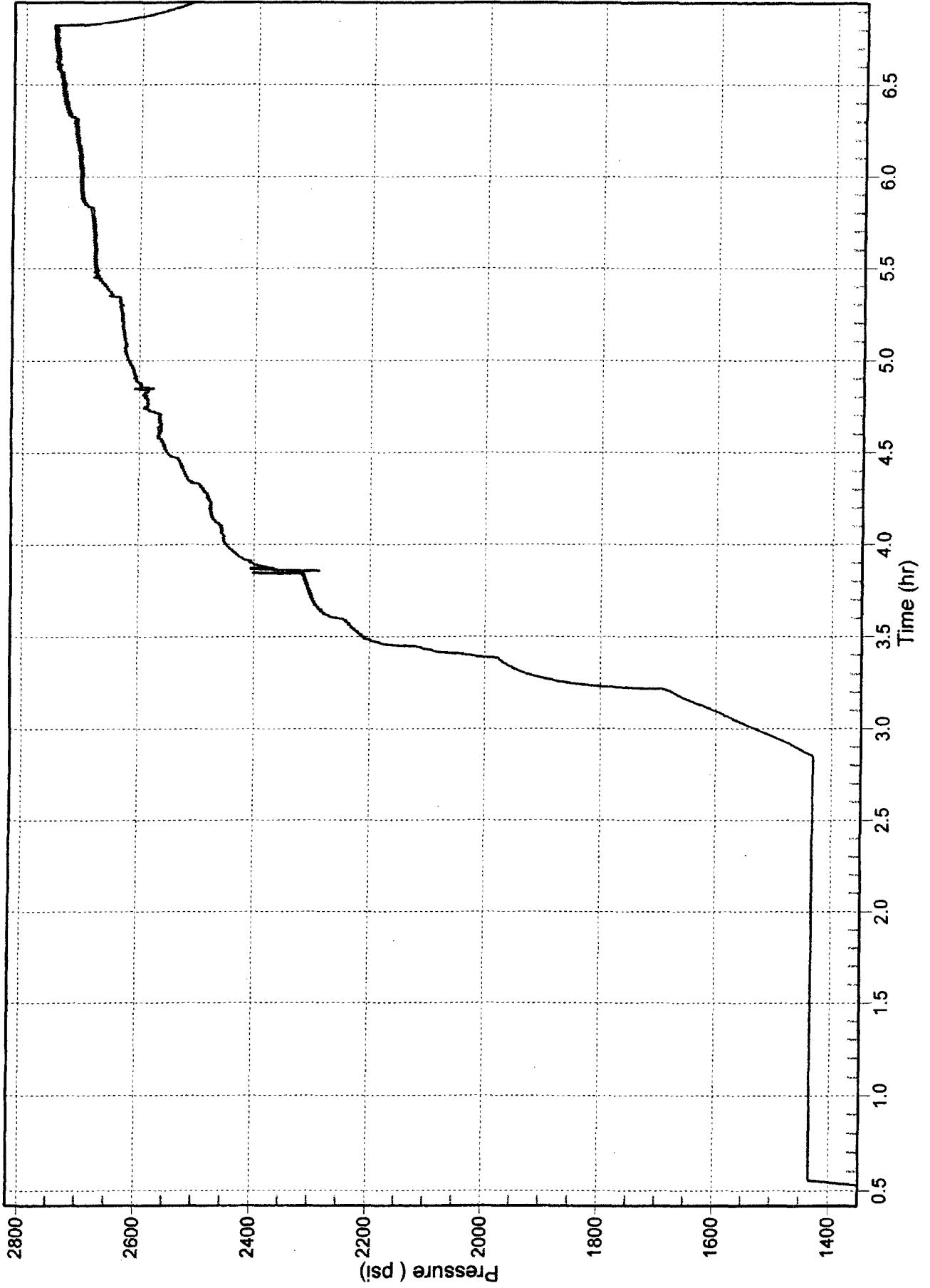
PRECISION
PRESSURE
DATA, INC.



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #304

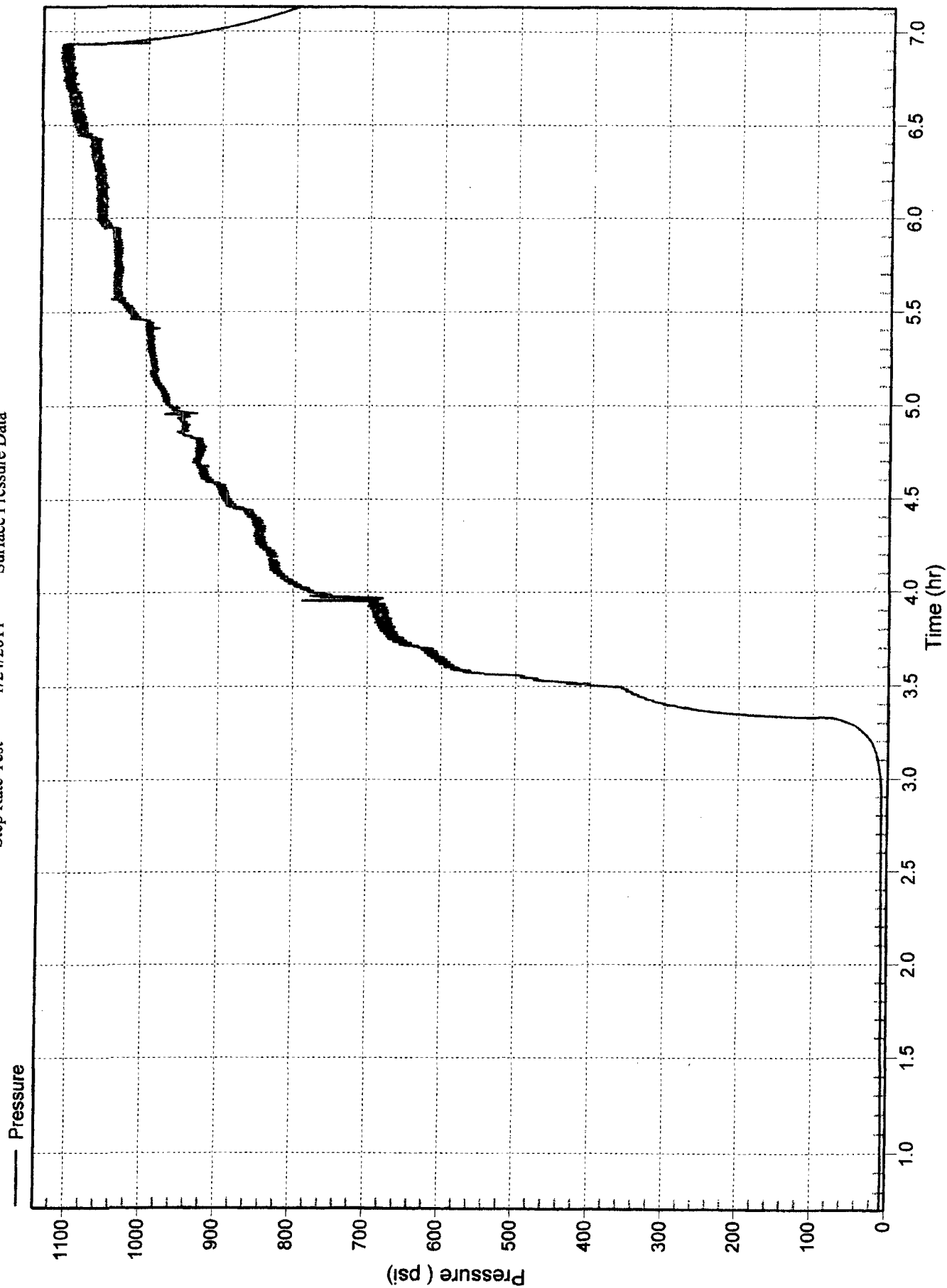
Step Rate Test 1/24/2011 Bottom Hole Pressure Data

— Pressure



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #304

Step Rate Test 1/24/2011 Surface Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #502
LEA COUNTY, NEW MEXICO

TEST DATE
2/16/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,858' and surface pressure transducer.

STEP RATE TEST

QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #502

TEST DATE 2/16/2011

[illegible]

