

DATE <u>12.10.10</u>	SUSPENSE	ENGINEER <u>TW</u>	LOGGED IN <u>12.10.10</u>	TYPE <u>IPI</u>	APP NO. <u>1034453905</u>
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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



Melrose

Jalmet / Yates Sand Unit

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]

IPI-386

[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 _____

*1321 Aug
-50
127H*

[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 Melrose Operating Company
 Title

12/9/10
 Date

drcatanach@netscape.com
 E-Mail Address

1464
1687
1253
1132
1412
1370
1366
1447
1444
1187
1194
1611
1630
1712
1367
19812 — Avg SRT
1321
1271

December 8, 2010

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

Attention: Mr. Mark E. Fesmire, Division Director

HAND DELIVERED

Re: Application for Increased Injection Pressure
Melrose Operating Company
Jalmat Field Yates Sand Unit Waterflood Project
Jalmat (Tansill-Yates-Seven Rivers) Oil & Gas Pool
Lea County, New Mexico

Dear Mr. Fesmire,

Melrose Operating Company ("Melrose") as current operator of the Jalmat Field Yates Sand Unit Waterflood Project, located in portions of Sections 2, 3, 10, 11, 12, 13, 14, and 23, 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 to 1,400 psi. The proposed pressure increase would apply to all injection wells within the unit area, with the exception of the Jalmat Field Yates Sand Unit Wells No. 122, 126 and 222 whose current surface injection pressure limits are 1,500, 1,500 and 1,400 psi, respectively.

Waterflood operations within the Jalmat Field Yates Sand Unit ("JFYSU") were initially approved by Order No. R-2243 dated May 28, 1962. Waterflood operations have been ongoing since that time. In the late 1990's Melrose assumed operatorship of the JFYSU and commenced a program of infill drilling and waterflood expansion. This involved the permitting of approximately 47 new injection wells (See Division Order Nos. WFX-798, 809, 821, 841, 843, 850, and 852).

The currently authorized surface injection pressure for the vast majority of the wells within the JFYSU averages approximately 760 psi. Step rate tests have previously been conducted on the JFYSU Wells No. 122, 126, 179, 185, 195, 222 and 250 during 2008. As a result of those step rate tests, the surface injection pressure for those wells was increased by the Division to 1,500, 1,500, 1,150, 1,150, 1,100, 1,400 and 1,150 psi, respectively (See Division Orders No. WFX-841 and IPI-298).

exclude 3
1500, 1500
1150

WFX-809

During 2010, Melrose conducted approximately 21 additional step rate tests on injection wells located at various locations across the JFYSU 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 indicate fracture pressures ranging at or above 1,200 psi. Step rate tests conducted on the JFYSU Wells No. 159 and 236 indicate fracture

*Melrose Operating Company
Request for Surface Injection Pressure Increase
Jalmat Field Yates Sand Unit WF Project
Lea County, New Mexico*

pressures in the 800 psi range. Melrose believes these tests to be anomalies and that they should not be considered in approving this field-wide increase. **Consequently, Melrose hereby requests authority to increase the surface injection pressure on a unit-wide basis to 1,400 psi.** The proposed increase represents a conservative pressure gradient of approximately 0.368 psi/ft. Approval of the proposed pressure increase will allow Melrose to effectively and efficiently conduct secondary recovery operations within the JFYSU, thereby increasing the recovery of hydrocarbons from the Jalmat (Tansill-Yates-Seven Rivers) Oil & Gas Pool. Also, Melrose 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.

Attached is a table showing a list of the injection wells within the JFYSU, along with its API No., well location, currently authorized surface injection pressure, and test results on those wells tested during 2010.

Also attached is a map of the JFYSU showing the location of the injection wells within the unit area, wells tested during 2010, and wells previously tested during 2008.

Also attached is a graphical presentation of the step rate tests conducted during 2010.

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

Sincerely,



Mr. David Catanach
Agent for Melrose Operating Company
20333 State Highway 249, Suite 310
Houston, Texas 77070

Xc: OCD-Hobbs

Melrose Operating Company
Jalmat Field Yates Sand Unit Injection Wells
Step Rate Test Results

Well Name	Well No.	API No.	Well Location UL-S-T-R	Authorized Pressure	Test Results
JFYSU	102	30-025-08569	Unit P, Section 3, T-22S, R-35E		
JFYSU	106	30-025-08595	Unit C, Section 11, T-22S, R-35E	775 psi	1,464 psi
JFYSU	107	30-025-38921	Unit B, Section 11, T-22S, R-35E	770 psi	
JFYSU	108	30-025-08587	Unit H, Section 11, T-22S, R-35E		1,894 psi *
JFYSU	109	30-025-08594	Unit G, Section 11, T-22S, R-35E	775 psi	1,687 psi
JFYSU	110	30-025-08593	Unit F, Section 11, T-22S, R-35E		
JFYSU	113	30-025-08589	Unit K, Section 11, T-22S, R-35E	779 psi	1,253 psi
JFYSU	114	30-025-08590	Unit J, Section 11, T-22S, R-35E		
JFYSU	121	30-025-08588	Unit N, Section 11, T-22S, R-35E	770 psi	
JFYSU	122	30-025-08592	Unit M, Section 11, T-22S, R-35E	1,500 psi ✓	
JFYSU	123	30-025-08579	Unit P, Section 10, T-22S, R-35E	777 psi	
JFYSU	126	30-025-08615	Unit C, Section 14, T-22S, R-35E	1,500 psi ✓	
JFYSU	134	30-025-08613	Unit E, Section 13, T-22S, R-35E	754 psi	
JFYSU	136	30-025-08622	Unit G, Section 14, T-22S, R-35E	764 psi	
JFYSU	137	30-025-38935	Unit F, Section 14, T-22S, R-35E	740 psi	
JFYSU	139	30-025-08629	Unit L, Section 14, T-22S, R-35E	777 psi	
JFYSU	140	30-025-38936	Unit K, Section 14, T-22S, R-35E	773 psi	
JFYSU	142	30-025-38937	Unit I, Section 14, T-22S, R-35E	764 psi	
JFYSU	143	30-025-38938	Unit P, Section 14, T-22S, R-35E	763 psi	
JFYSU	144	30-025-08620	Unit O, Section 14, T-22S, R-35E	770 psi	
JFYSU	145	30-025-08626	Unit N, Section 14, T-22S, R-35E		
JFYSU	146	30-025-38939	Unit B, Section 23, T-22S, R-35E	766 psi	1,132 psi
JFYSU	147	30-025-08637	Unit A, Section 23, T-22S, R-35E	763 psi	
JFYSU	148	30-025-38940	Unit H, Section 23, T-22S, R-35E	740 psi	
JFYSU	159	30-025-38868	Unit F, Section 13, T-22S, R-35E	754 psi	796 psi **
JFYSU	168	30-025-38923	Unit M, Section 12, T-22S, R-35E	762 psi	1,412 psi
JFYSU	178	30-025-38924	Unit N, Section 12, T-22S, R-35E	745 psi	1,370 psi
JFYSU	179	30-025-38869	Unit D, Section 13, T-22S, R-35E	1,150 psi	1,244 psi *
JFYSU	182	30-025-38871	Unit A, Section 14, T-22S, R-35E	761 psi	1,366 psi
JFYSU	185	30-025-38872	Unit B, Section 13, T-22S, R-35E	1,150 psi	
JFYSU	187	30-025-38873	Unit A, Section 13, T-22S, R-35E	722 psi	
JFYSU	195	30-025-38874	Unit H, Section 14, T-22S, R-35E	1,100 psi	1,447 psi
JFYSU	207	30-025-36972	Unit M, Section 14, T-22S, R-35E	793 psi	1,444 psi

Melrose Operating Company
Jalmat Field Yates Sand Unit Injection Wells
Step Rate Test Results

Well Name	Well No.	API No.	Well Location UL-S-T-R	Authorized Pressure	Test Results
JFYSU	209	30-025-36974	Unit C, Section 23, T-22S, R-35E	780 psi	
JFYSU	212	30-025-36977	Unit D, Section 23, T-22S, R-35E	792 psi	
JFYSU	213	30-025-36978	Unit M, Section 14, T-22S, R-35E	819 psi	
JFYSU	220	30-025-37174	Unit L, Section 11, T-22S, R-35E	756 psi	1,187 psi
JFYSU	221	30-025-37240	Unit I, Section 10, T-22S, R-35E	778 psi	1,194 psi
JFYSU	222	30-025-38875	Unit B, Section 14, T-22S, R-35E	1,400 psi ✓	
JFYSU	223	30-025-37492	Unit O, Section 11, T-22S, R-35E	771 psi	
JFYSU	224	30-025-37498	Unit P, Section 11, T-22S, R-35E	766 psi	
JFYSU	233	30-025-38926	Unit O, Section 2, T-22S, R-35E	762 psi	1,611 psi
JFYSU	235	30-025-38928	Unit A, Section 11, T-22S, R-35E		
JFYSU	234	30-025-38927	Unit P, Section 2, T-22S, R-35E	764 psi	1,630 psi
JFYSU	236	30-025-38929	Unit E, Section 12, T-22S, R-35E	740 psi	810 psi **
JFYSU	237	30-025-38930	Unit L, Section 12, T-22S, R-35E	761 psi	1,712 psi
JFYSU	239	30-025-38931	Unit H, Section 13, T-22S, R-35E	740 psi	See (1)
JFYSU	240	30-025-38932	Unit N, Section 2, T-22S, R-35E	767 psi	
JFYSU	241	30-025-38933	Unit M, Section 2, T-22S, R-35E	767 psi	1,790 psi *
JFYSU	242	30-025-38941	Unit D, Section 11, T-22S, R-35E	759 psi	
JFYSU	243	30-025-38934	Unit E, Section 11, T-22S, R-35E	740 psi	
JFYSU	247	30-025-38944	Unit J, Section 14, T-22S, R-35E	759 psi	1,367 psi
JFYSU	250	30-025-38925	Unit C, Section 13, T-22S, R-35E	1,150 psi	

* Did not achieve a fracture during step rate test

** Not considered a valid step rate test

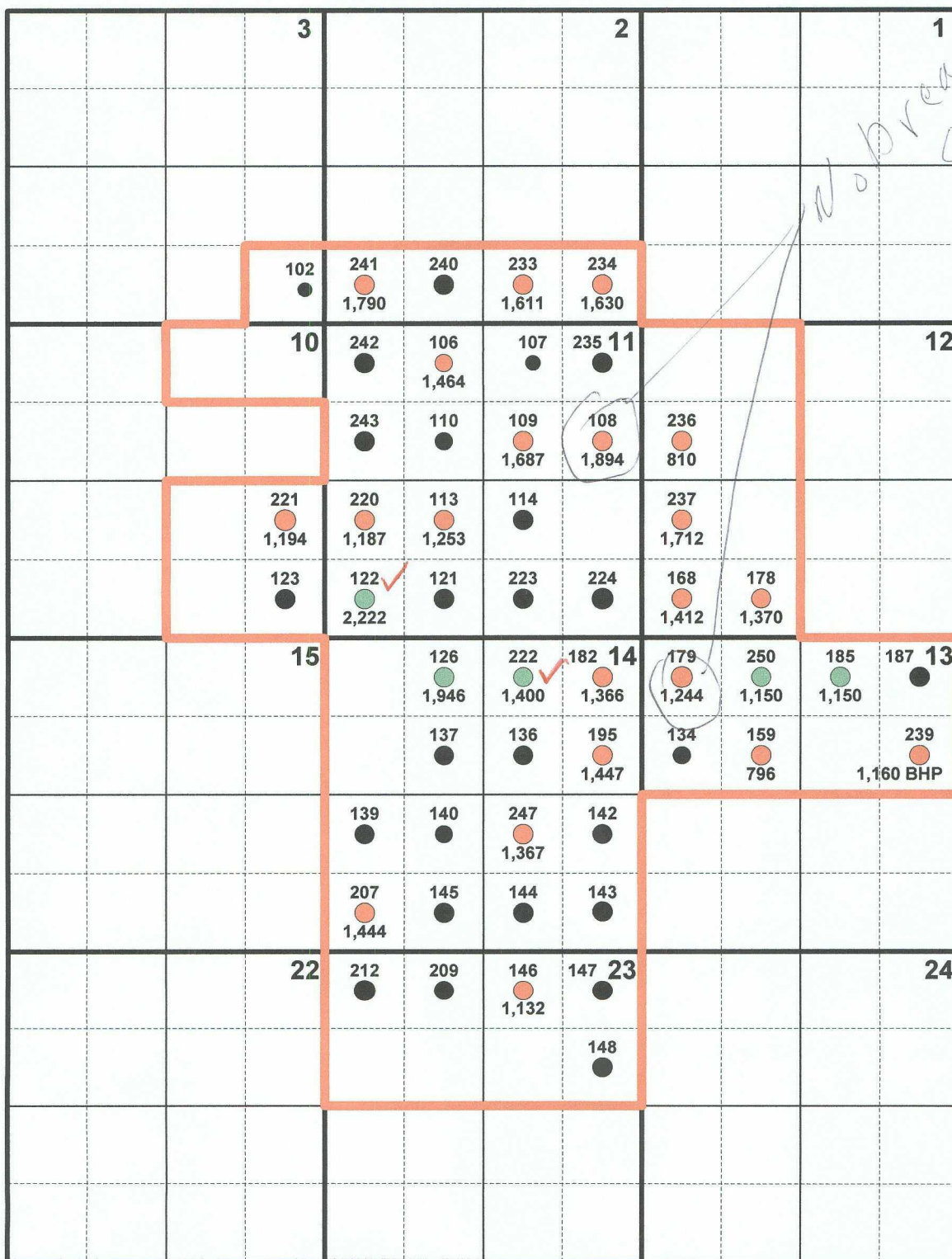
(1) Fracture obtained at a BHP of 1160 psi, 0 psi surface pressure

53

20/15 SRT¹⁵

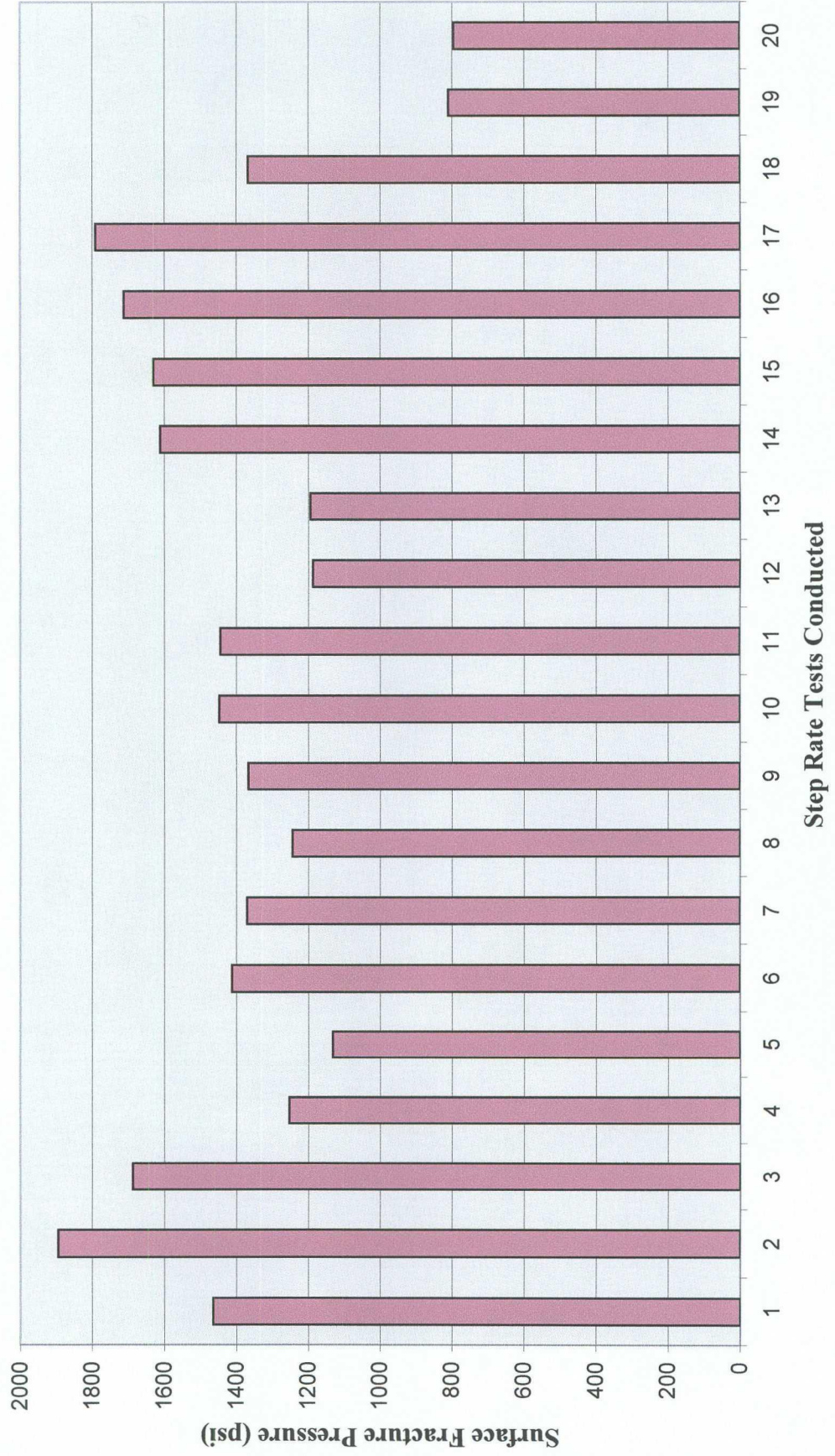
35 East

22 South



- Unit Boundary-Jalmat Field Yates Sand Unit Area
- Existing Injection Well/Well Number
- Existing Injection Well-Step Rate Test Conducted 2010 (Well Number/Surface Fracture Pressure)
- Existing Injection Well-Step Rate Test Conducted 2008 (Well Number/Surface Fracture Pressure)

Melrose Operating Company Step Rate Test Results





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #106
July 2, 2010

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
9:09:53	Start instrument	
9:17	0'	912
9:23	1000'	1353
9:28	2000'	1791
9:32	3000	2230
9:37	3939	2654

Step Rate Test

Time	Rate bpd	BHP	Surface
10:30	0	2657	919
11:00	75	2706	979
11:30	150	2766	1049
12:00	225	2854	1137
12:30	300	2939	1227
1:00	375	3020	1314
1:30	450	3098	1394
2:00	525	3165	1466
2:30	600	3228	1530
3:00	675	3283	1595
4:00	750	3328	1651
4:30	825	3368	1693

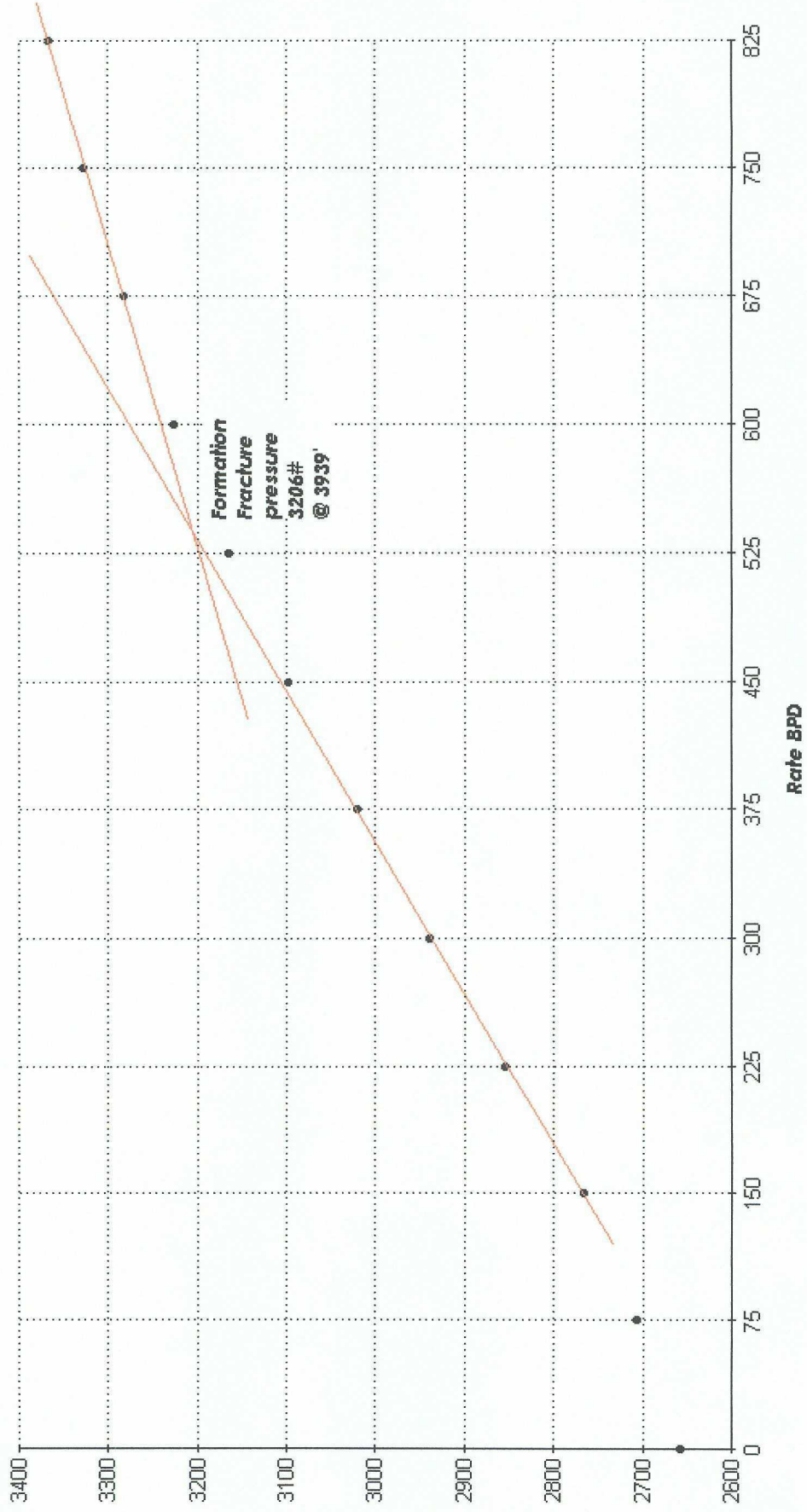
Formation Fracture Pressure 3206# @ 525 BPD 1464# Surface (Friction pressure not considered)



Melrose Operating

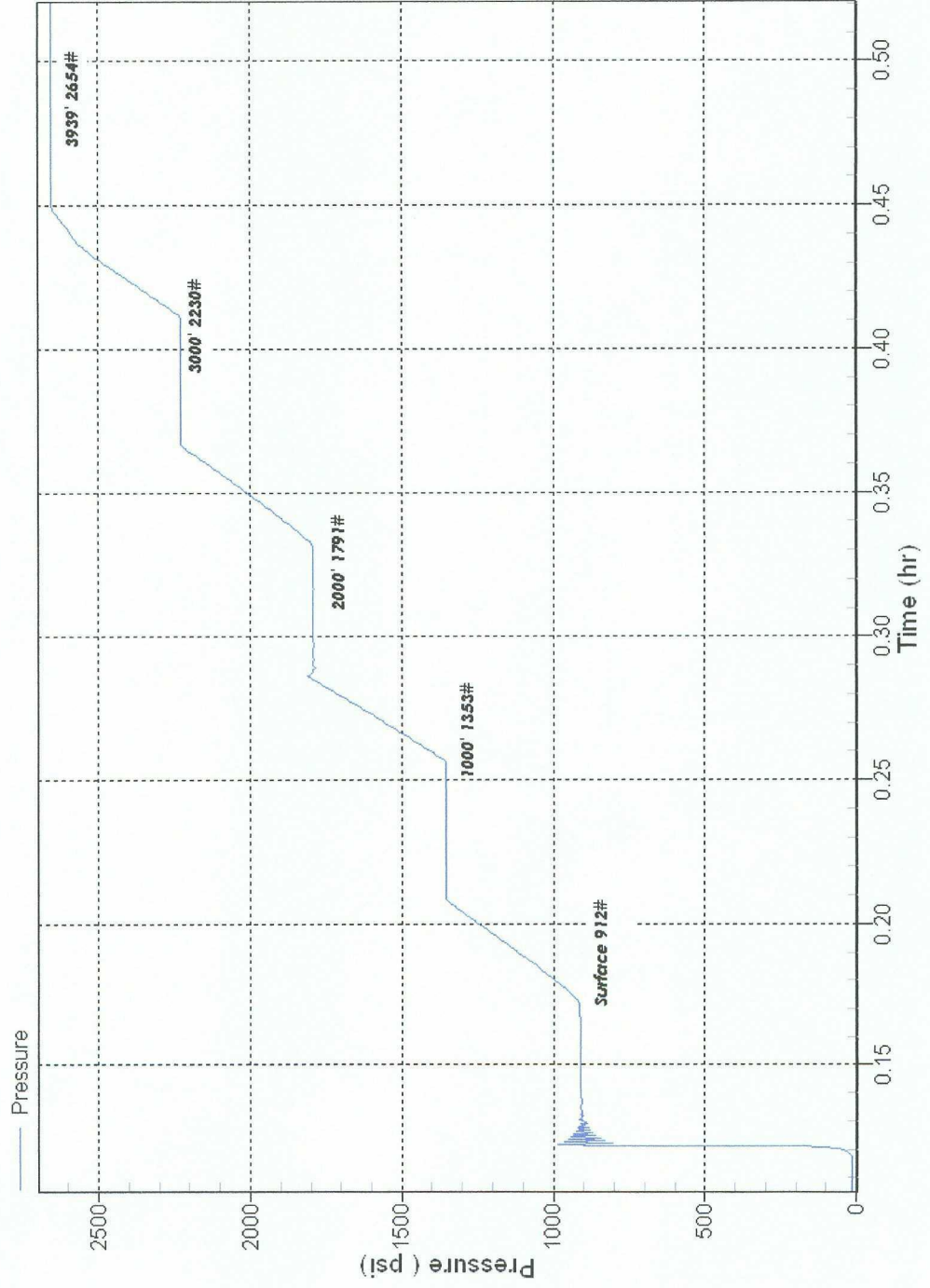
Step Rate Test 3939'

Jalmat Field Yates Sand Unit #106

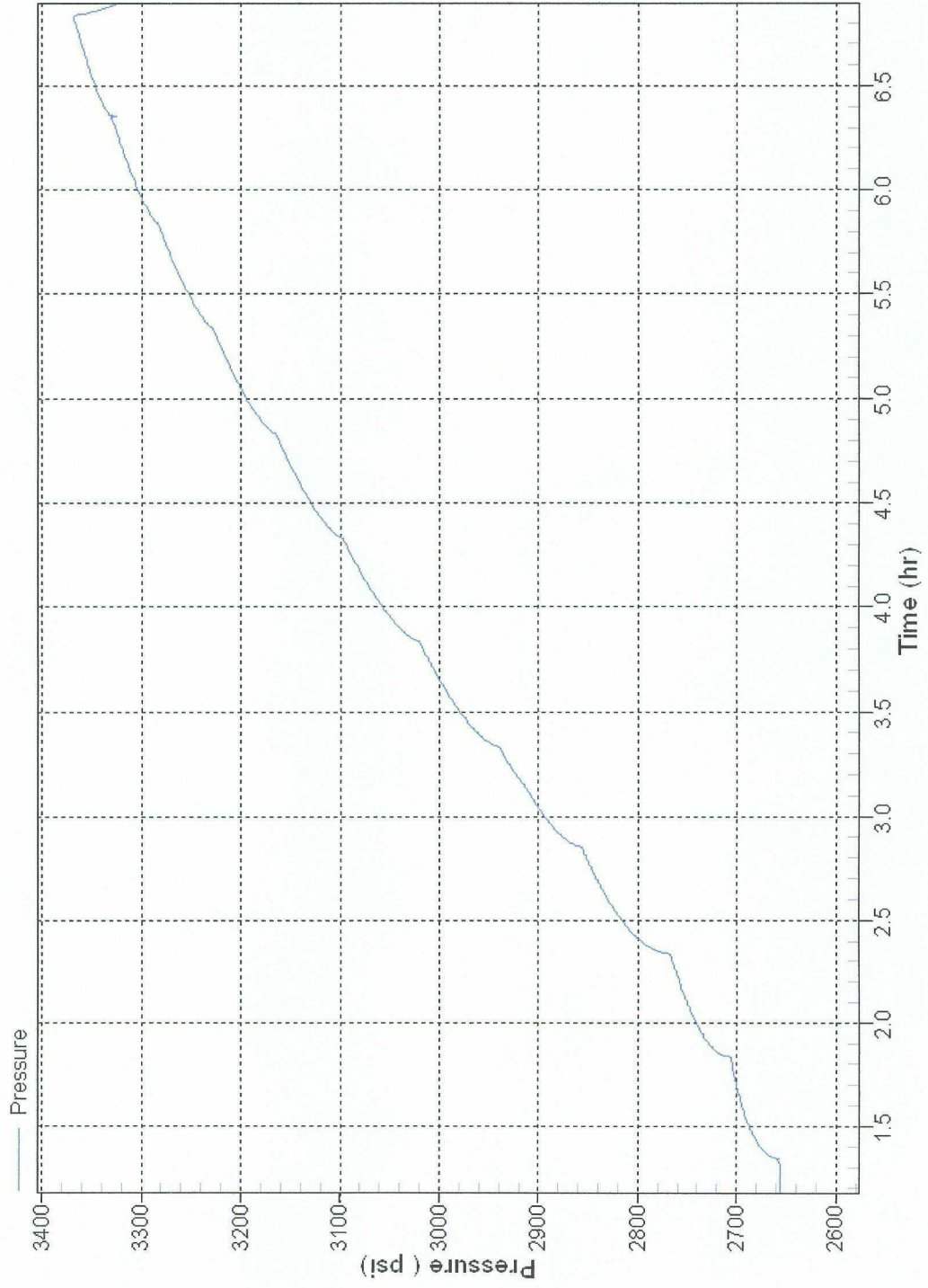




Melrose Operating **Gradients** **Jalmat Field Yates Sand Unit #106**



SRT Pressure vs Time 3939' Jalmat Field Yates Sand Unit #106



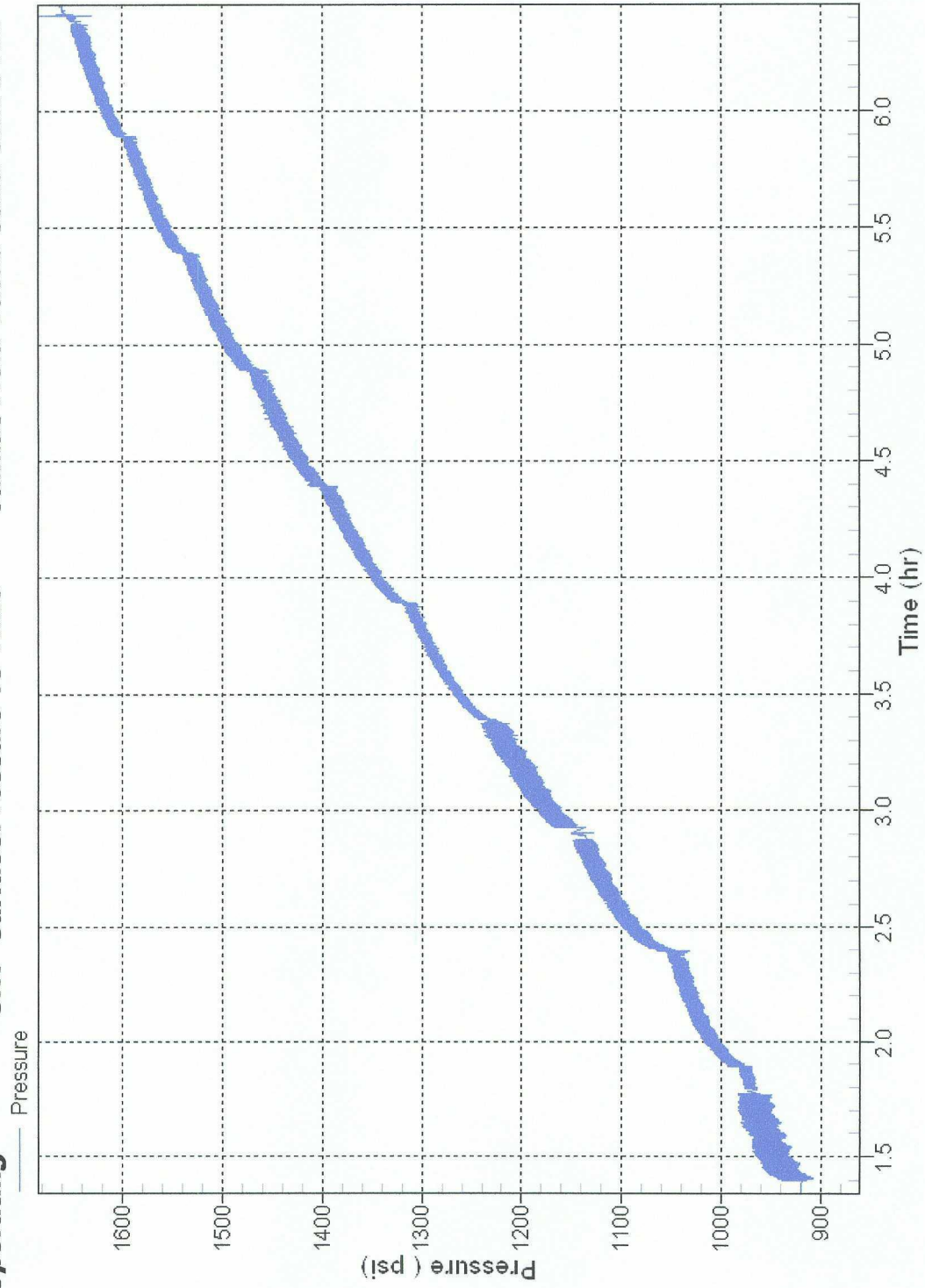


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #106



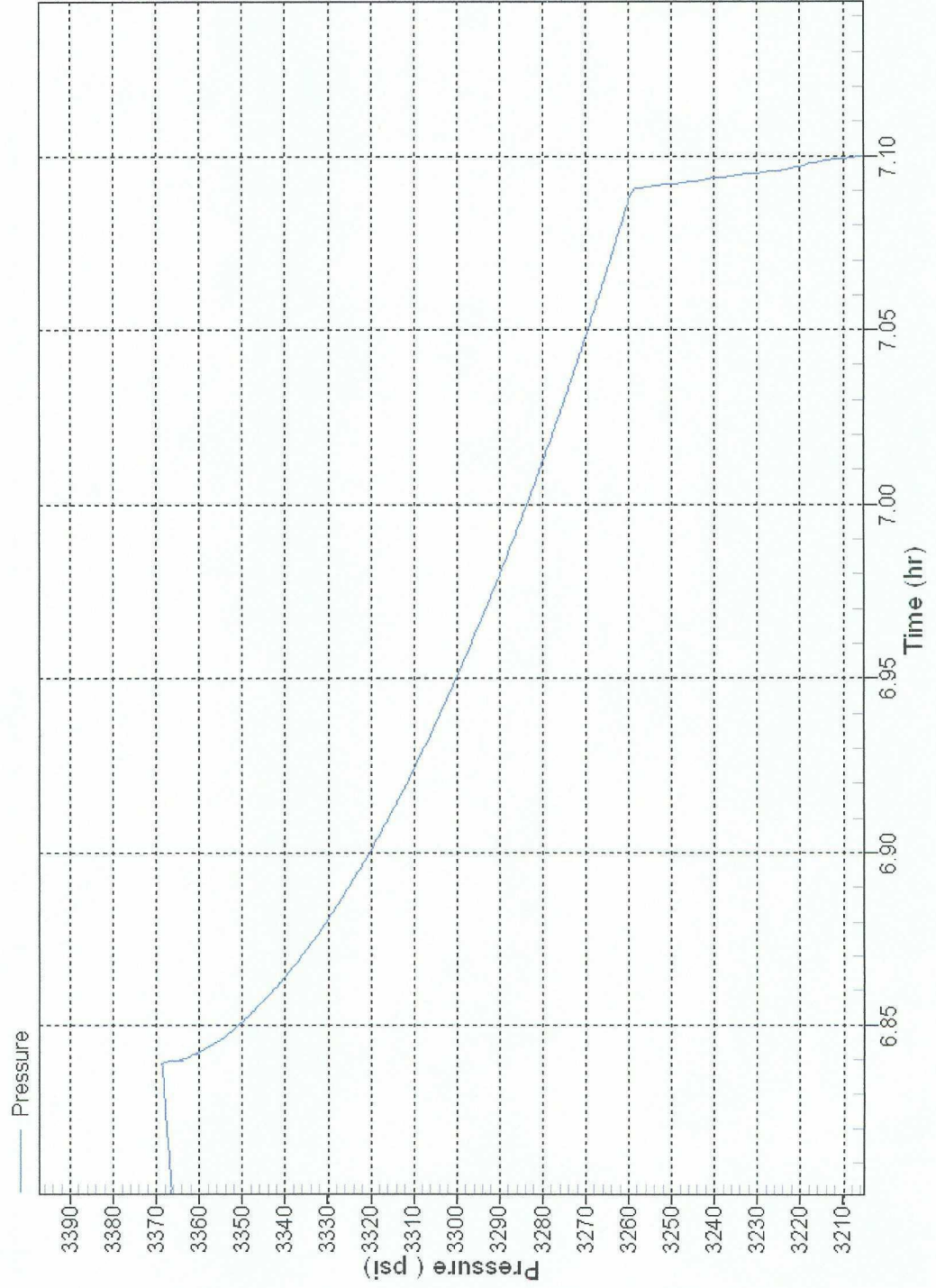


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #106





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Yates Field Sand Unit #108
November 22, 2010

Step Rate Test Event Summary

Gradient

Time	Event	Pressure
11:59:22	Start instrument	
12:02	surface	163
12:08	1000	637
12:15	2000	1102
12:20	3000	1566
12:34	3770	1919

.875" orifice at 3780' mid perfs at 3924'

Step Rate Test

Time	Rate bpd	BHP	Surface
12:45	0	1955	250
1:15	75	2110	424
1:45	150	2263	595
2:15	225	2435	812
2:45	300	2630	999
3:15	375	2815	1194
3:45	450	3000	1376
4:15	525	3175	1556
4:45	600	3342	1728
5:15	675	3499	1894
5:45	750	3630	2024

Fracture above 3500# @ 3770' (no definitive point due to max out surface pressure)

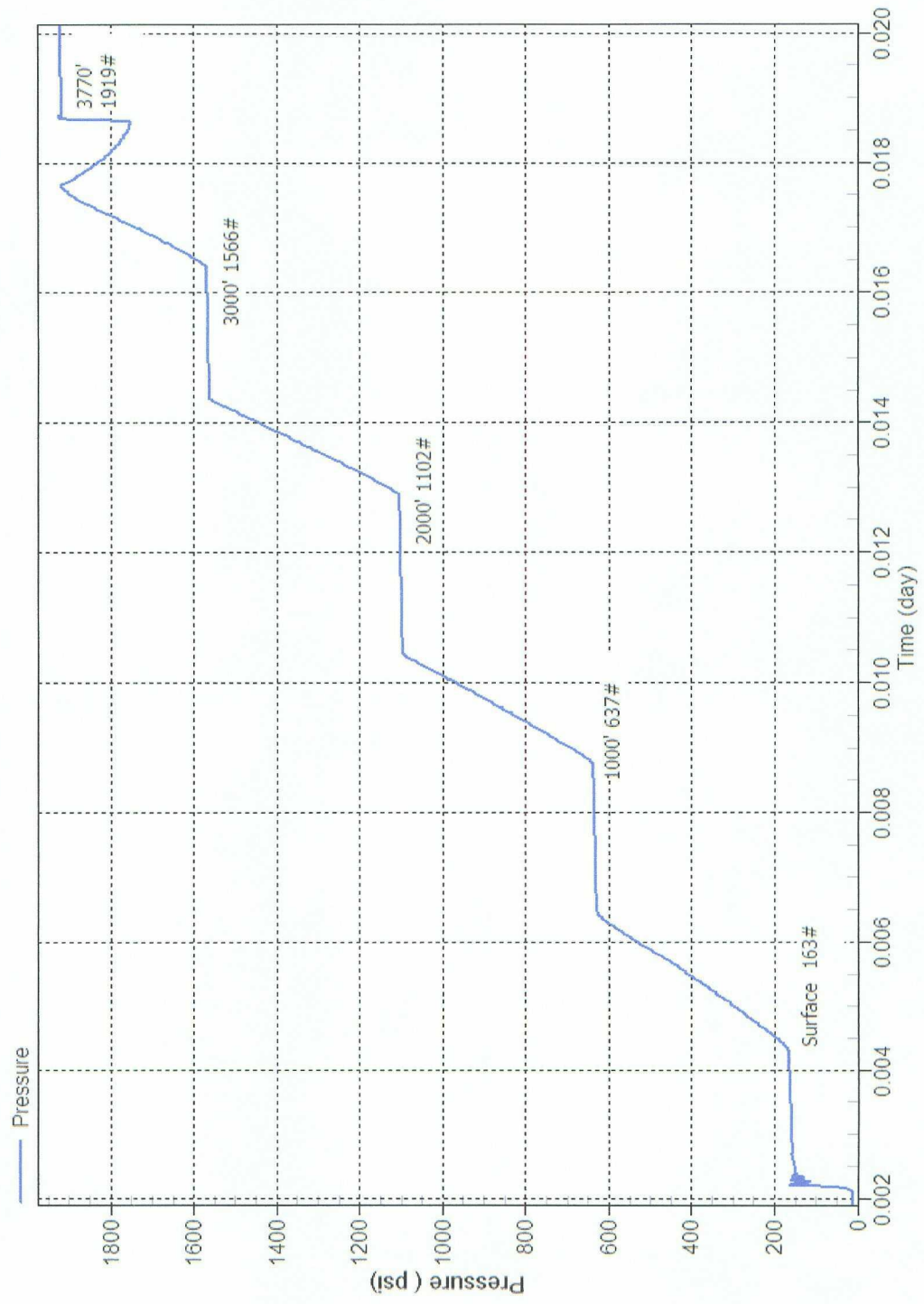


Melrose Operating **Step Rate Test** **Jalmat Yates Field Sand Unit #108**





Melrose Operating **Gradients** **Jalmat Yates Field Sand Unit #108**

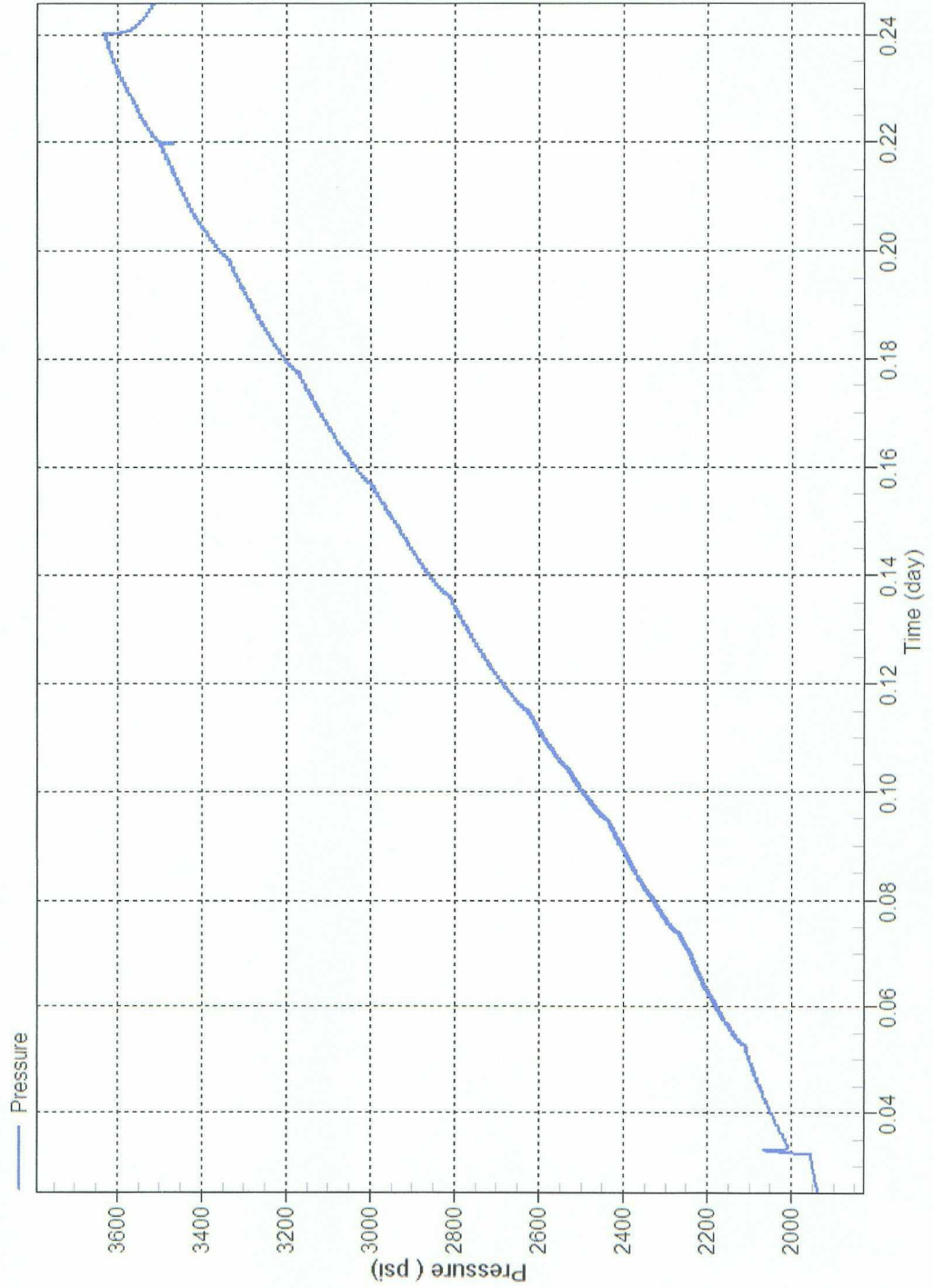




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3770' Jalmat Yates Field Sand Unit #108





KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #108



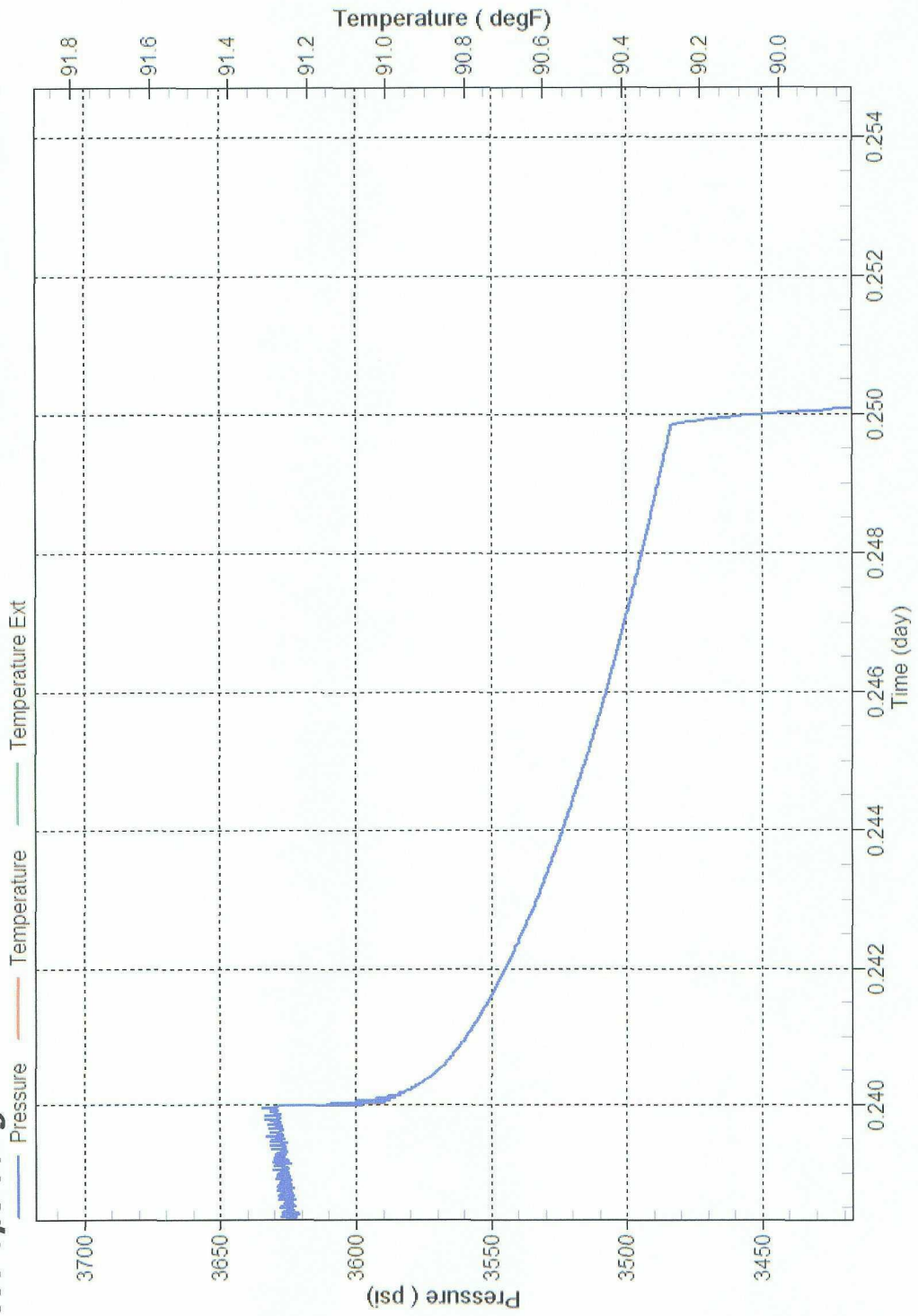


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #108





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #109
June 23, 2010

Step Rate Test Event Summary

Gradient

Time	Event	Pressure
10:29:25	Start instrument	
0'	10:40	744
1000'	10:47	1290
2000'	10:52	1812
3000'	10:58	2331
3946'	11:04	2814

Step Rate Test

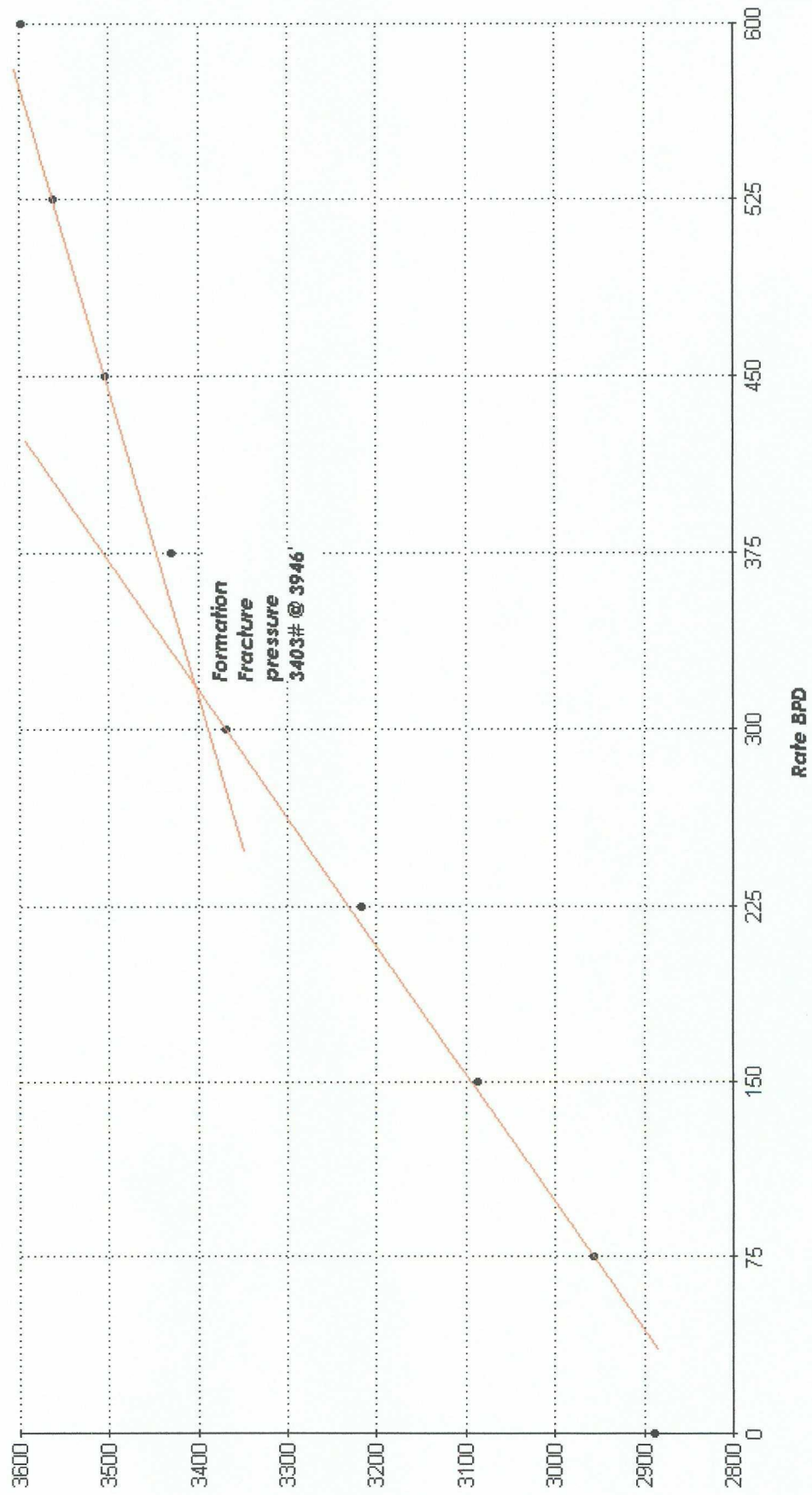
Time	Rate bpd	BHP	Surface
11:55	0	2889	885
12:28	75	2957	985
12:58	150	3087	1160
1:28	225	3217	1395
1:58	300	3368	1665
2:28	375	3430	1735 Formation Fracture Pressure 3403# @ 375 BPD 1687 # Surface (Friction pressure not considered)
2:58	450	3504	1815
3:28	525	3562	1875
3:58	600	3598	1920



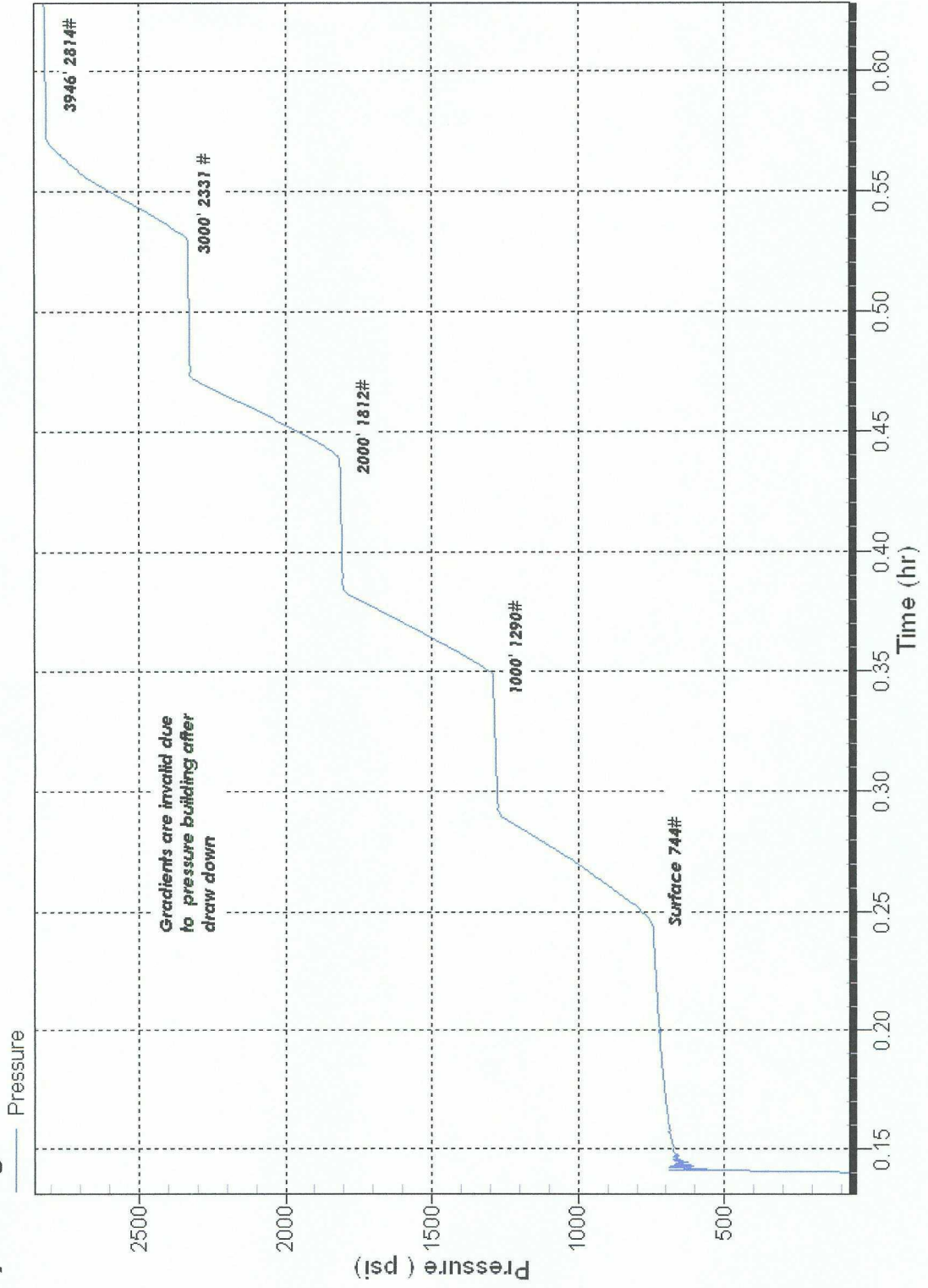
Melrose Operating

Step Rate Test 3946'

Jalmat Field Yates Sand Unit #109



Gradients **Jalmat Field Yates Sand Unit #109**

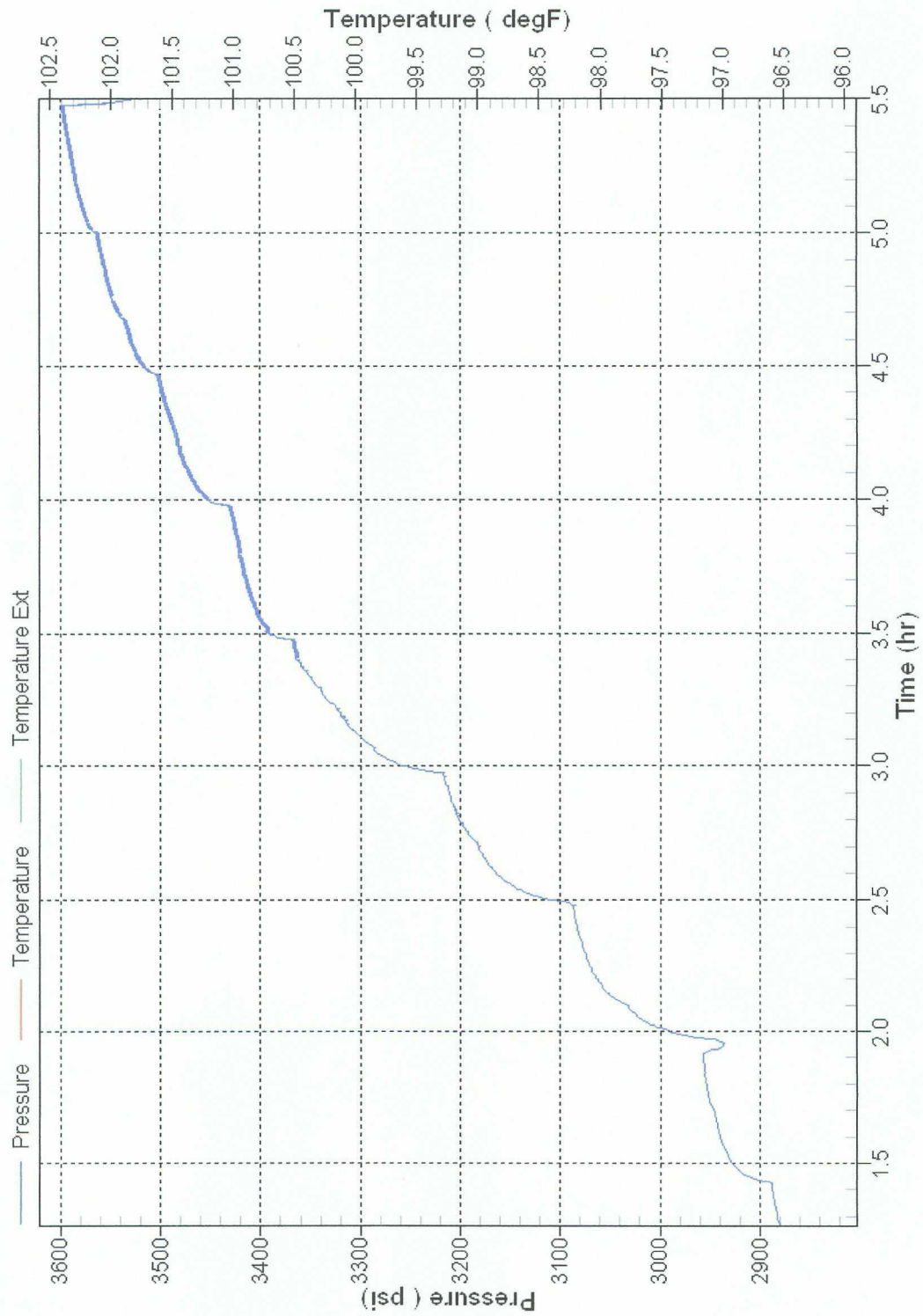




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3946' Jalmat Field Yates Sand Unit #109



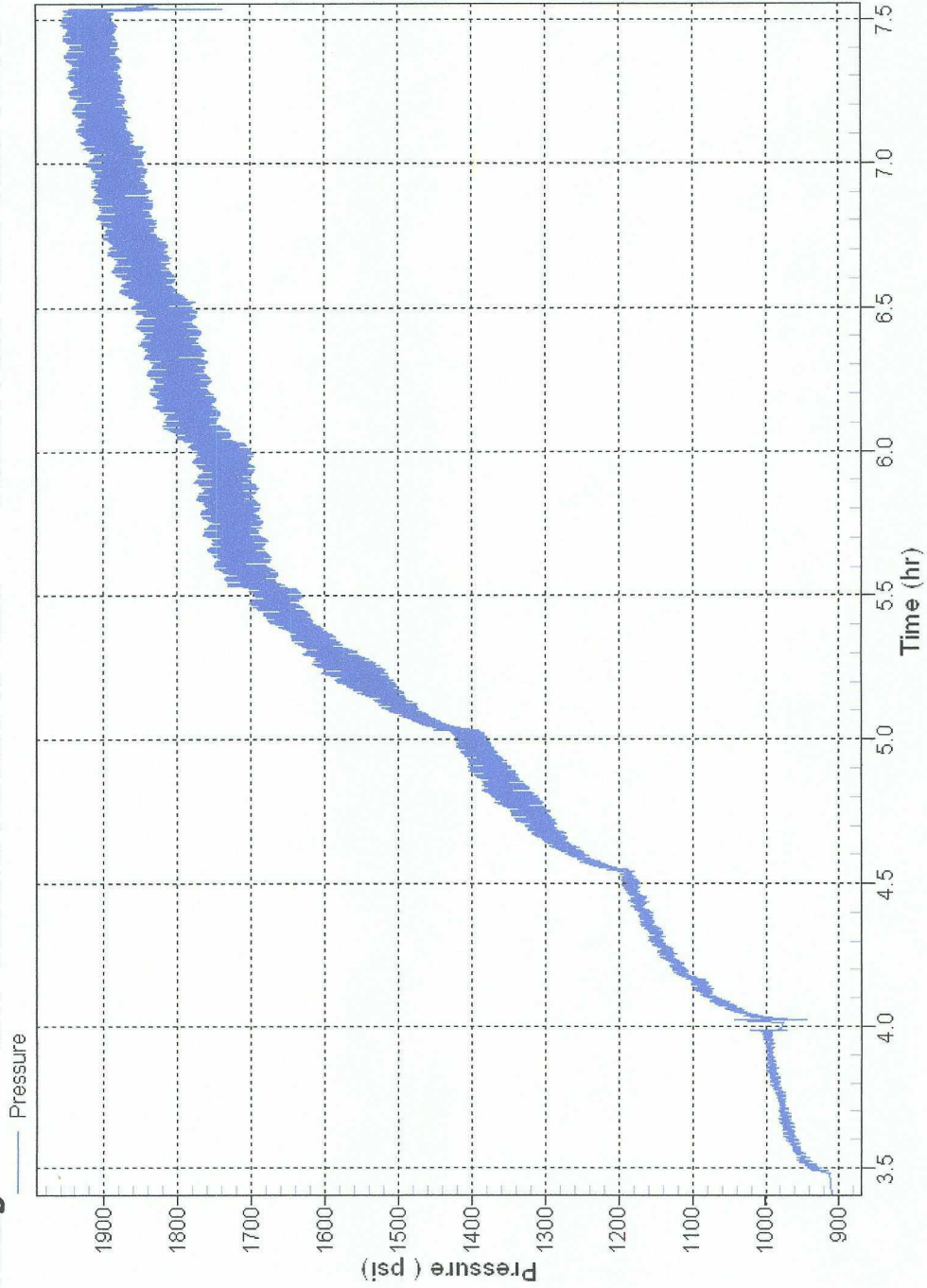


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #109



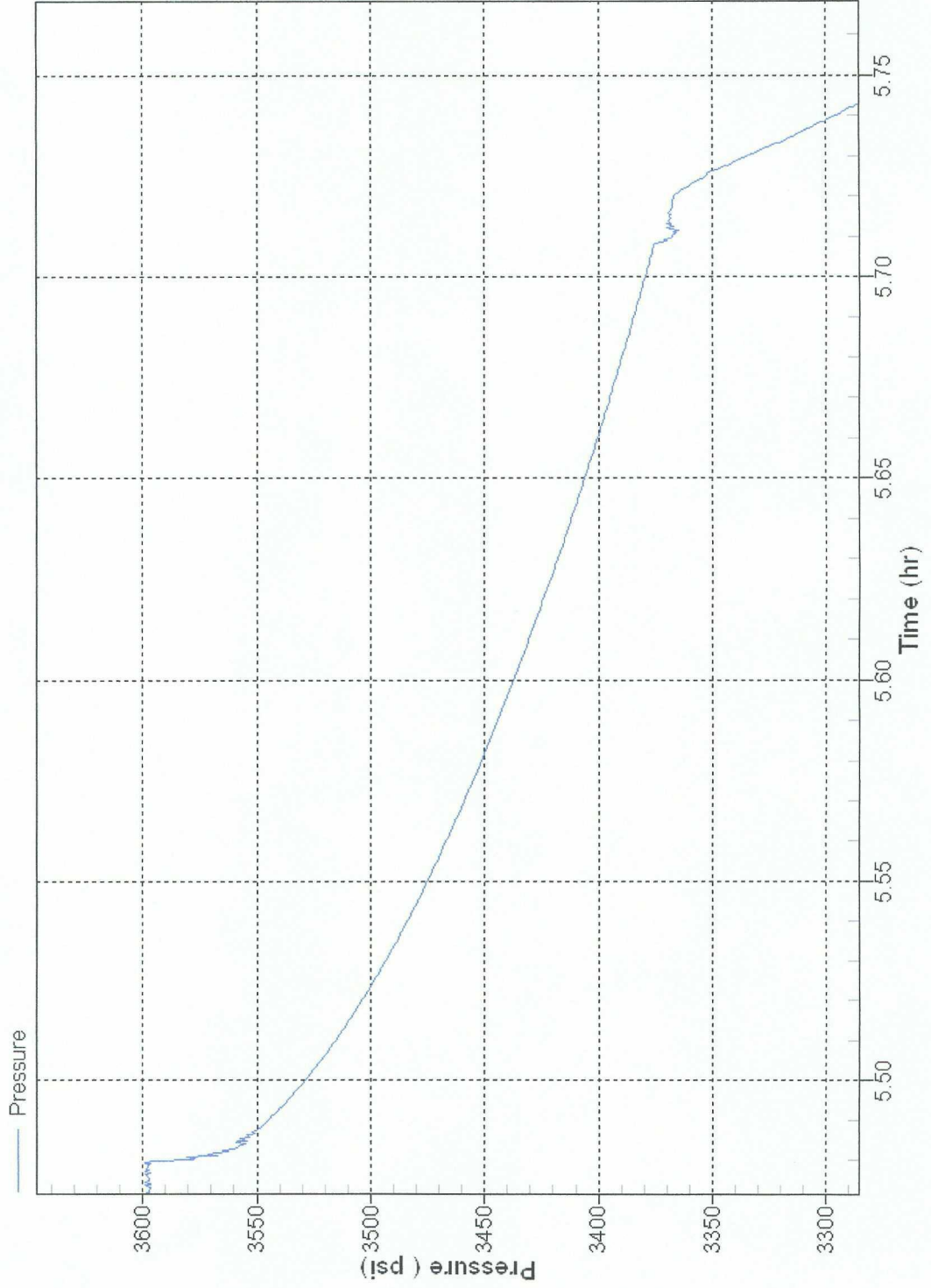


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #109





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #113
June 19, 2010

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
10:26:85	Start Instrument	
10:33	0'	844#
10:44	1000'	1254
10:51	2000'	1696
10:56	3000'	2136
11:00	3985'	2540

Step Rate Test

Time	Rate bpd	BHP	Surface
11:30	0	2538	851
12:00	75	2624	935
12:30	150	2746	1074
1:00	225	2848	1193
1:30	300	2978	1317
2:00	375	3024	1350
2:30	450	3089	1417
3:00	525	3150	1482
3:30	600	3208	1540

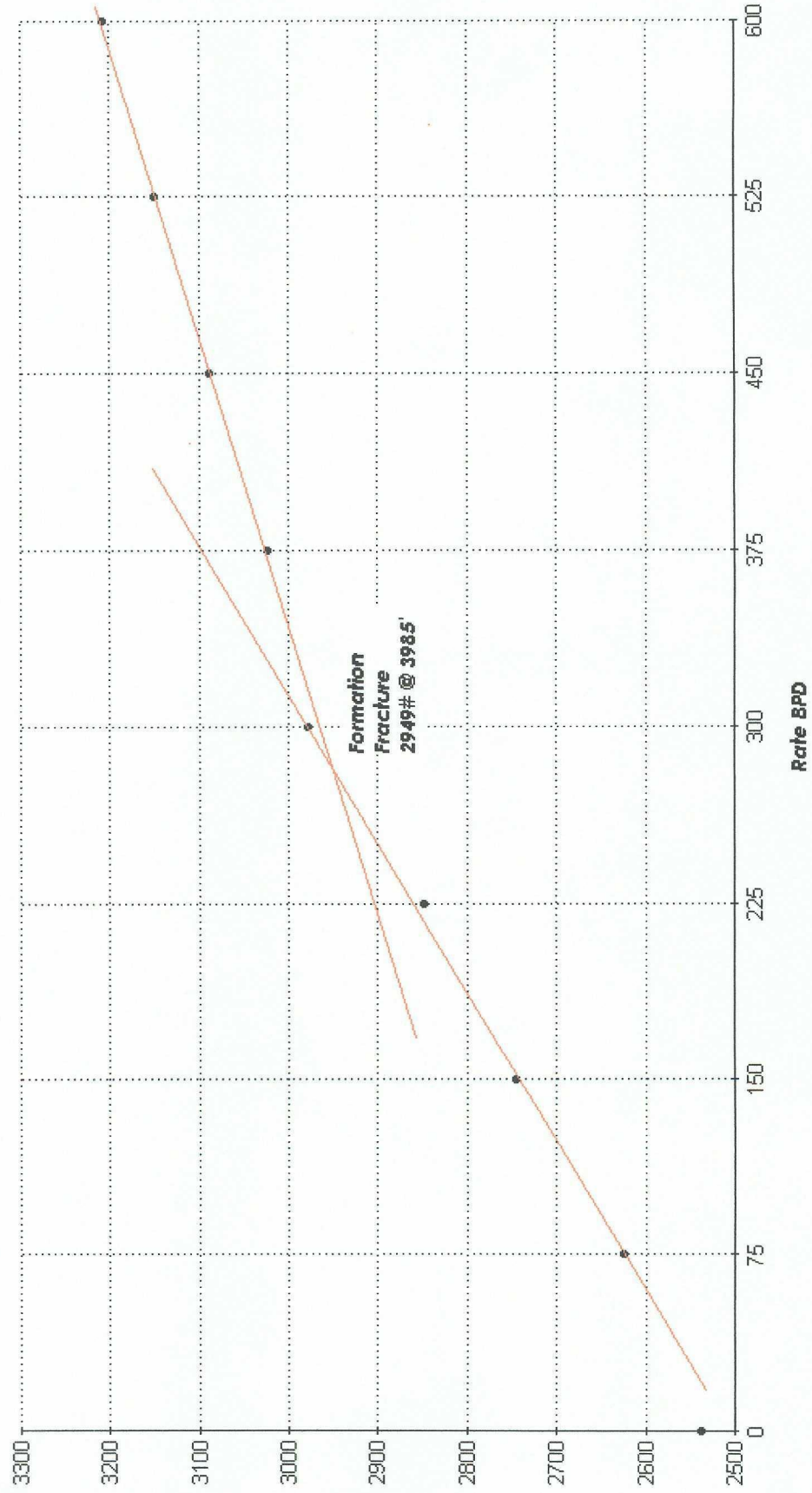
Formation Fracture Pressure 2949# @ 300 BPD 1253# Surface (Friction pressure not considered)



Melrose Operating

Step Rate Test 3985'

Jalmat Field Yates Sand Unit #113

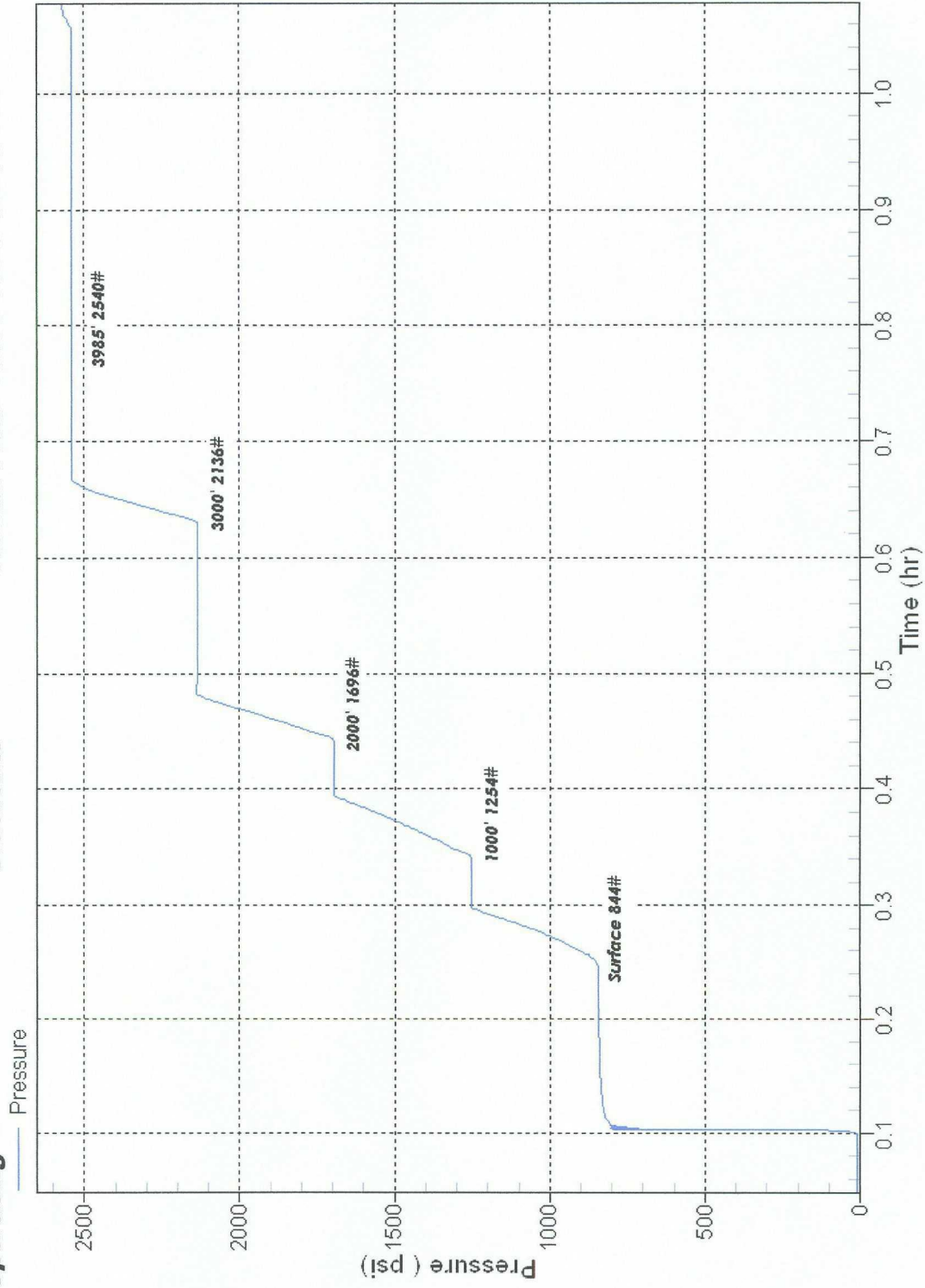




Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #1113

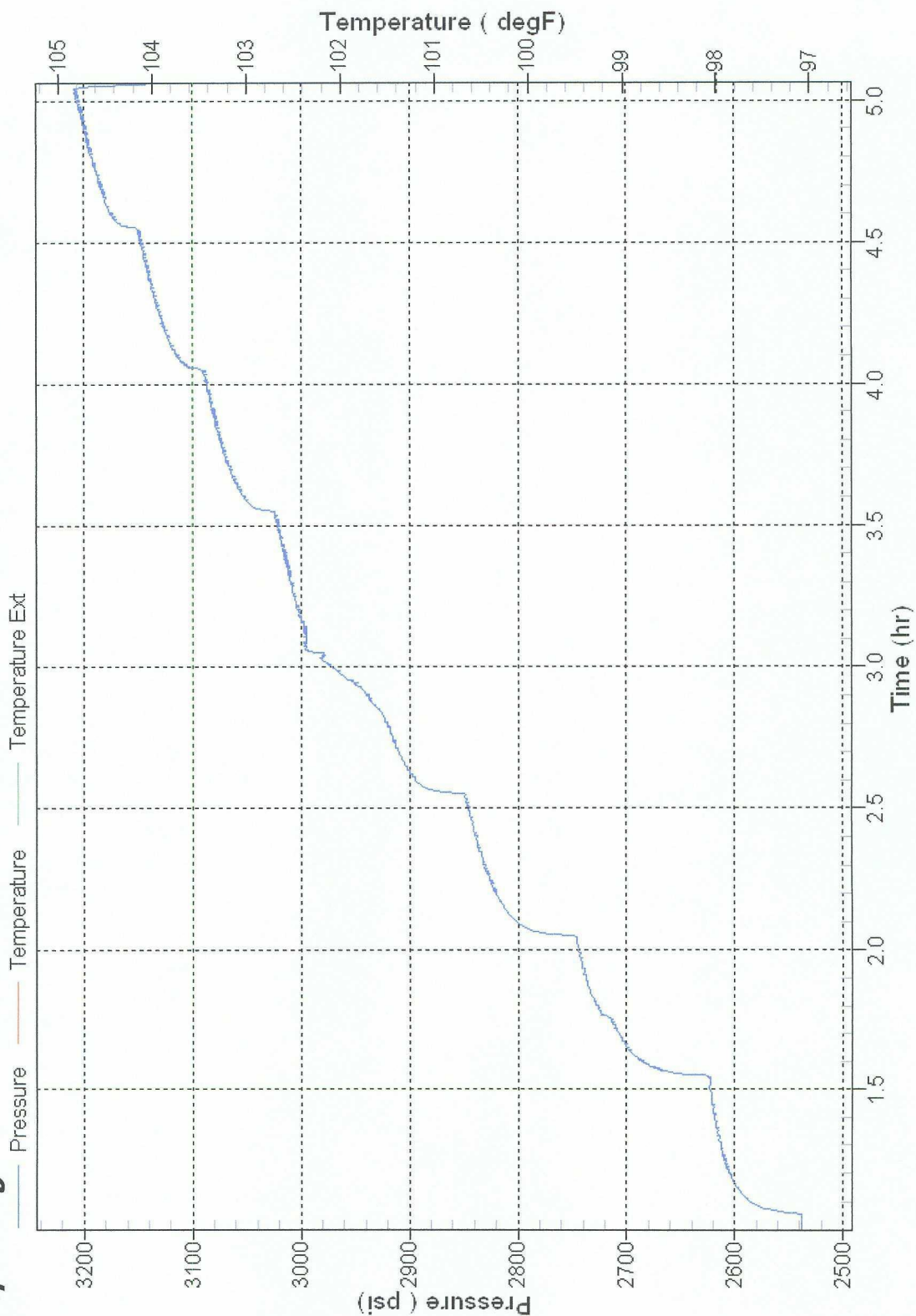




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3985' Jalmat Field Yates Sand Unit #113



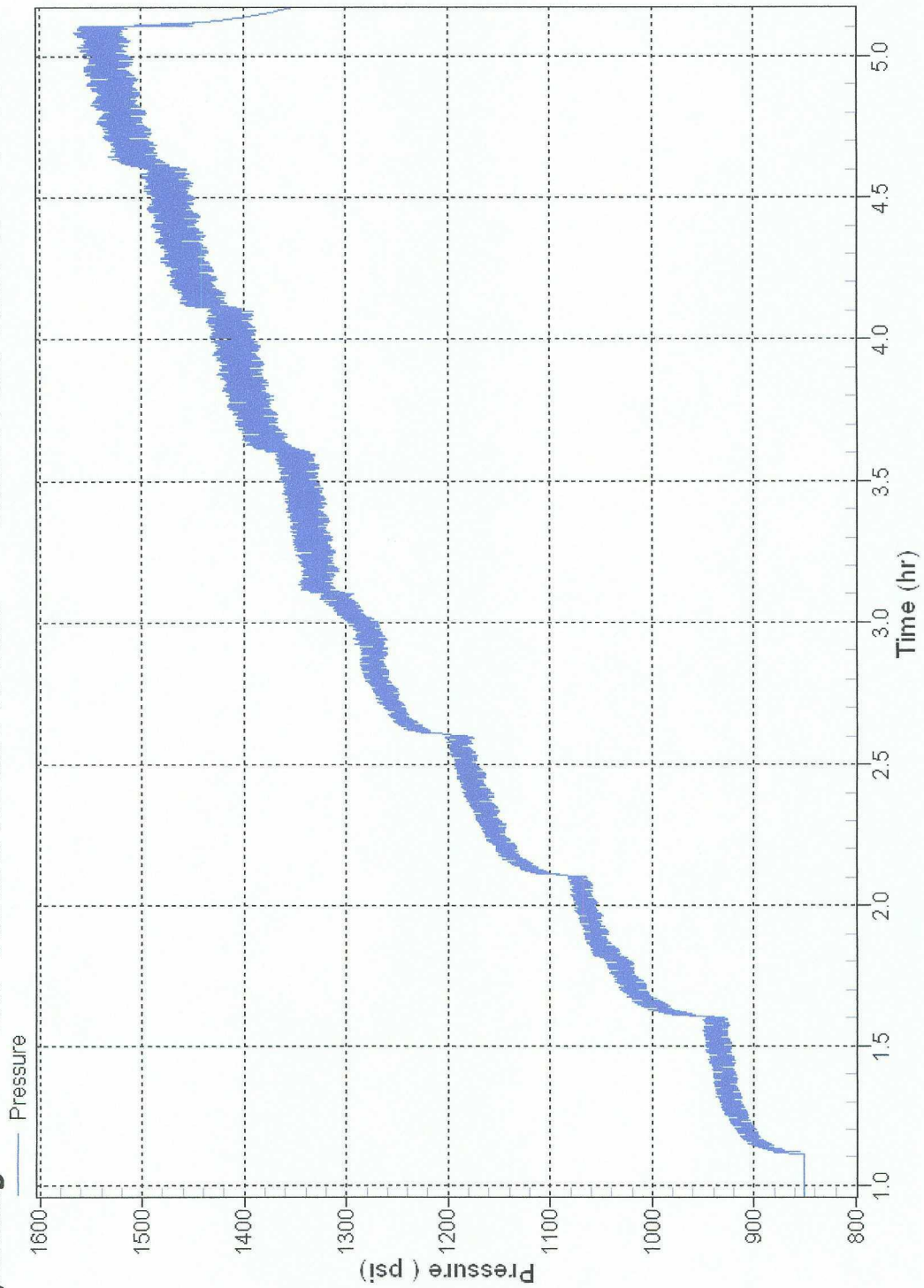


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #1113

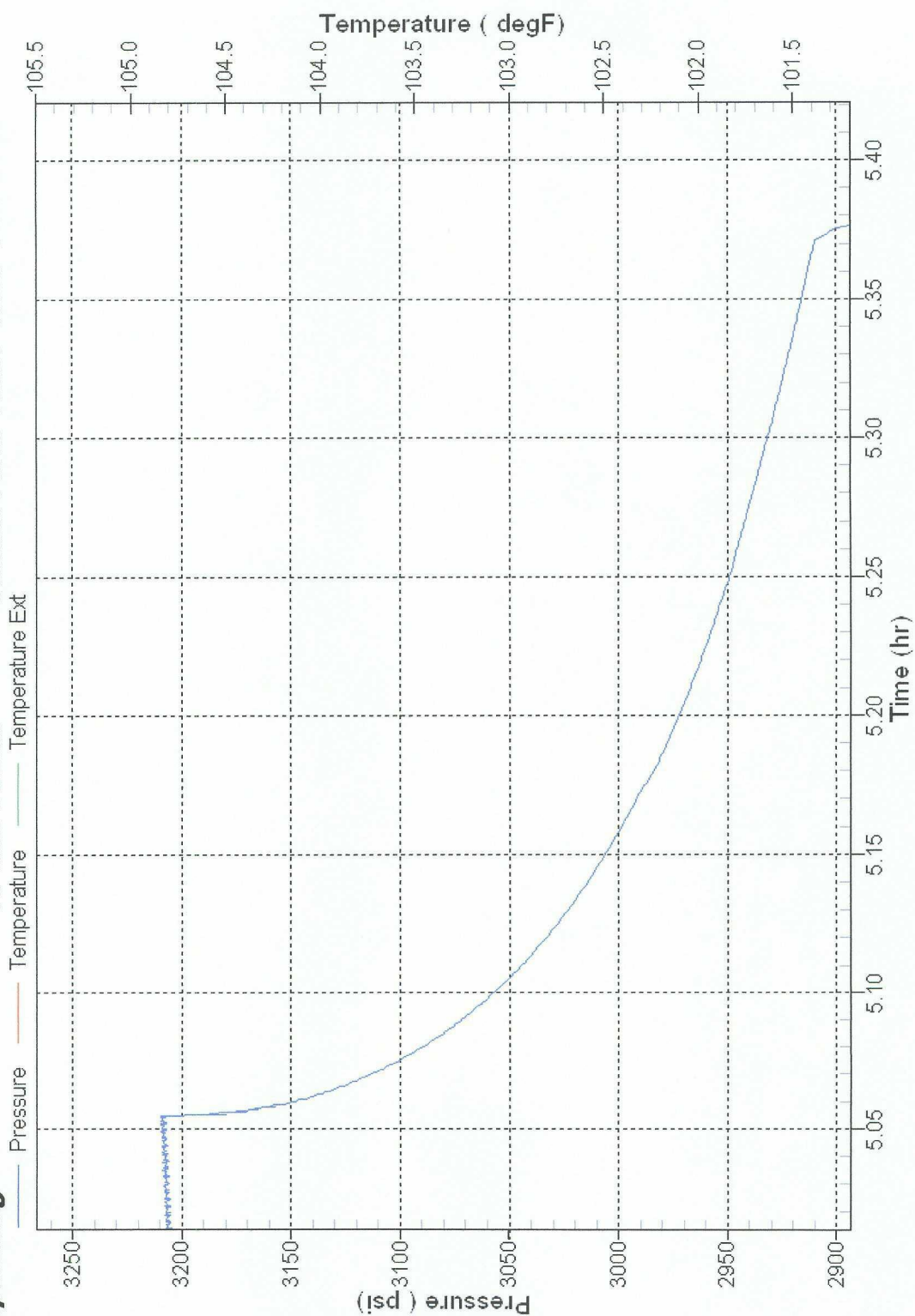




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin **Jalmat Field Yates Sand Unit #1113**





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

***Melrose Operating
Jalmat Yates Field Sand Unit #146
November 15, 2010***

Step Rate Test Event Summary

Gradient

Time	Event	Pressure
11:24:54	Start Instrument	
11:33	surface	364
11:40	1000	829
11:46	2000	1288
11:52	3000	1745
11:58	3923	2164

Step Rate Test

Time	Rate bpd	BHP	Surface
12:45	0	2203	442
1:15	75	2287	536
1:45	150	2378	645
2:15	225	2480	751
2:45	300	2587	Surface gauge failed after 3 rd step
3:15	375	2699	
3:45	450	2792	
4:15	525	2875	
4:45	600	2943	
5:15	675	2990	
5:45	750	3023	
6:15	825	3069	