Run Depth: 3858

Perforations: 3802-3914

Formation: San Andres

Total Depth: 3865 Tagged

Tubing Depth: 3737

Pkr. Depth: 3737

Tested By: Jim Chesshir

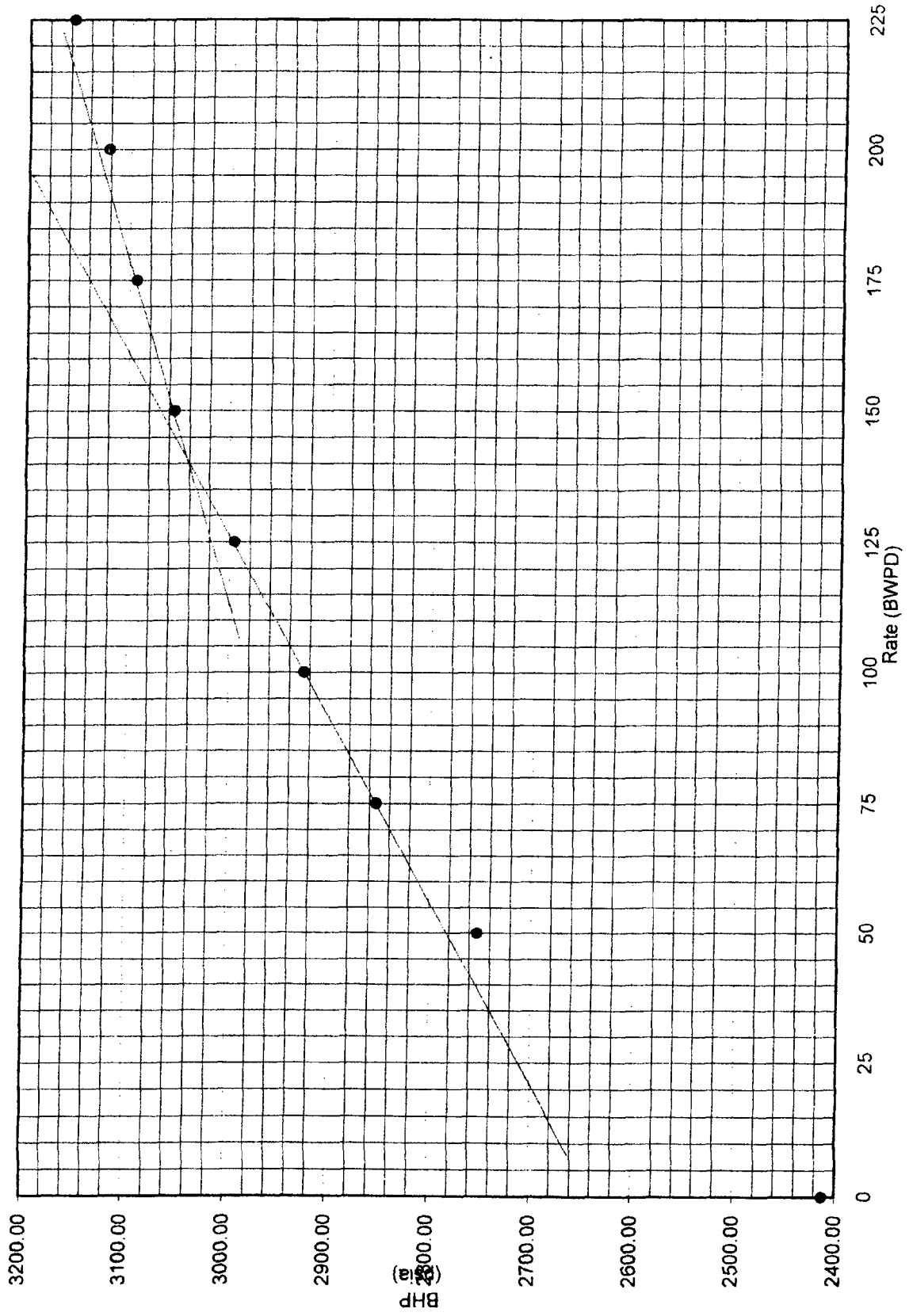
Instrument #: 78665

TEST RESULTS

Parting Pressure @ 3040 BHP (psia) @ 100 BWPD

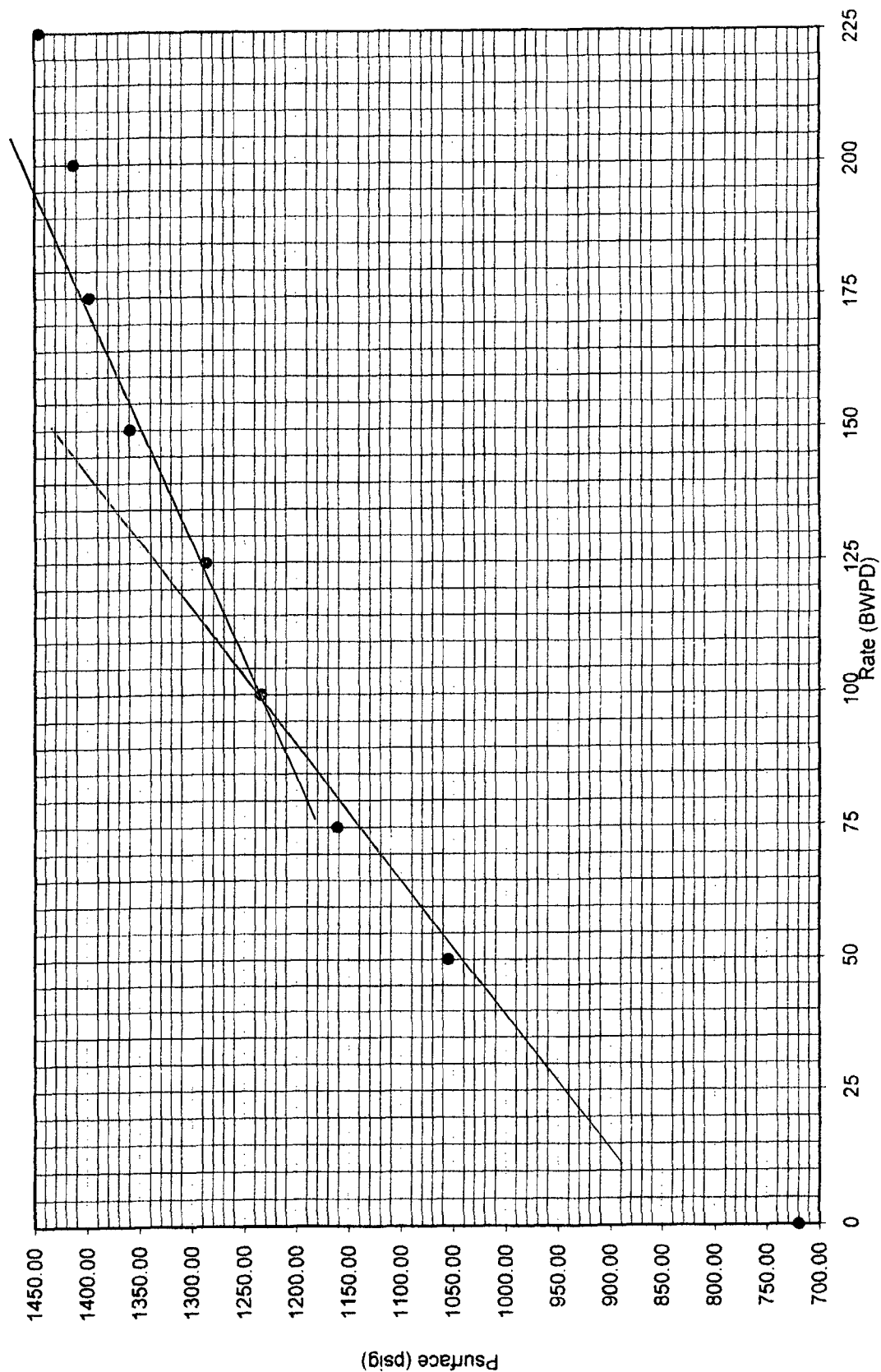
STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #502
2/16/2011

PRECISION
PRESSURE
DATA, INC.



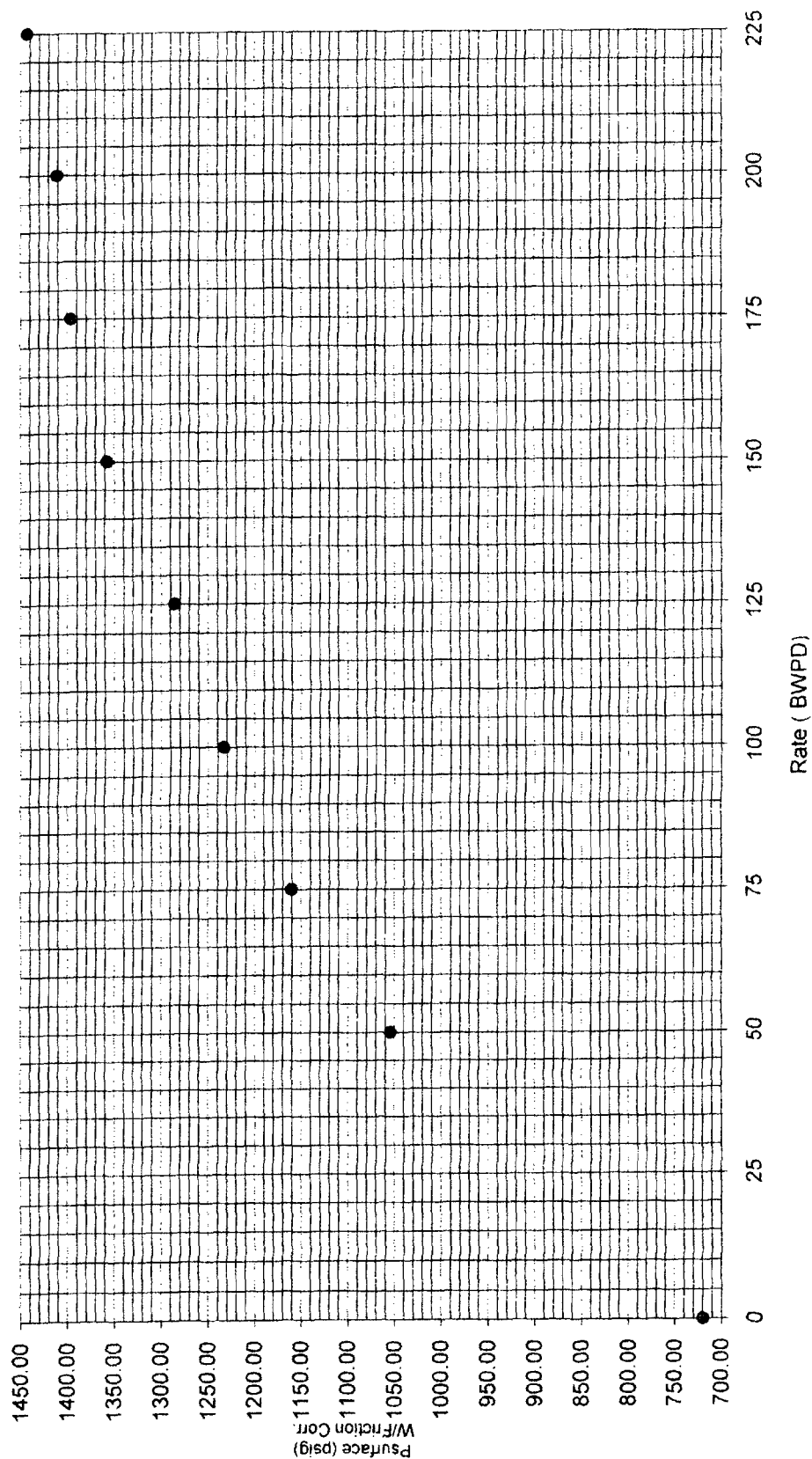
STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #502
2/16/2011