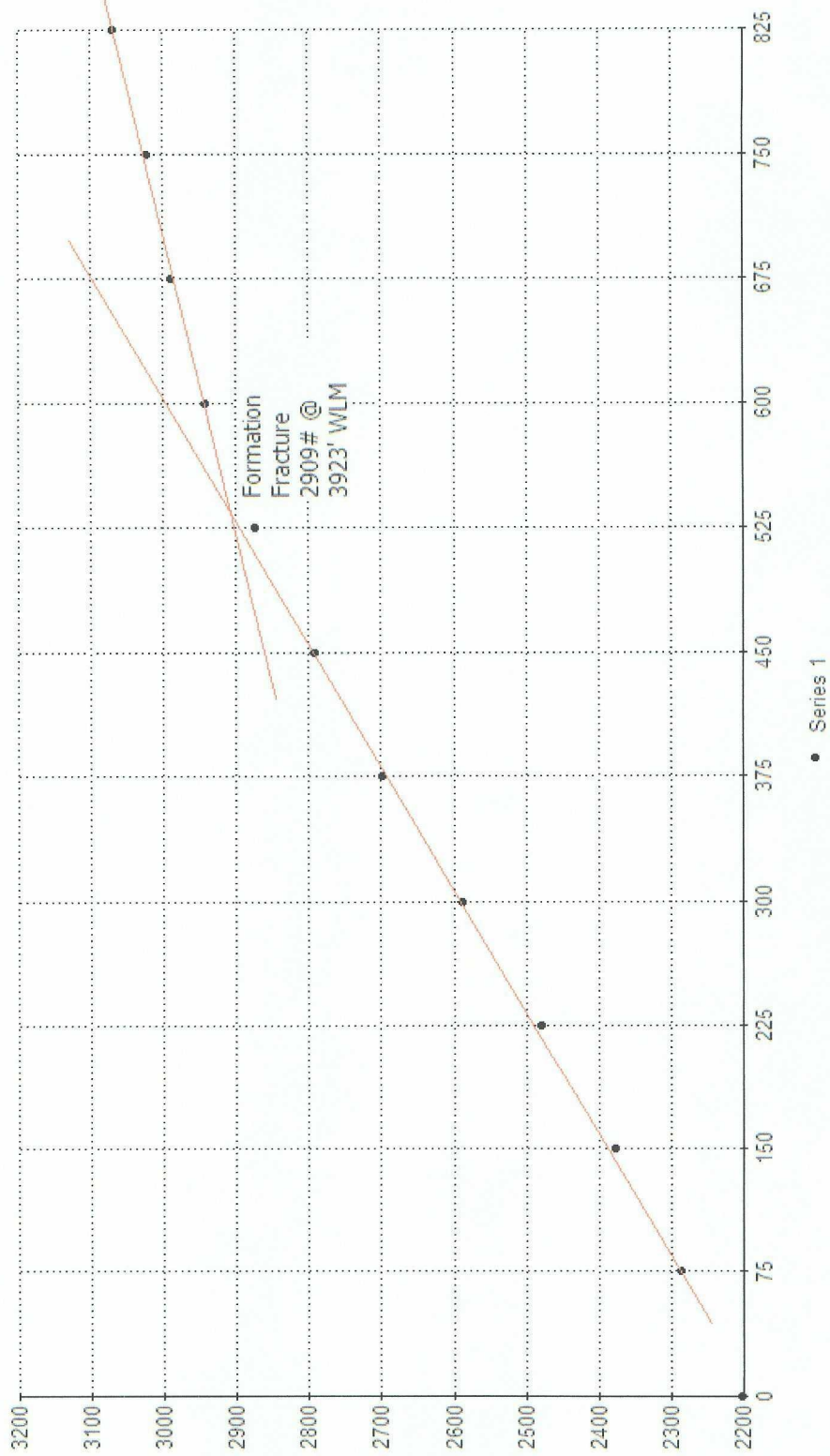
Formation fracture pressure 2909# @ 3923' wlm 1132# surface (friction not considered)



Melrose Operating

Step Rate Test

Jalmat Yates Field Sand Unit #146



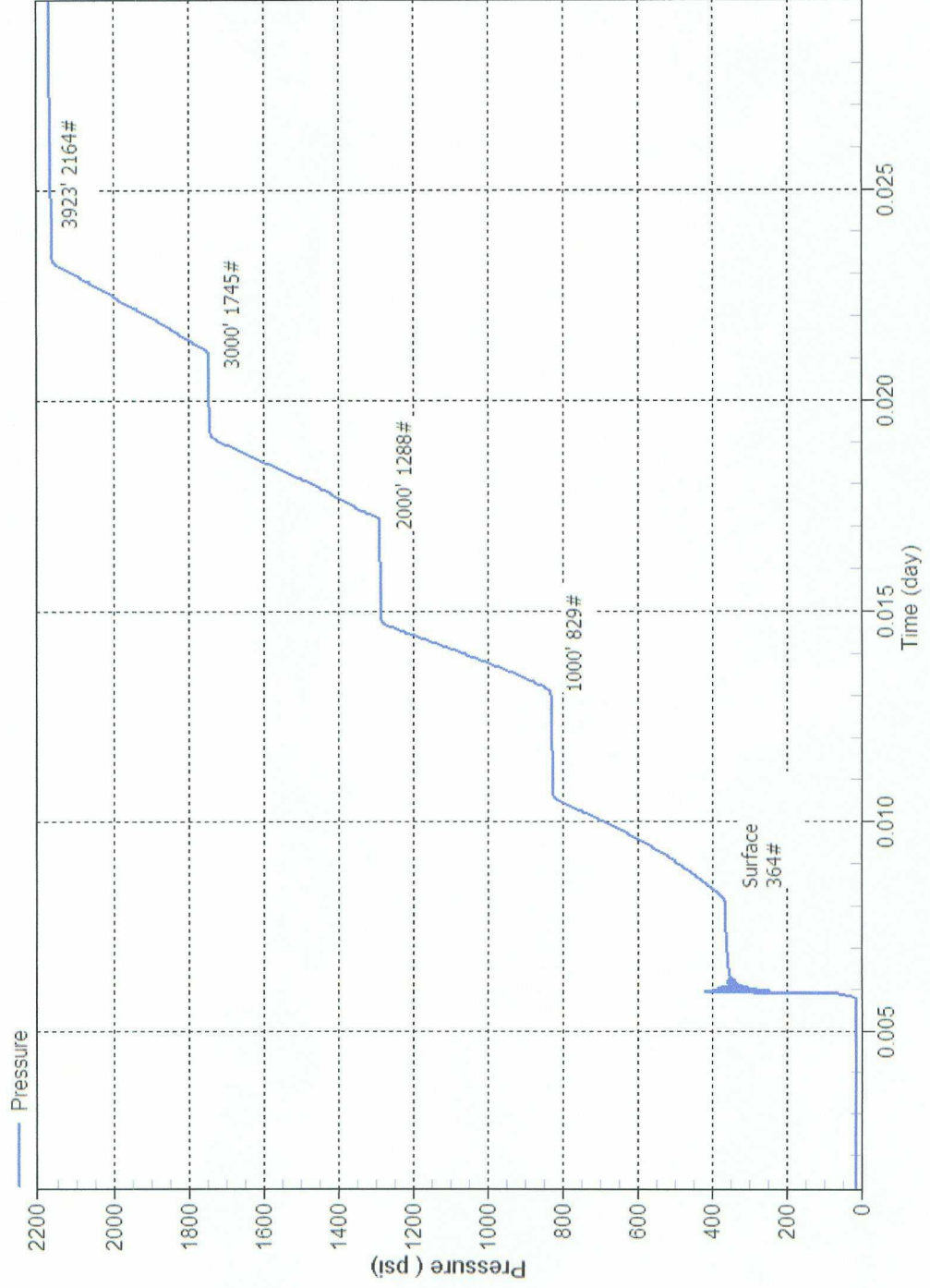


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

Gradients

Jalmat Yates Field Sand Unit #146

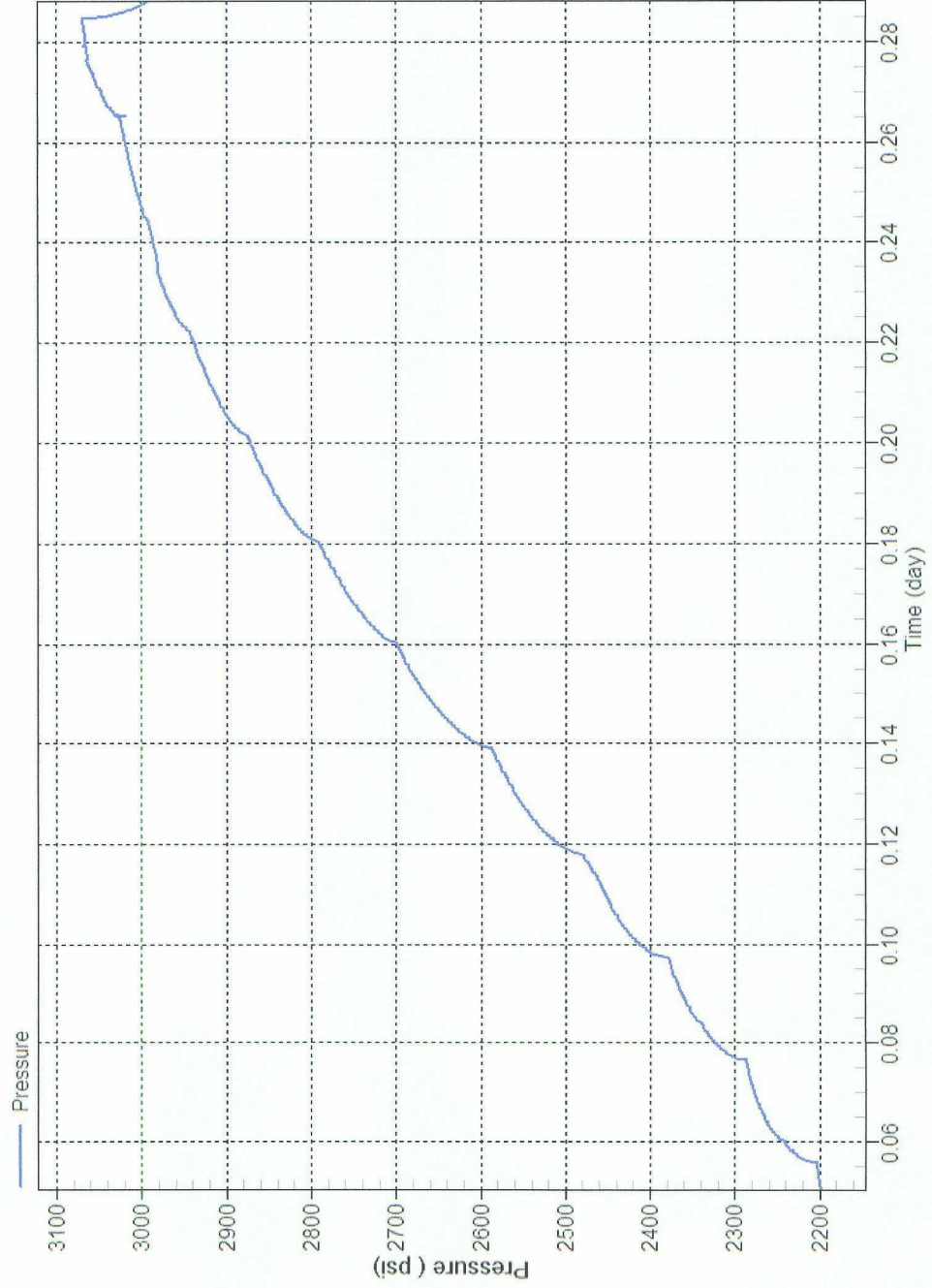




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3923' Jalmat Yates Field Sand Unit #146



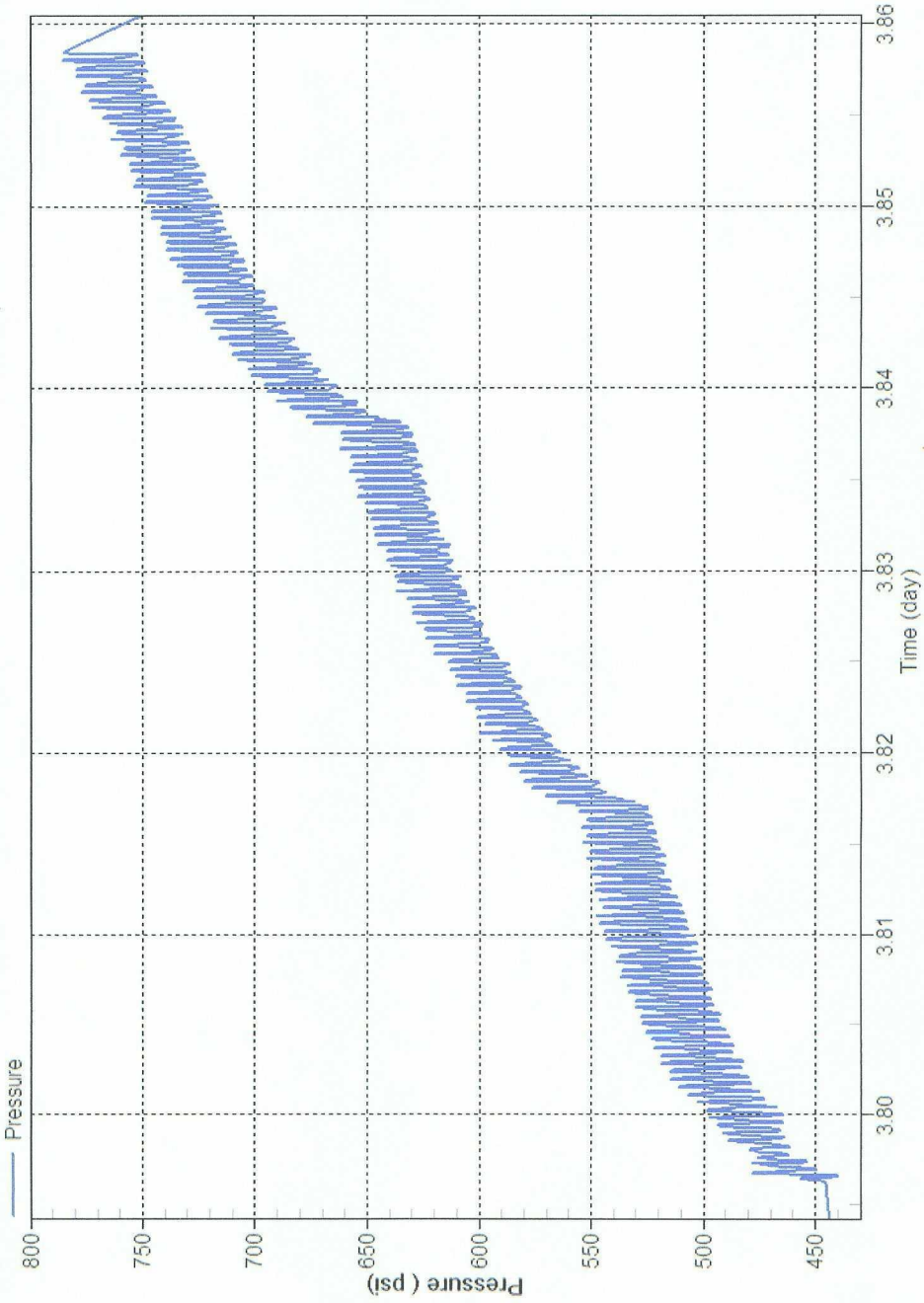


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #146



Note: Surface Gauge Failure After 3rd Step

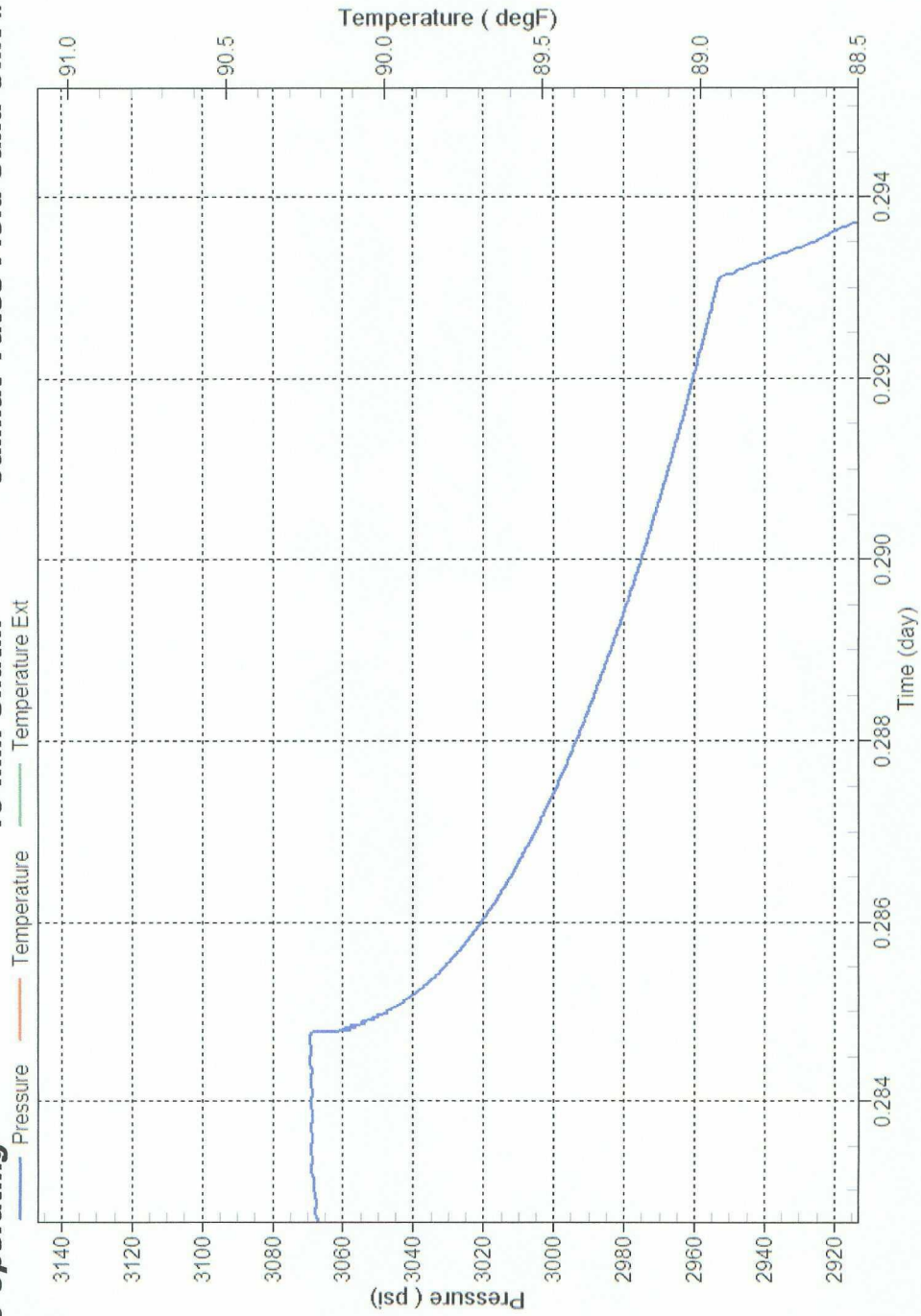


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #146





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

***Melrose Operating
Jalmat Field Yates Sand Unit #159
August 27, 2010***

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
10:02:29	Start Instrument	
10:09	Surface	228
10:18	1000	685
10:25	2000	1137
10:31	3000	1589
10:38	3820	1978

Step Rate Test

Time	Rate bpd	BHP	Surface
2:00	0	1974	246
2:30	75	2150	442
3:00	150	2253	555
3:30	225	2388	710
4:00	300	2506	840
4:30	375	2599	932
5:00	450	2666	1005
5:30	525	2729	1072
6:00	600	2791	1135

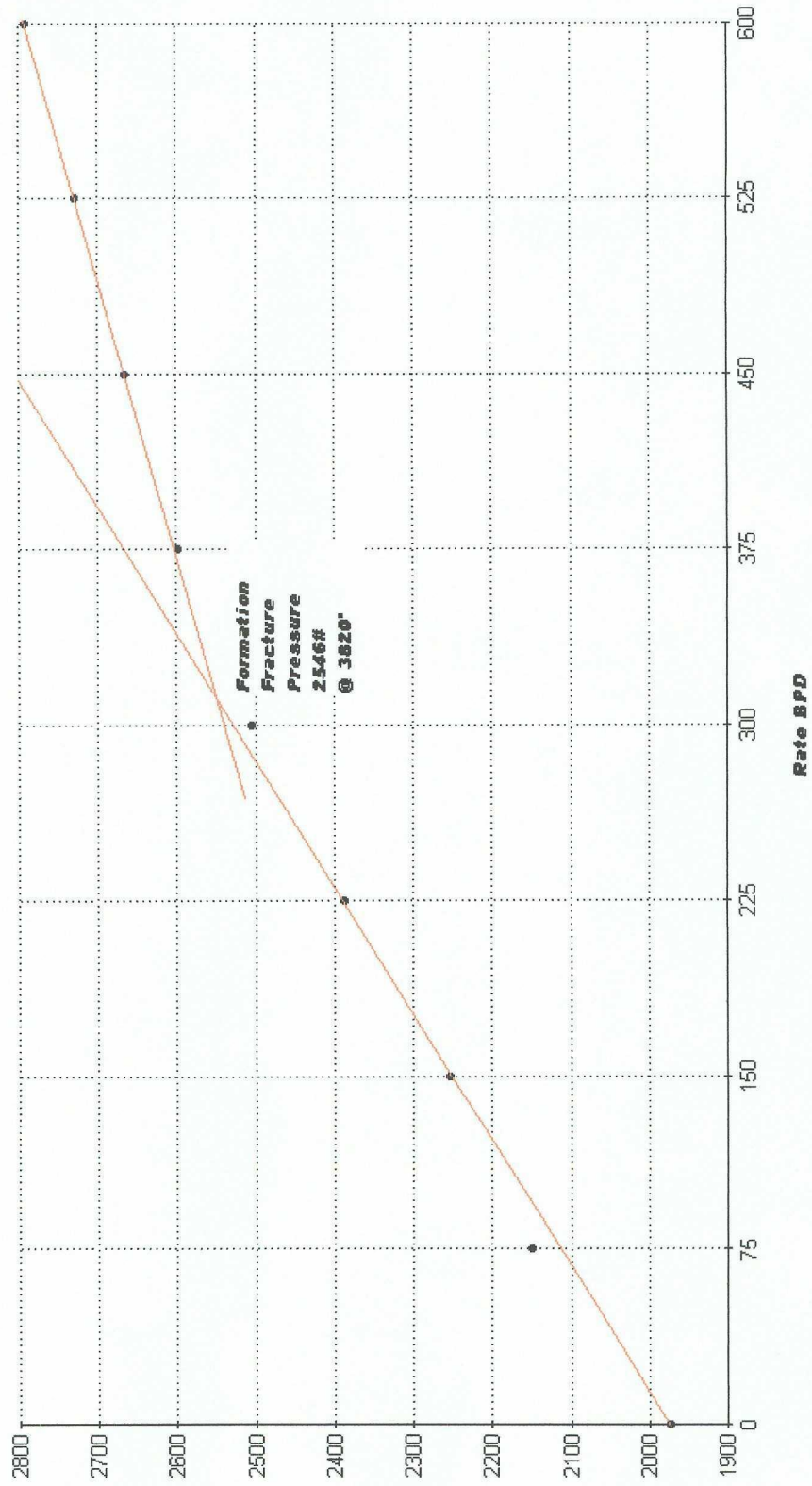
Formation fracture 2546# @ 3820' 796# surface pressure (friction pressure not considered)



Melrose Operating

Step Rate Test 3820'

Jalmat Field Yates Sand Unit #159

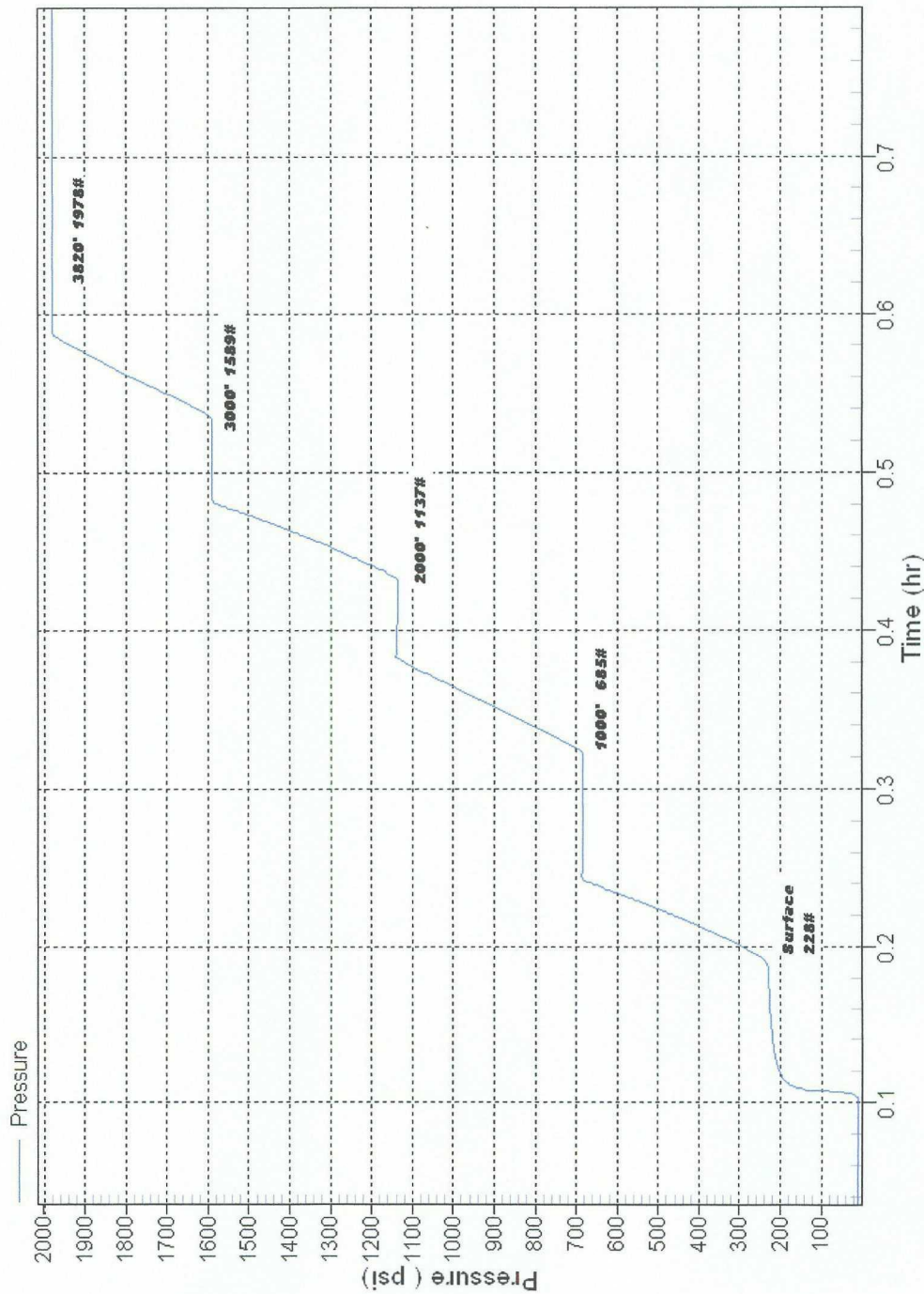




Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #159

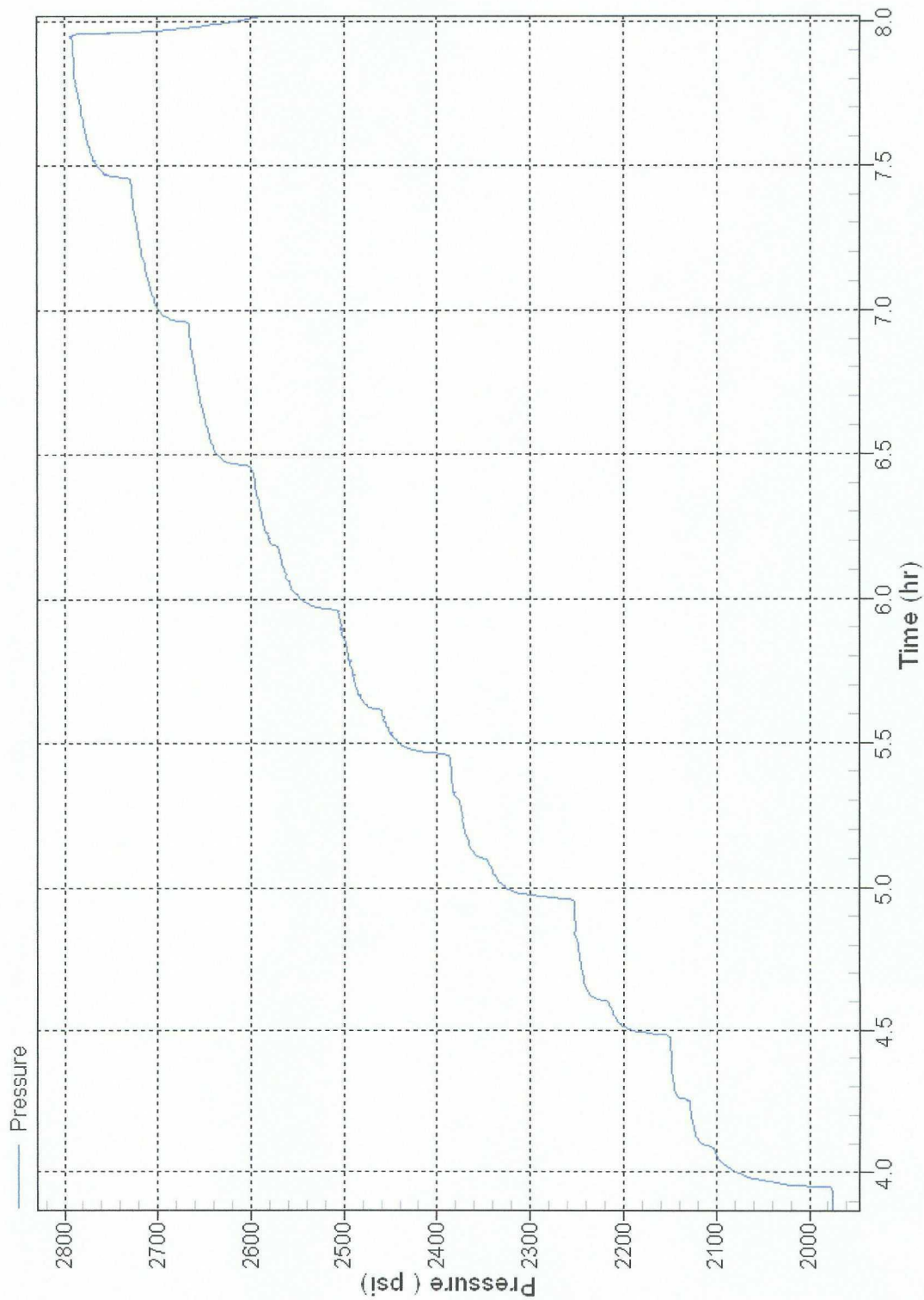




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3820' Jalmat Field Yates Sand Unit #159



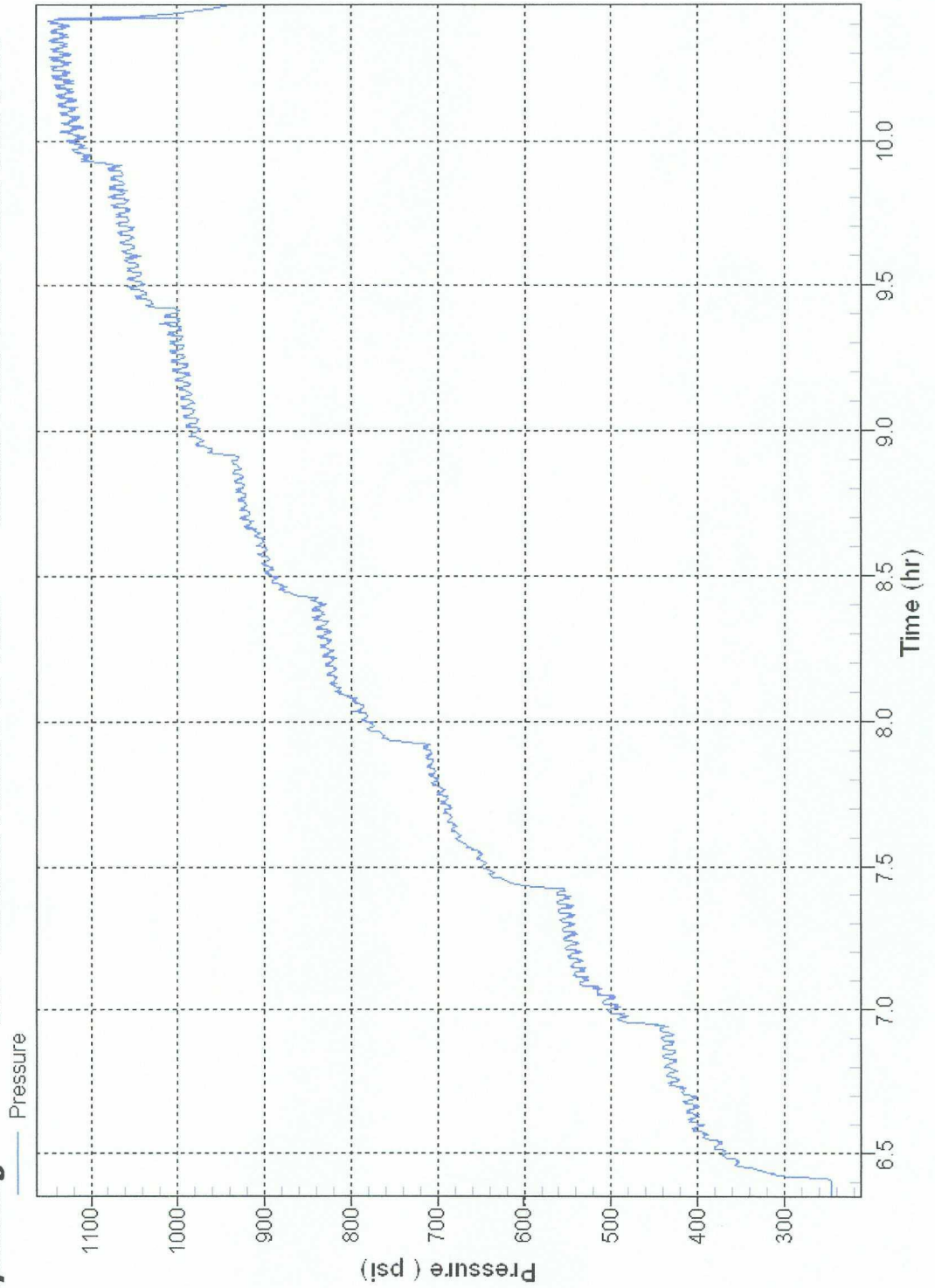


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

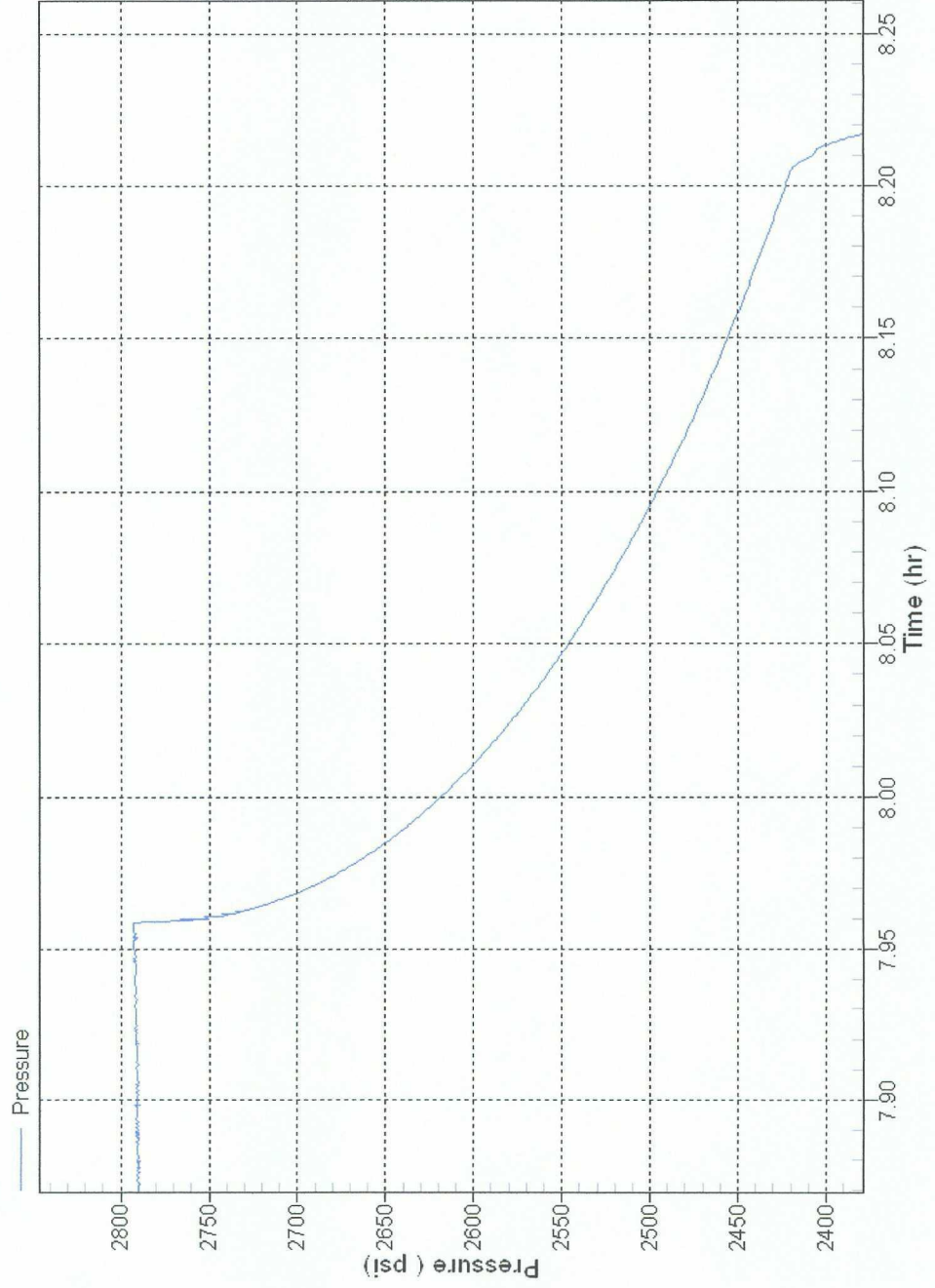
Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #159



15 min Shutin Jalmat Field Yates Sand Unit #159





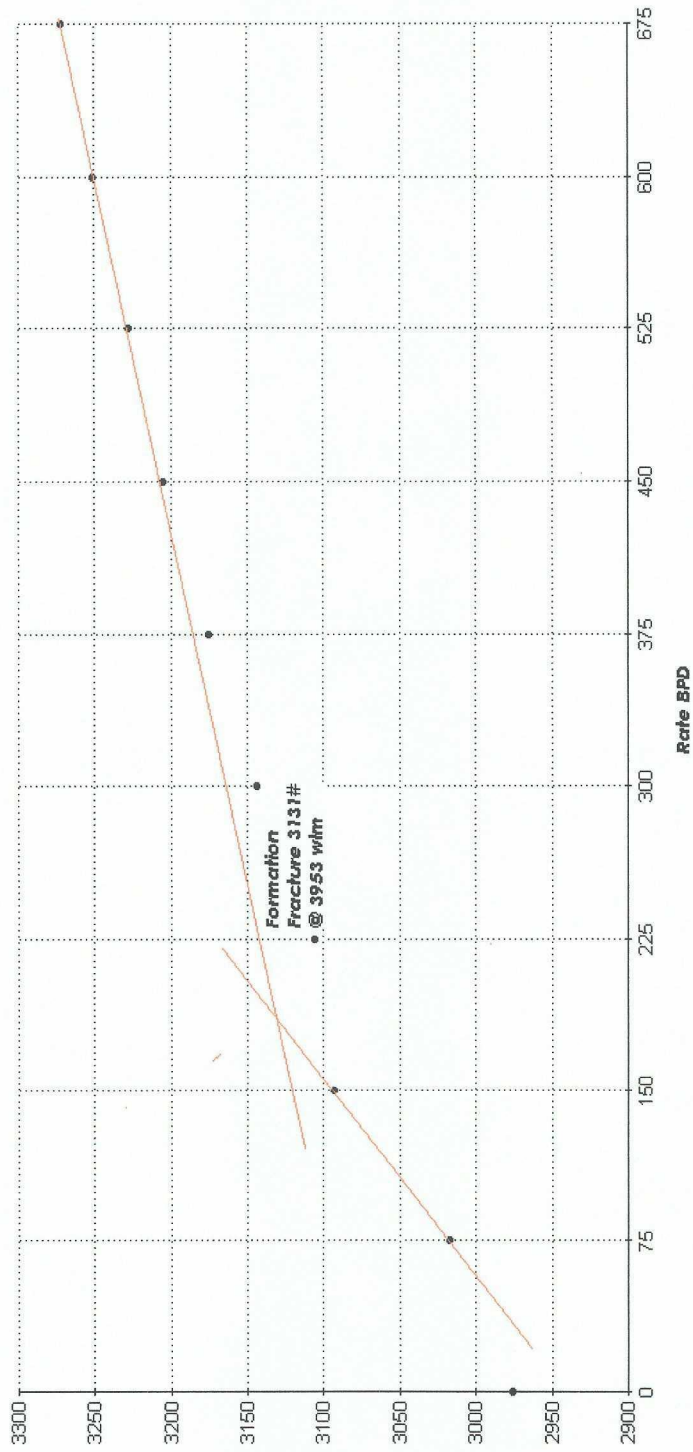
KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Yates Field Sand Unit #168
June 4, 2010



Melrose Operating **Step Rate Test** **Jalmat Yates Field Sand Unit #168**



**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
8:50:54	Start instrument	
9:03:20	0'	1226
9:16:30	1000'	1666
9:23:30	2000'	2114
9:29:30	3000'	2558
9:35:00	3953'	2977

Step Rate Test

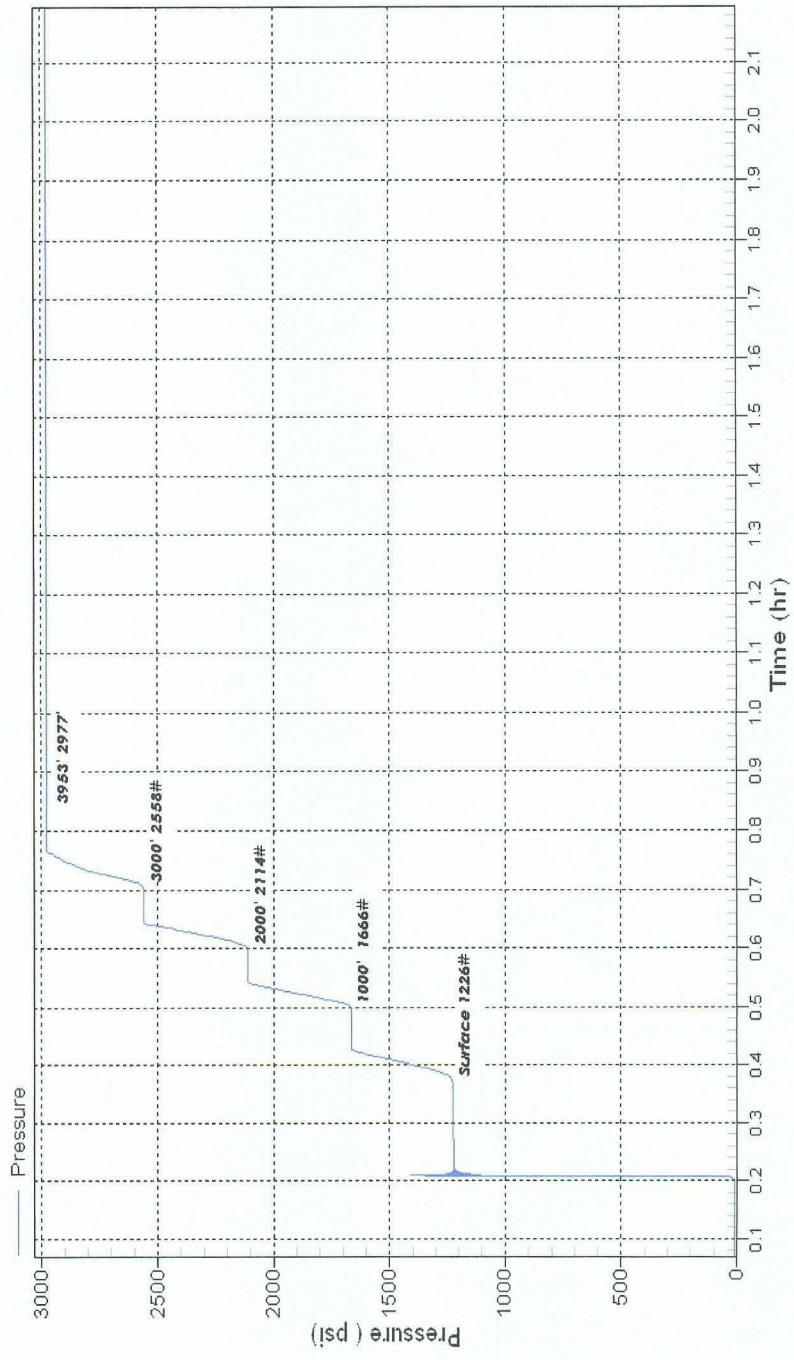
Time	Rate bpd	BHP	Surface
11:05	0	2976	1230
11:35	75	3017	1278
12:05	150	3093	1375
12:35	225	3106	1412
1:05	300	3144	1454
1:35	375	3175	1485
2:05	450	3205	1514
2:35	525	3228	1536
3:05	600	3251	1571
3:35	675	3272	1602
3:50	POOH		