04201501
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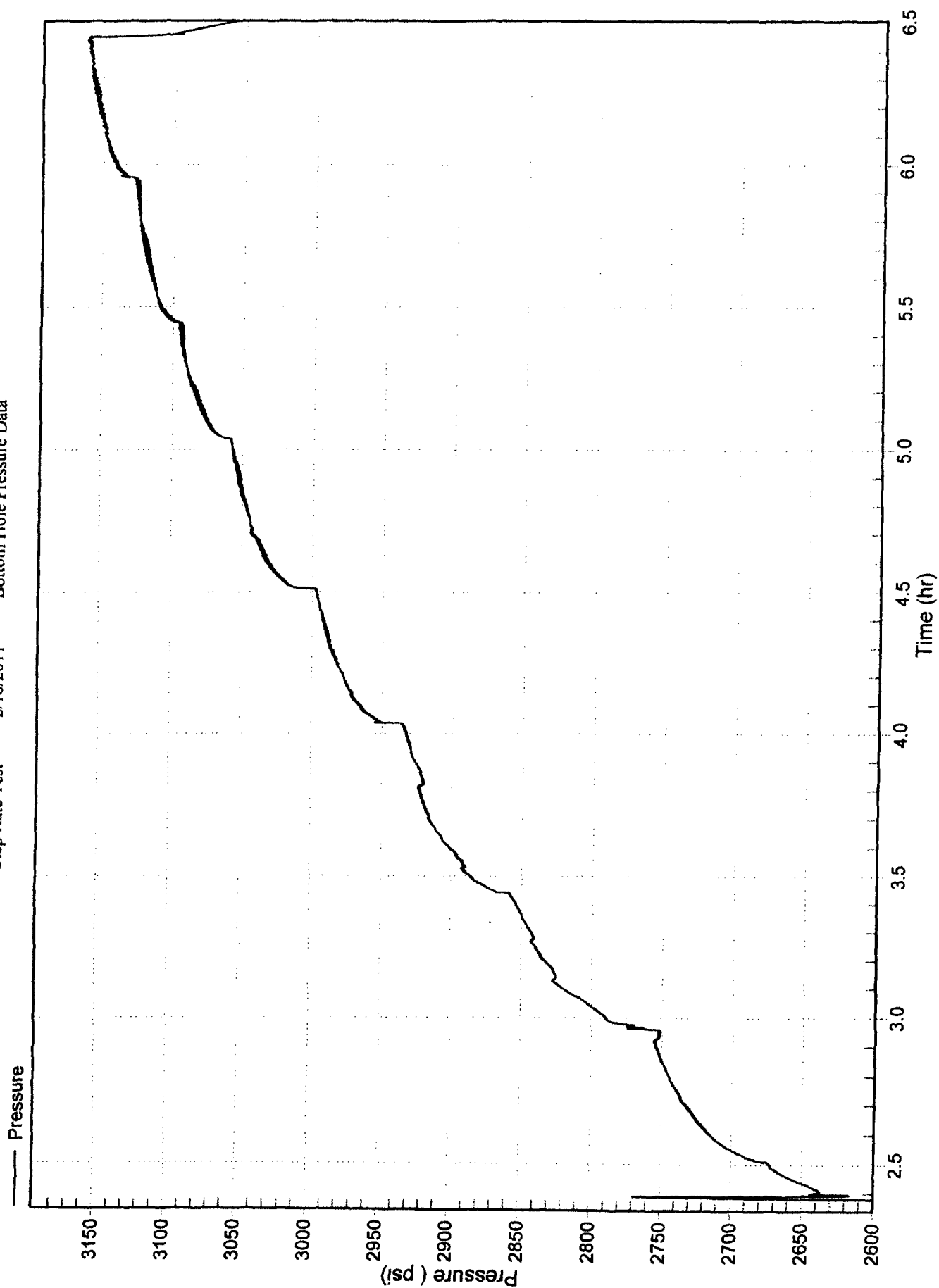
STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #502
2/16/2011

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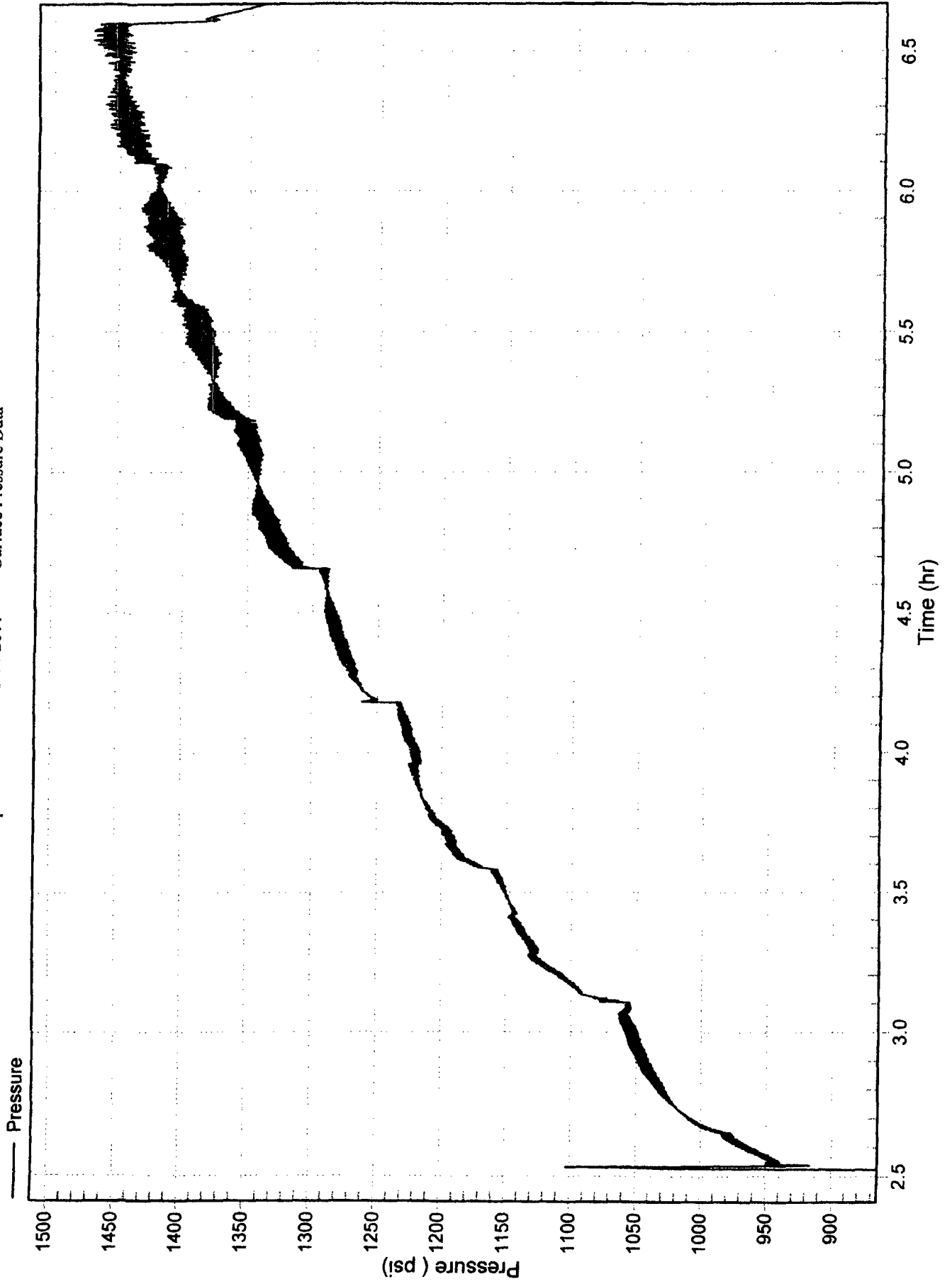
QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #502

Step Rate Test 2/16/2011 Bottom Hole Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #502

Step Rate Test 2/16/2011 Surface Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #503
LEA COUNTY, NEW MEXICO

TEST DATE
1/25/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,764' and surface pressure transducer.

STEP RATE TEST

QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #503

TEST DATE 1/25/2011

[illegible]