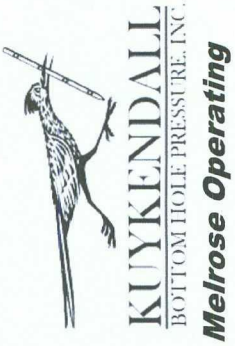
Formation Fracture Pressure 3131# @ 225 BPD

15 min shutin

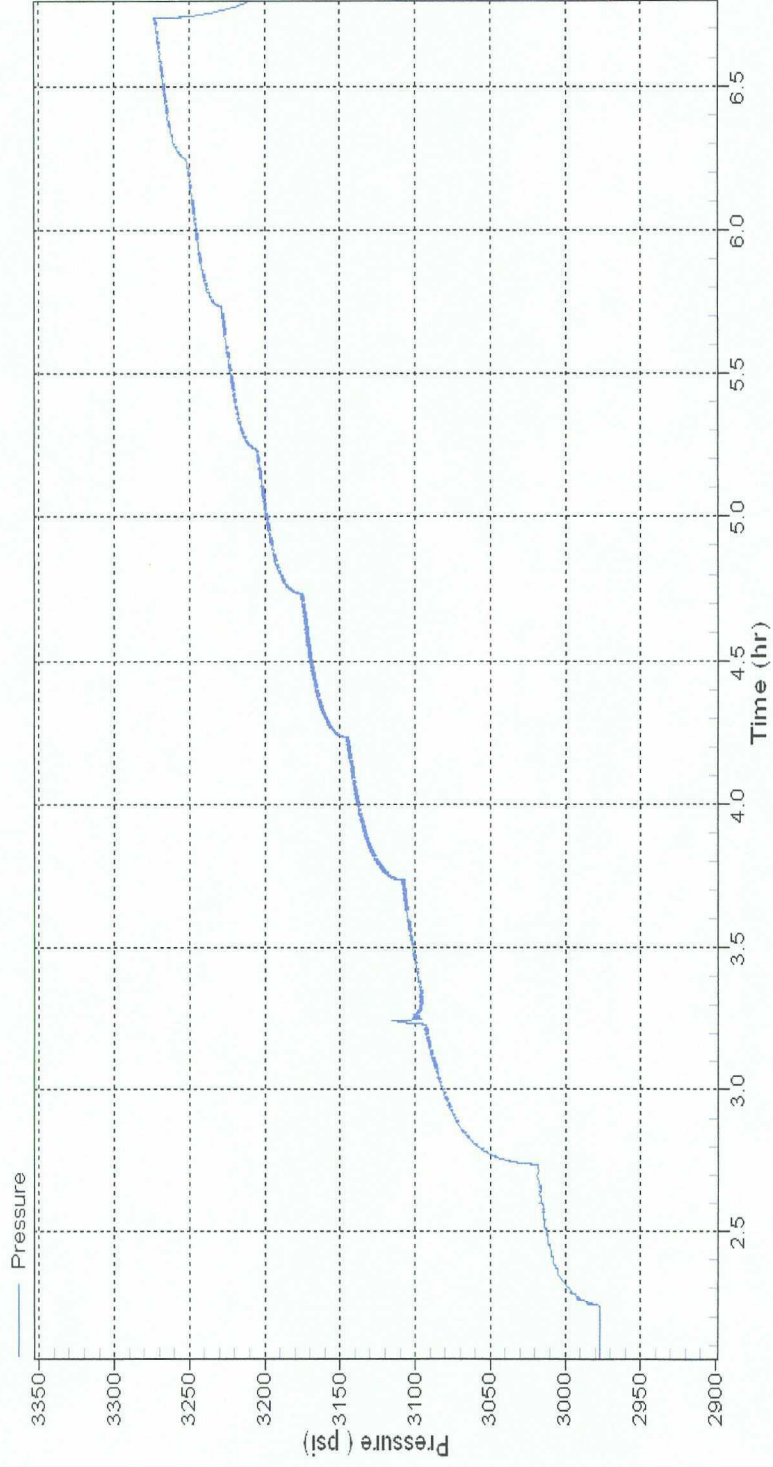


Melrose Operating **Gradients** **Jalmat Yates Field Sand Unit #168**





SRT Pressure vs Time 3953' Jalmat Yates Field Sand Unit #168



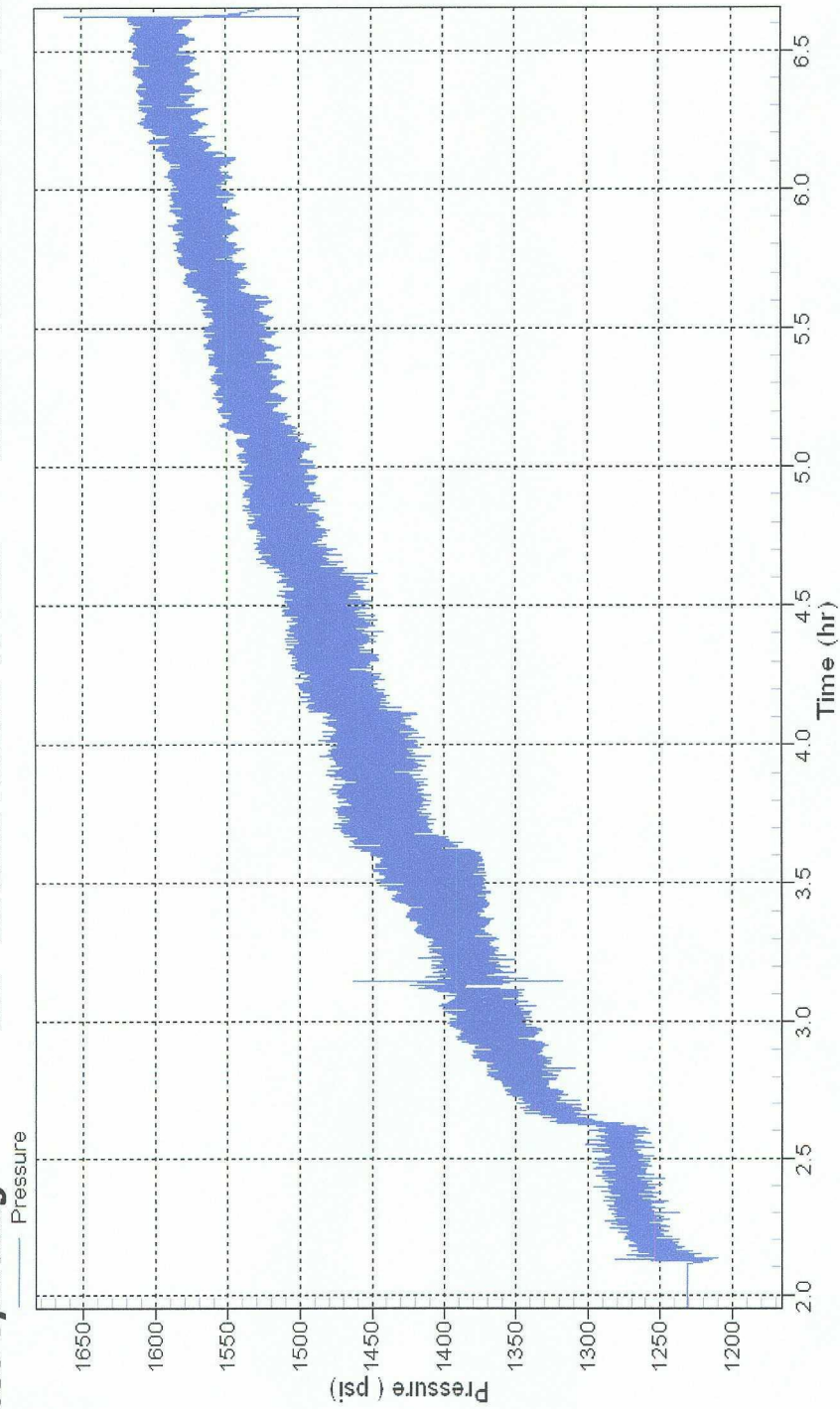


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #168



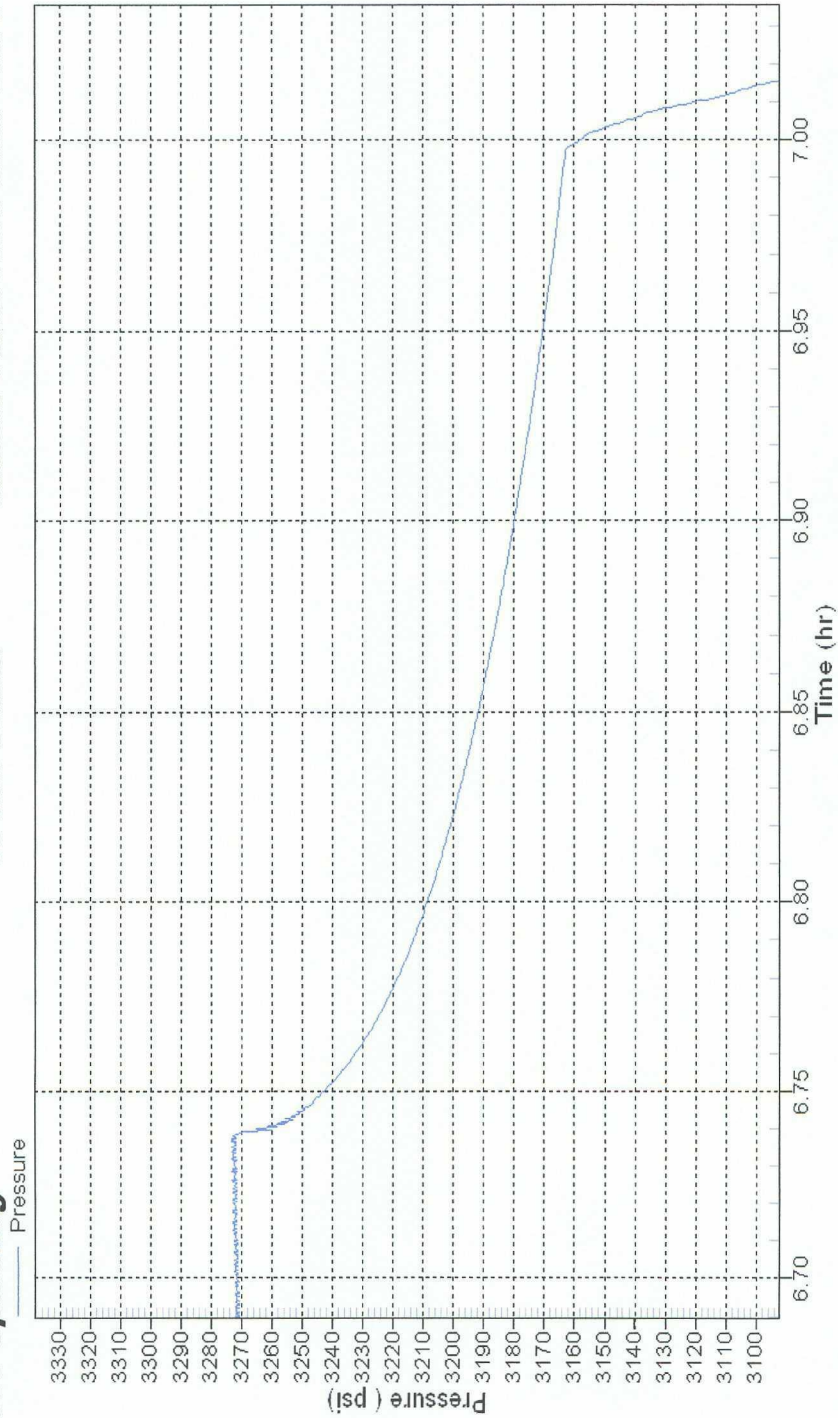


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #168





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

***Melrose Operating
Jalmat Yates Field Sand Unit #178
November 16, 2010***

Step Rate Test Event Summary

Gradient

Time	Event	Pressure
11:00:38	Start Instrument	
11:54	surface	709
12:01	1000	1164
12:08	2000	1627
12:16	3000	2083
12:22	3788	2442

Step Rate Test

Time	Rate bpd	BHP	Surface
12:45	0	2456	756
1:15	75	2532	841
1:45	150	2620	947
2:15	225	2705	1055
2:45	300	2796	1162
3:15	375	2882	1245
3:45	450	2967	1336
4:15	525	3017	1384
4:45	600	3067	1442
5:15	675	3102	1483
5:45	750	3126	1507

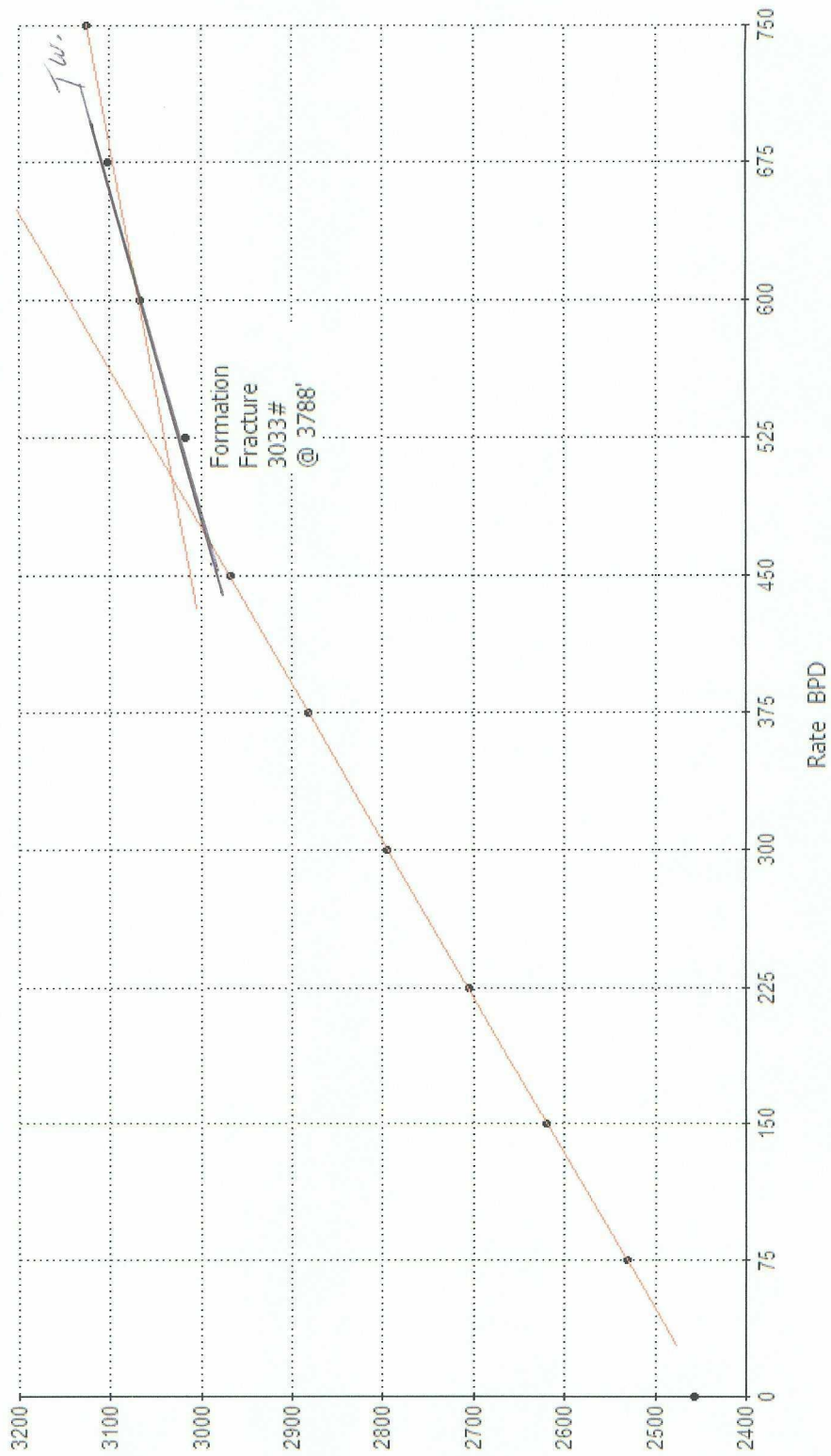
Formation fracture pressure 3033# @ 3788' wlm 1370# surface pressure (friction not considered)



Melrose Operating

Step Rate Test

Jalmat Yates Field Sand Unit #178

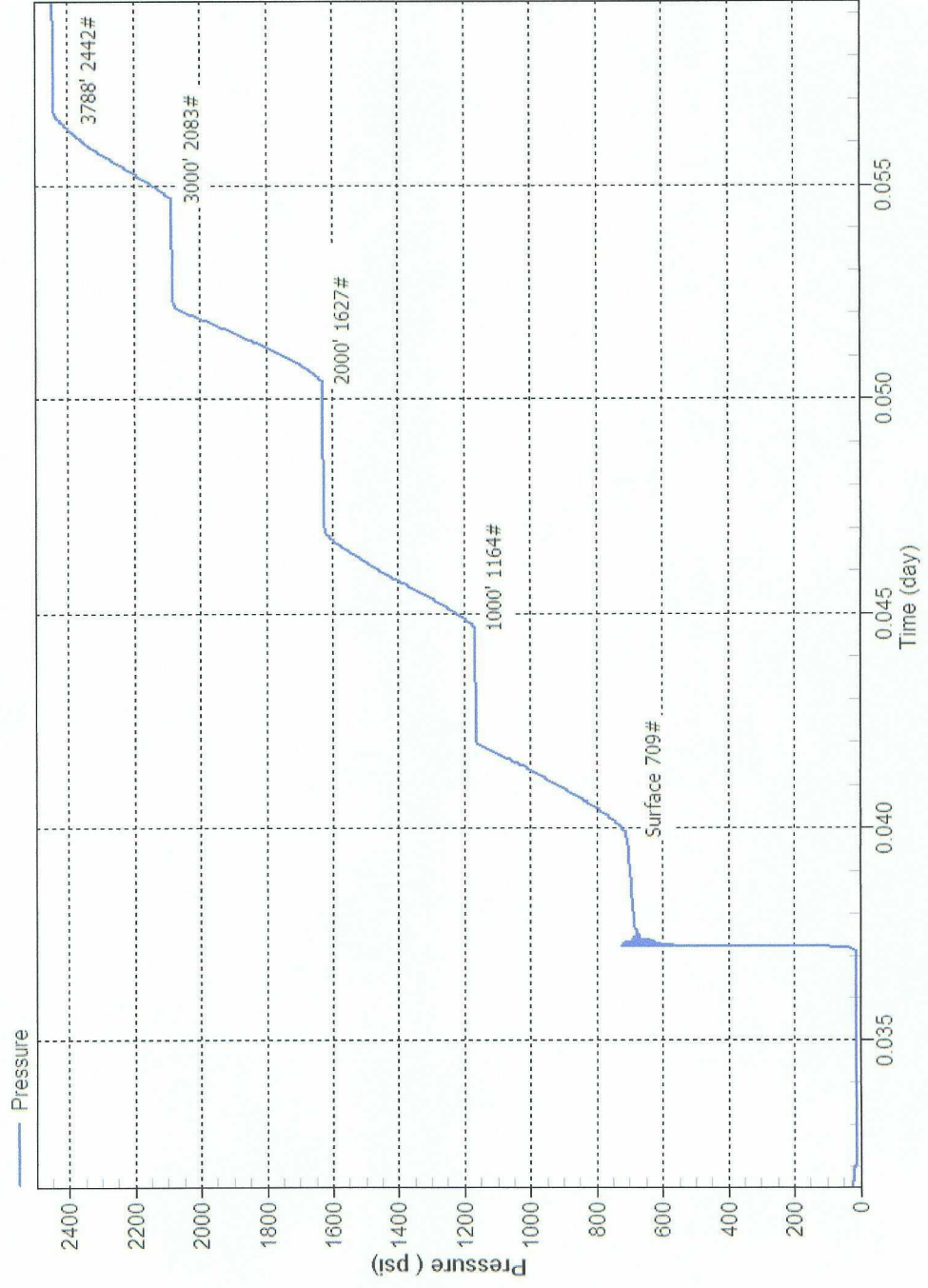




Melrose Operating

Gradients

Jalmat Yates Field Sand Unit #178

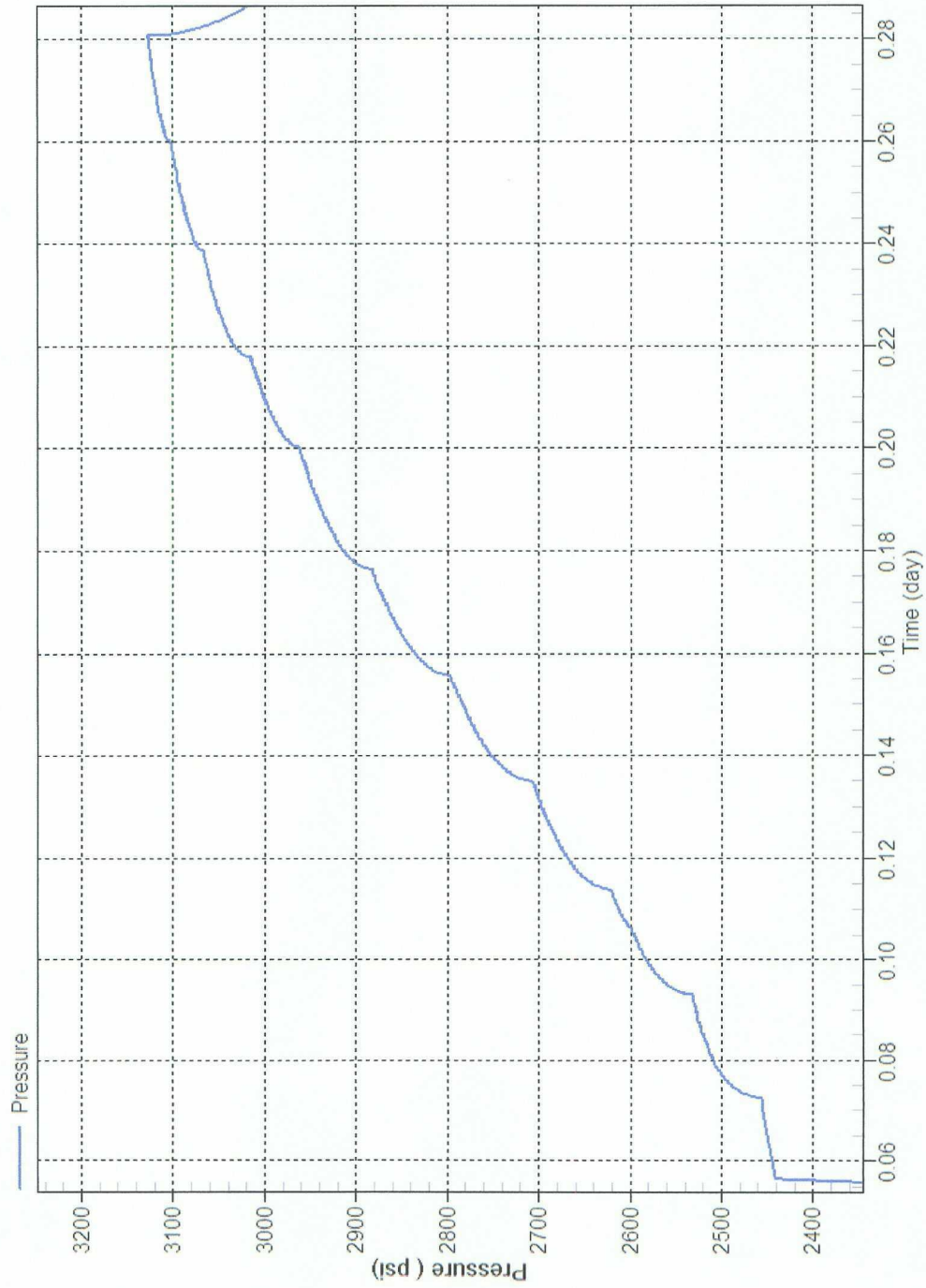




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3788' Jalmat Yates Field Sand Unit #178



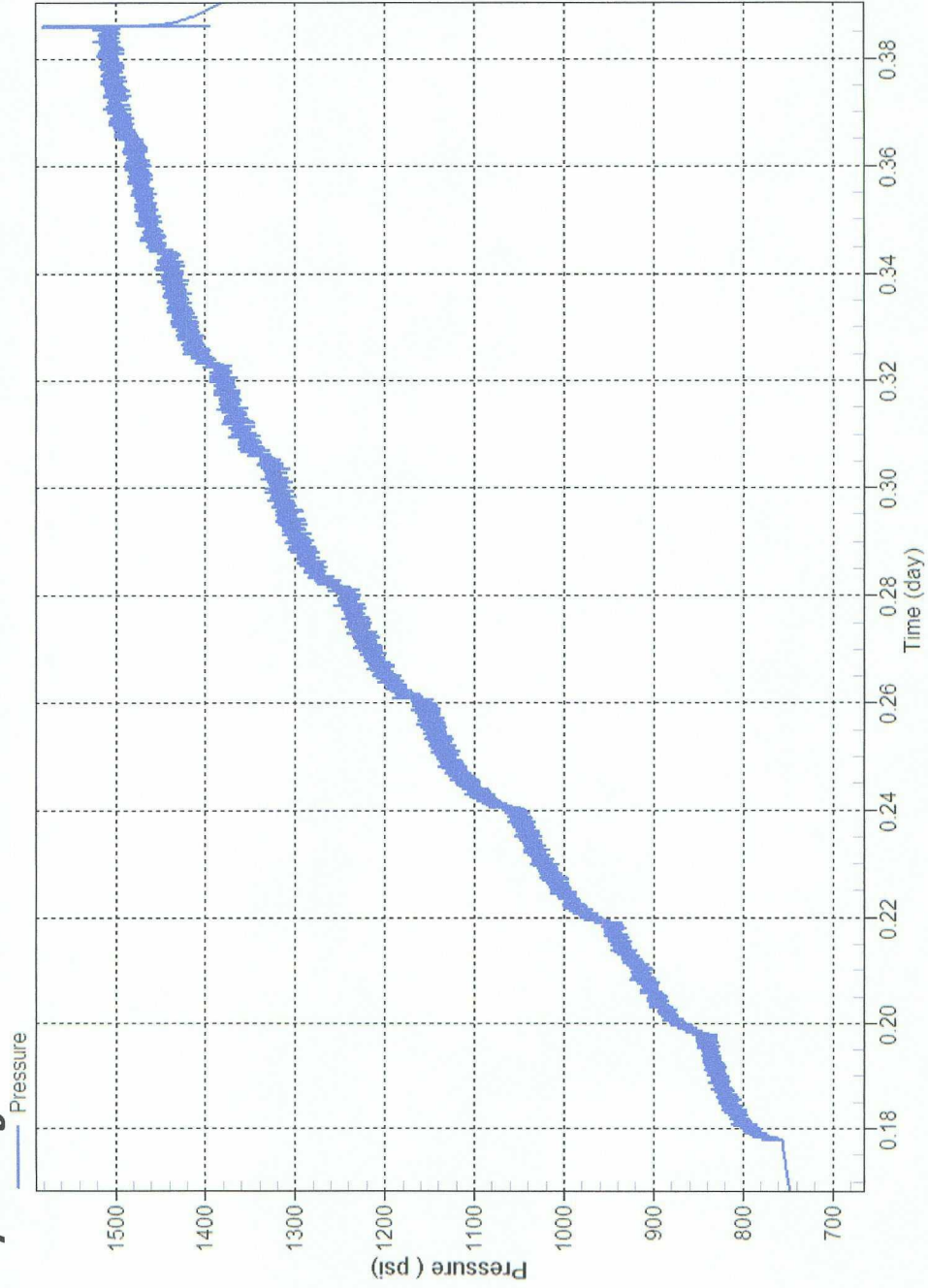


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #178



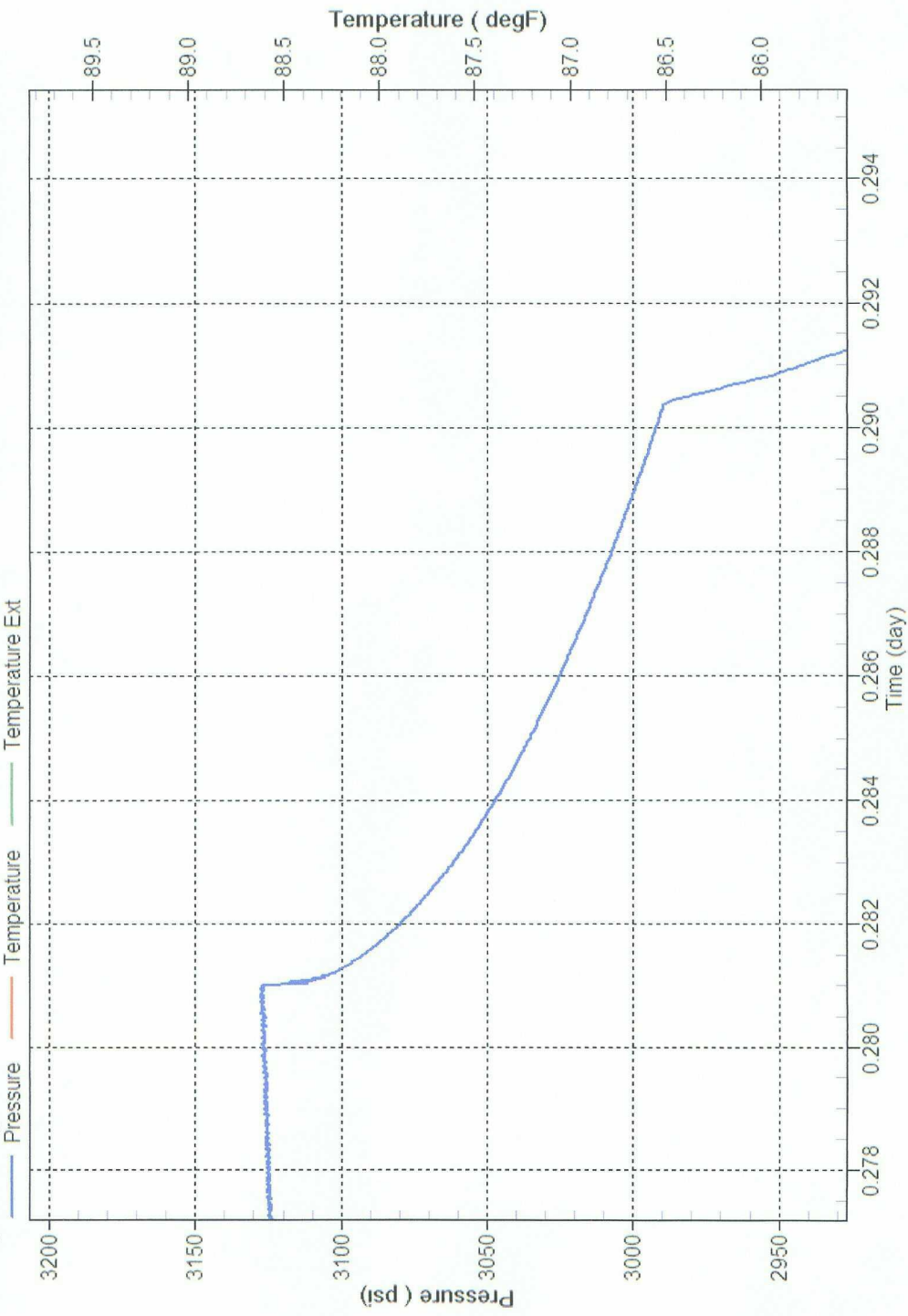


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #178





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #179
June 21, 2010

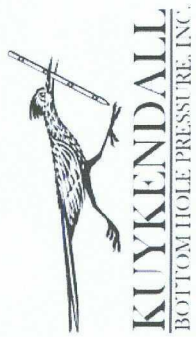
**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
8:48:50	Start instrument	
9:03	0	634
9:11	1000	1084
9:16	2000	1531
9:21	3000	1978
9:26	3808	2336

Step Rate Test

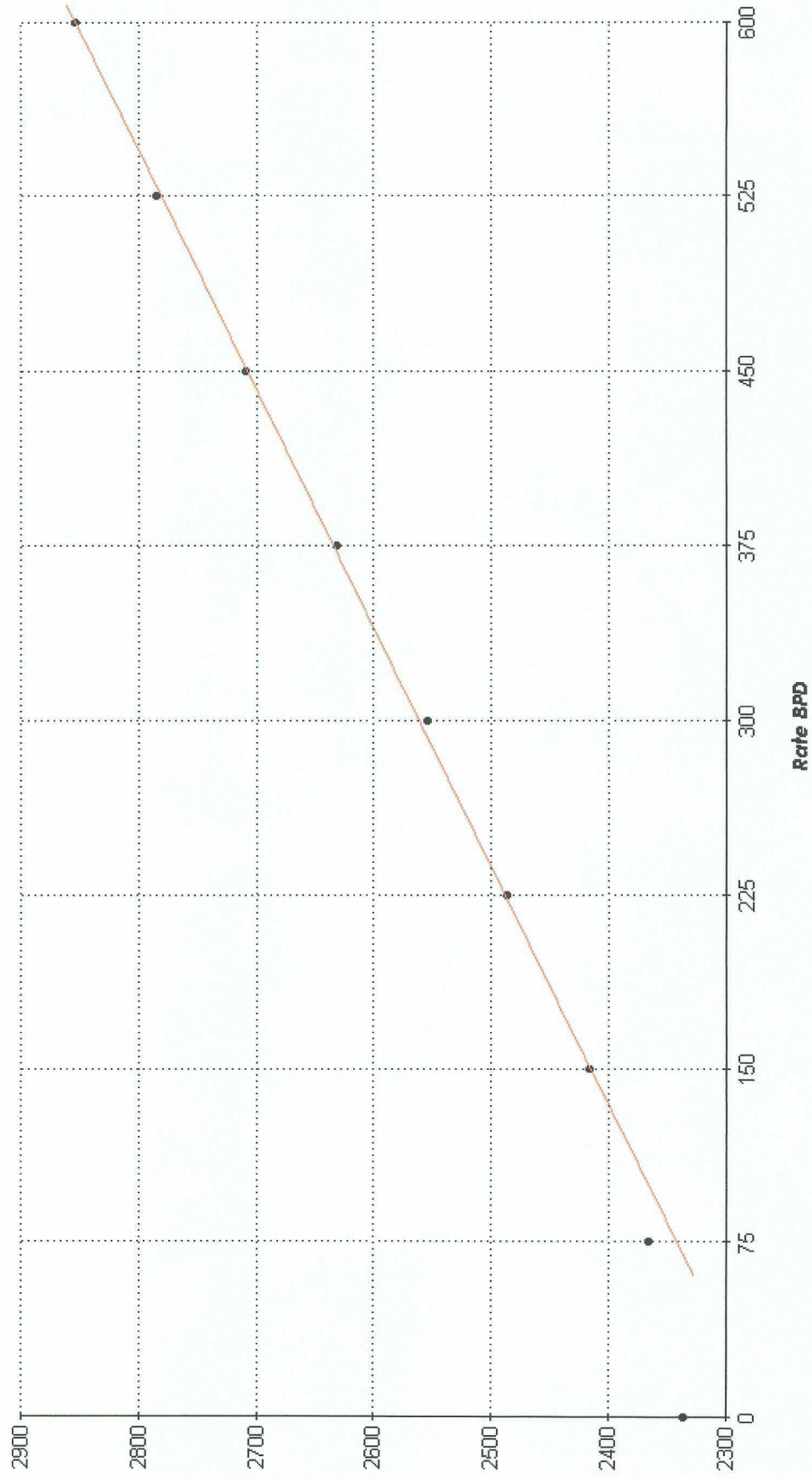
Time	Rate bpd	BHP	Surface
10:30	0	2336	639
11:00	75	2366	682
11:30	150	2416	743
12:00	225	2487	836
12:30	300	2555	930
1:00	375	2632	1008
1:30	450	2709	1088
2:00	525	2785	1166
2:30	600	2854	1244



Melrose Operating

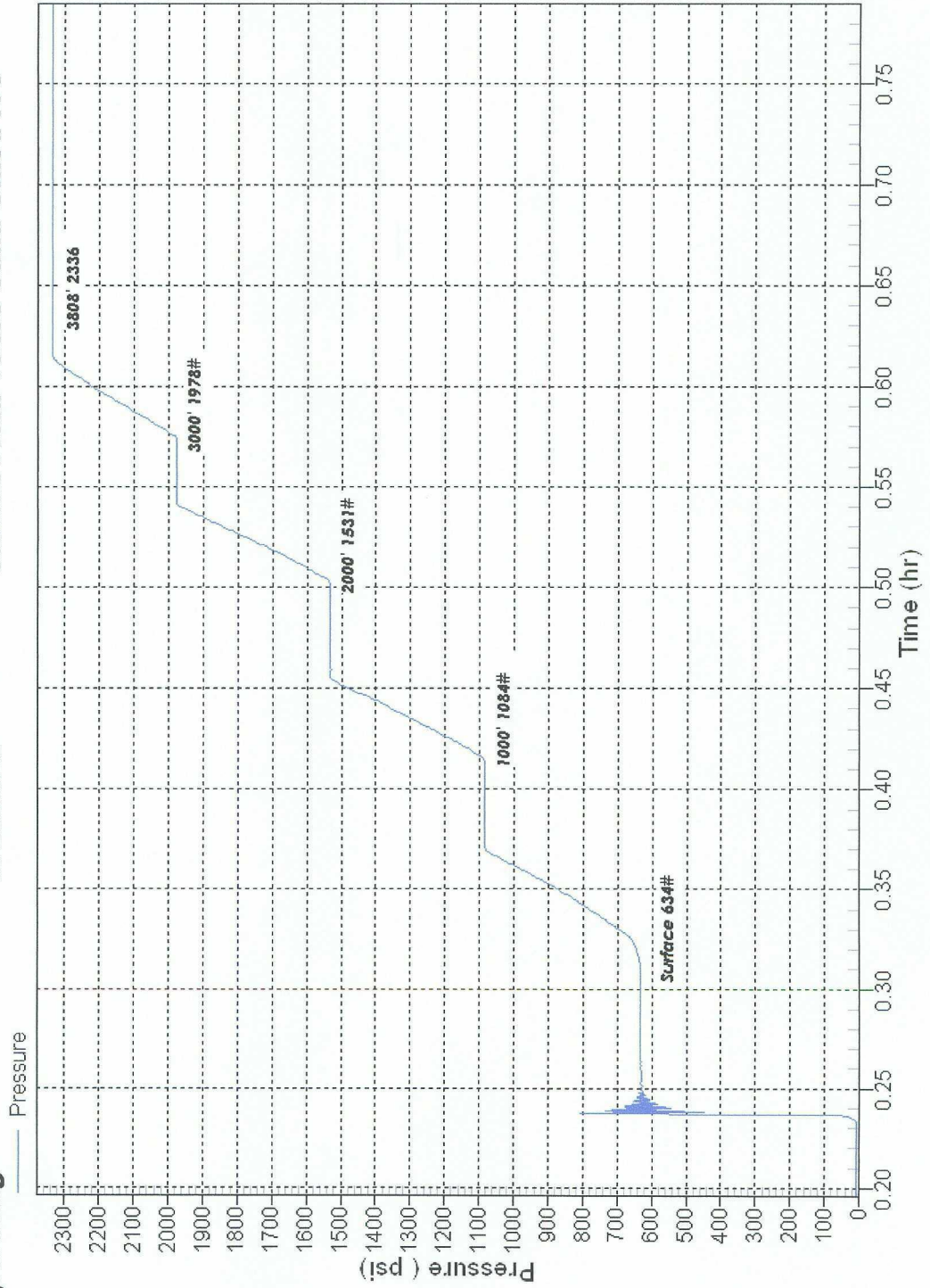
Step Rate Test 3808'

Jalmat Field Yates Sand Unit #179





Melrose Operating **Gradients** **Jalmat Field Yates Sand Unit #179**

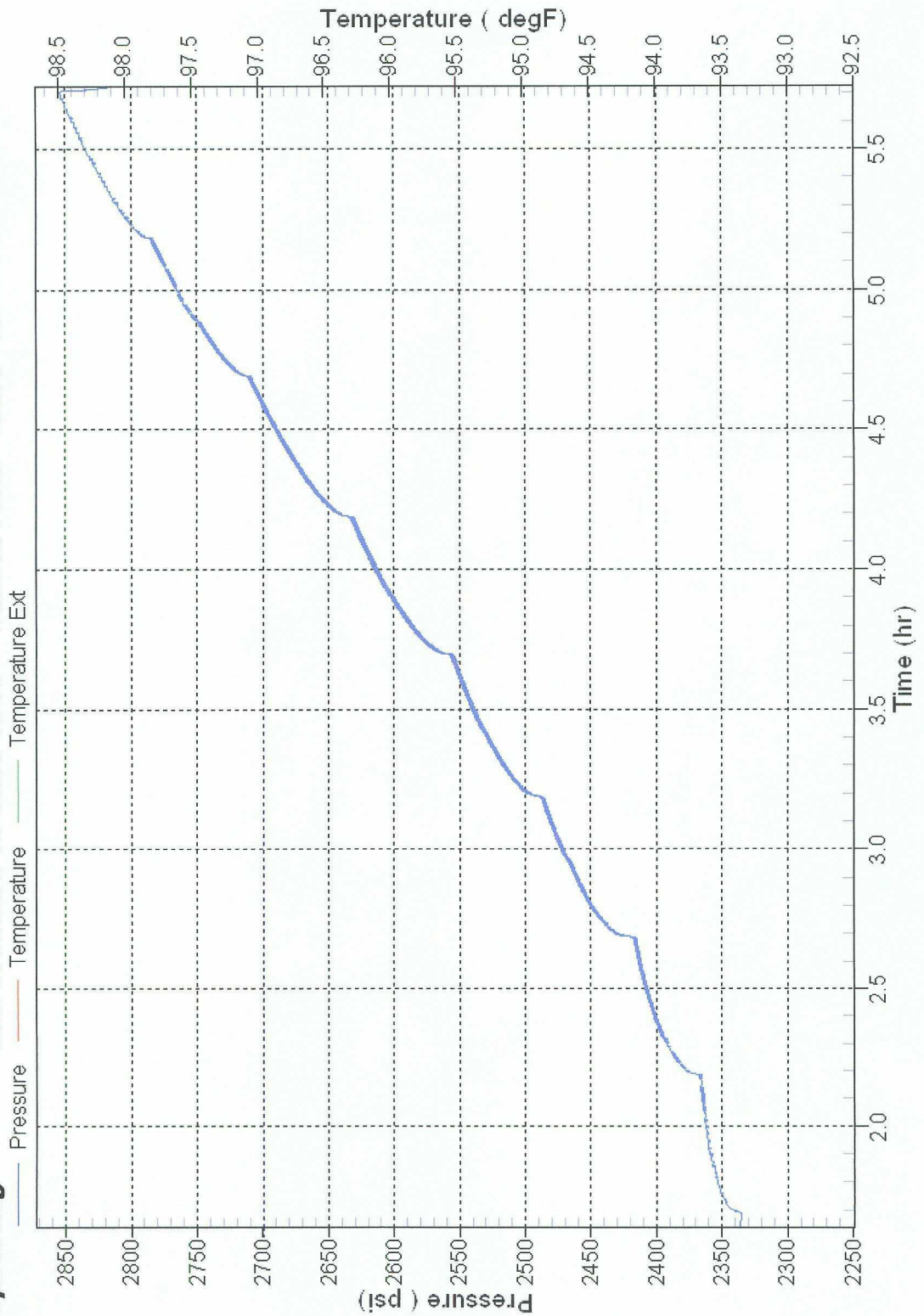




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3808' Jalmat Field Yates Sand Unit #179