Run Depth: 3764

Perforations: 3704-3830

Formation: San Andres

Total Depth: 3885

Tubing Depth: 3638

Pkr. Depth: 3638

Tested By: Jim Chesshir

Instrument #: 78665

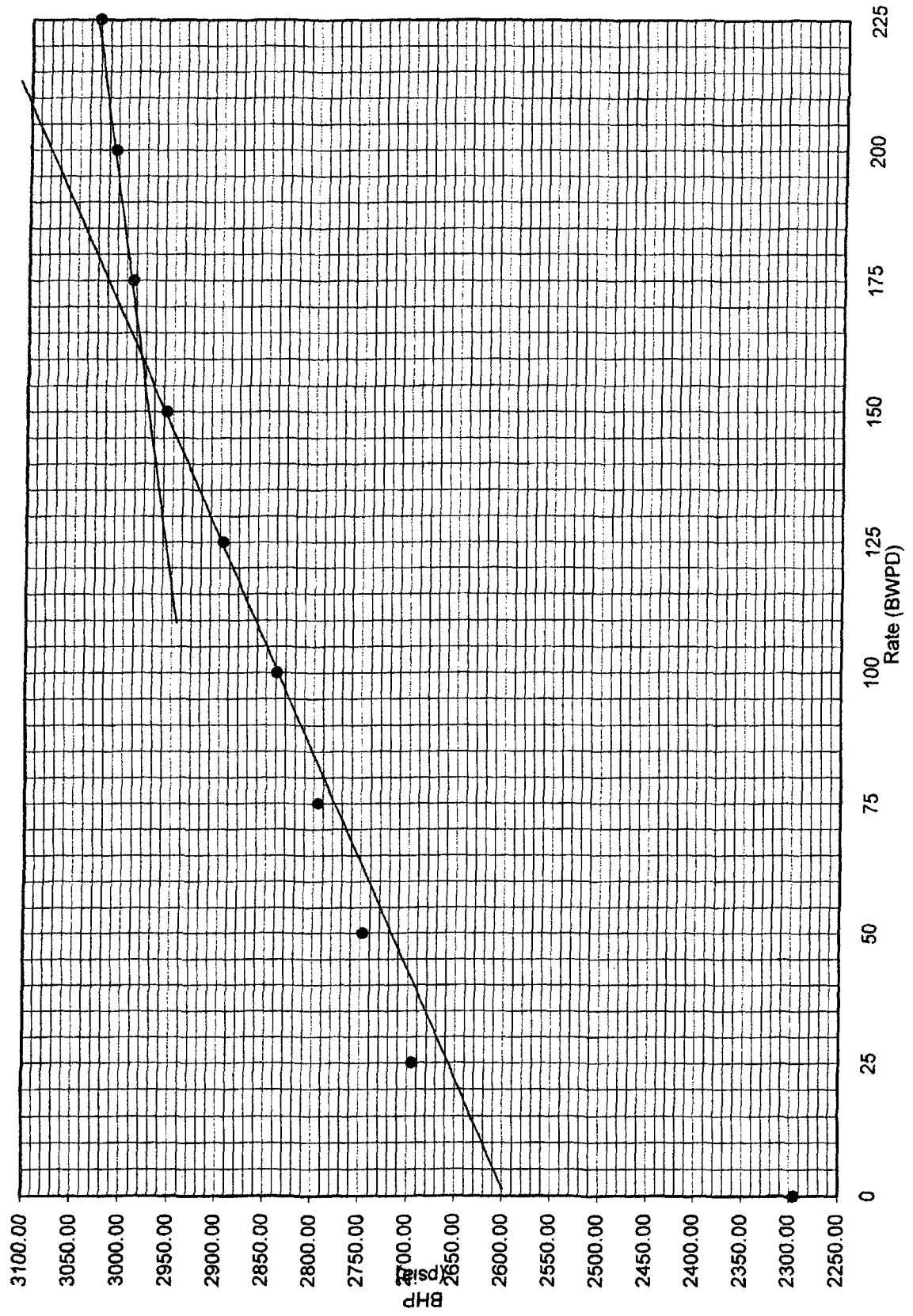
TEST RESULTS

Parting Pressure @ 2985 BHP (psia) @ 150 BWPD

STEP RATE TEST
QUANTUM RESOURCE
MANAGEMENT, LLC.
CJYSU #503
1/25/2011

PRECISION
PRESSURE
DATA, INC

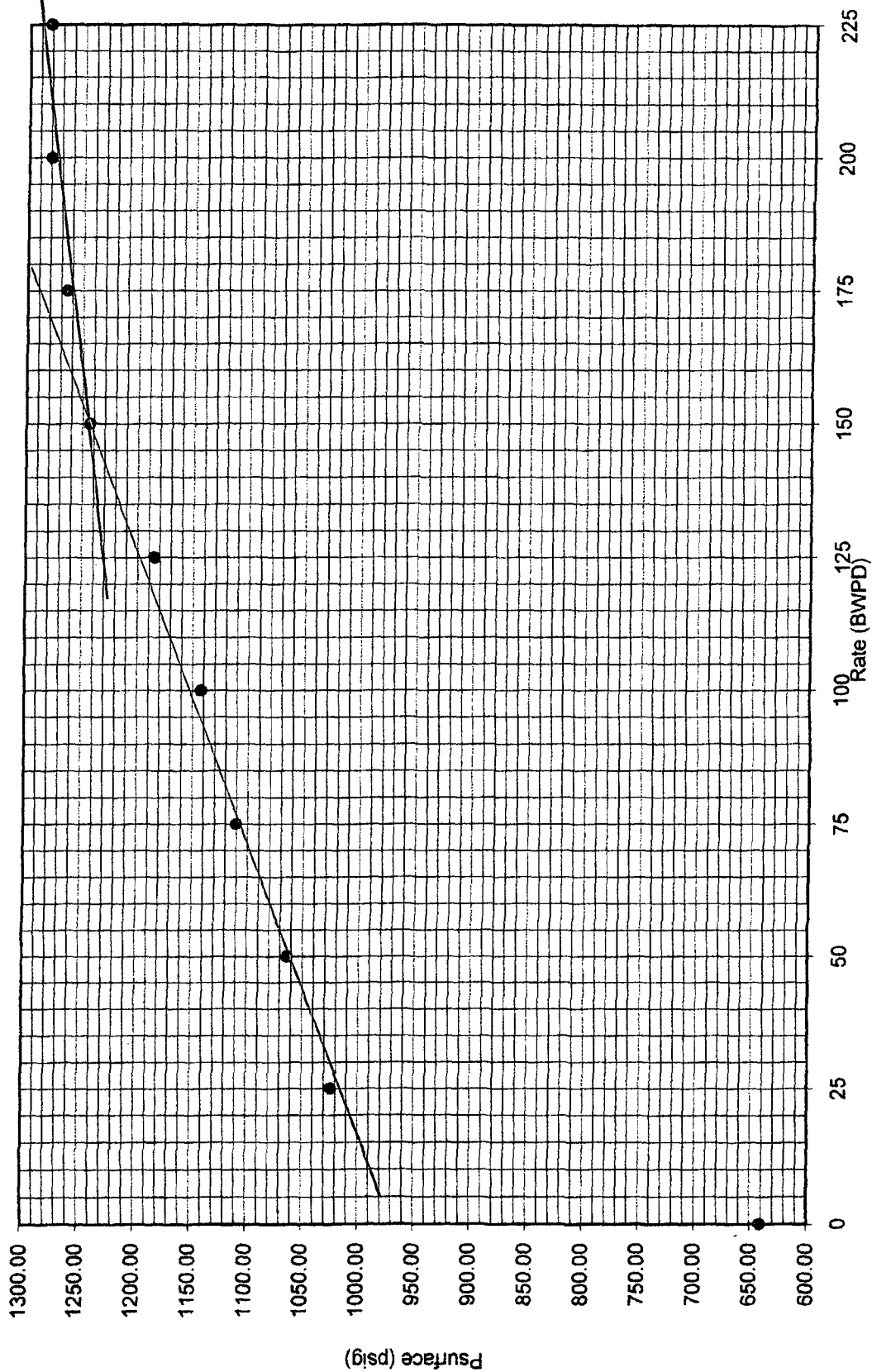
PRECISION PRESSURE DATA, INC. • P.O. BOX 8571 • MIDLAND, TEXAS 79708-8571 • (432) 580-8200



STEP RATE TEST
QUANTUM RESOURCE
MANAGEMENT, LLC.
CJYSU #503
1/25/2011

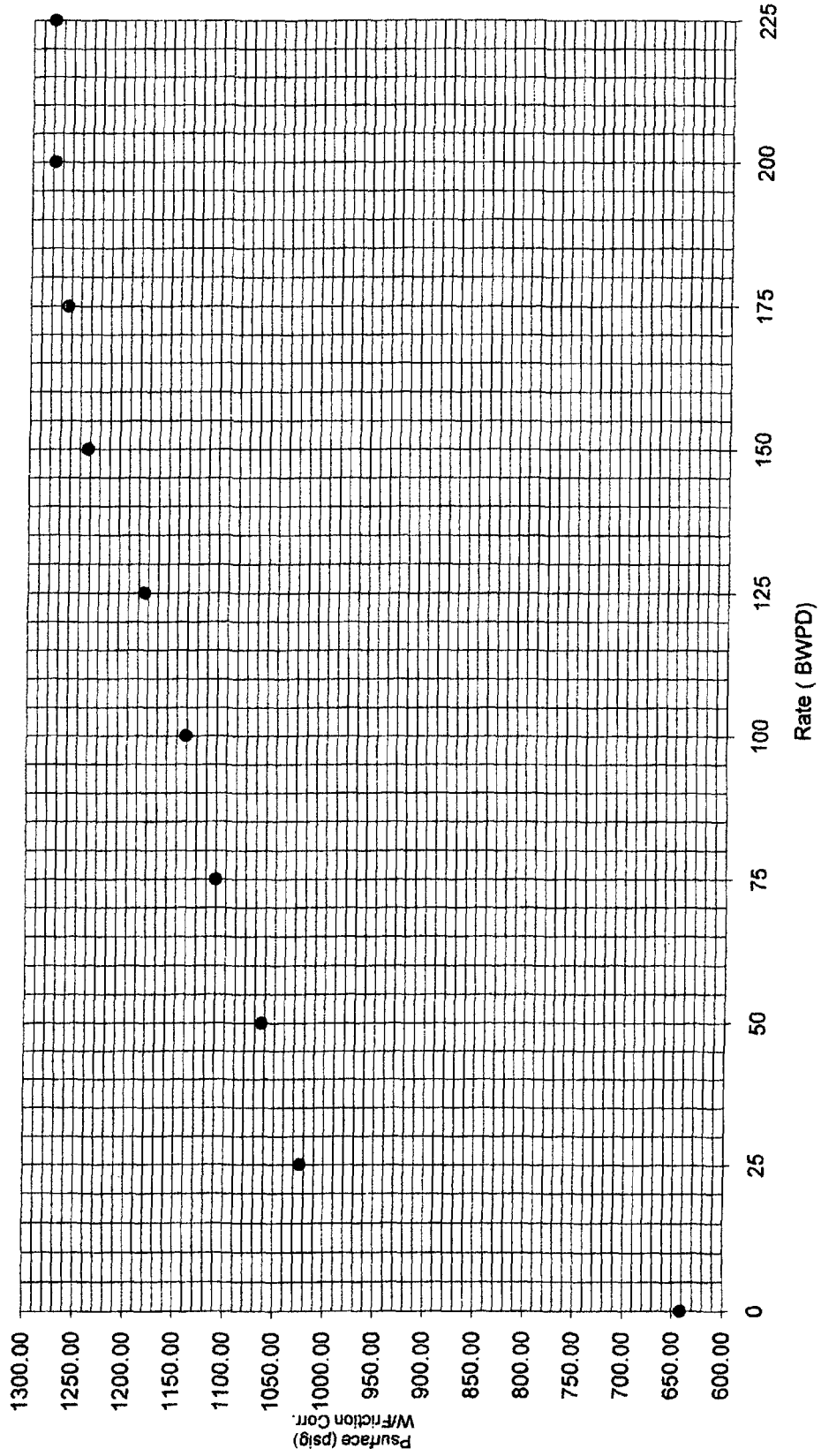
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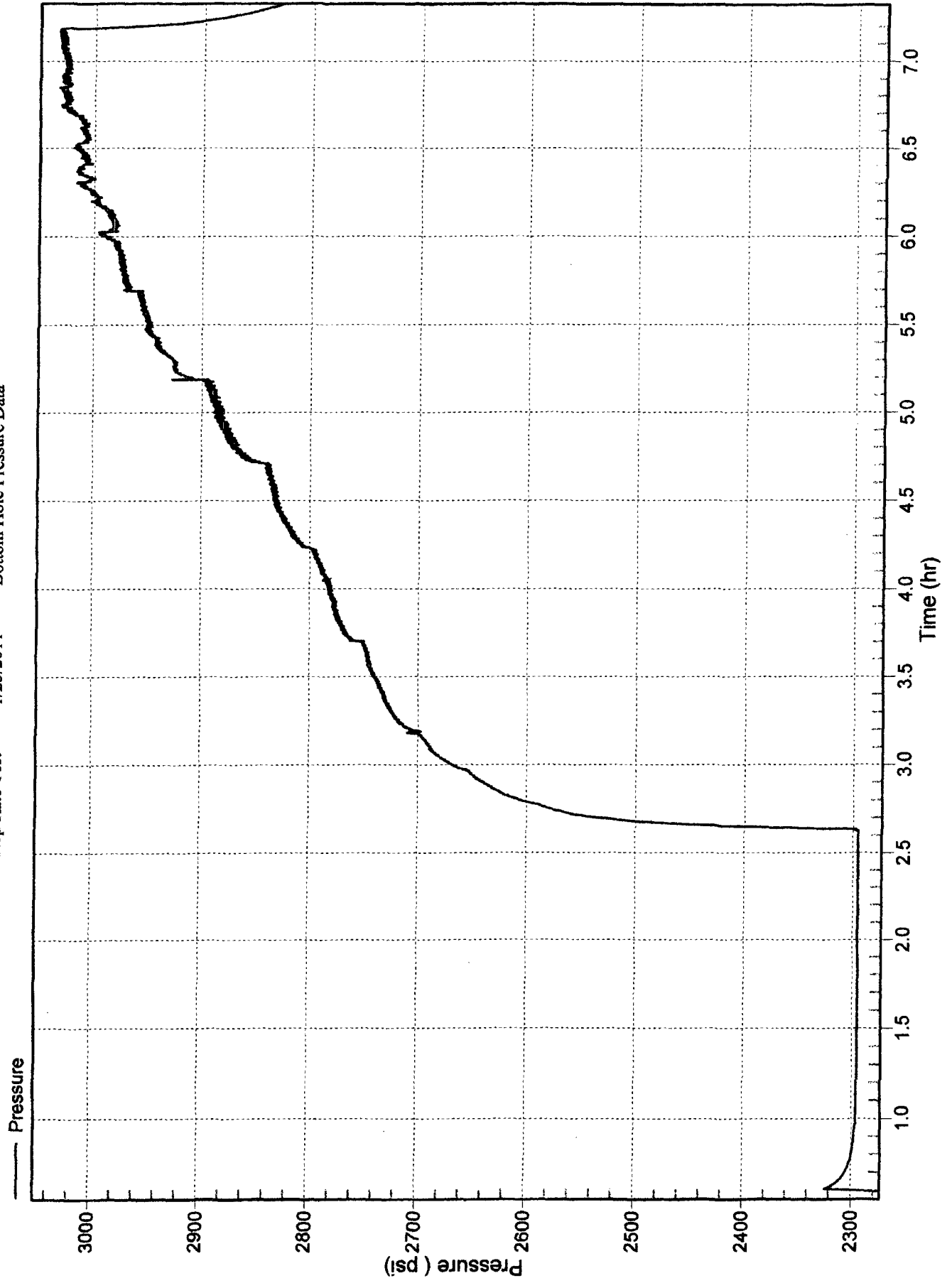
STEP RATE TEST
QUANTUM RESOURCE
MANAGEMENT, LLC.
CJYSU #503
1/25/2011