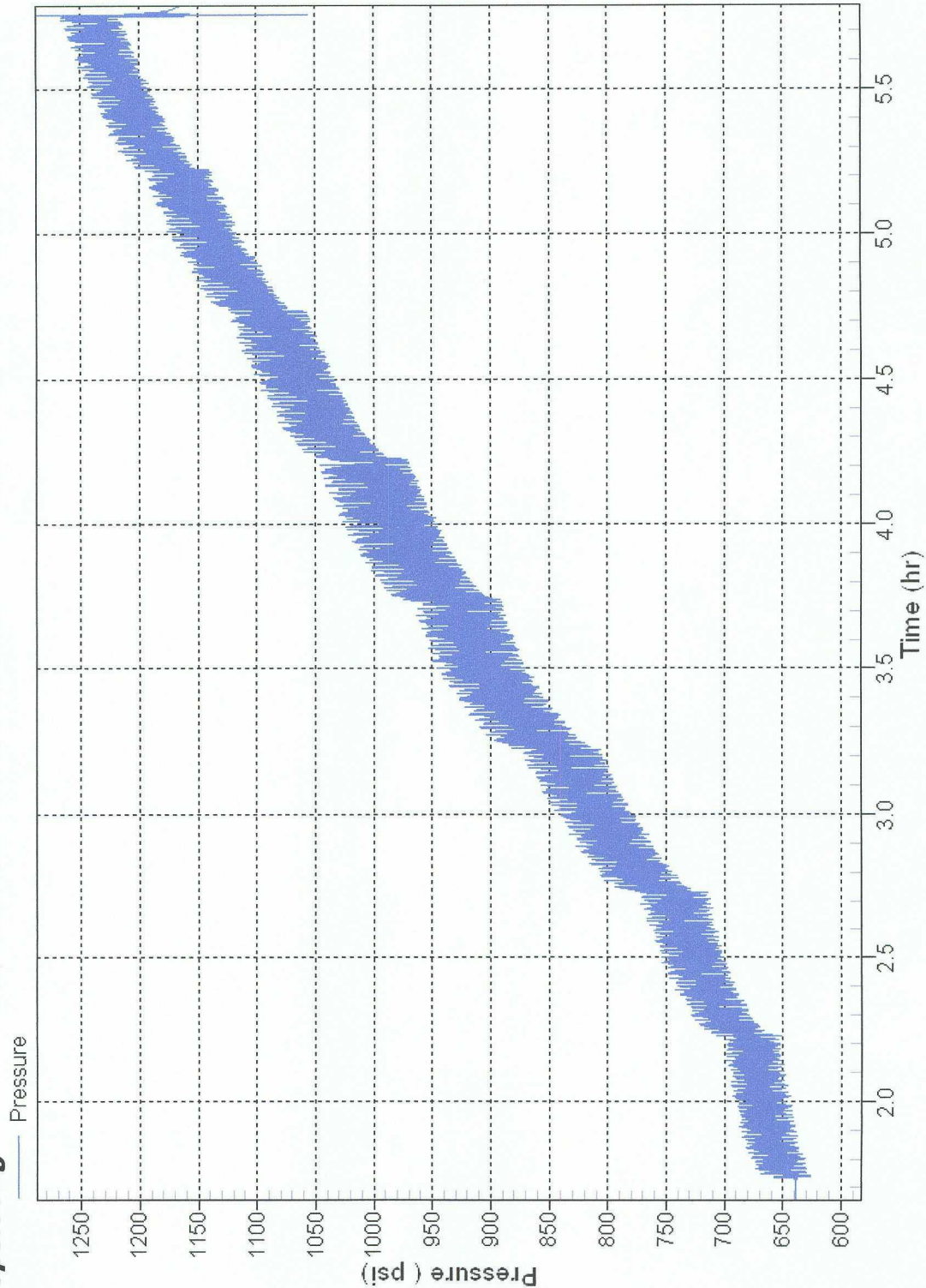


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #179



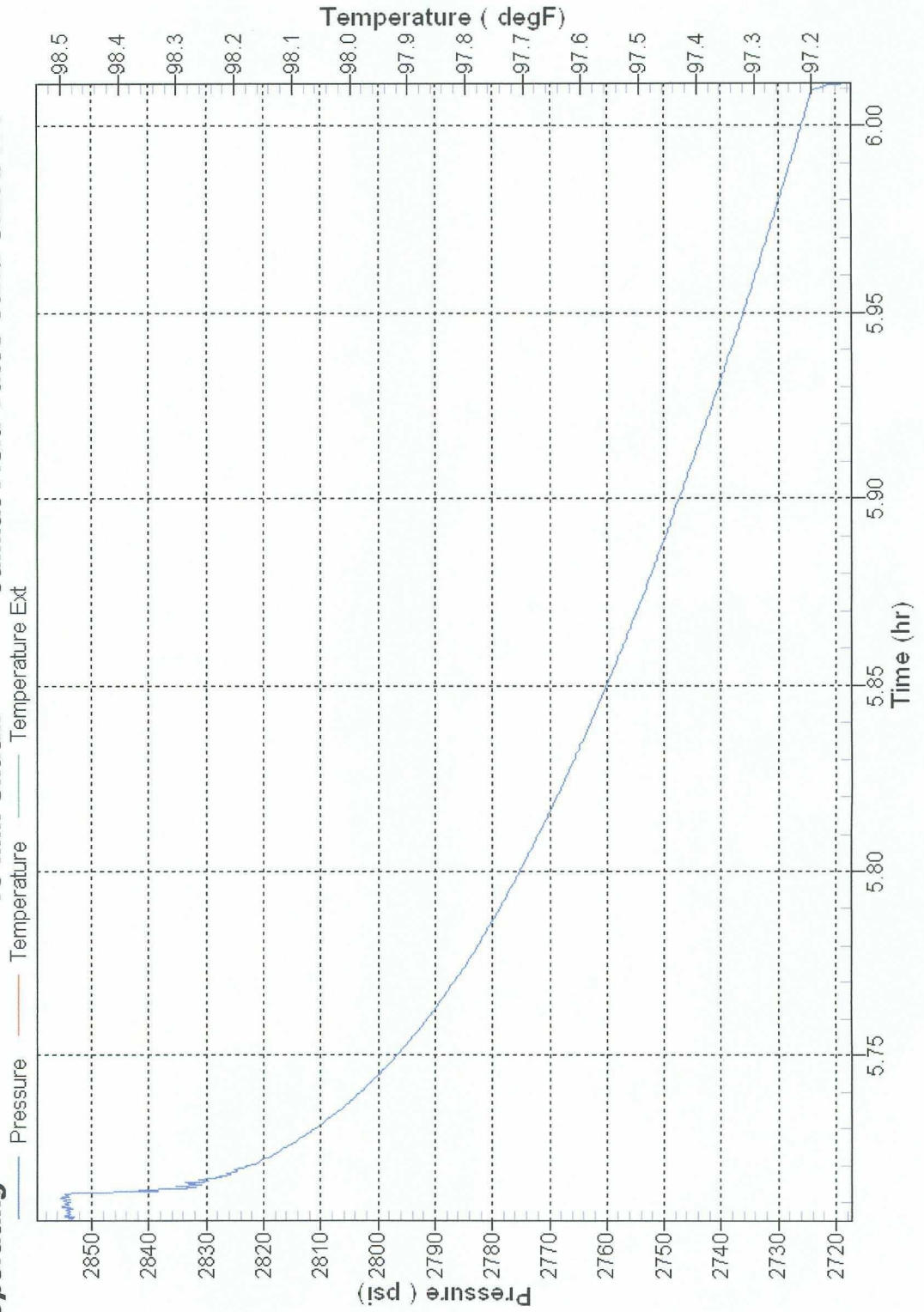


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #179





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #182
August 10, 2010

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
9:19:23	Start Instrument	
9:40	Surface	189
9:46	1000	651
9:53	2000	1107
9:59	3000	1563
10:06	3884	1962

Step Rate Test

Time	Rate bpd	BHP	Surface
12:00	0	2044	306
12:30	75	2116	383
1:00	150	2187	470
1:30	225	2310	618
2:00	300	2421	744
2:30	375	2620	937
3:00	450	2812	1127
3:30	525	2978	1308
4:00	600	3160	1494
4:30	675	3211	1550
5:00	750	3283	1627

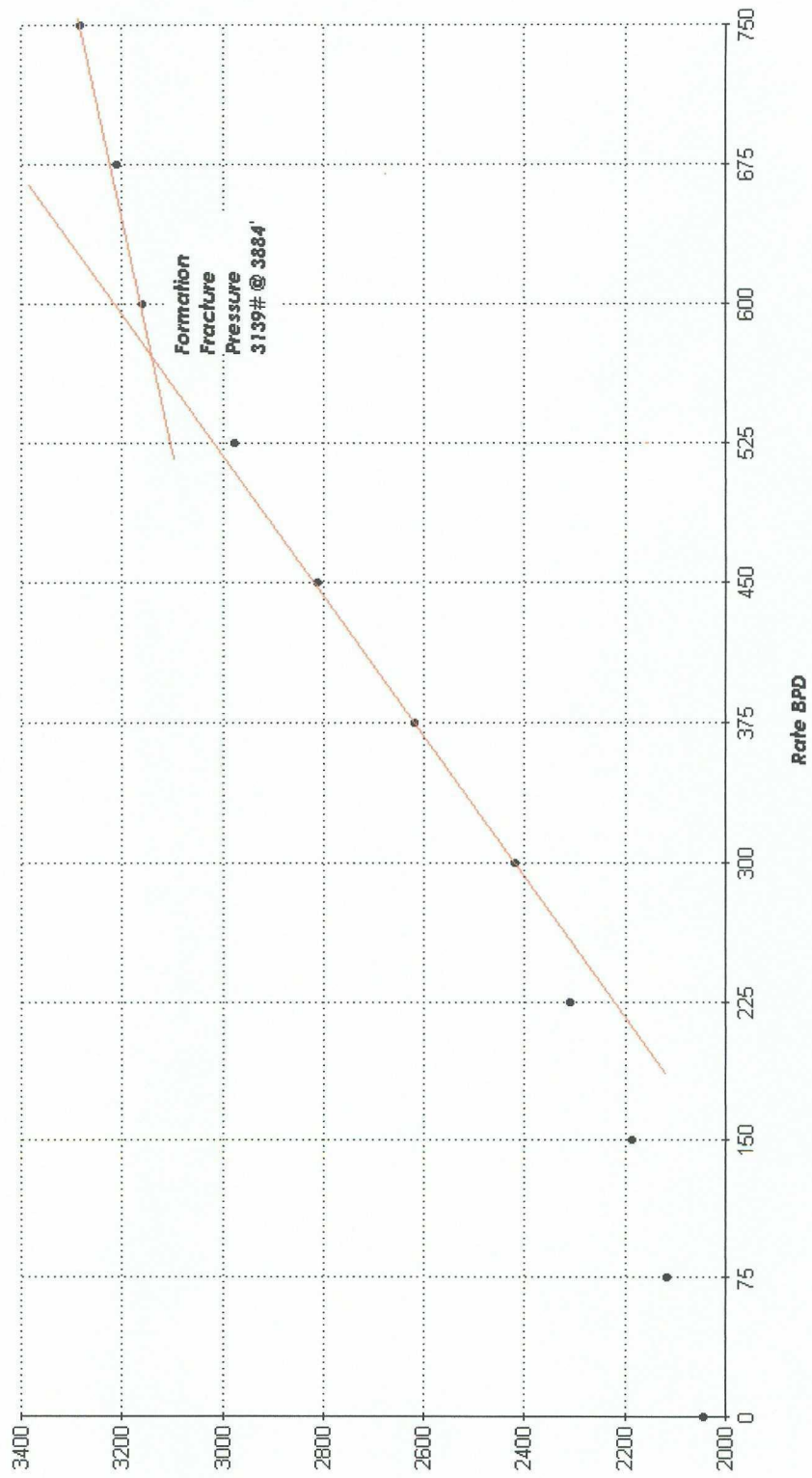
Fracture Pressure 3139# @ 600 BPD 1366# Surface (friction not considered)



Melrose Operating

Step Rate Test 3884'

Jalmat Field Yates Sand Unit #182



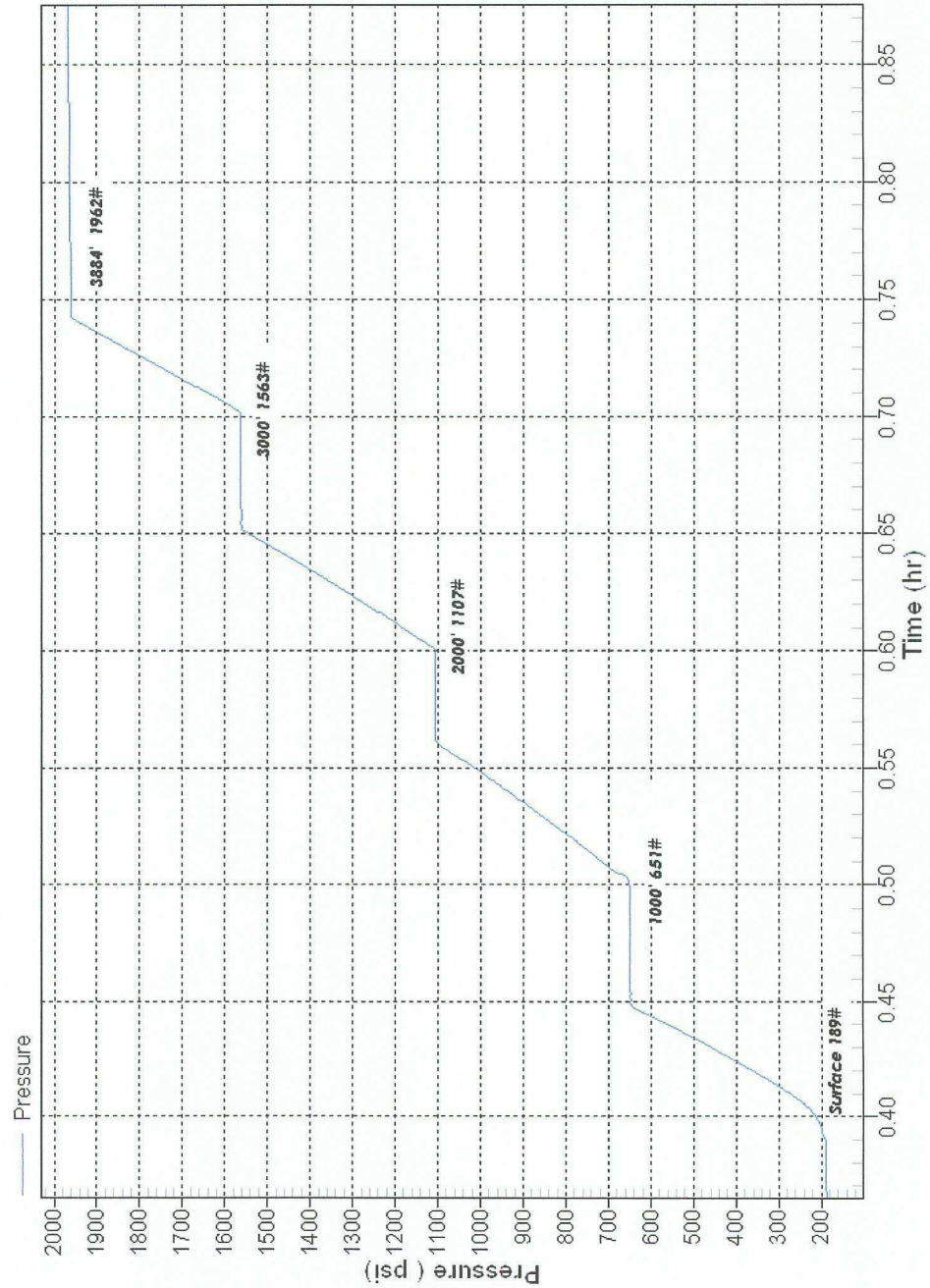


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #182

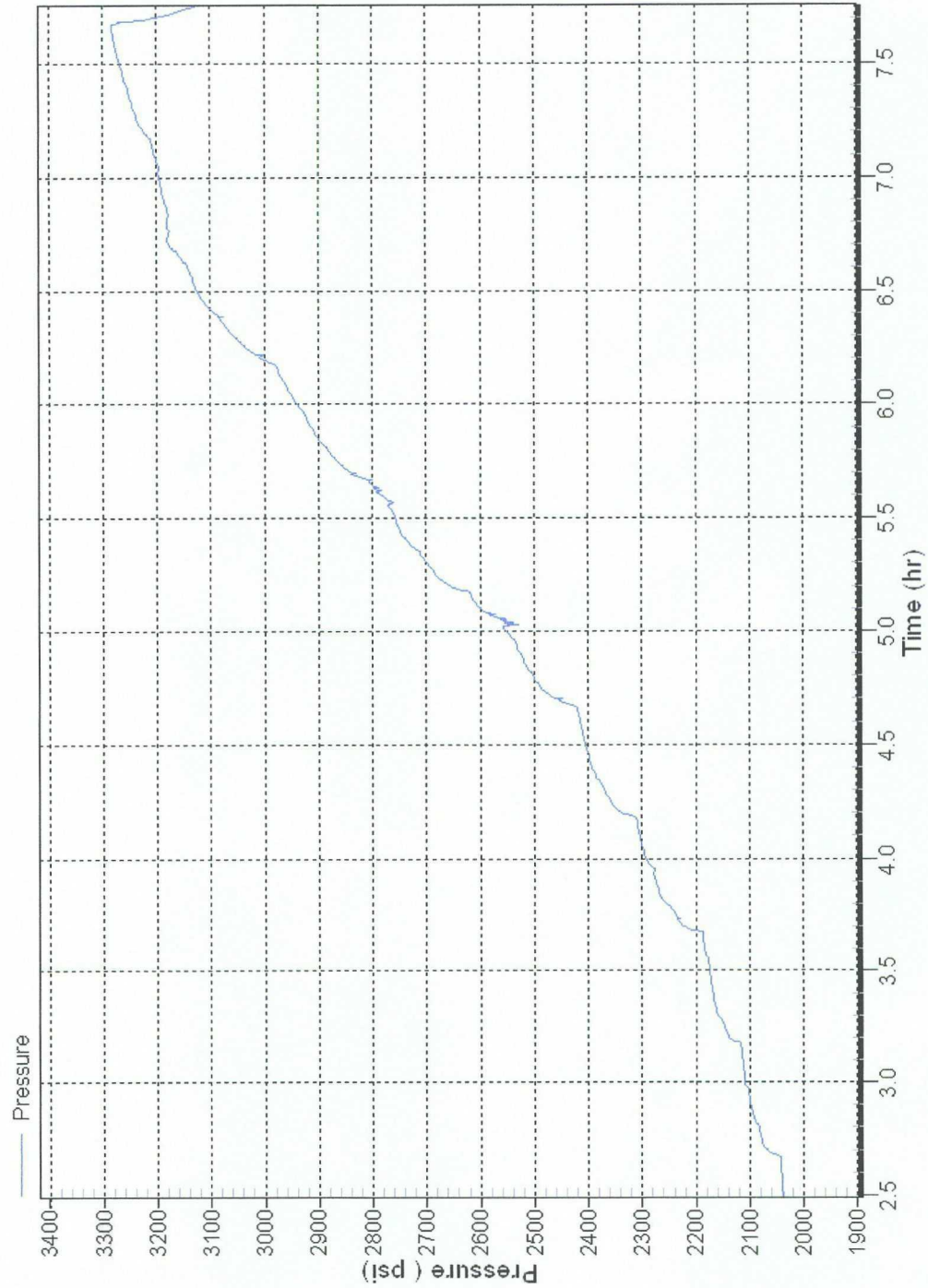




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3884' Jalmat Field Yates Sand Unit #182



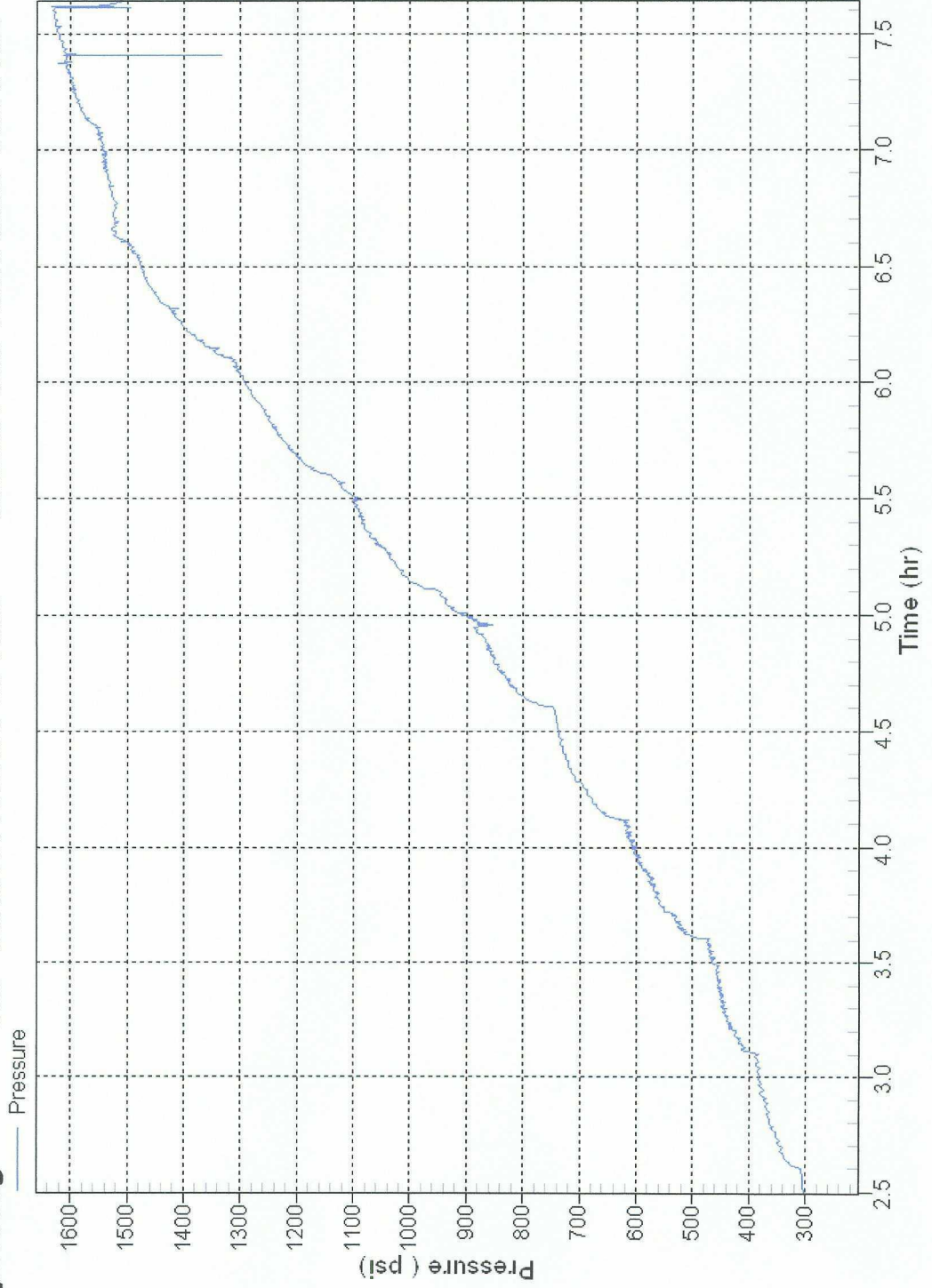


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #182



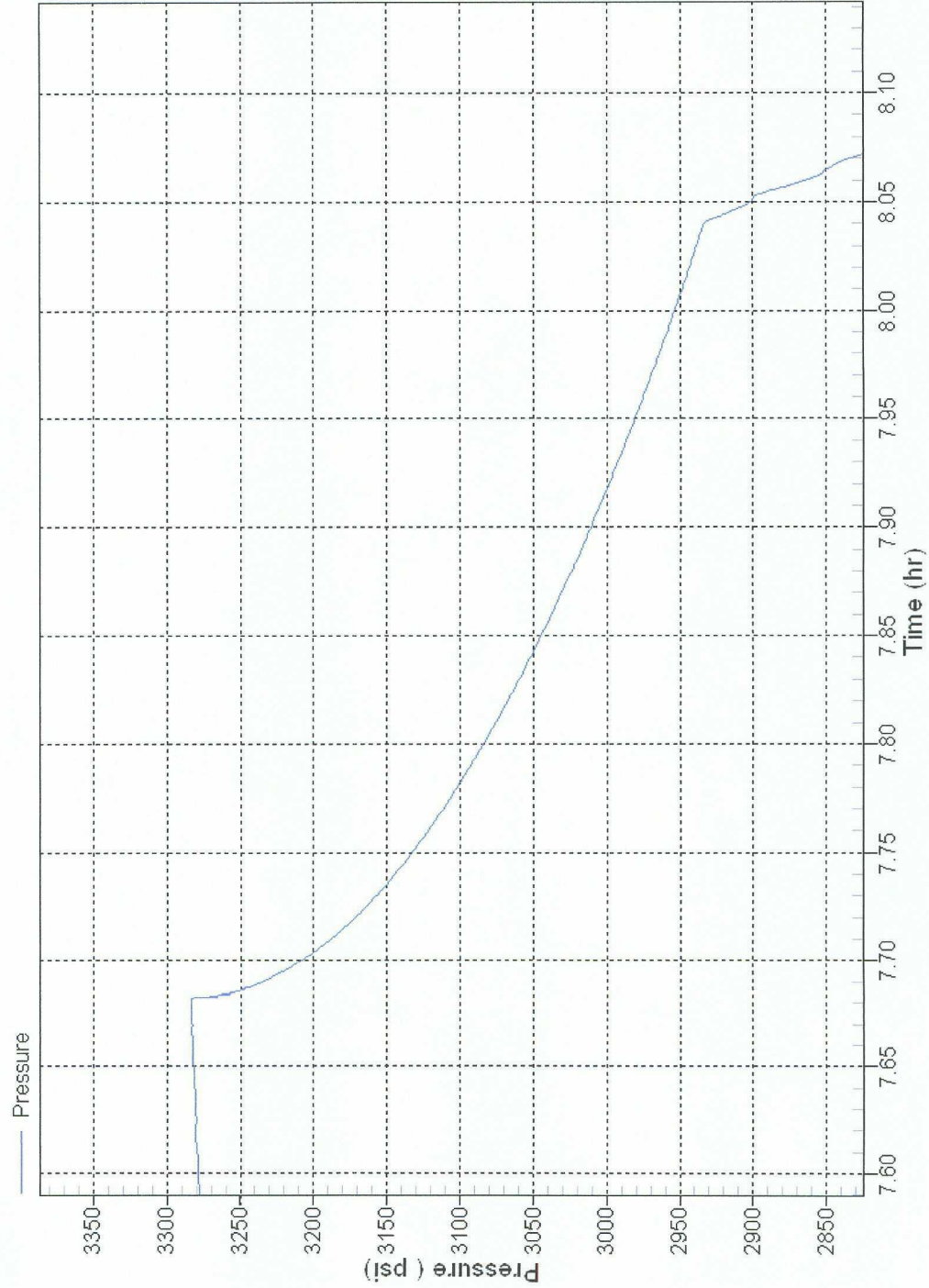


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #182





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #195
August 30, 2010

Step Rate Test
Event Summary

Gradient

Time	Event	Pressure
10:30:30	Start instrument	
10:38	Surface	540#
10:45	1000	1010
10:52	2000	1476
11:01	3000	1940
11:08	3932	2366

Step Rate Test

Time	Rate bpd	BHP	Surface
11:45	0	2398	626
12:15	75	2467	700
12:45	150	2591	841
1:15	225	2736	1010
1:45	300	2896	1192
2:15	375	3051	1360
2:45	450	3177	1486
3:15	525	3273	1581
3:45	600	3352	1663
4:15	675	3405	1721
4:45	750	3449	1772

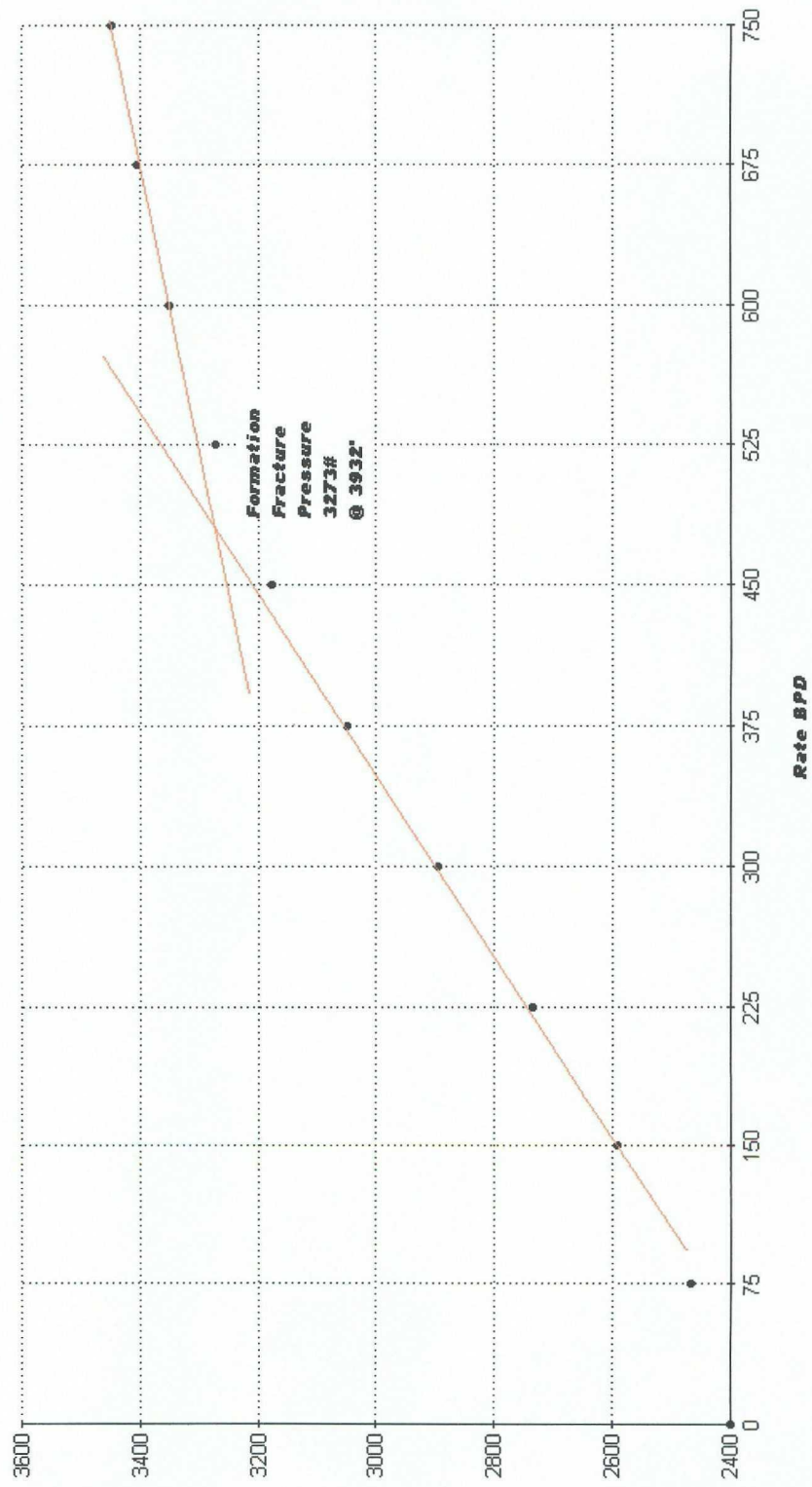
Formation fracture 3273# @ 3932' Surface pressure 1447# (not considering friction)



Melrose Operating

Step Rate Test 3820'

Jalmat Field Yates Sand Unit #159

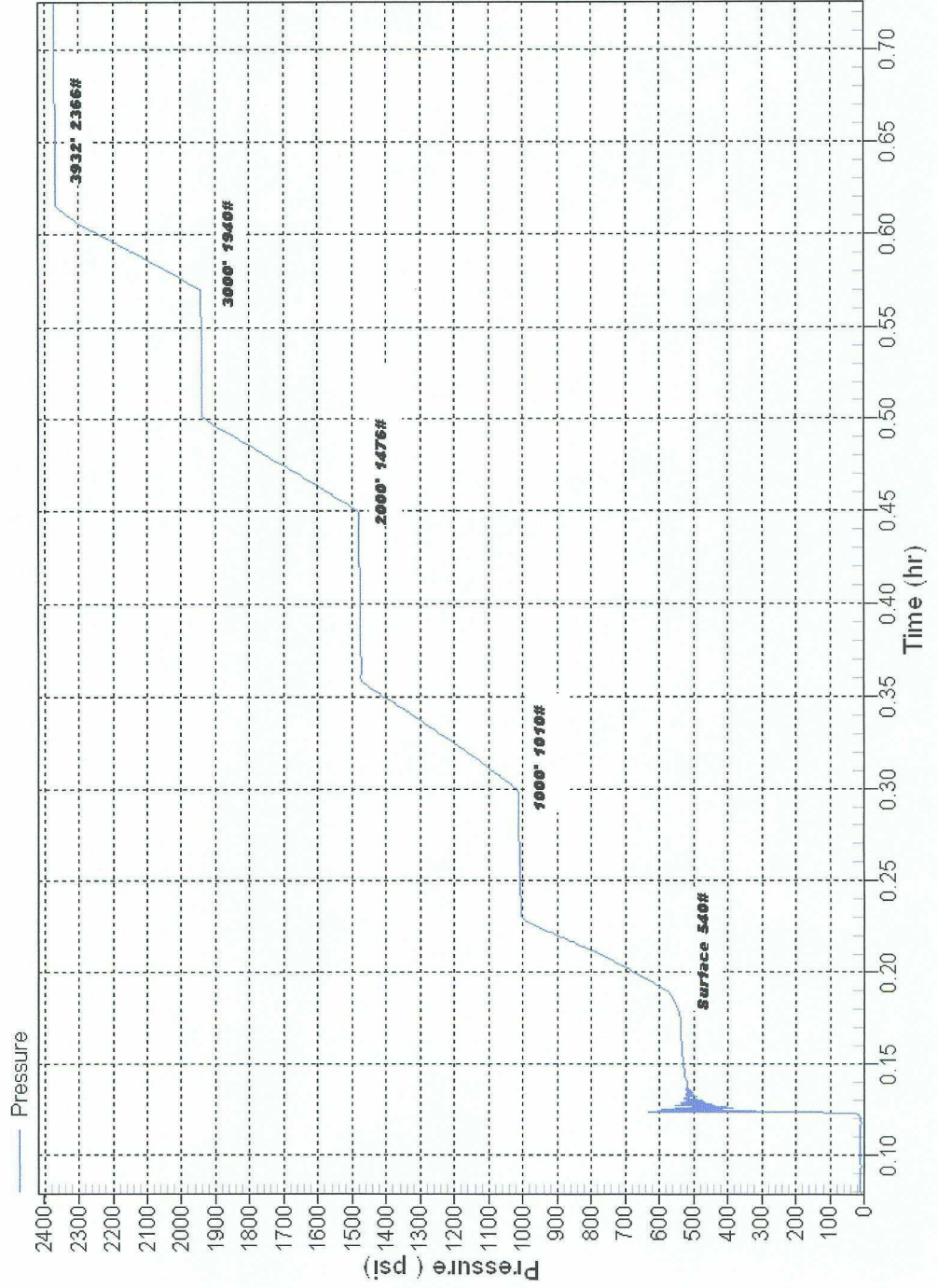




Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #195

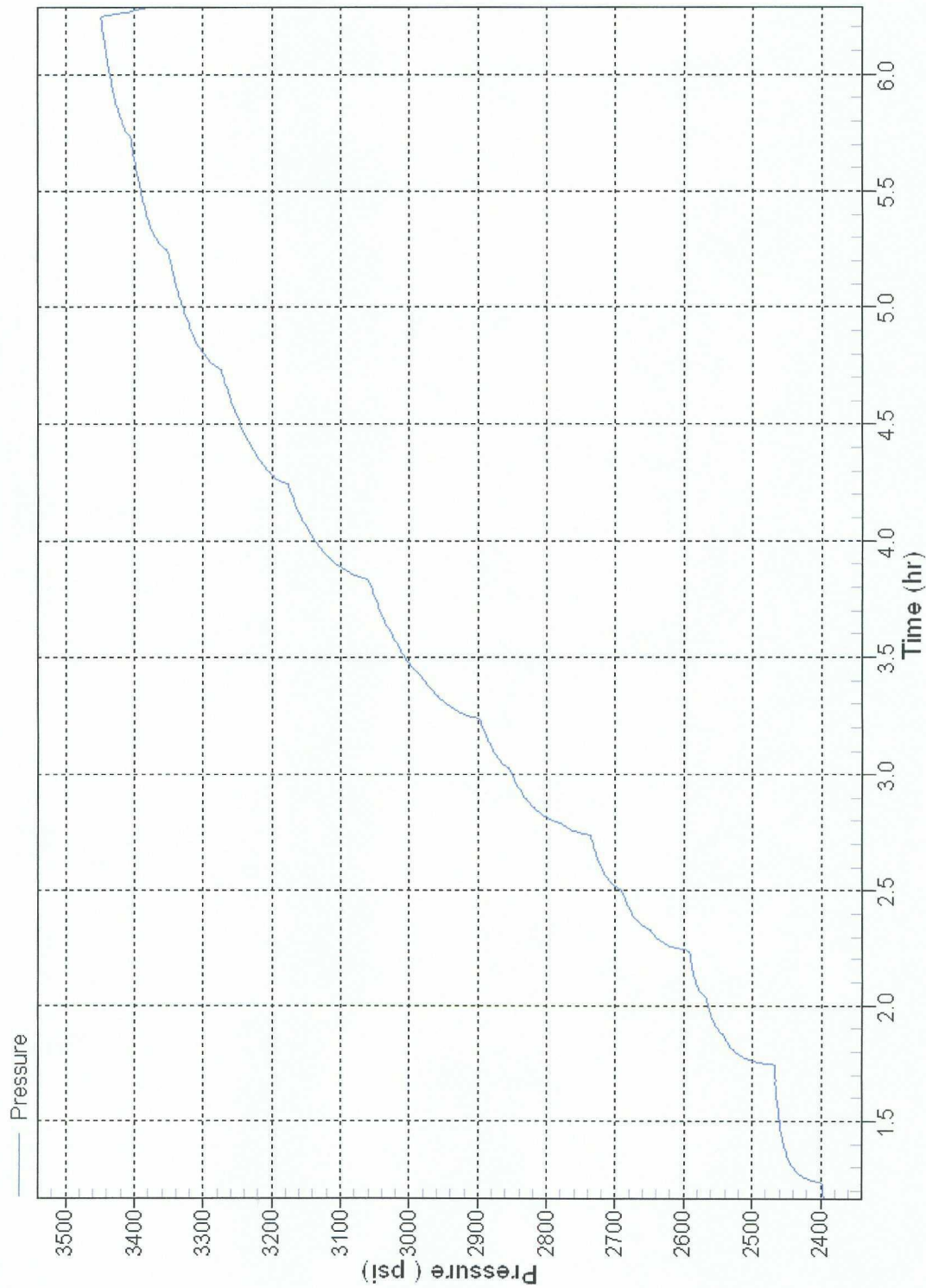




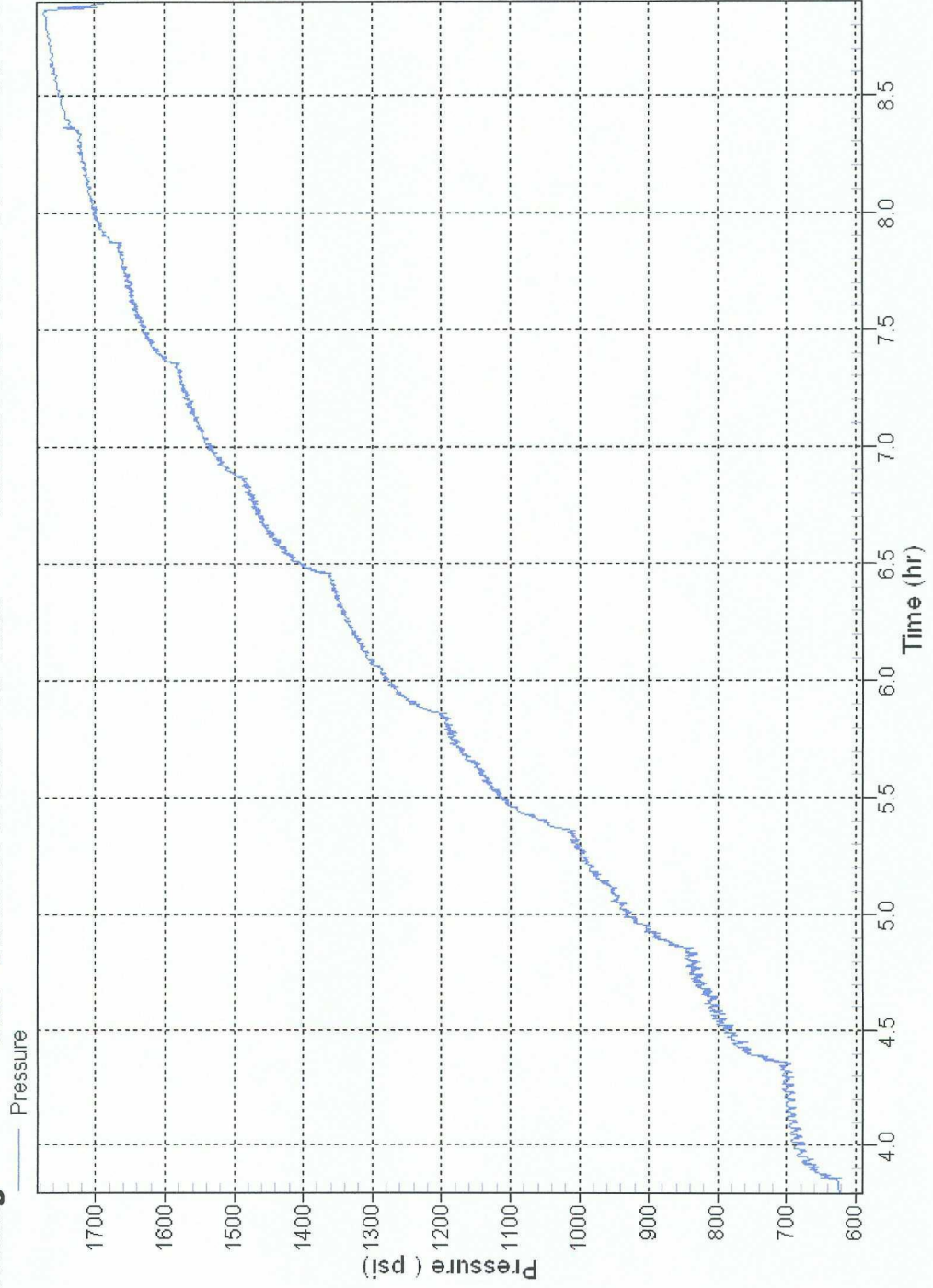
KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3932' Jalmat Field Yates Sand Unit #195