PRECISION
PRESSURE
DATA, INC.



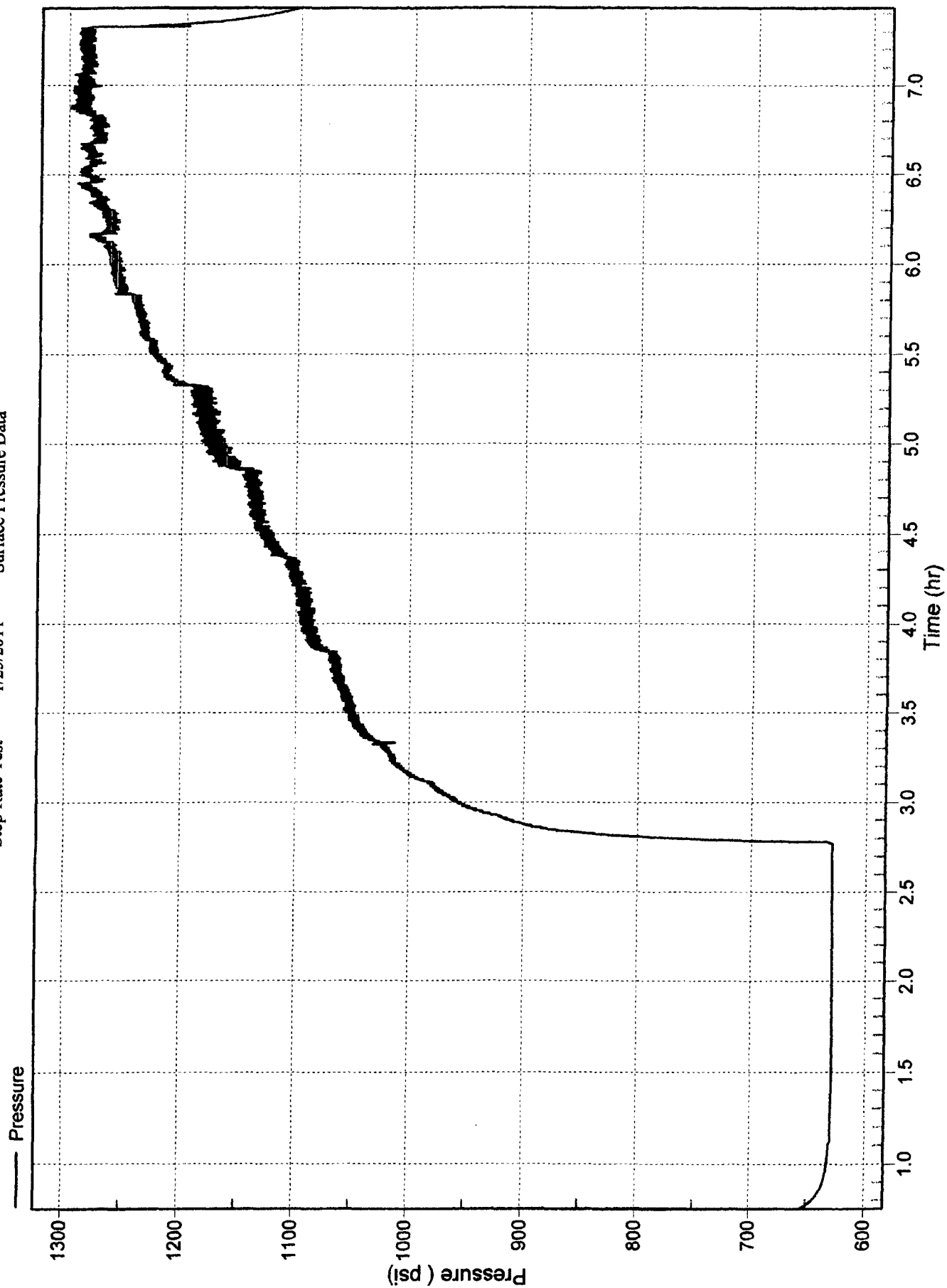
QUANTUM RESOURCE MANAGEMENT, LLC. - CJYSU #503

Step Rate Test 1/25/2011 Bottom Hole Pressure Data



QUANTUM RESOURCE MANAGEMENT, LLC. - CJYSU #503

Step Rate Test 1/25/2011 Surface Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #602
LEA COUNTY, NEW MEXICO

TEST DATE
1/26/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,722' and surface pressure transducer.

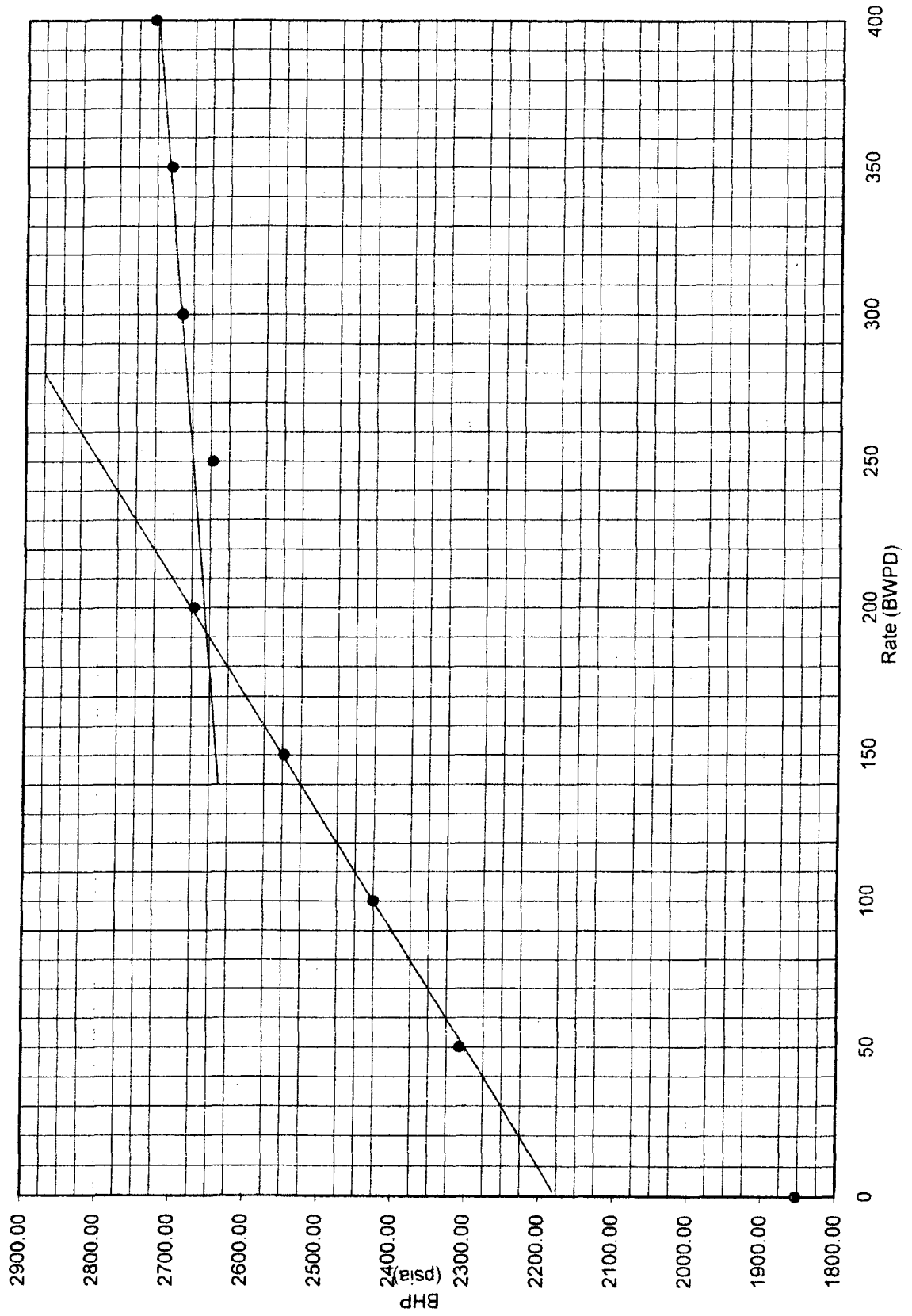
QUANTUM RESOURCES MANAGEMENT, LLC.
CJYSU #602
TEST DATE 1/26/2011

Run Depth: 3722	Perforations: 3670-3774
Formation: San Andres	Total Depth: 3856
Casing Depth: 3608	Pkr. Depth: 3608
Tested By: Jim Chesshir	Instrument #: 78665

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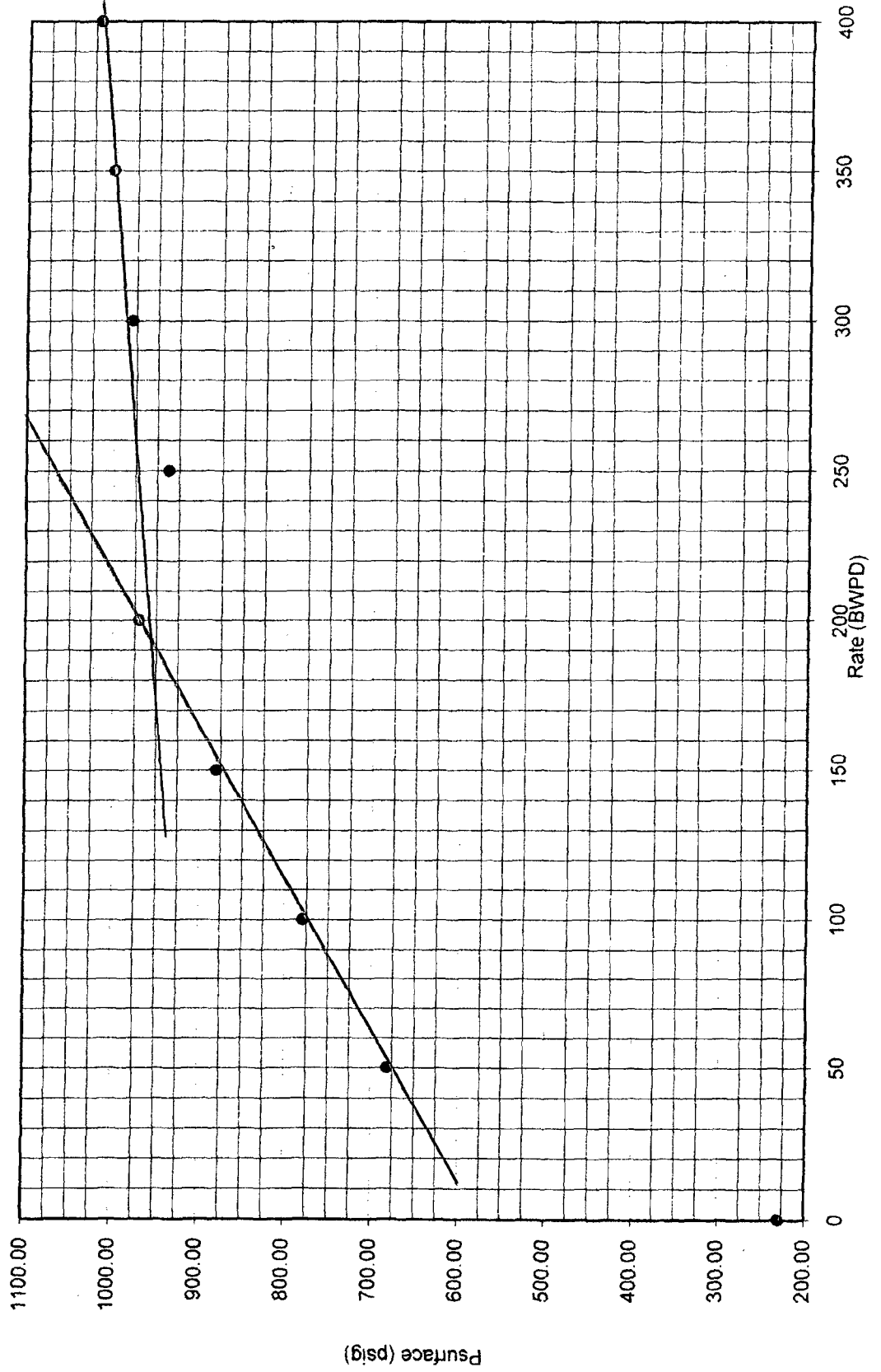
STEP RATE TEST
 QUANTUM RESOURCES
 MANAGEMENT, LLC.
 CJYSU #602
 1/26/2011

APPROVED
 R. J. JONES
 1-1-11



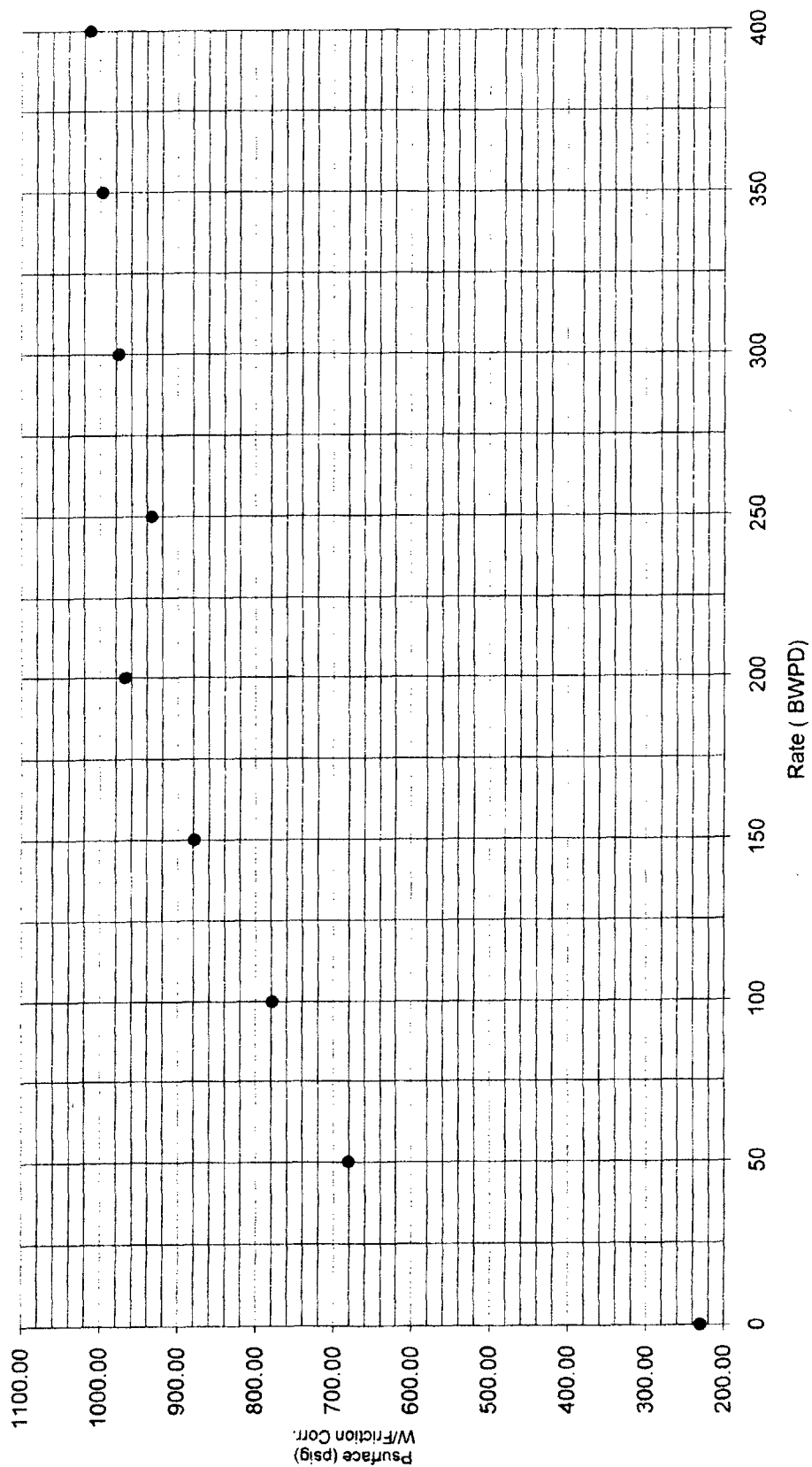
STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #602
1/26/2011

2011-01-26
09:00:00
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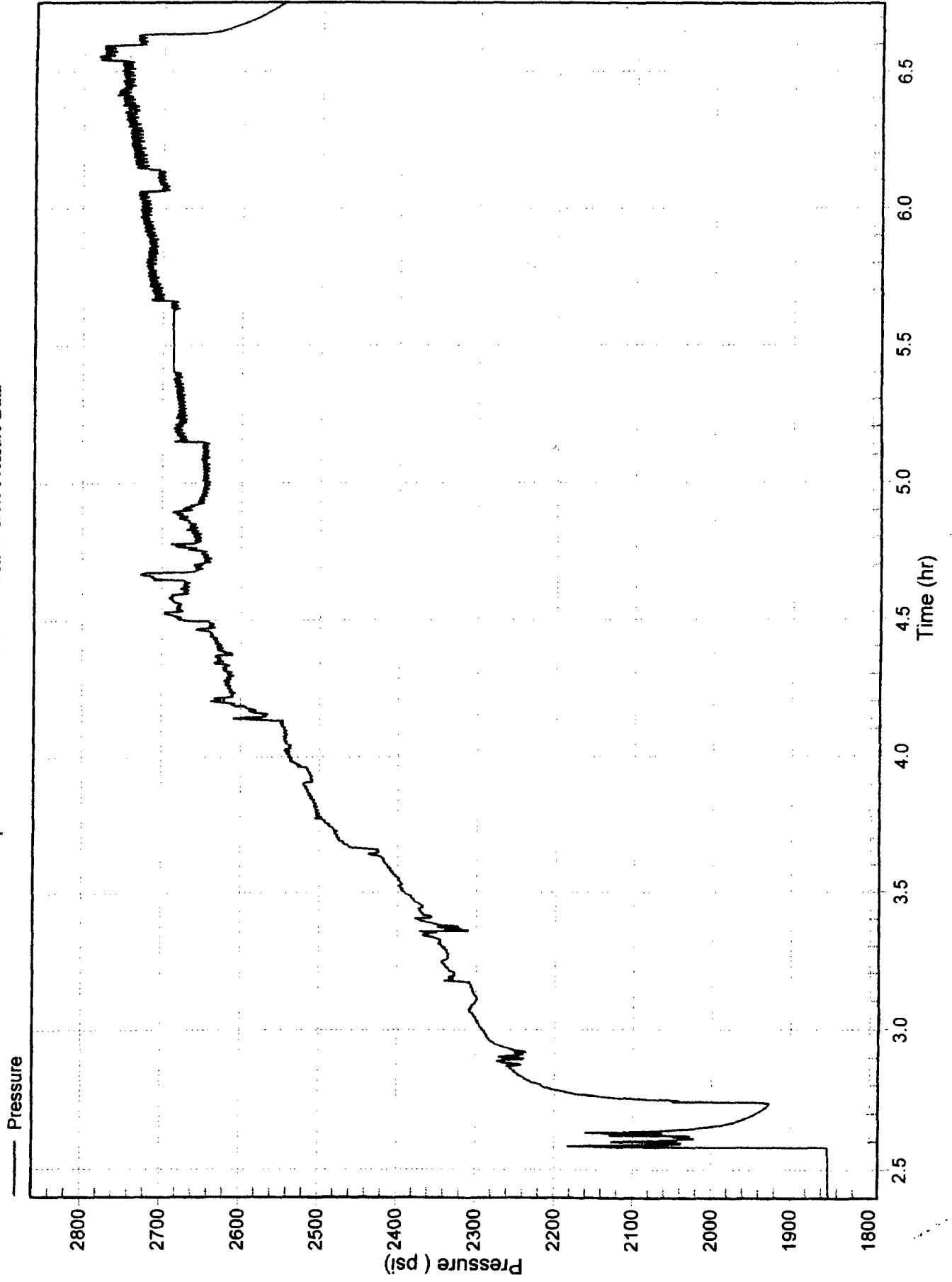
STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #602
1/26/2011