SRT Surface Pressure vs Time Jalmat Field Yates Sand Unit #195



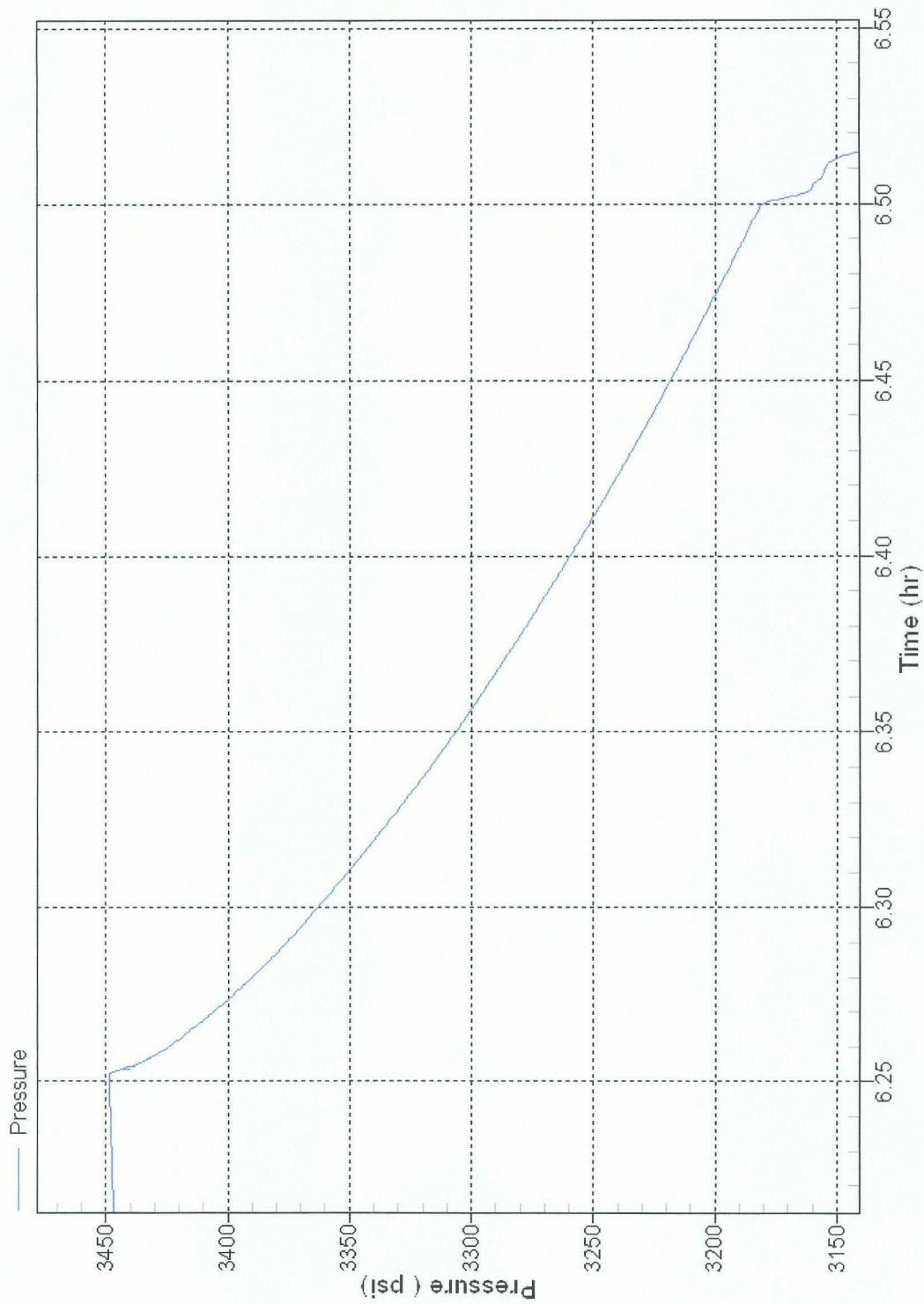


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #195





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Yates Field Sand Unit #207
November 18, 2010

Step Rate Test Event Summary

Gradient

Time	Event	Pressure
10:52:15	Start Instrument	
11:00	Surface	228
11:09	1000	695
11:16	2000	1155
11:21	3000	1612
11:27	4000	2068
11:31	4019	2081

Step Rate Test

Time	Rate bpd	BHP	Surface
12:45	0	2123	315
1:15	75	2276	477
2:45	150	2458	677
2:15	225	2638	880
2:45	300	2809	1075
3:15	375	2995	1272
3:45	450	3135	1401
4:15	525	3247	1524
4:45	600	3336	1622
5:15	675	3405	1688
5:45	750	3455	1744
6:15	825	3492	3516

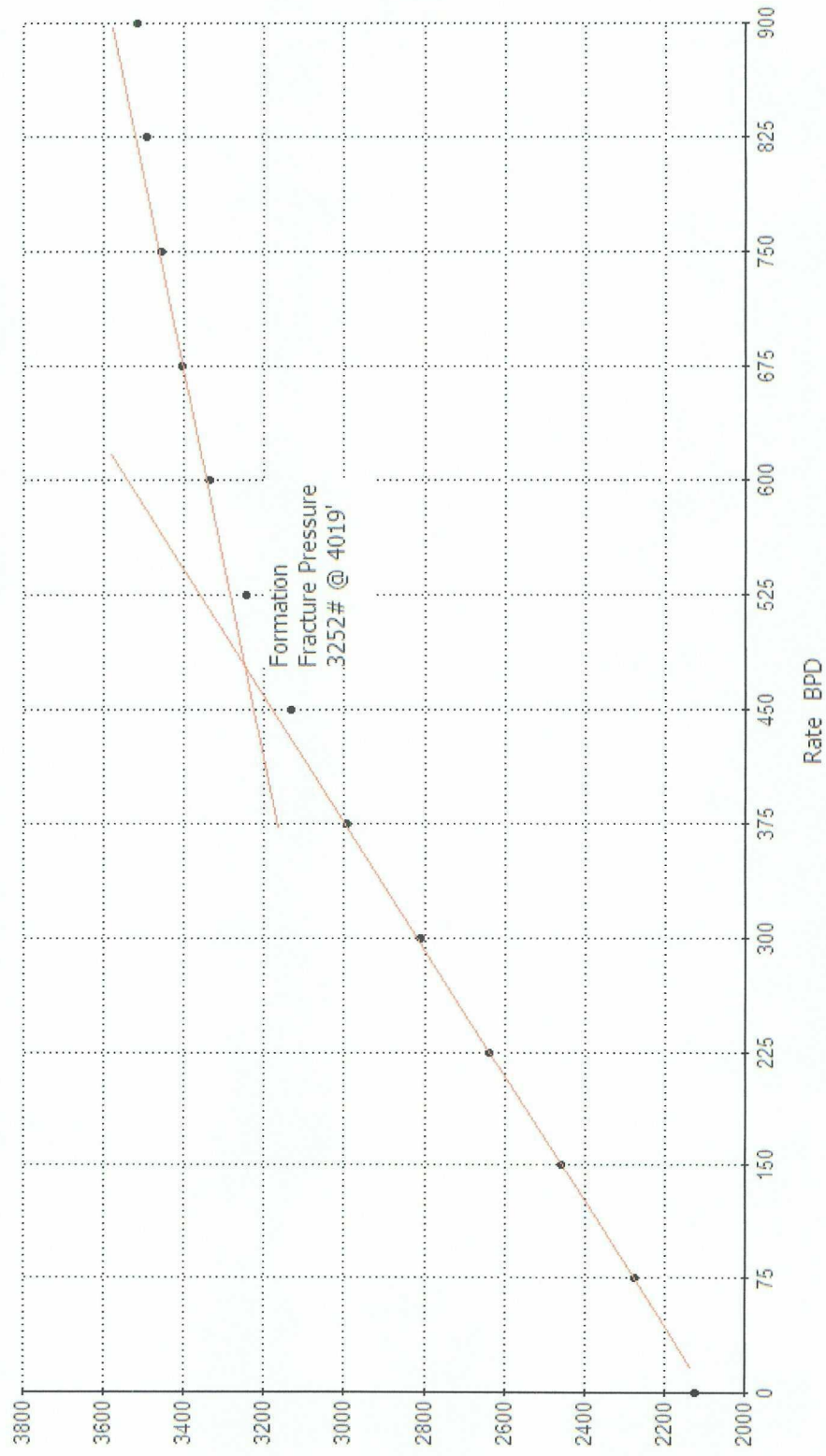
Formation fracture pressure 3252# @ 4019' wlm 1444# surface pressure (friction not considered)

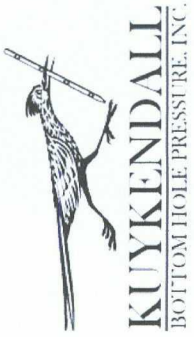


Melrose Operating

Step Rate Test

Jalmat Yates Field Sand Unit #207





Melrose Operating

Gradients

Jalmat Yates Field Sand Unit #207

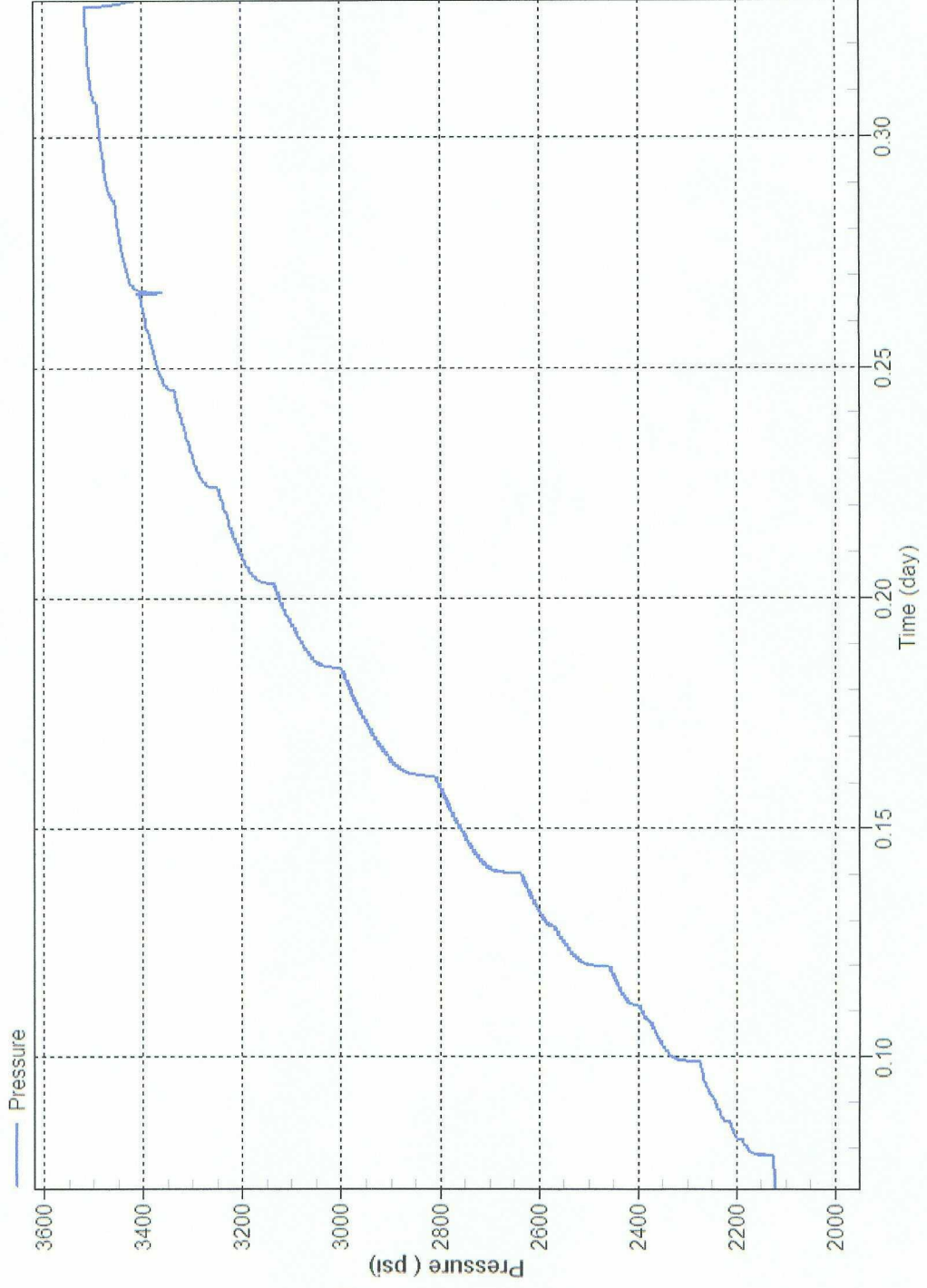




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 4019' Jalmat Yates Field Sand Unit #207



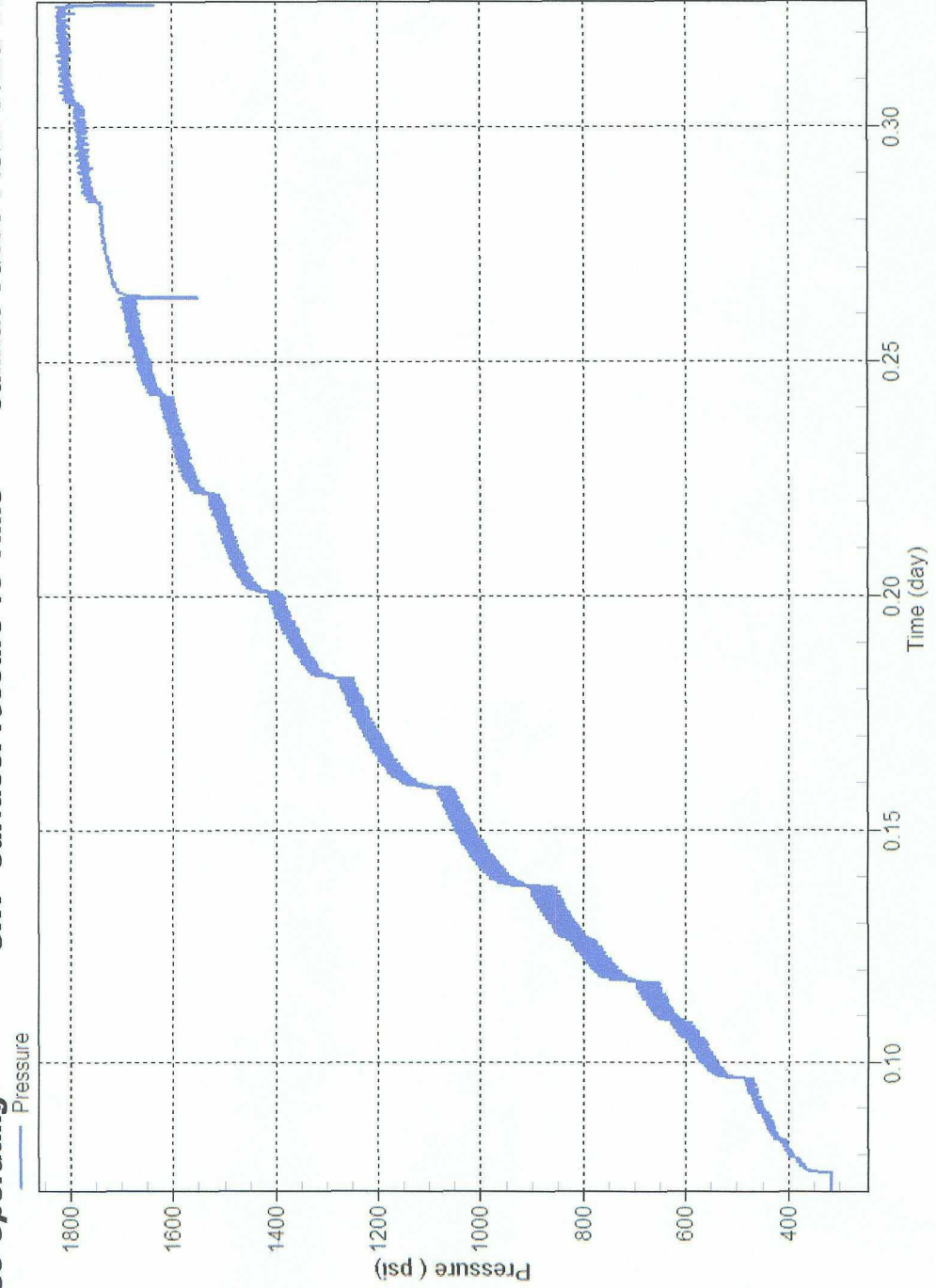


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #207



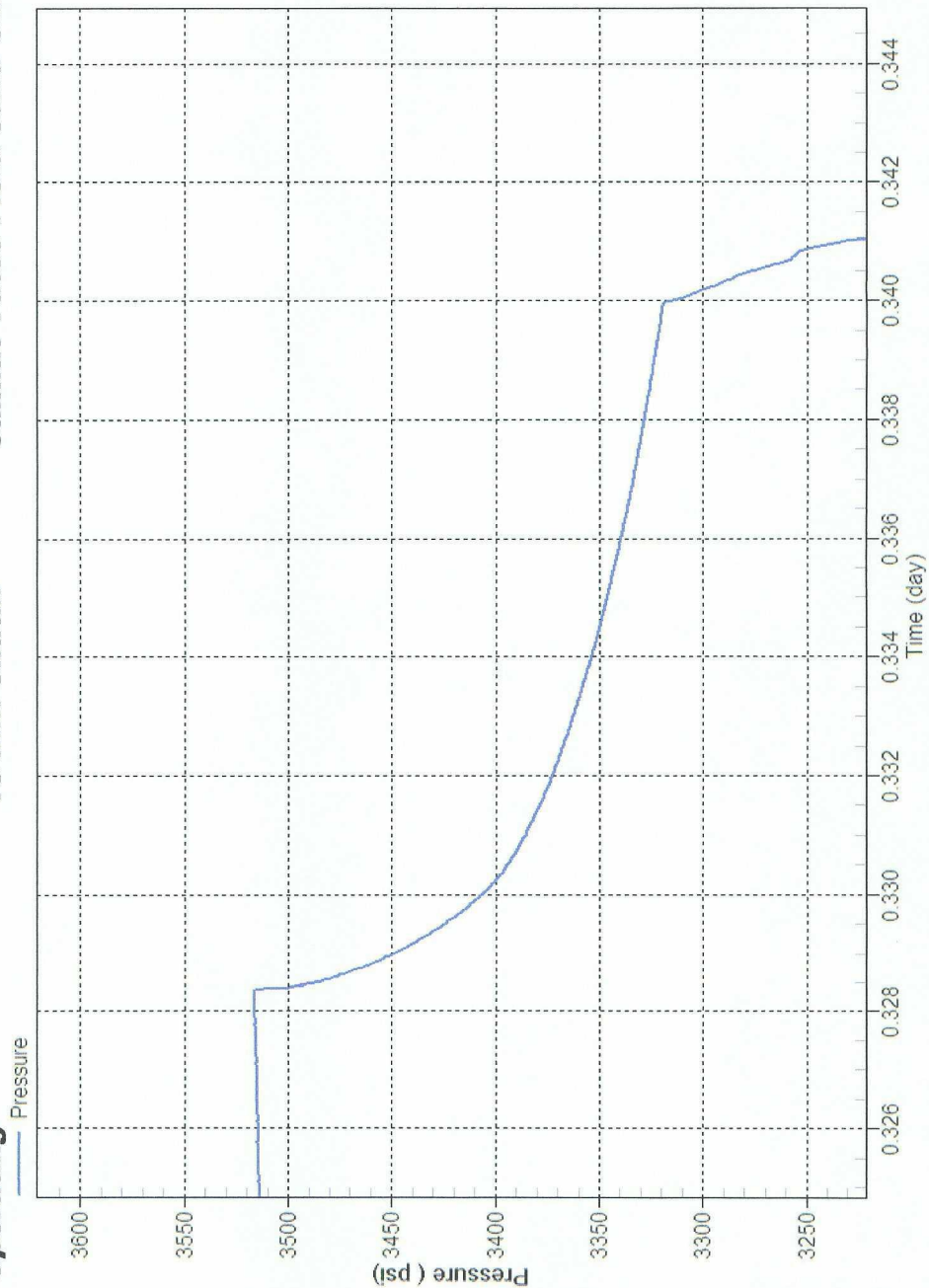


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #207





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #220
July 27, 2010

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
9:24:48	Start Instrument	
9:35	Surface	0
9:45	1000	474
9:51	2000	951
9:58	3000	1524
10:03	3840	1977

Step Rate Test

Time	Rate bpd	BHP	Surface
10:30	0	2055	326
11:00	75	2772	1033
11:30	150	2916	1193
12:00	225	2977	1280
12:30	300	3033	1361
1:00	375	3084	1420

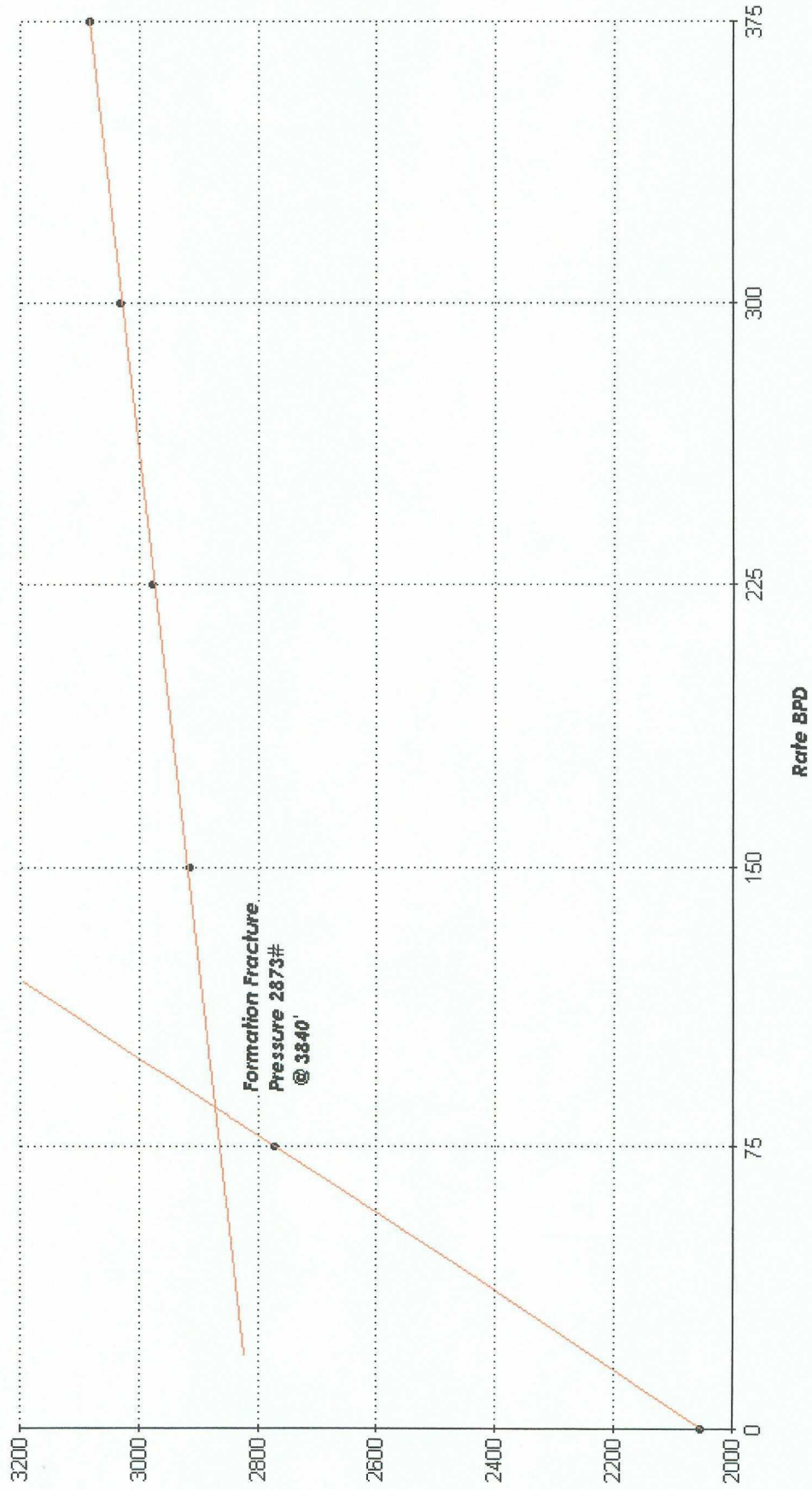
Formation Fracture Pressure 2873# # 150 BPD 1187# Surface (friction not considered)



Melrose Operating

Step Rate Test 3840'

Jalmat Field Yates Sand Unit #220





Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #220

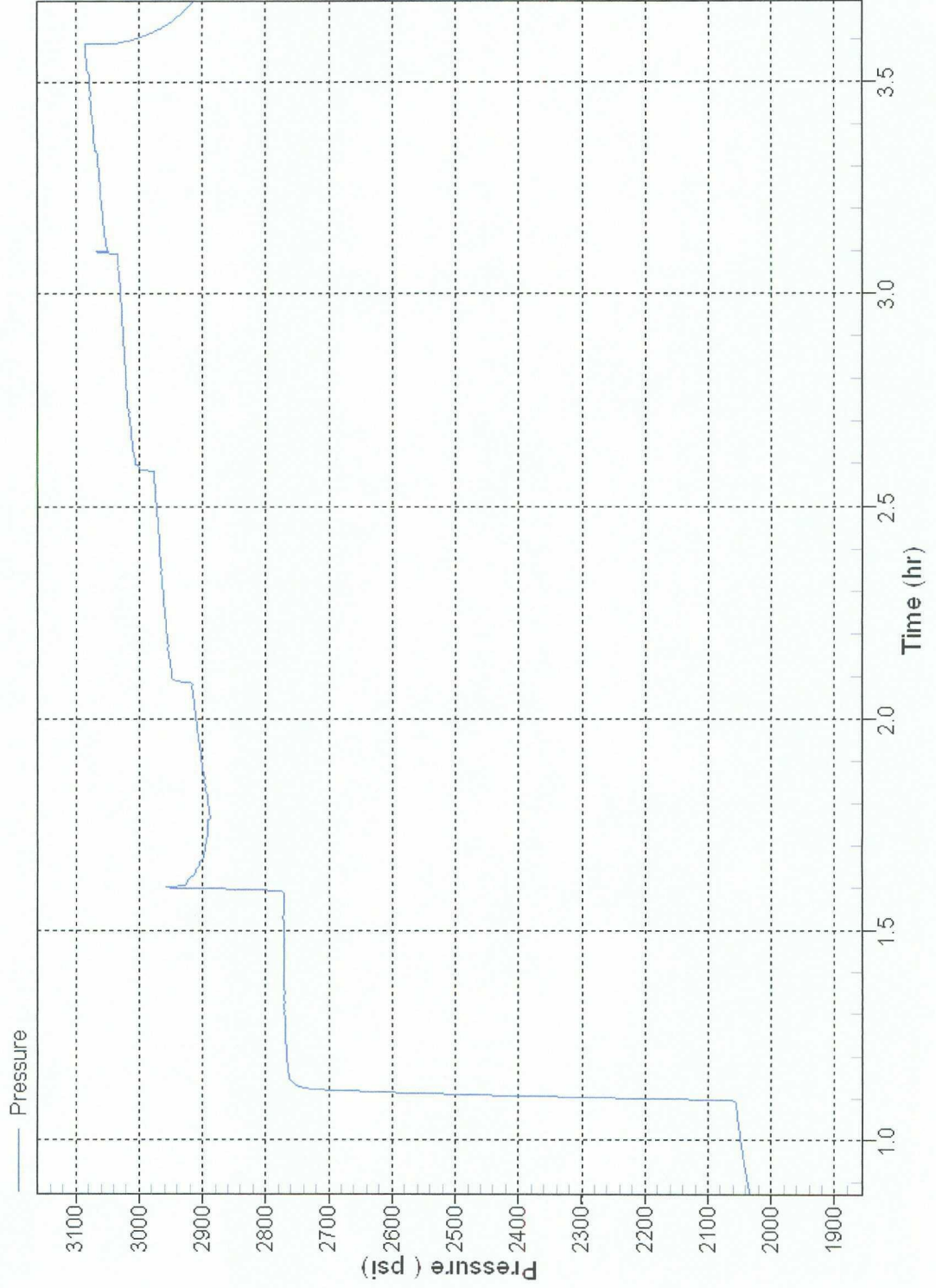




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3840' Jalmat Field Yates Sand Unit #220



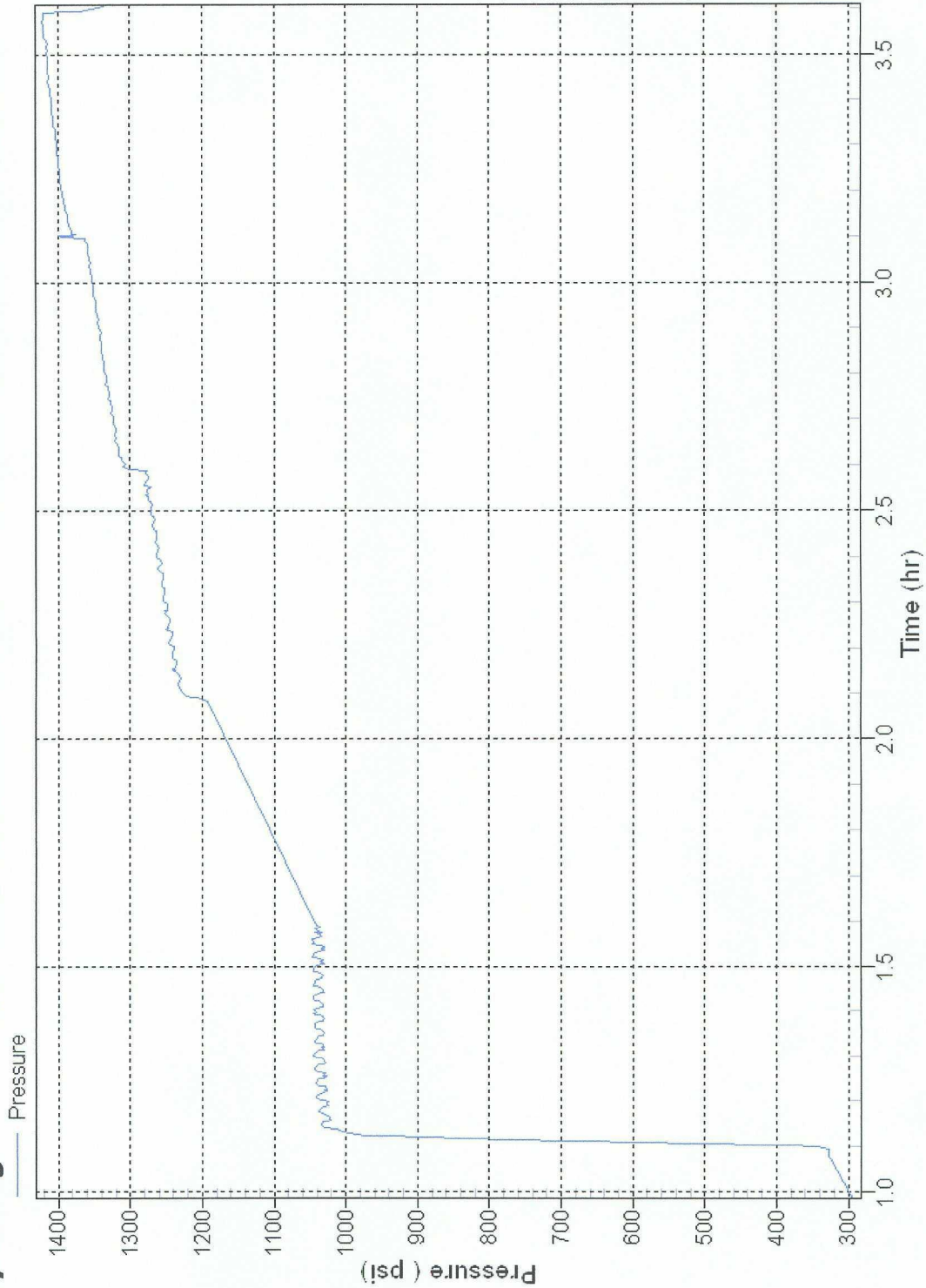


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

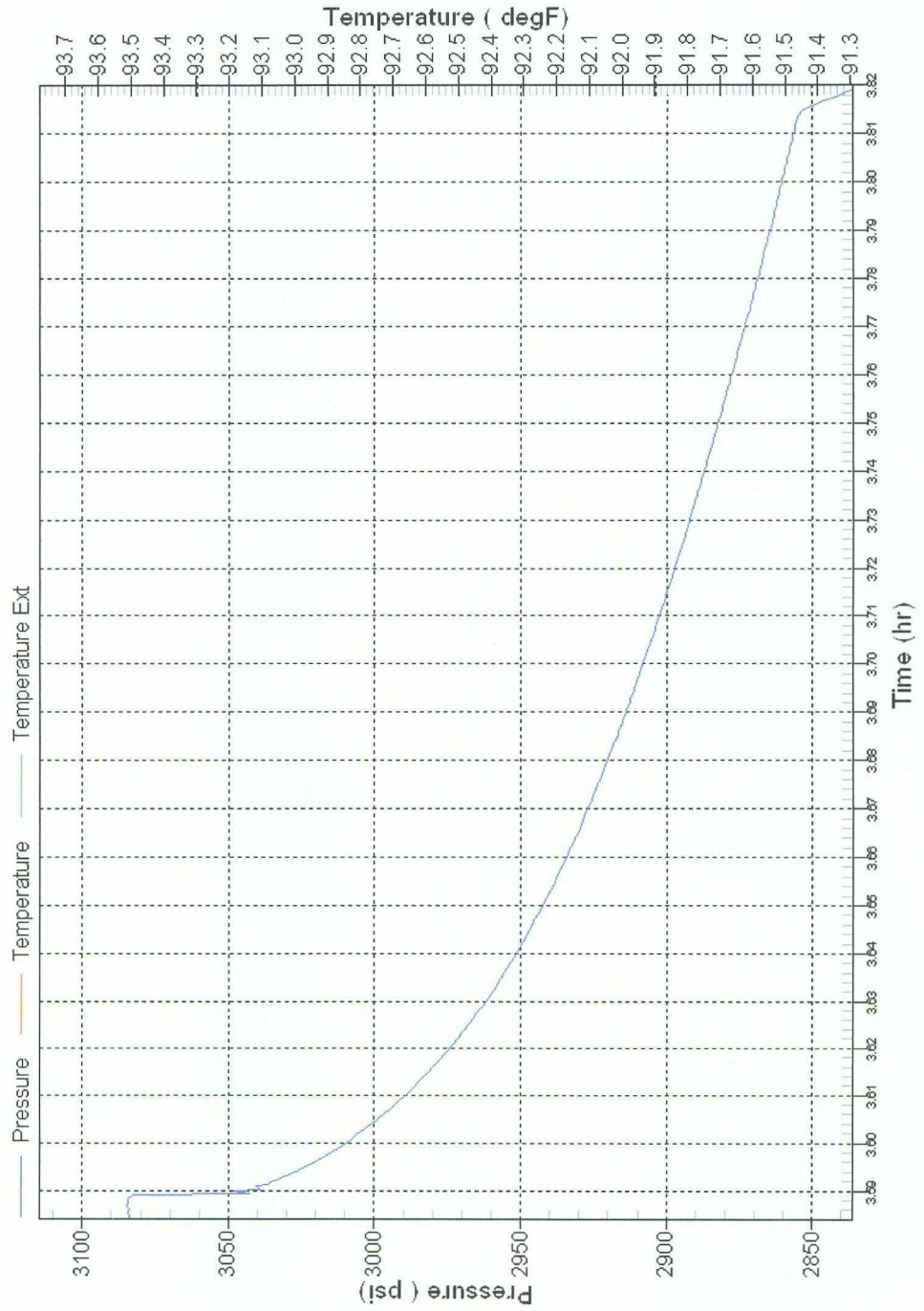
SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #220





15 min Shutin **Jalmat Field Yates Sand Unit #220**





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #221
July 28, 2010

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
9:32:54	Start Instrument	
9:40	Surface	205
9:49	1000	675
9:56	2000	1135
10:02	3000	1593
10:10	3970	2036

Well pressure not stabilized during gradient run (pressure building)

Step Rate Test

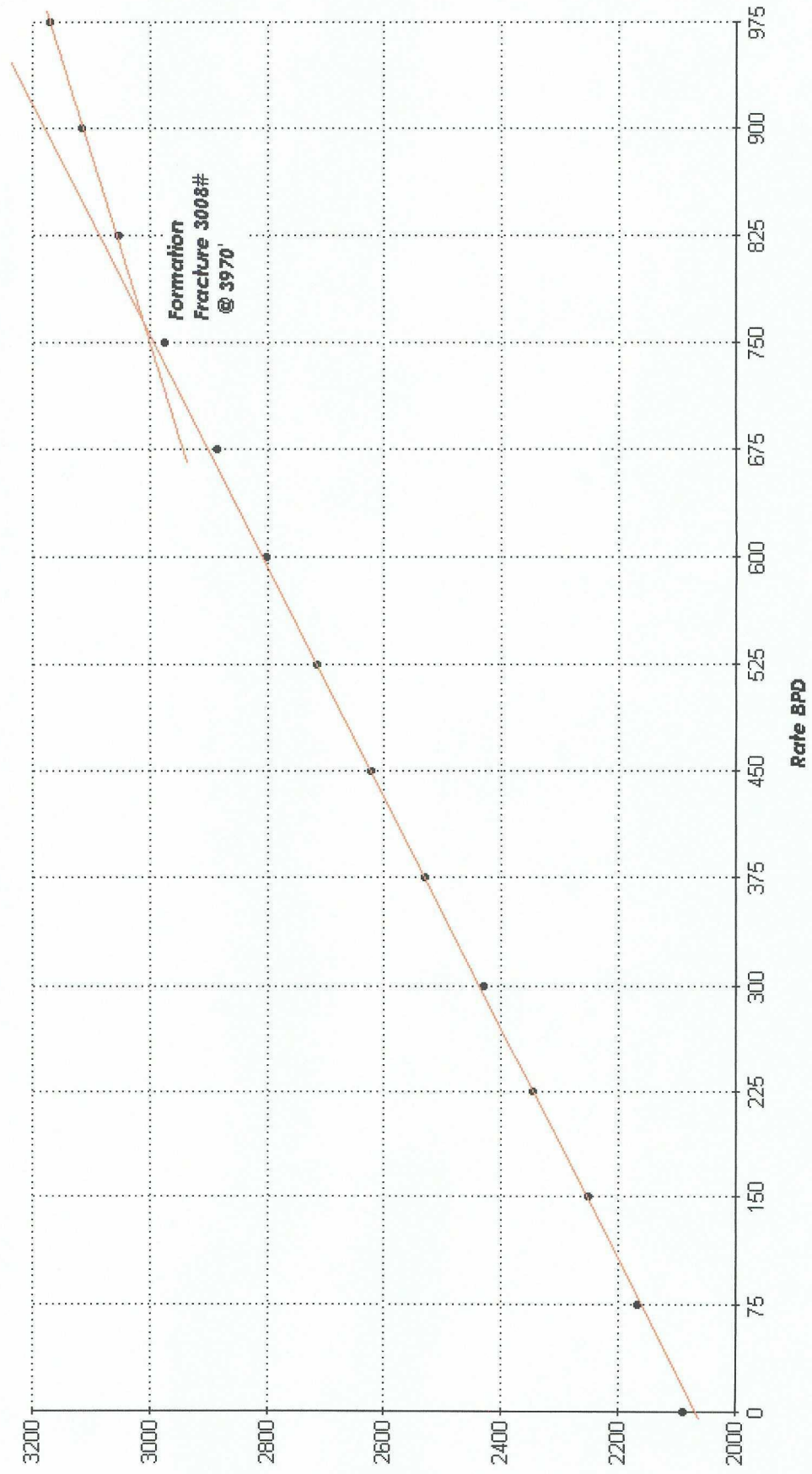
Time	Rate bpd	BHP	Surface
11:00	0	2090	310
11:30	75	2167	396
12:00	150	2251	487
12:30	225	2346	607
1:00	300	2431	717
1:30	375	2530	816
2:00	450	2622	909
2:30	525	2715	1002
3:00	600	2802	1099
3:30	675	2887	1185
4:00	750	2975	1225
4:30	825	3055	1305 Formation Fracture Pressure 3008# @ 825BPD 1194# Surface (Friction pressure not considered)
5:00	900	3116	1373
5:30	975	3169	1437



Melrose Operating

Step Rate Test 3970'

Jalmat Field Yates Sand Unit #221

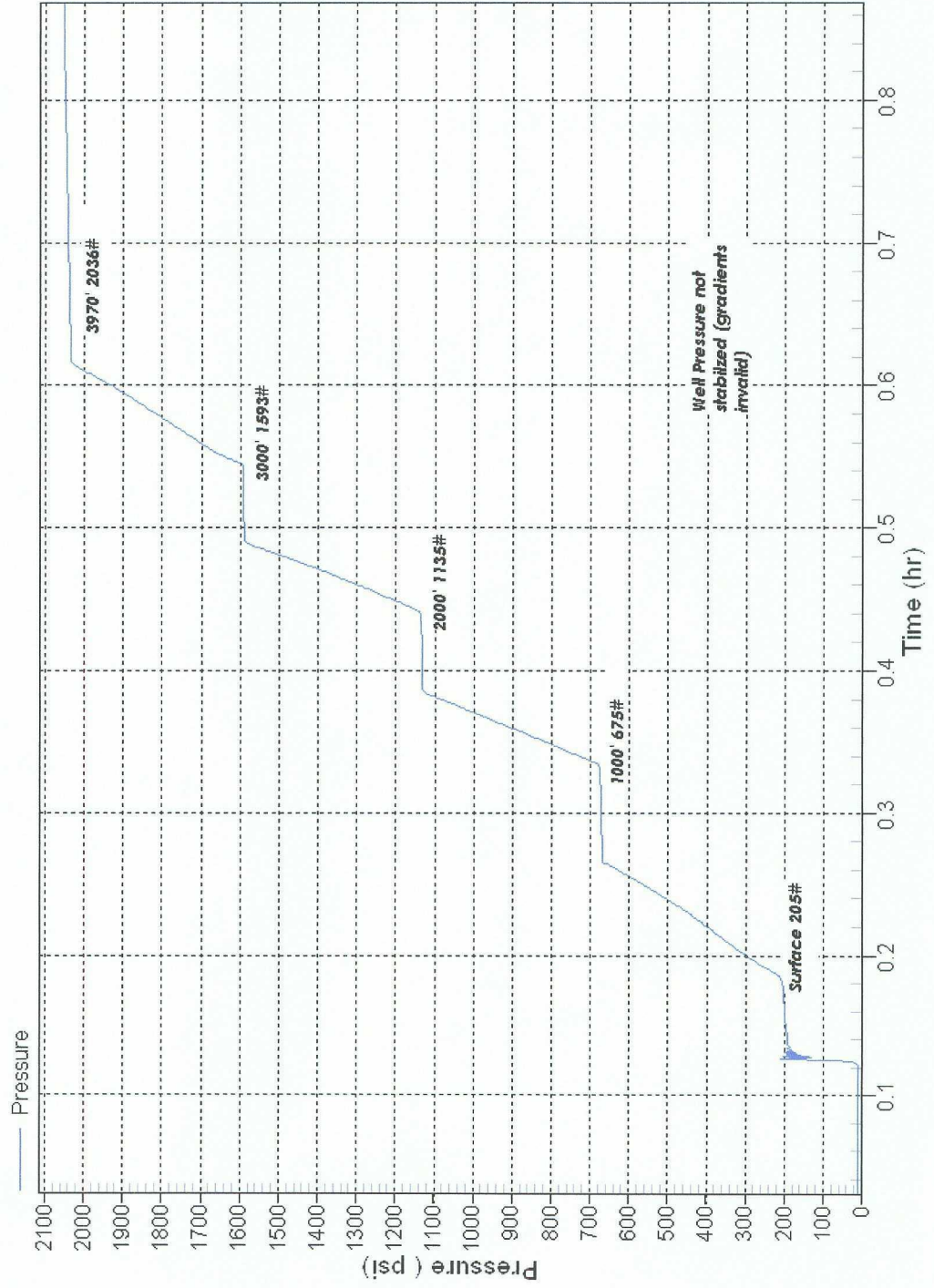




Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #221

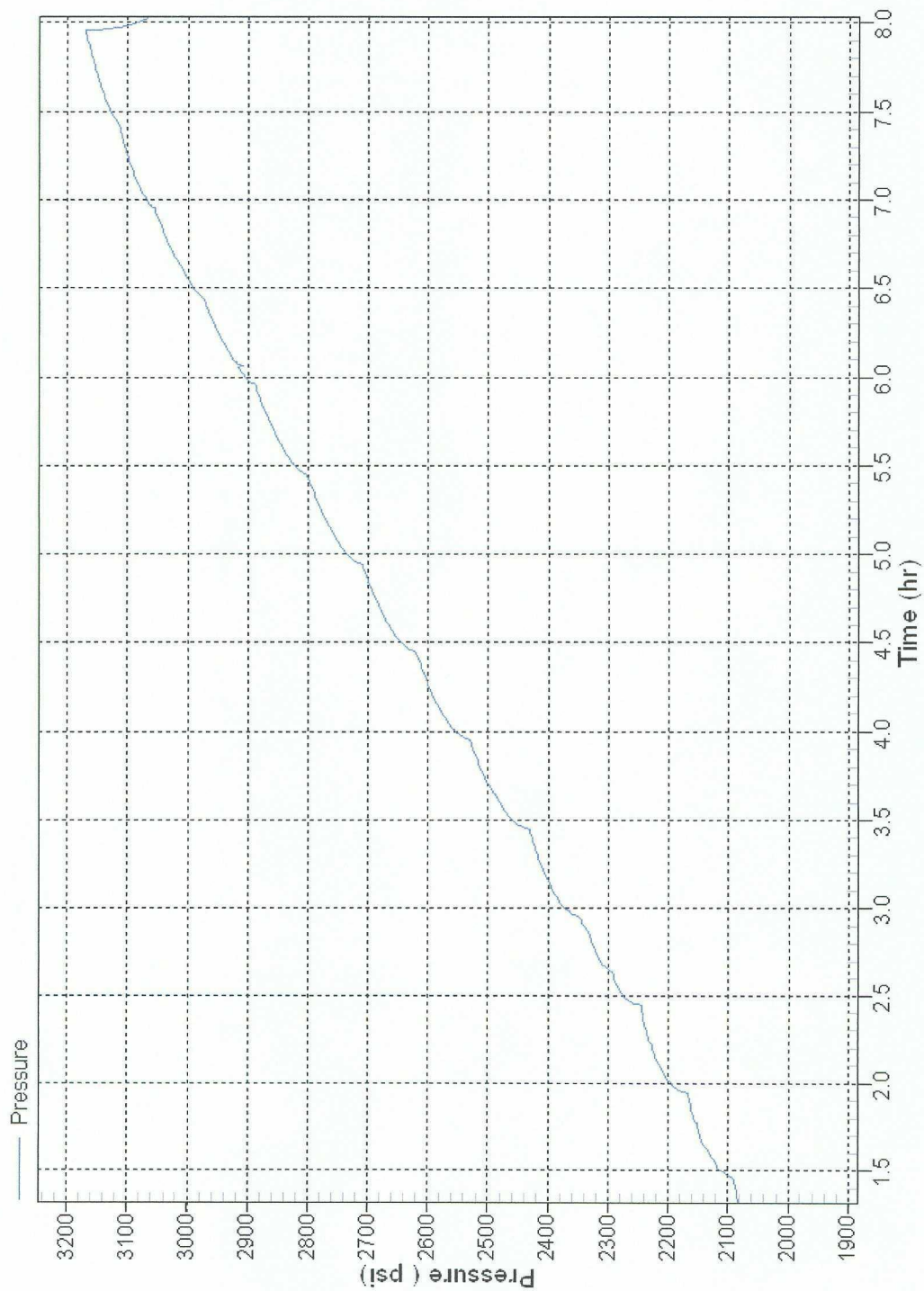




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3970' Jalmat Field Yates Sand Unit #221



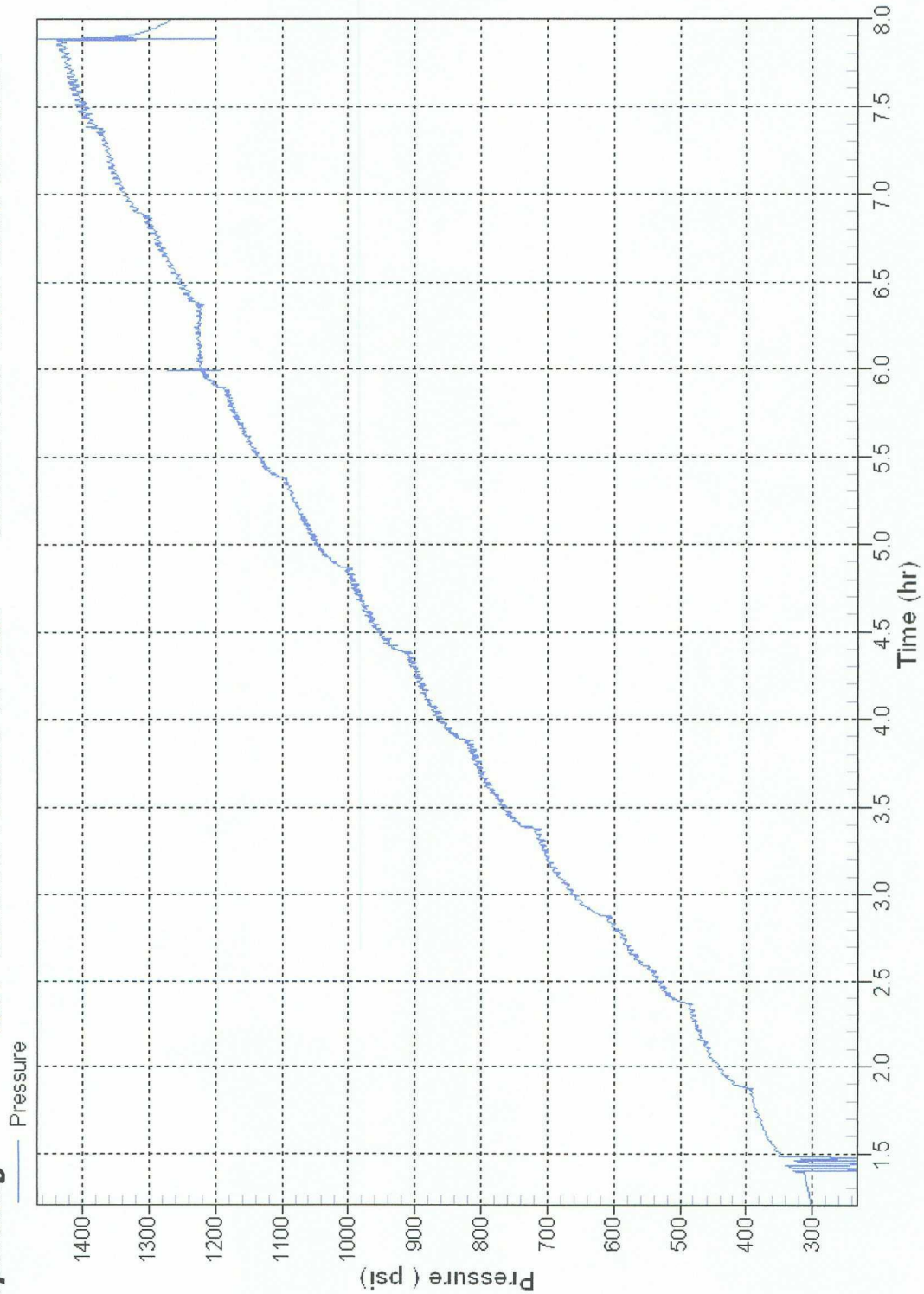


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #221



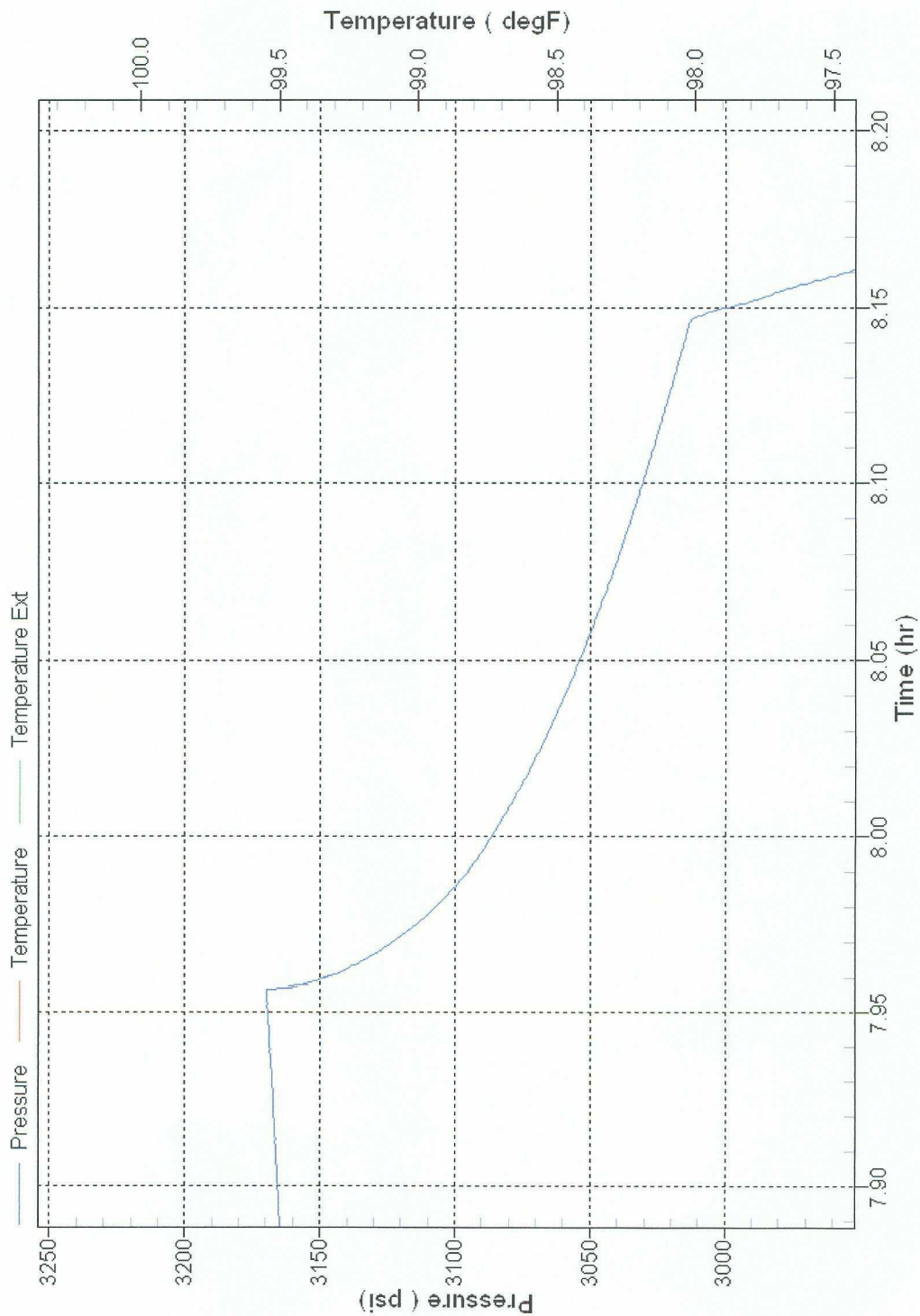


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #221





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Yates Field Sand Unit #233
November 29, 2010

Step Rate Test **Event Summary**

Gradient

Time	Event	Pressure
11:03:06	Start Instrument	
11:08	surface	149
11:17	1000	701
11:25	2000	1244
11:30	3000	1777
11:37	3922	2262
		1

Step Rate Test

Time	Rate bpd	BHP	Surface
1:00	0	2394	378
1:30	75	2477	506
2:00	150	2571	677
2:30	225	2679	904
3:00	300	2796	1088
3:30	375	2918	1220
4:00	450	3043	1341
4:30	525	3165	1475
5:00	600	3276	1593
5:30	675	3376	1695
6:00	750	3459	1786
6:30	825	3538	1864

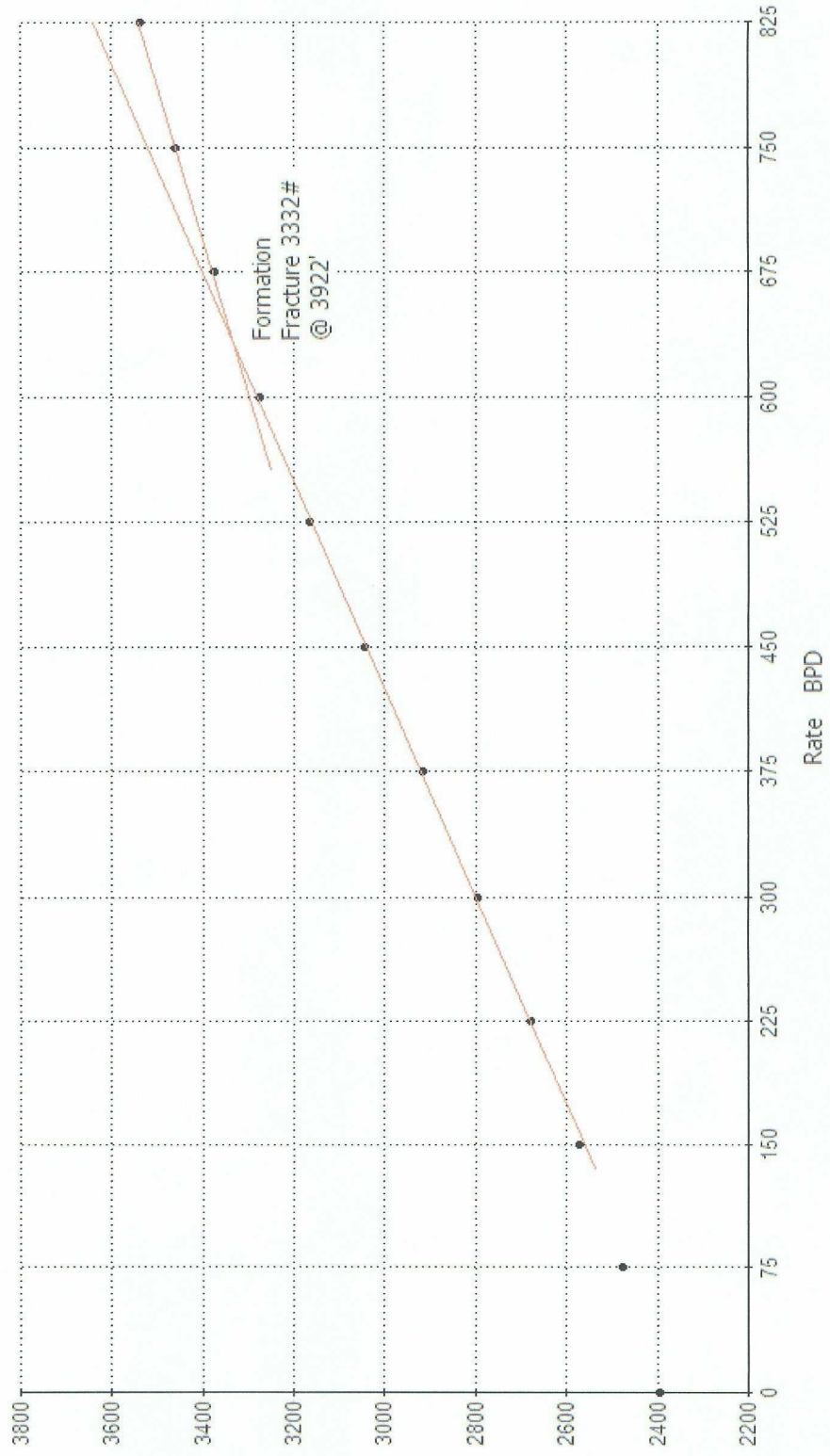
Formation Fracture Pressure 3332# @ 3922' 1611# Surface (friction not considered)

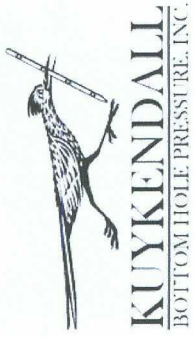


Melrose Operating

Step Rate Test

Jalmat Yates Field Sand Unit #233





Melrose Operating

Gradients

Jalmat Yates Field Sand Unit #233



SRT Pressure vs Time 3922' Jalmat Yates Field Sand Unit #233



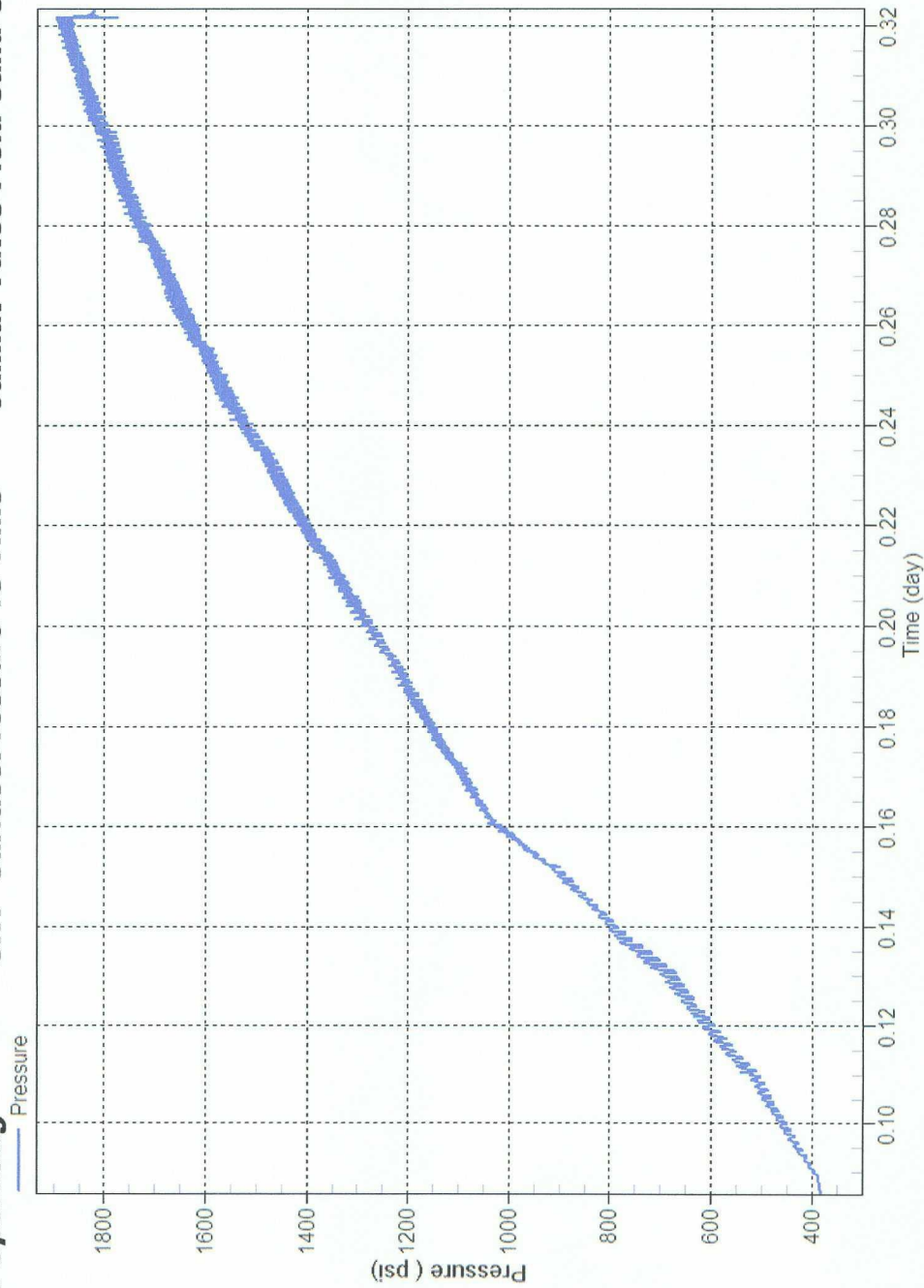


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #233



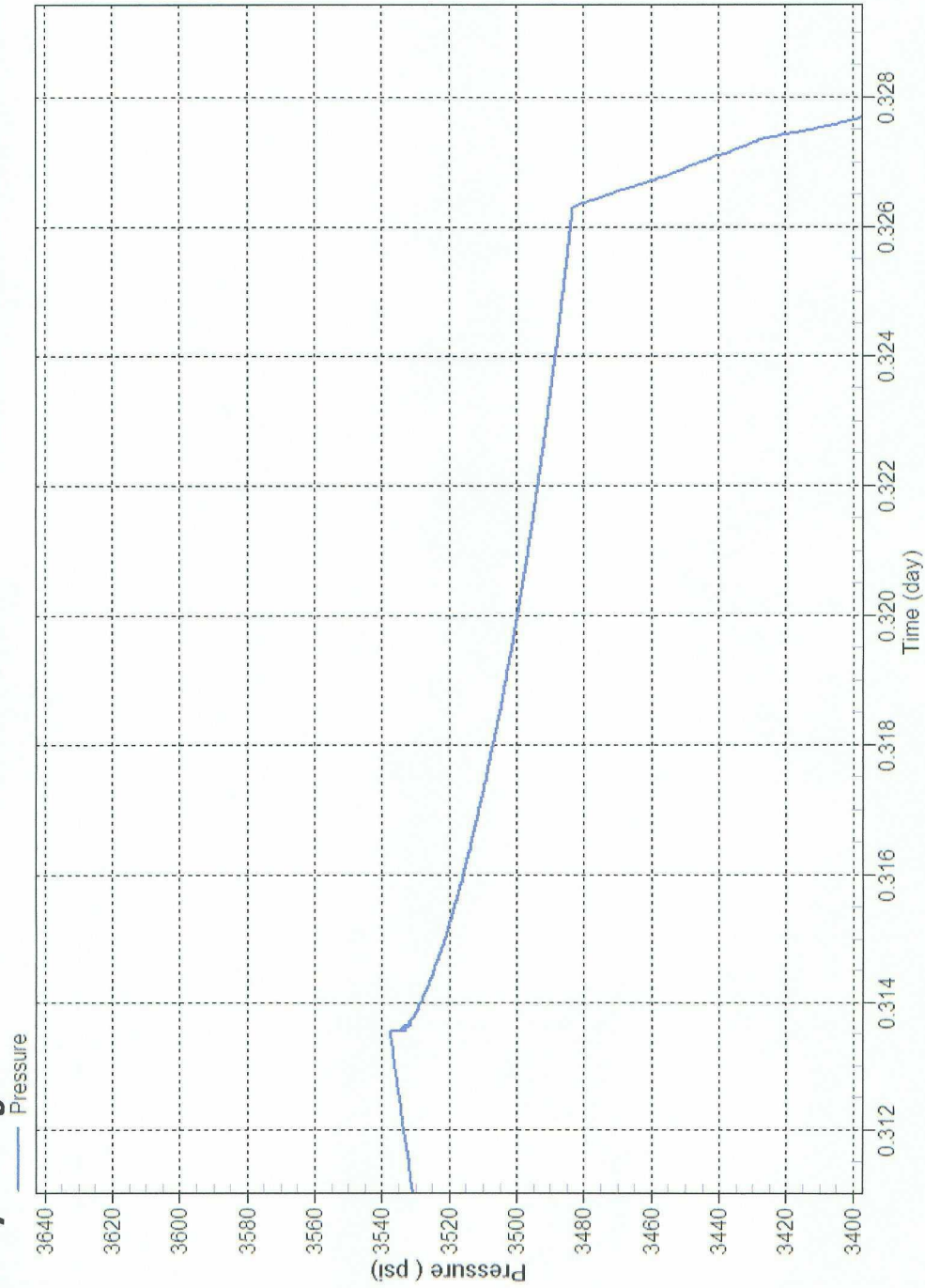


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #233





KUNKENDAHL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #234
August 31, 2010

Step Rate Test **Event Summary**

Gradient

Time	Event	Pressure
10:35	Start Instrument	
10:40	Surface	217
10:47	1000	754
10:53	2000	1284
10:59	3000	1808
11:06	3952	2304

Step Rate Test

Time	Rate bpd	BHP	Surface
11:30	0	2336	300
12:00	75	2413	405
12:30	150	2506	575
1:00	225	2621	800
1:30	300	2758	1020
2:00	375	2896	1165
2:30	450	3049	1310
3:00	525	3184	1460
3:30	600	3311	1590
4:00	675	3421	1710
4:30	750	3514	1825
5:00	825	3588	1900

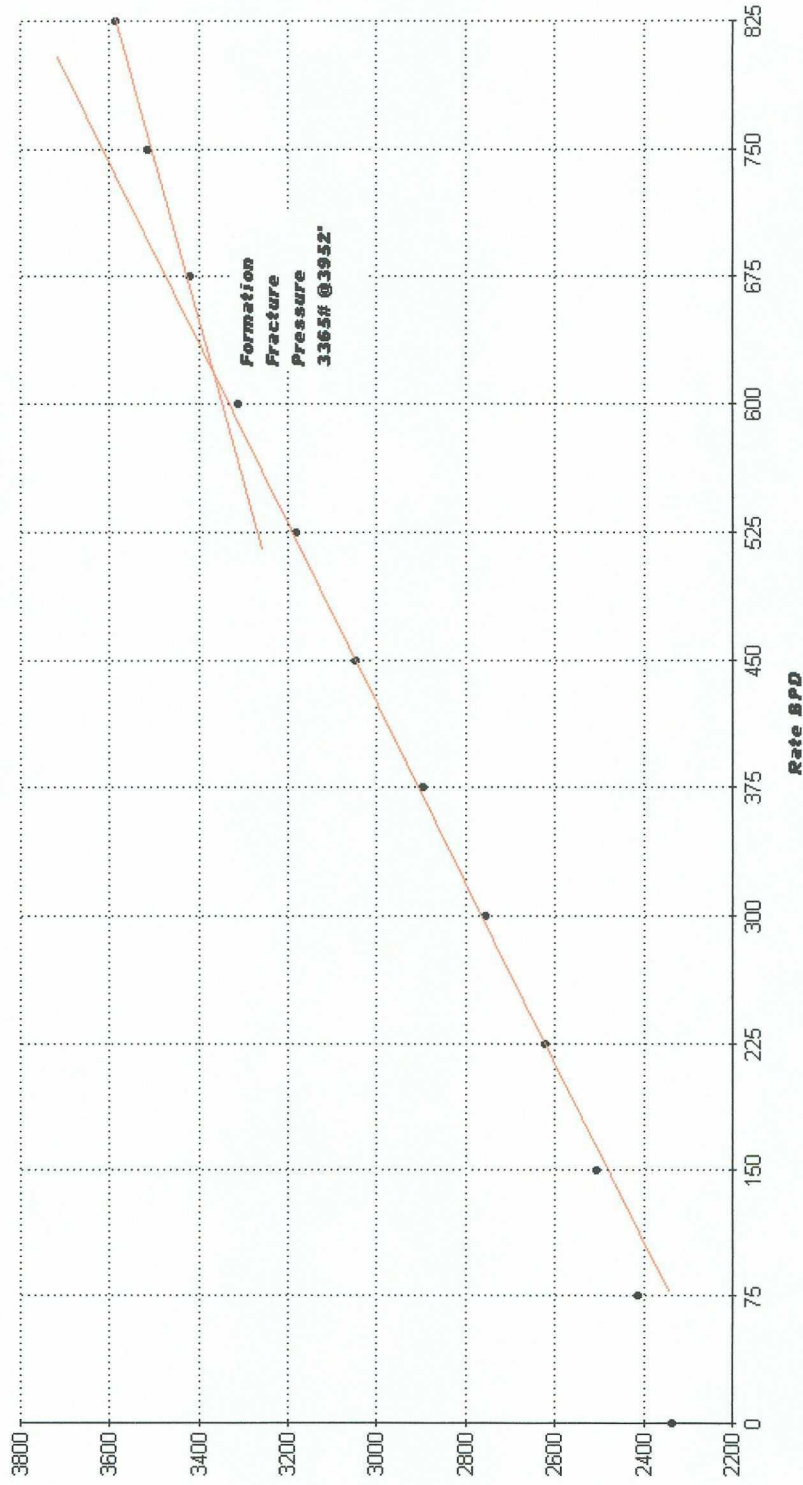
Formation Fracture 3365# at 3952' 1630# Surface (friction not considered)



Melrose Operating

Step Rate Test 3952'

Jalmat Field Yates Sand Unit #234

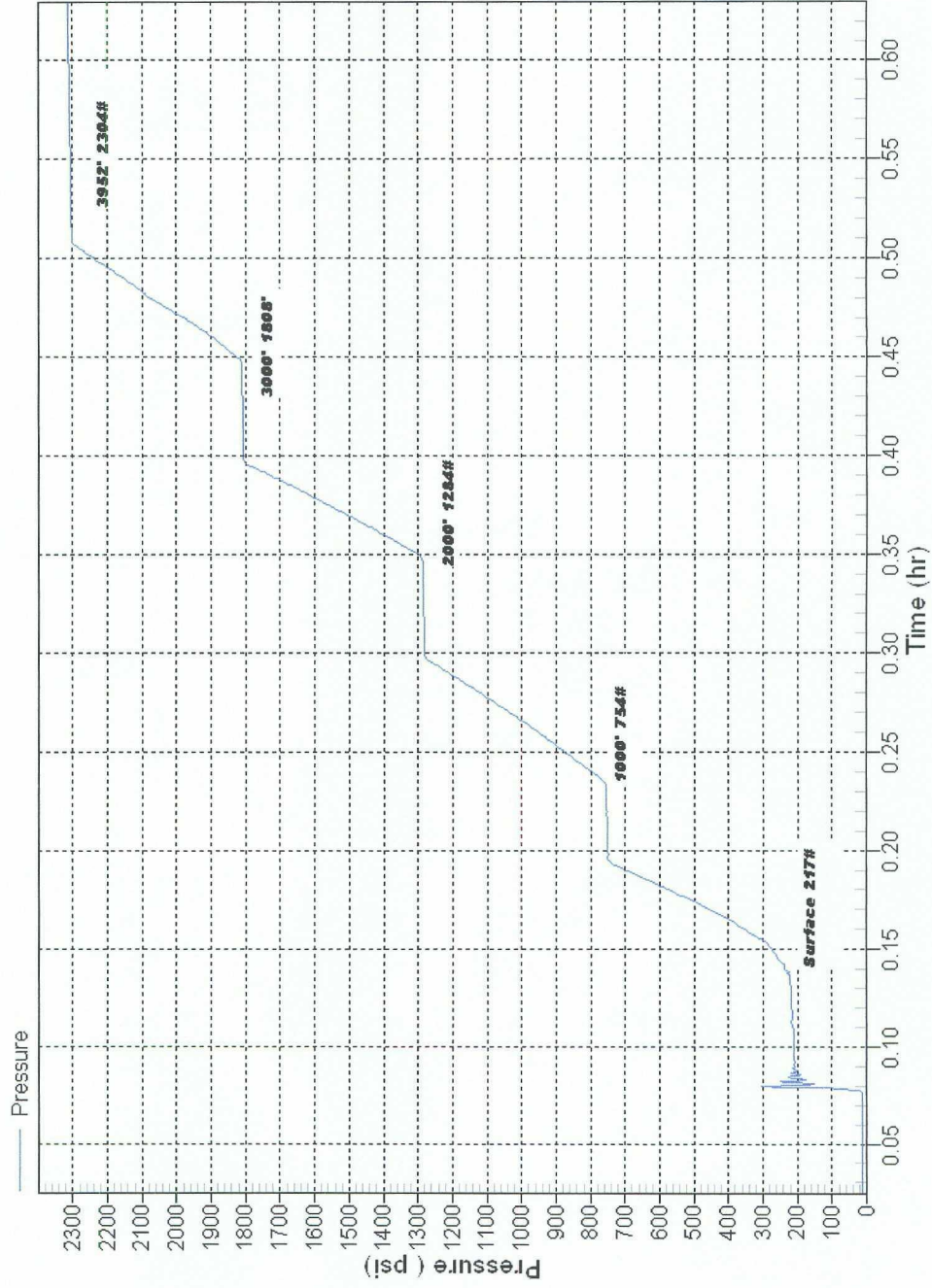




Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #234

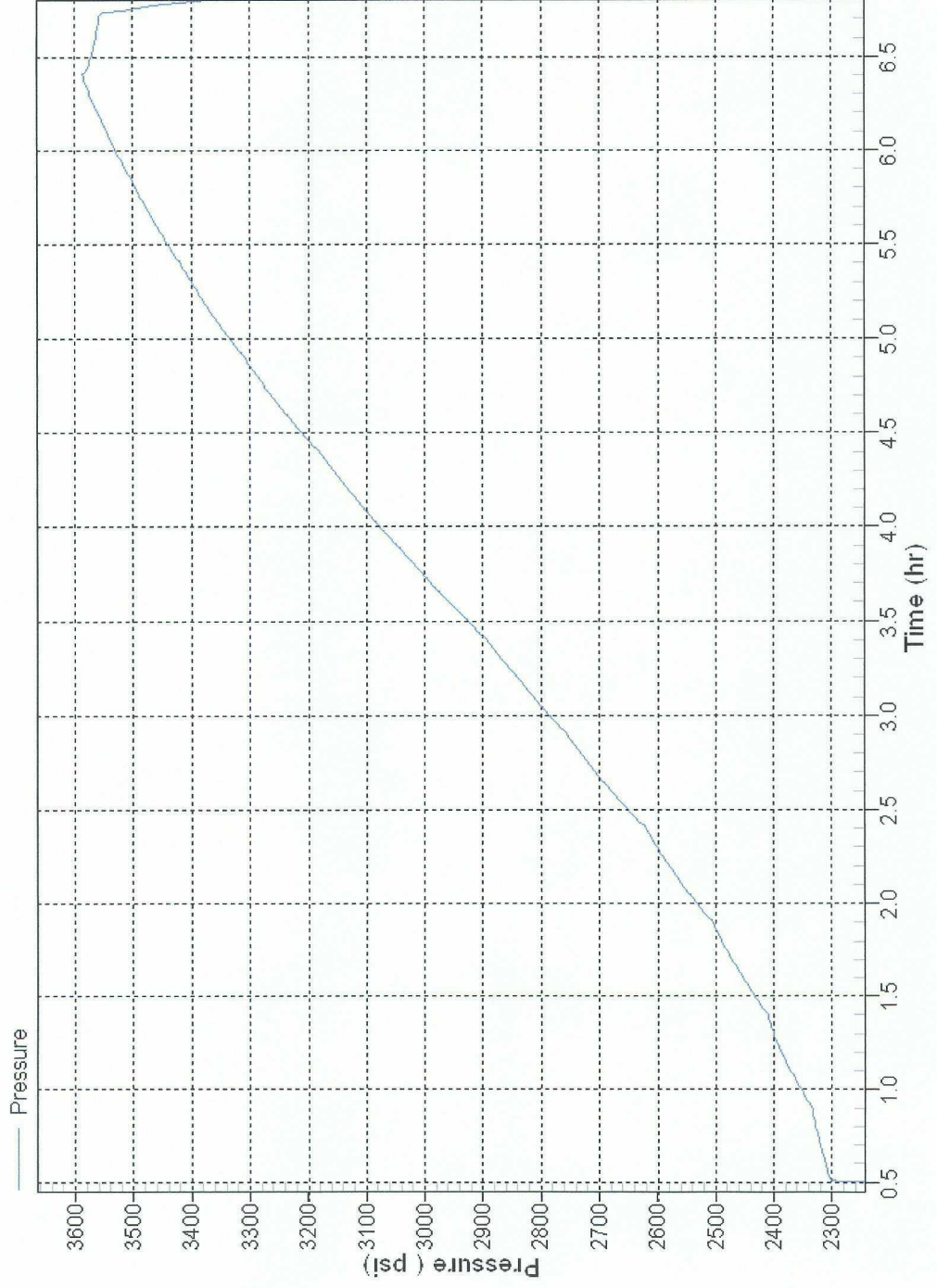




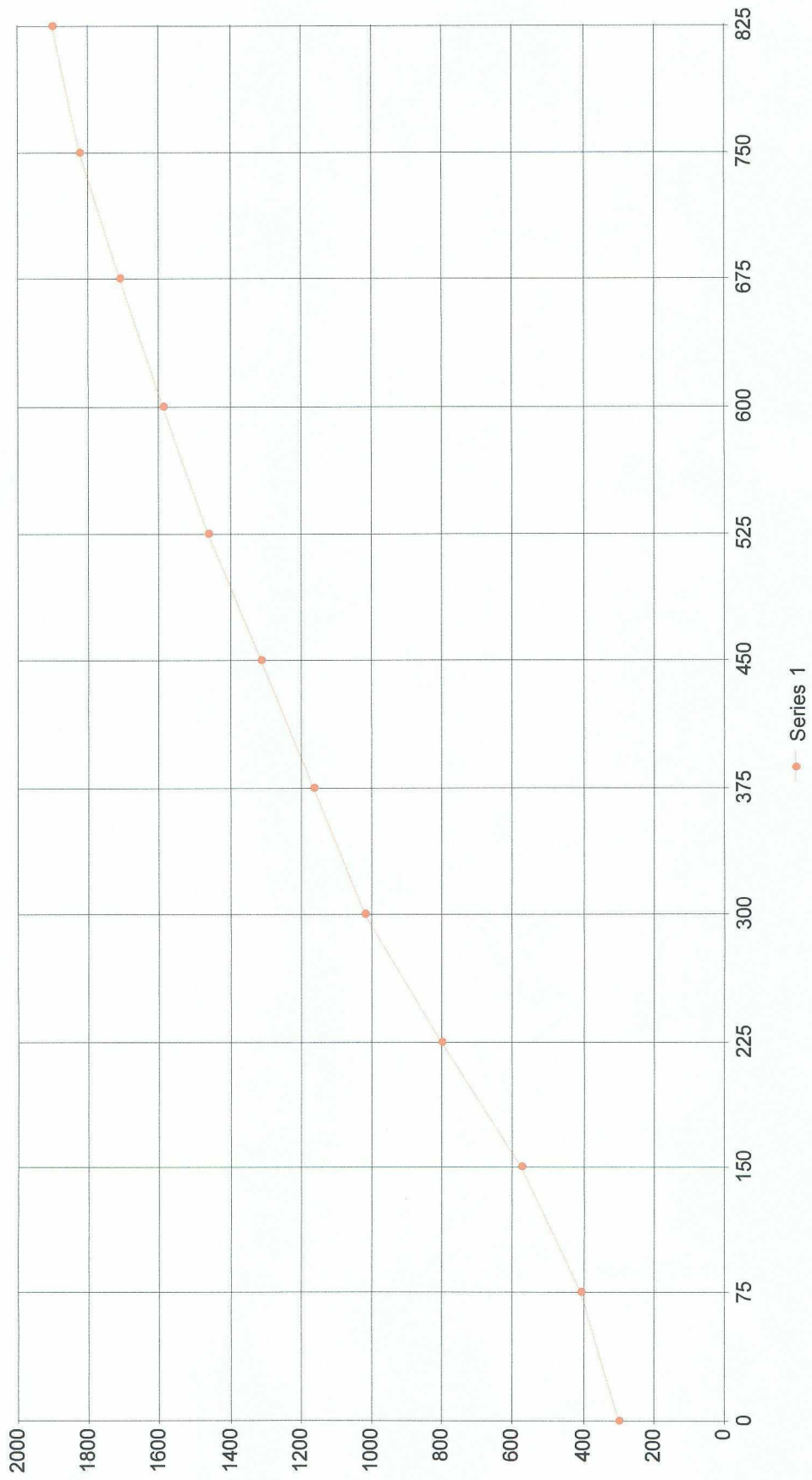
KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3952' Jalmat Field Yates Sand Unit #234



SRT Surface Pressure vs Time Jalmat Field Yates Sand Unit #234



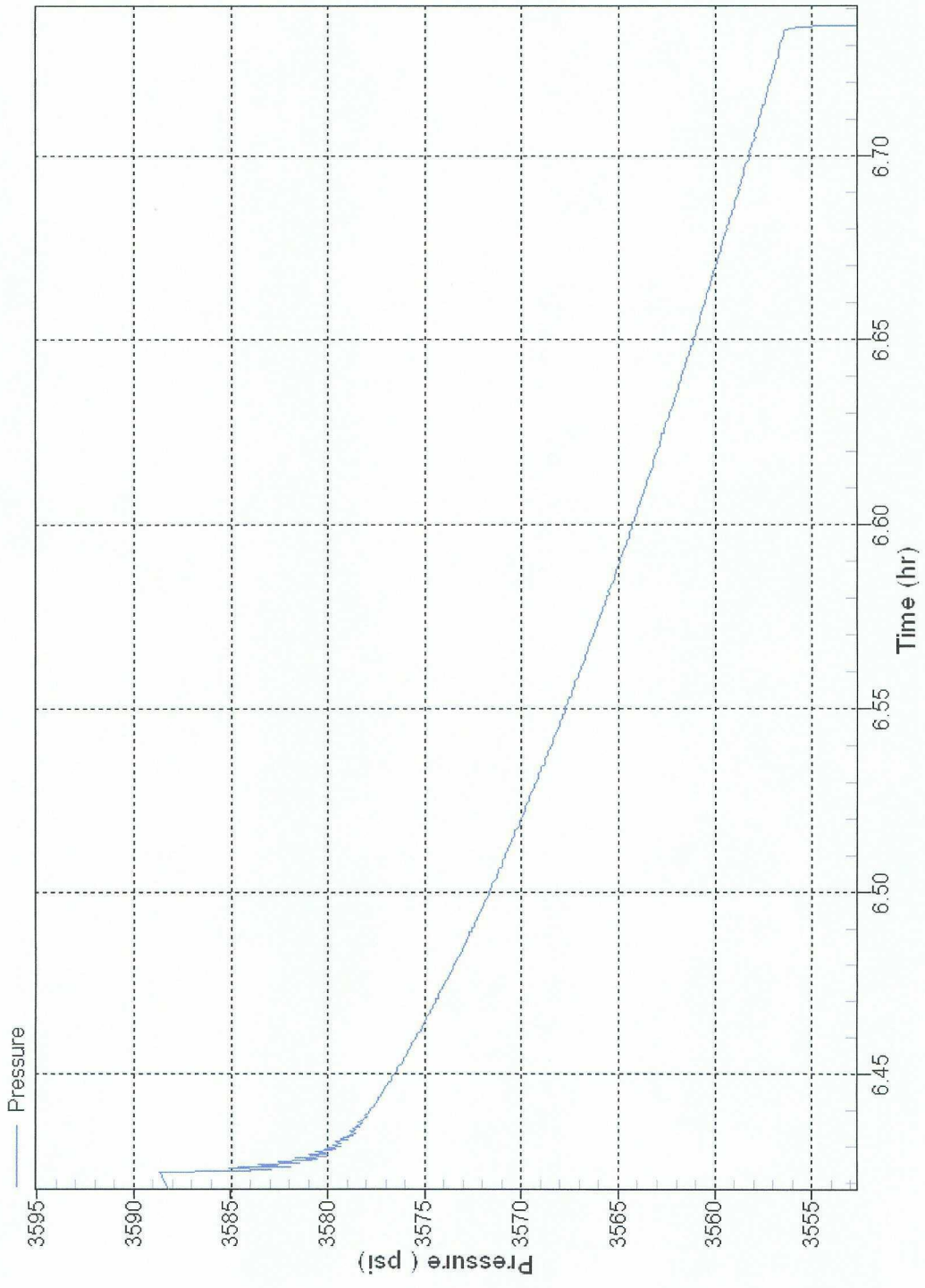


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #234





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Field Yates Sand Unit #236
June 9, 2010

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
8:48:53	Start Instrument	
8:59	0'	0#
9:20	1000'	203
9:26	2000'	643
9:33	3000'	1082
9:40	3941'	1493

Step Rate Test

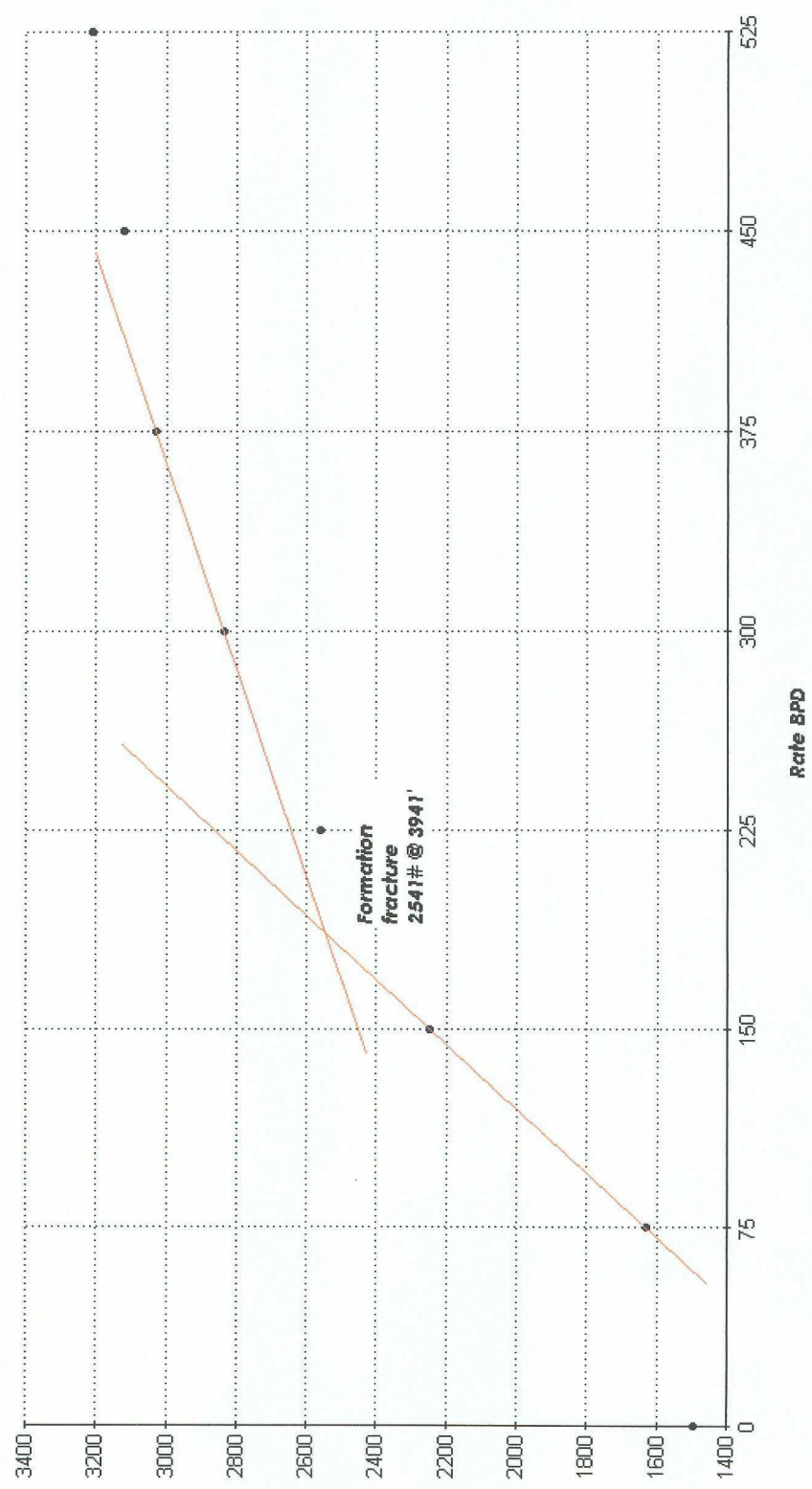
Time	Rate bpd	BHP	Surface
10:00	0	1493	0
10:30	75	1630	15
11:00	150	2250	544
11:30	225	2560	868
12:00	300	2835	1148
12:30	375	3028	1350
1:00	450	3120	1432
1:30	525	3210	1535