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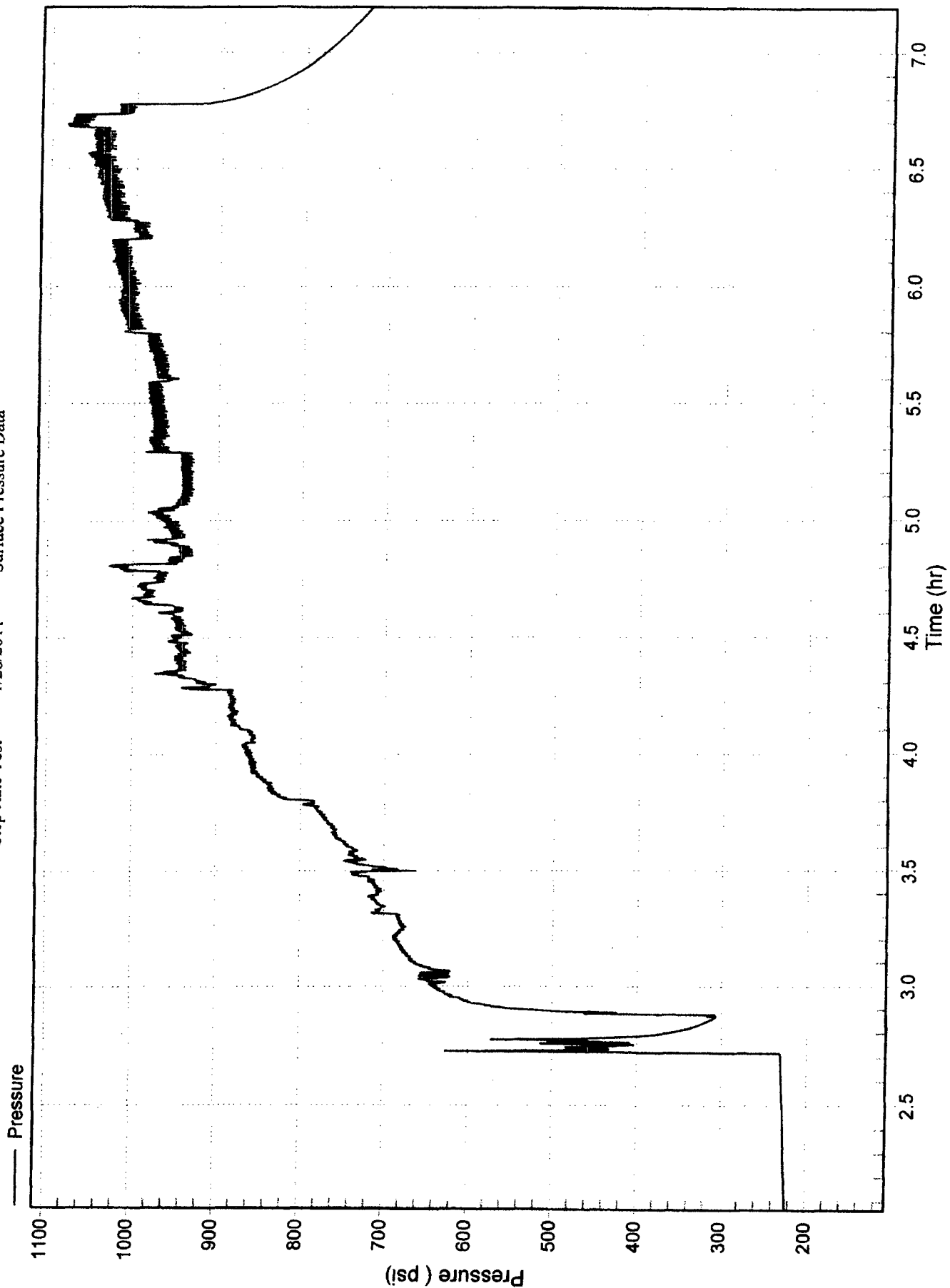
QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #602

Step Rate Test 1/26/2011 Bottom Hole Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #602

Step Rate Test 1/26/2011 Surface Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC.

CJYSU #804
LEA COUNTY, NEW MEXICO

TEST DATE
1/27/2011

STEP RATE TEST

Ran step rate test with electric surface readout unit, 1 electronic pressure instrument @ run depth of 3,783' and surface pressure transducer.

STEP RATE TEST

QUANTUM RESOURCES MANAGEMENT, LLC

CJYSU #804

TEST DATE 1/27/2011

[illegible]

Run Depth: 3783

Perforations: 3714-3852

Formation: San Andres

Total Depth: 3909

Tubing Depth: 3660

Pkr. Depth: 3660

Tested By: Jim Chesshir

Instrument #: 78665

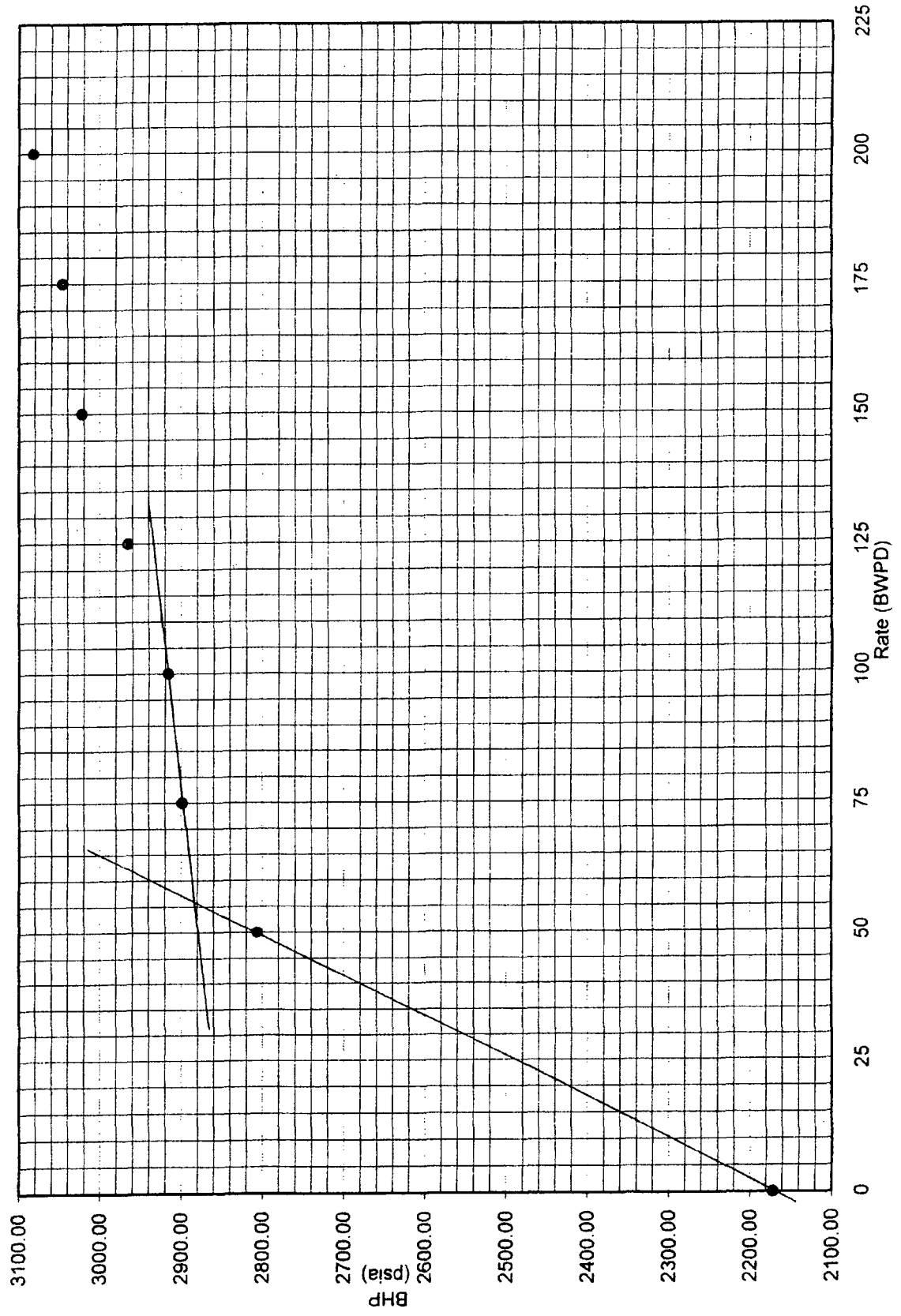
TEST RESULTS

Parting Pressure @ 2882 BHP (psia) @ 55 BWPD

STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC
CJYSU #804
1/27/2011

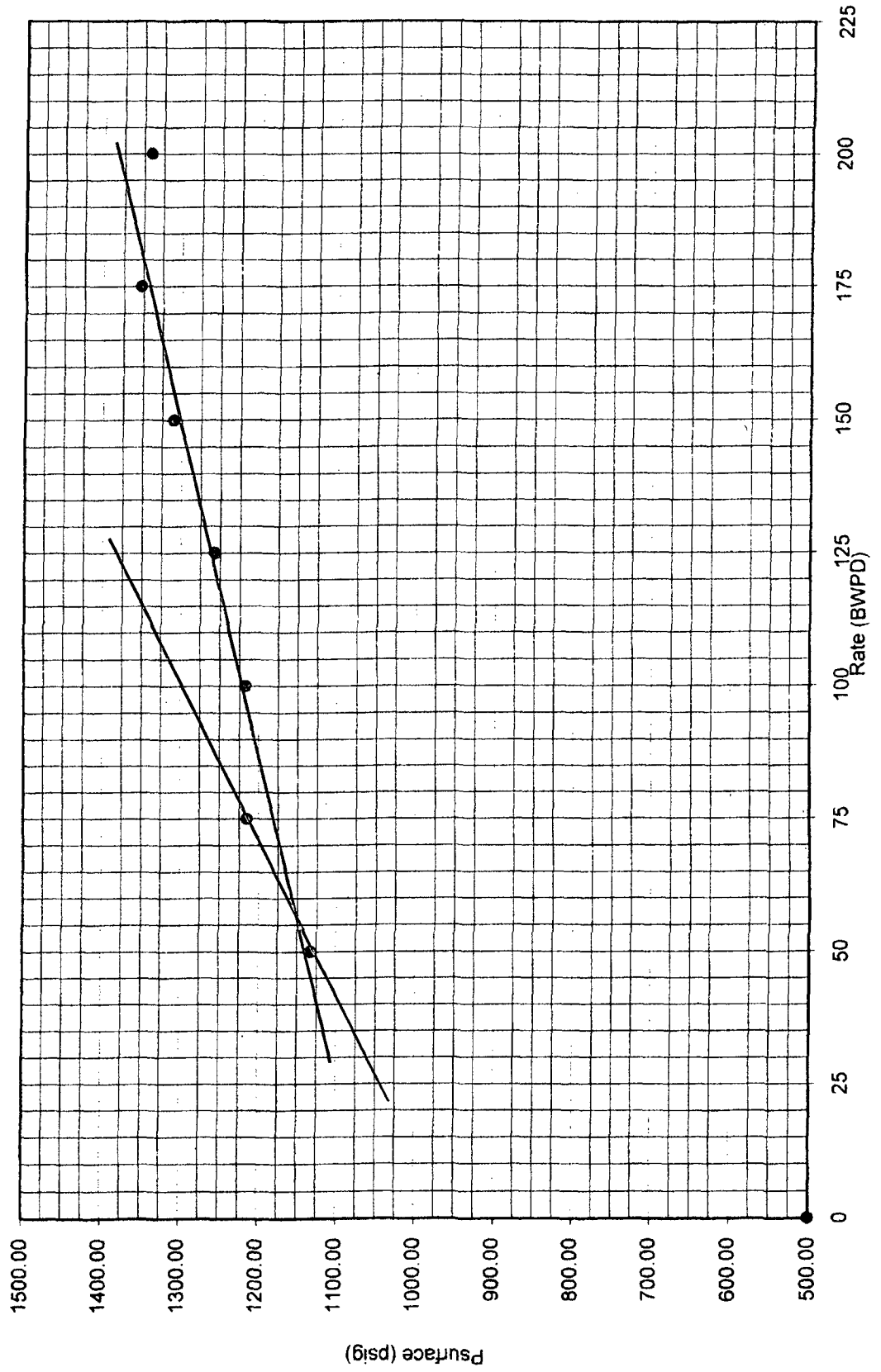
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STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC
CJYSU #804
1/27/2011

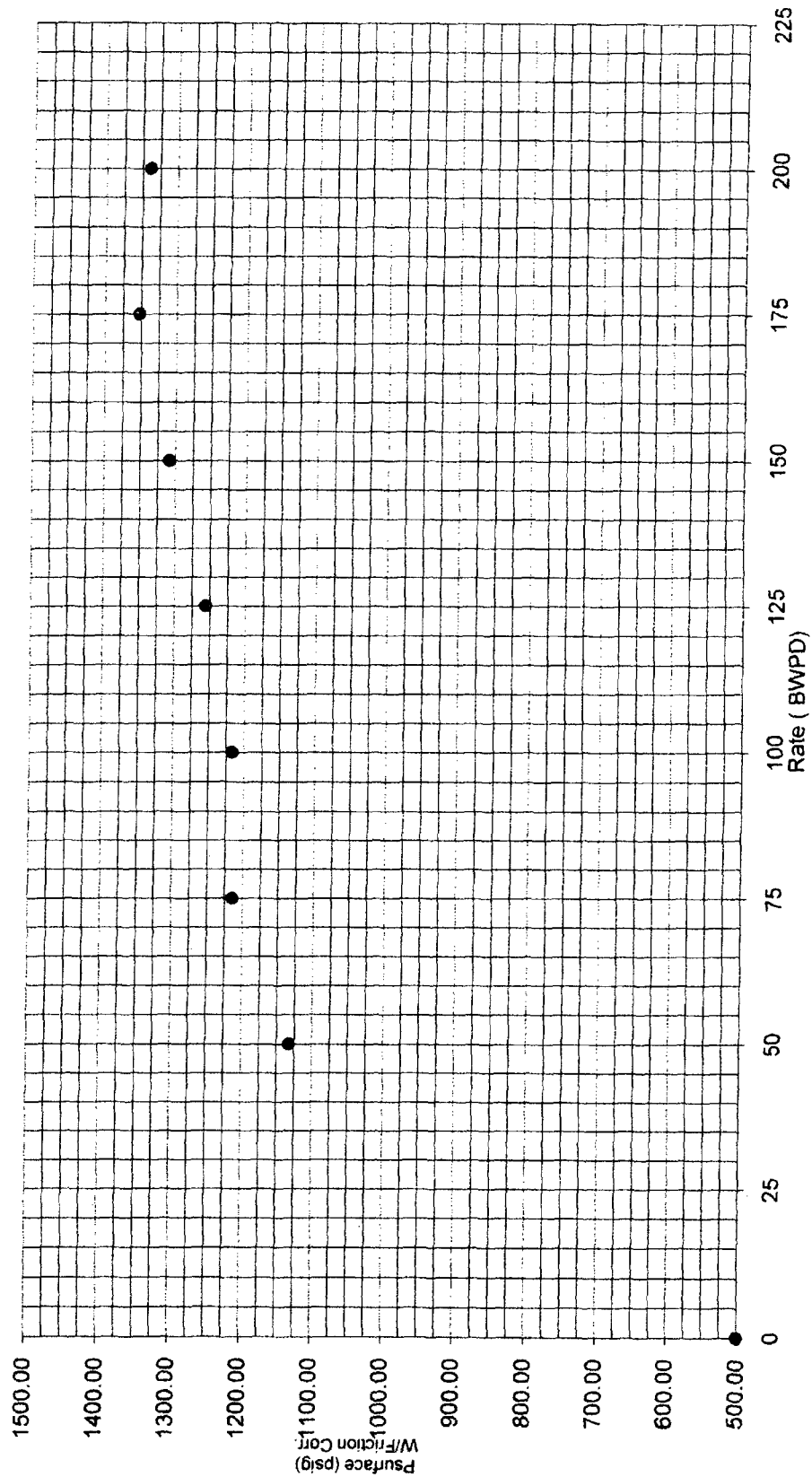
PRECISION
PRESSURE
DATA, INC.



STEP RATE TEST
QUANTUM RESOURCES
MANAGEMENT, LLC.
CJYSU #804
1/27/2011

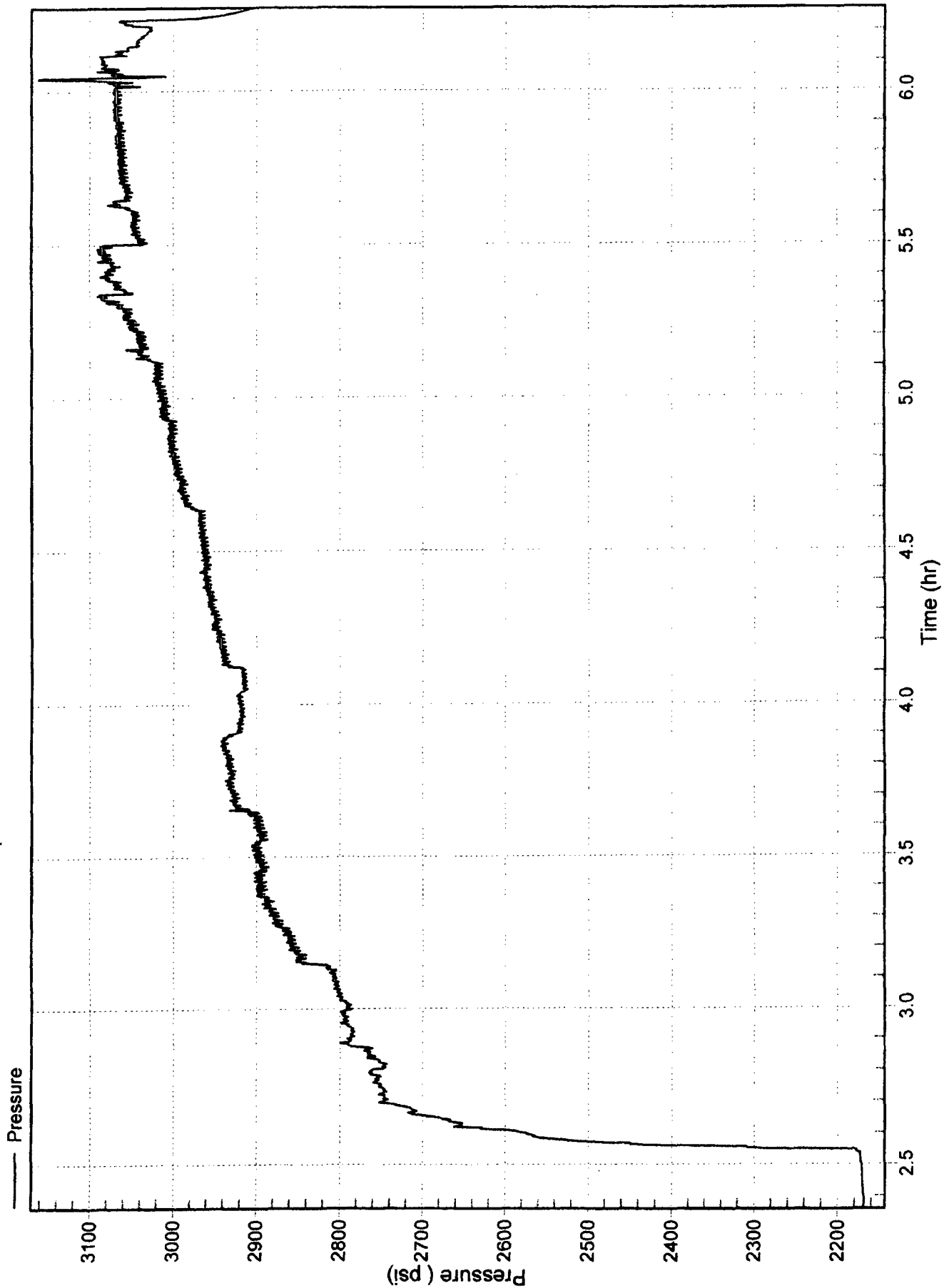
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QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #804

Step Rate Test 1/27/2011 Bottom Hole Pressure Data



QUANTUM RESOURCES MANAGEMENT, LLC. - CJYSU #804

Step Rate Test 1/28/2011 Surface Pressure Data