Formation Fracture Pressure 2541# @ 225 BPD 810# Surface (Friction pressure not considered)

Projected Pressures pump went down 15 min into step 7



Melrose Operating **Step Rate Test 3941'** **Jalmat Field Yates Sand Unit #236**

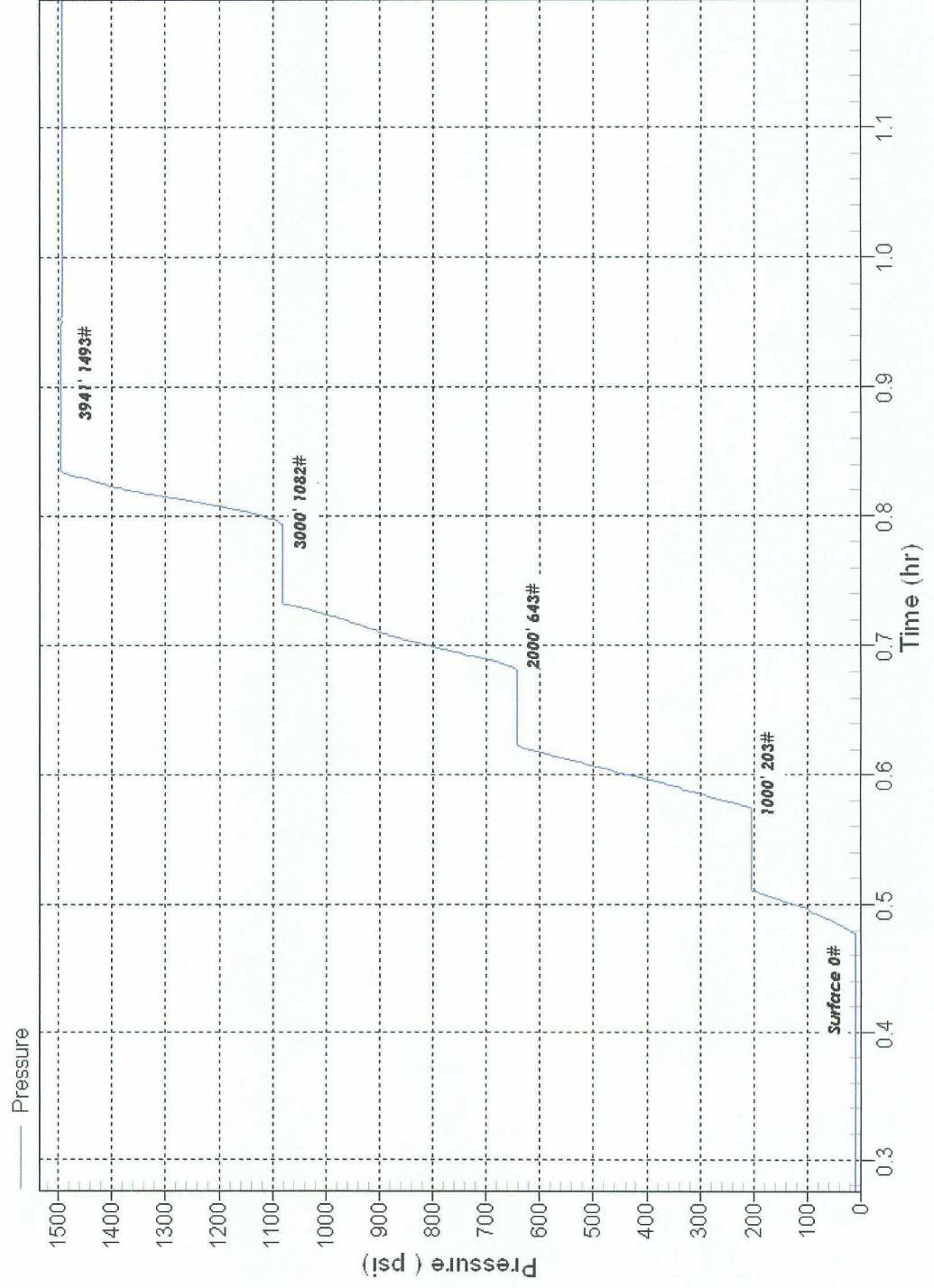




Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #236

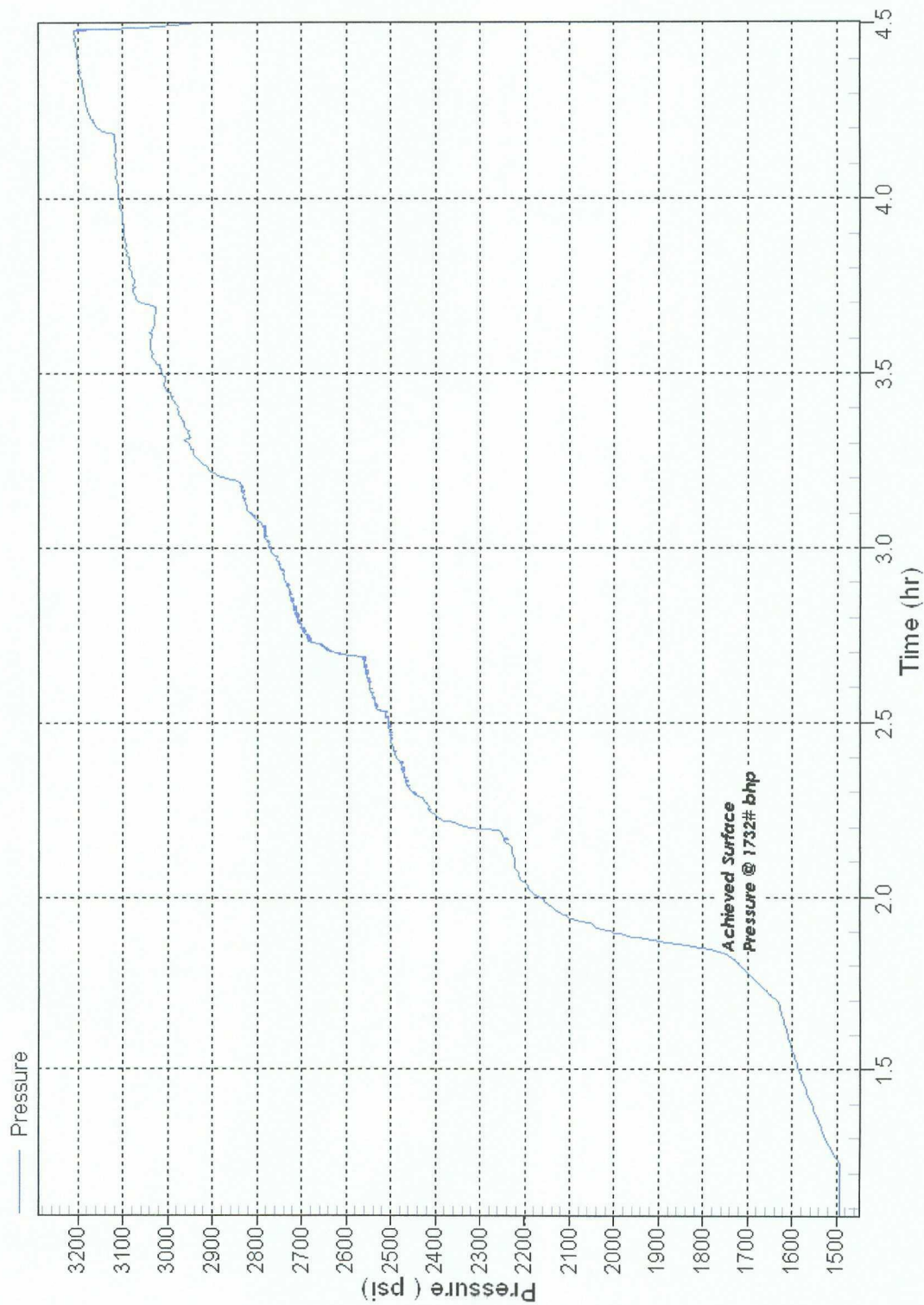




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3941' Jalmat Field Yates Sand Unit #2336



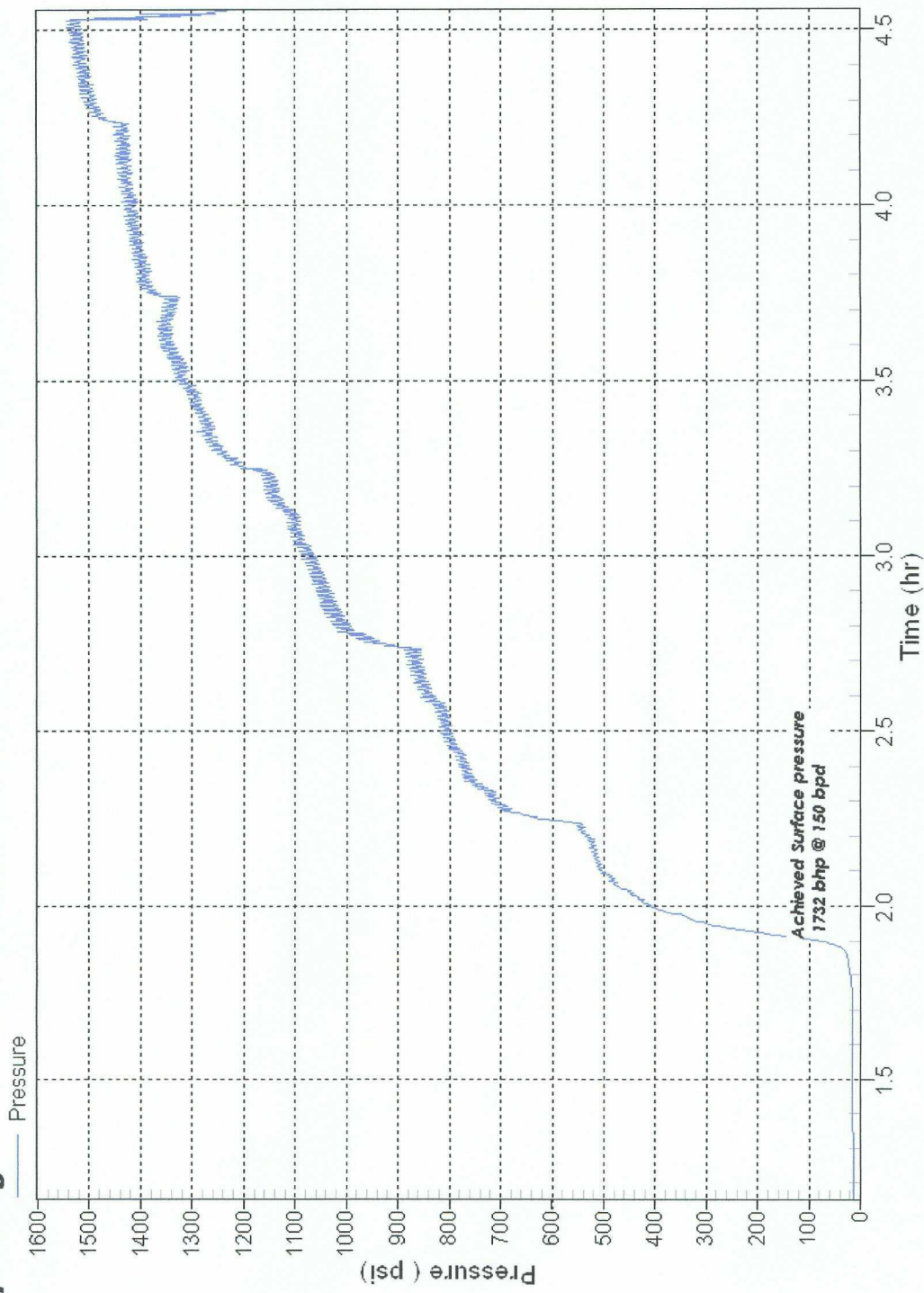


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #236



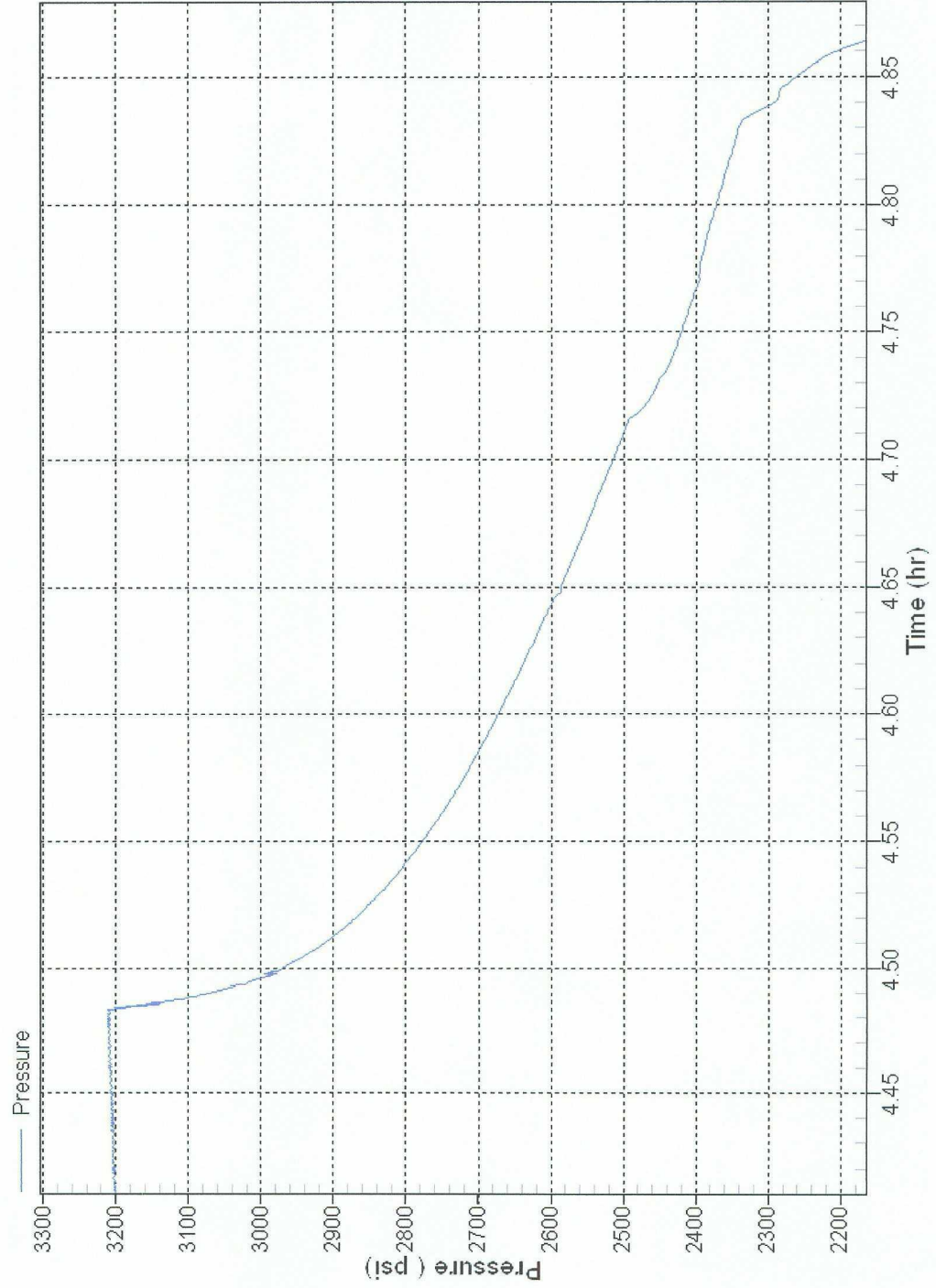


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #236





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

***Melrose Operating
Jalmat Field Yates Sand Unit #237
June 11, 2010***

Step Rate Test Event Summary

Gradient

Time	Event	Pressure
8:48:22	Start Instrument	
8:54	0	1027
9:02	1000'	1468
9:07	2000'	1910
9:13	3000'	2351
9:19	3939	2763

Step Rate Test

Time	Rate bpd	BHP	Surface
10:15	0	2763	1039
10:45	75	2901	1183
11:15	150	3076	1375
11:45	225	3245	1557
12:15	300	3420	1730
12:45	375	3511	1824
1:15	450	3598	1921
1:45	525	3662	1994
2:15	600	3710	2045

Meter had trash – rate went high

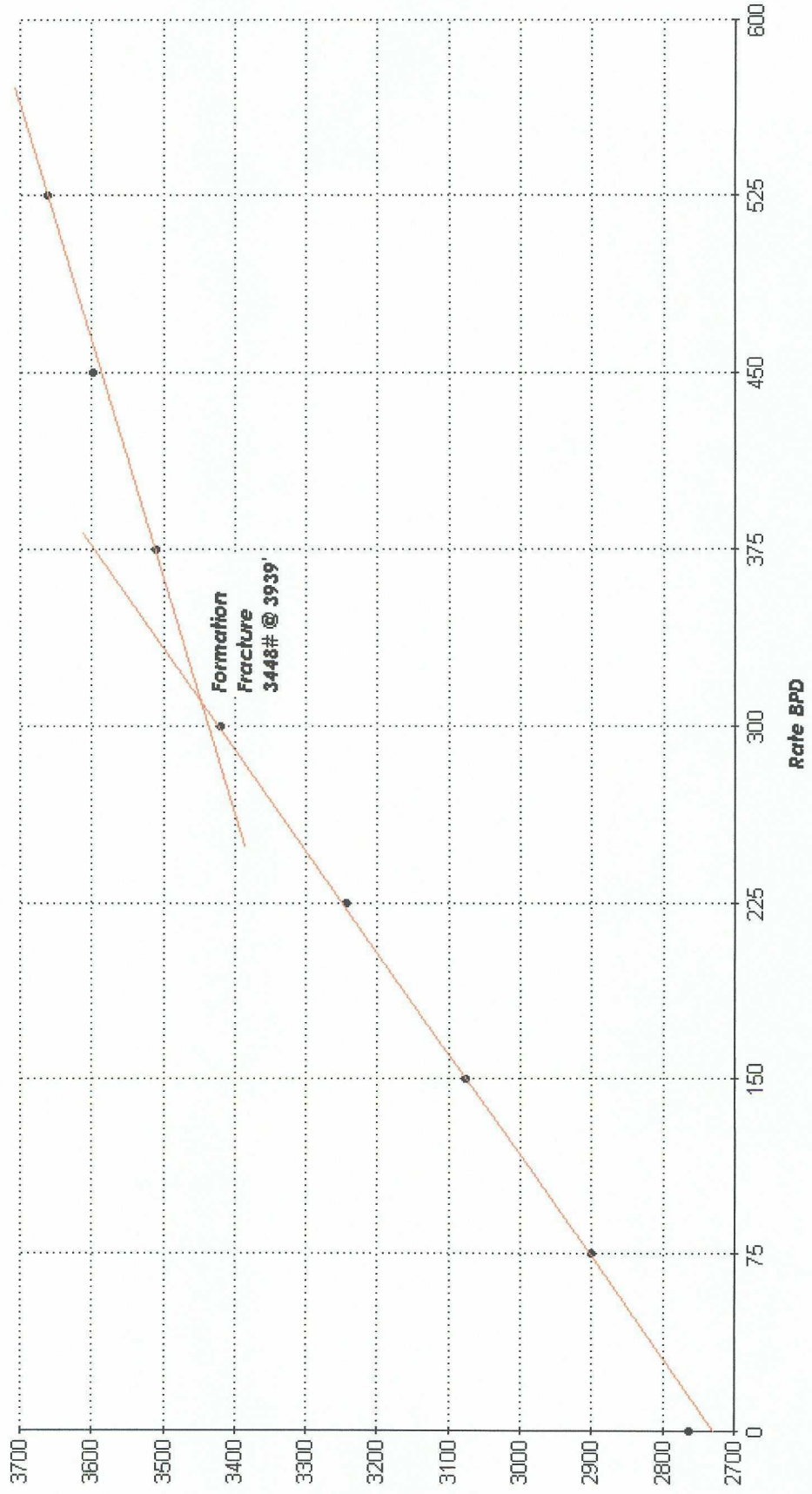
Formation Fracture Pressure 3448# @ 375 BPD 1712# Surface (Friction pressure not considered)



Melrose Operating

Step Rate Test 3939'

Jalmat Field Yates Sand Unit #237

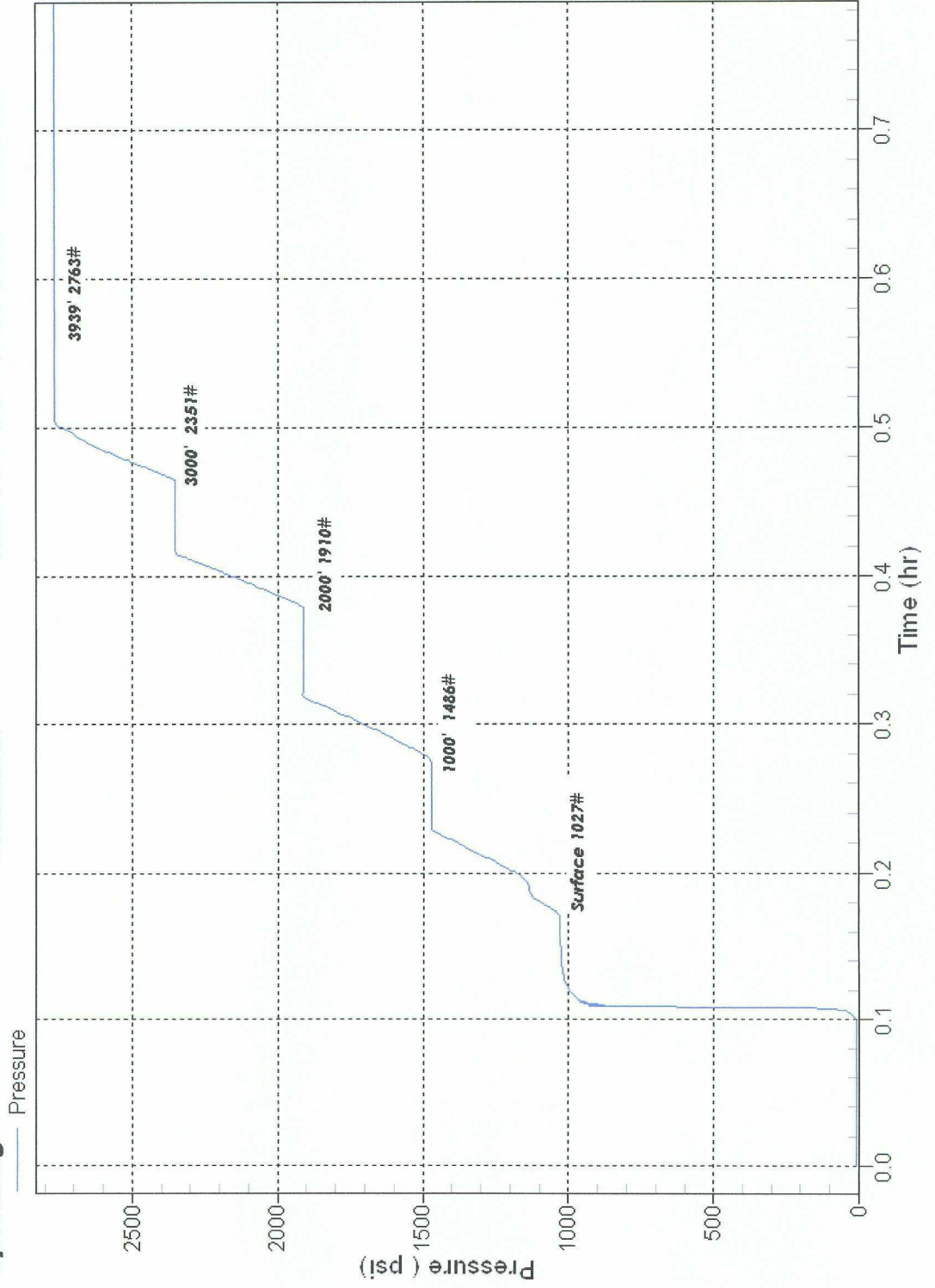




Melrose Operating

Gradients

Jalmat Field Yates Sand Unit #237

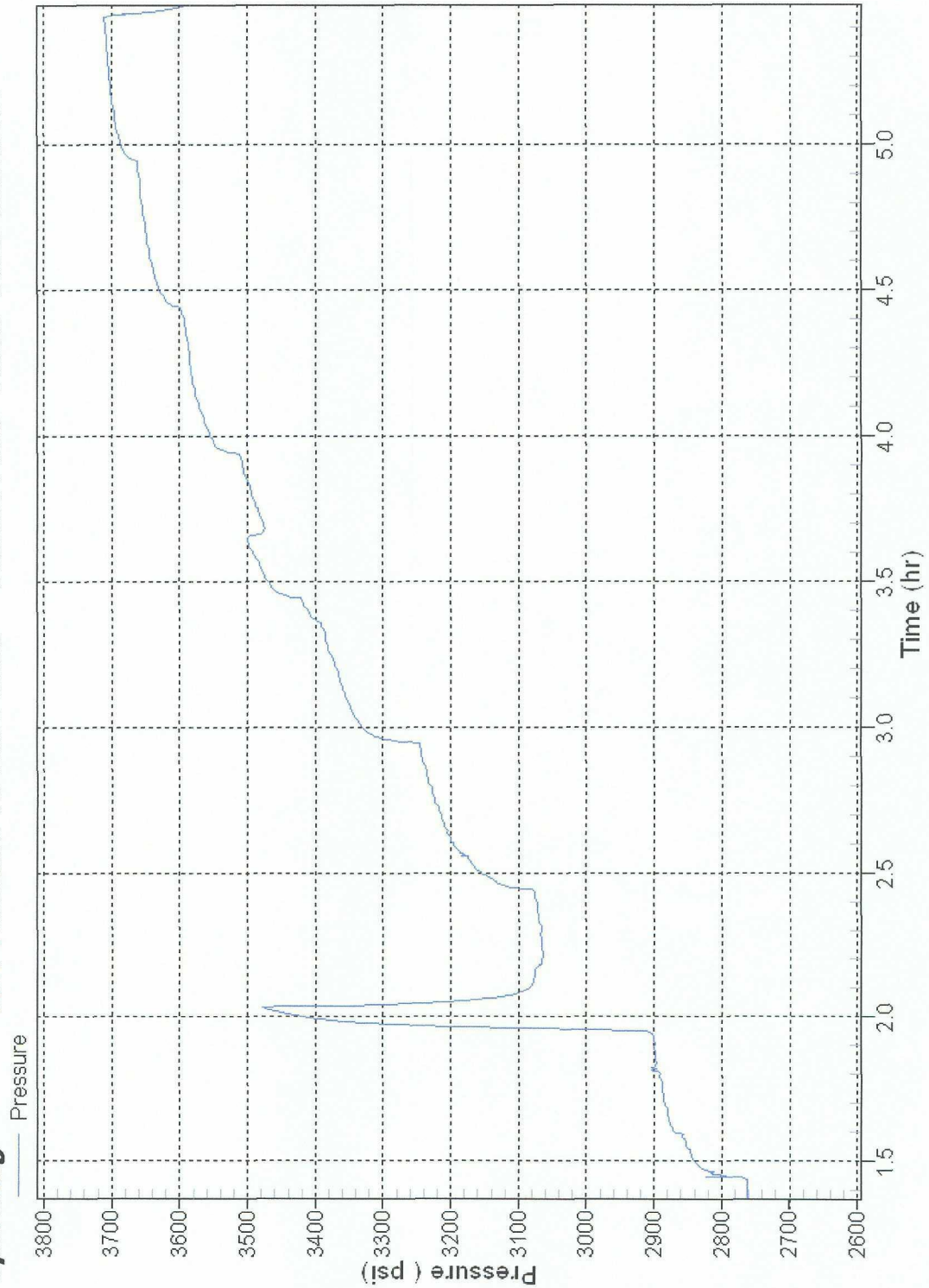




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3939' Jalmat Field Yates Sand Unit #237



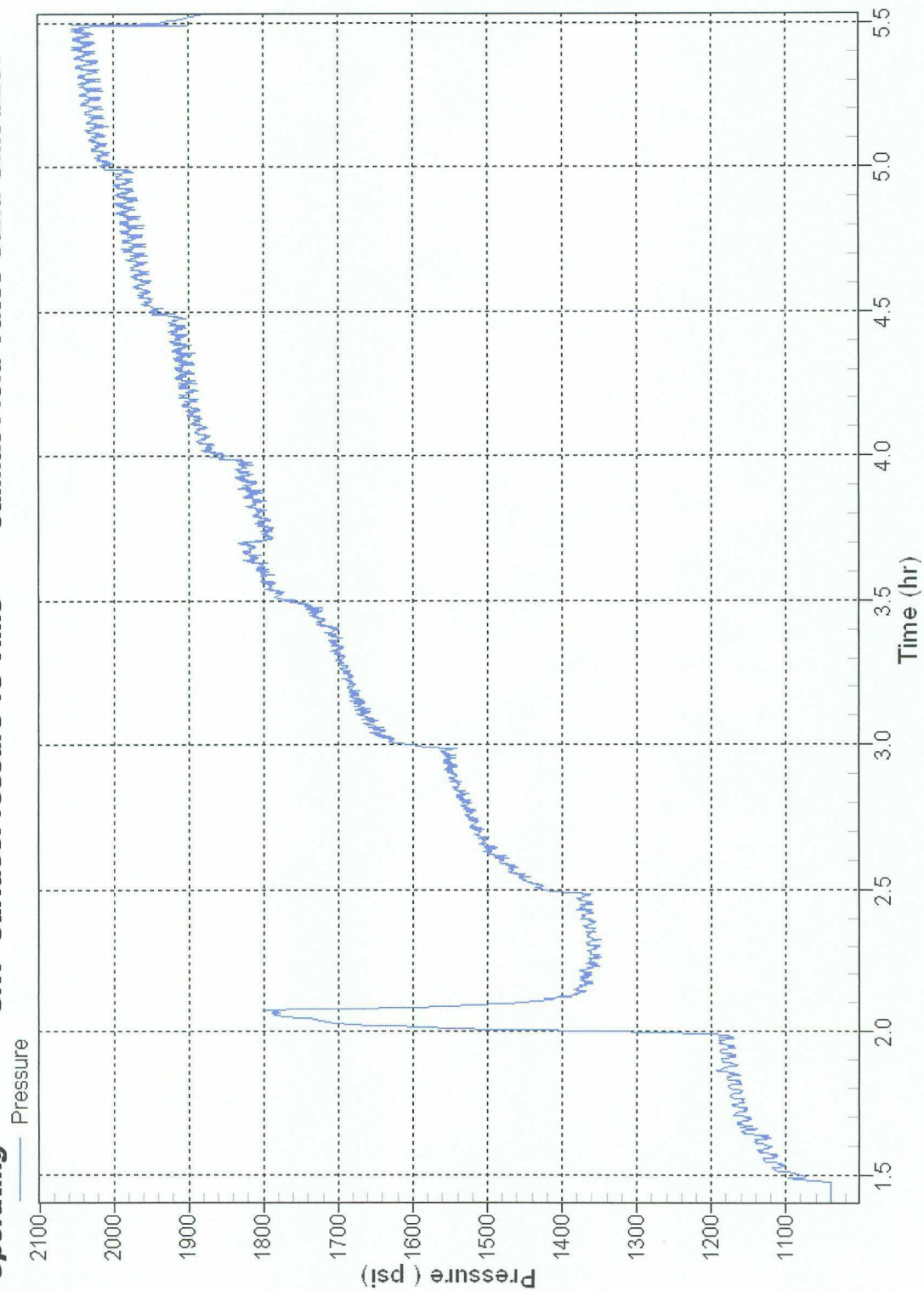


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Field Yates Sand Unit #237



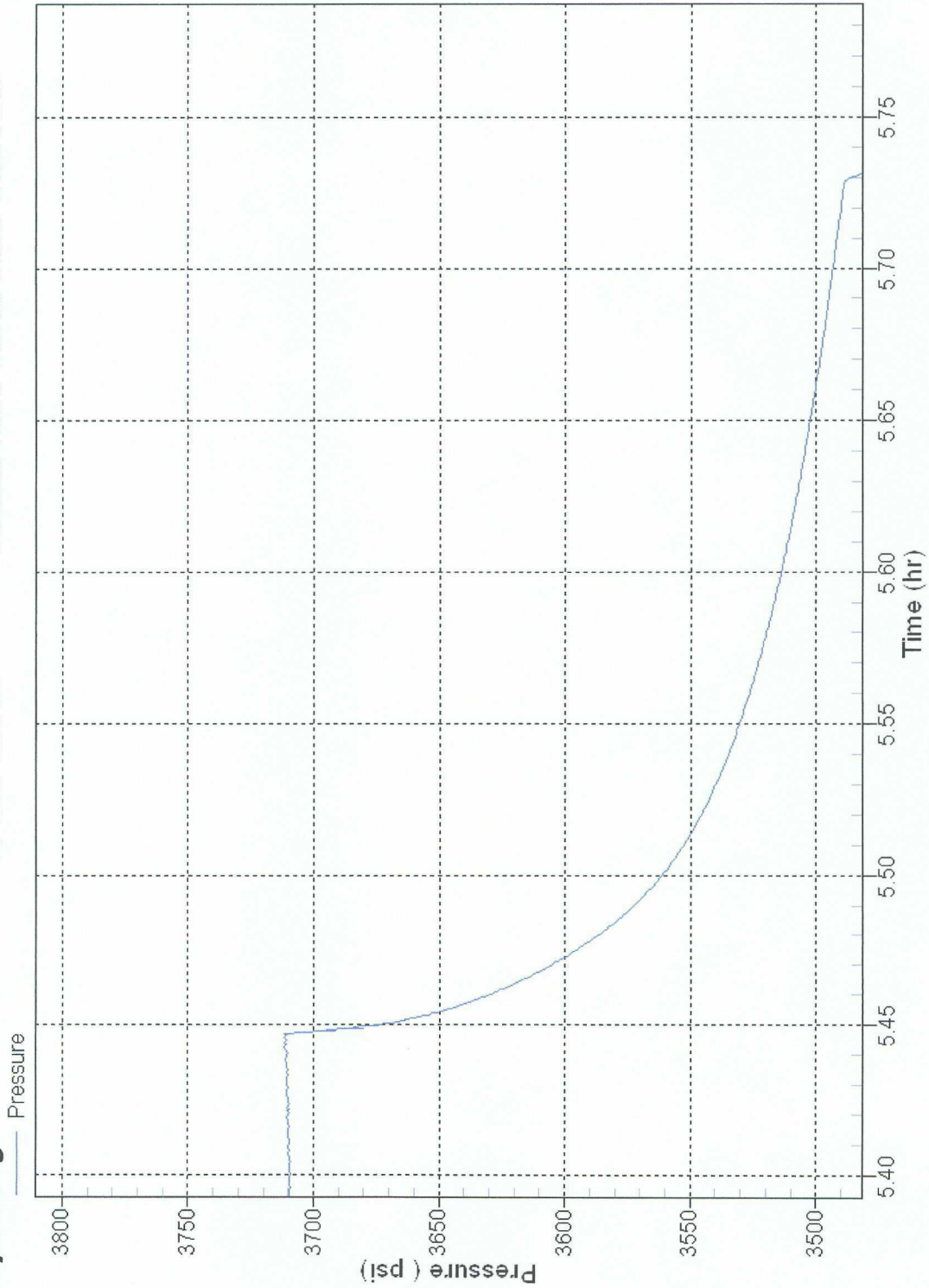


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Field Yates Sand Unit #237





KUNKENDALL

BOTTOM HOLE PRESSURE, INC.

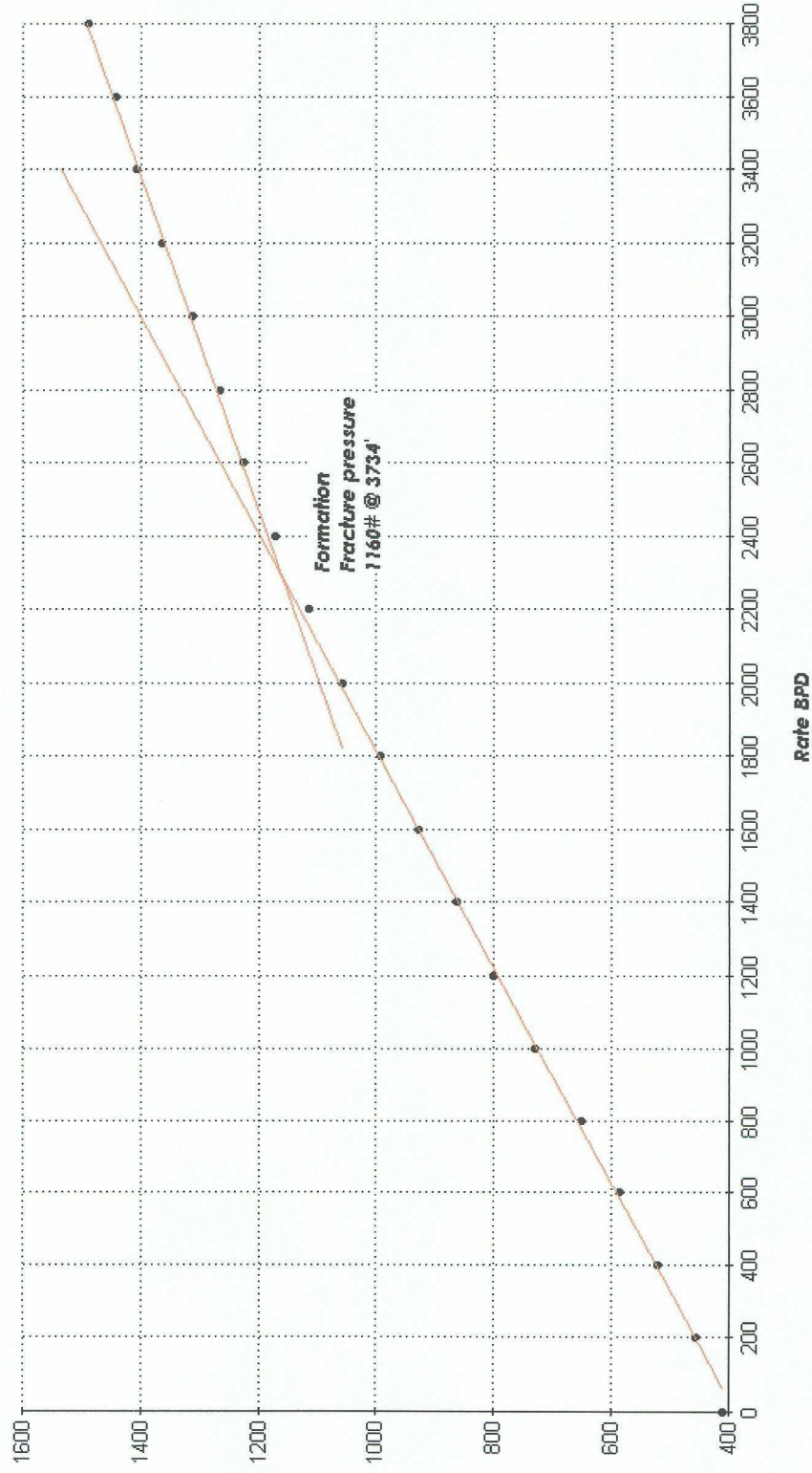
Melrose Operating
Jalmat Yates Field Sand Unit #239
Julye 13, 2010



Melrose Operating

Step Rate Test

Jalmat Yates Field Sand Unit #239



Step Rate Test Event Summary

Gradient

Time	Event	Pressure
9:01:39	Start instrument	9 psia
9:06	surface	10
9:12	1000'	12
9:16	2000'	132
9:20	3000'	403
9:25	3734'	

Step Rate Test

Time	Rate bpd	BHP	Surface
10:30	0	411	0
11:00	200	457	0
11:30	400	528	0
12:00	600	585	0
12:30	800	651	0
1:00	1000	731	0
1:30	1200	797	0
2:00	1400	864	0
2:30	1600	927	0
3:00	1800	991	0
3:30	2000	1057	0
4:00	2200	1115	0
4:30	2400	1172	0
5:00	2600	1227	0
5:30	2800	1266	0
6:00	3000	1315	37
6:30	3200	1364	105
7:00	3400	1409	184
7:30	3600	1443	300
8:00	3800	1490	365

Formation fracture 1160# @ 3734' 0# surface pressure.

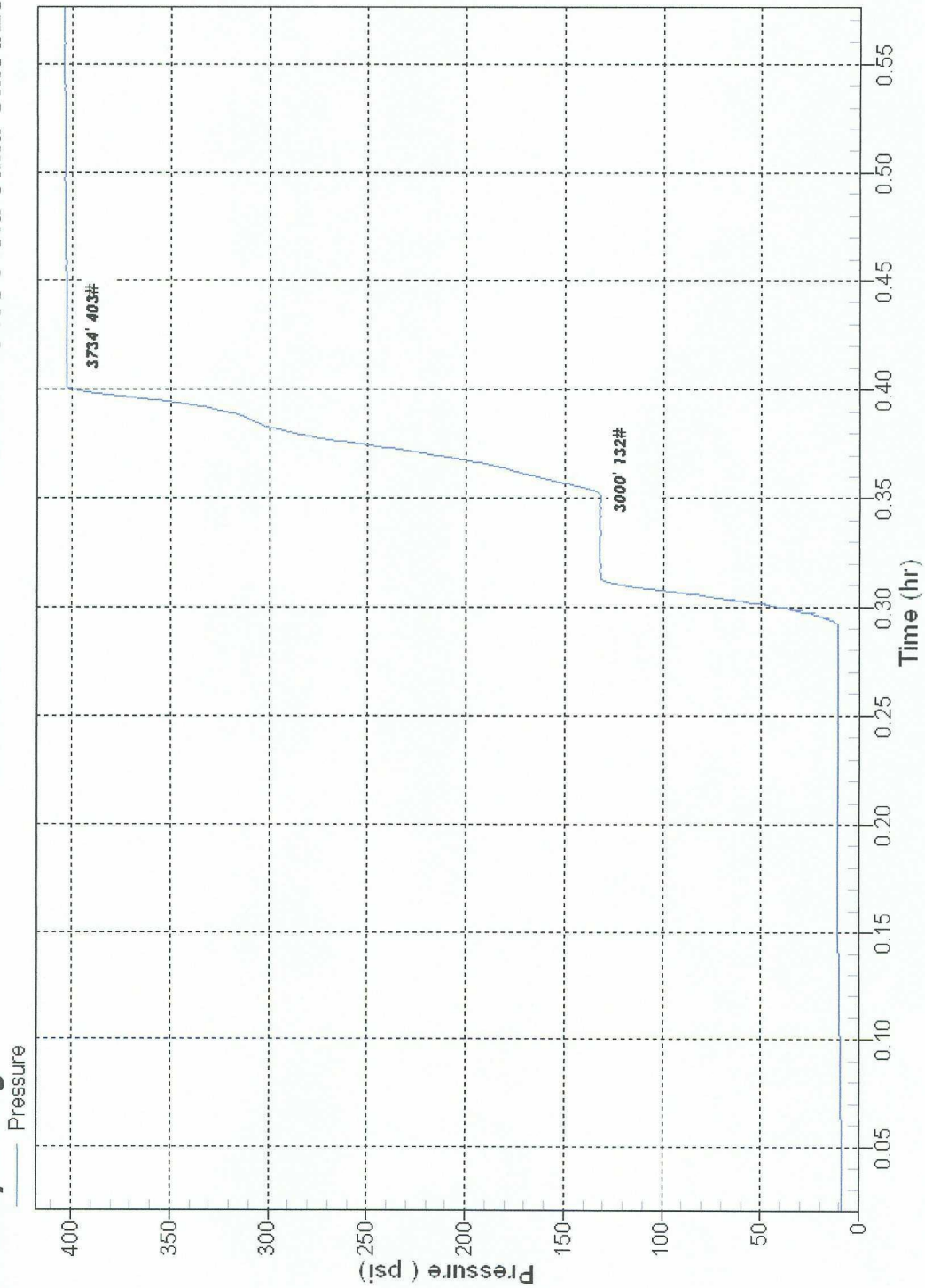
Surface pressure achieved 7 mins into step 15



Jalmat Yates Field Sand Unit #239

Gradients

Melrose Operating

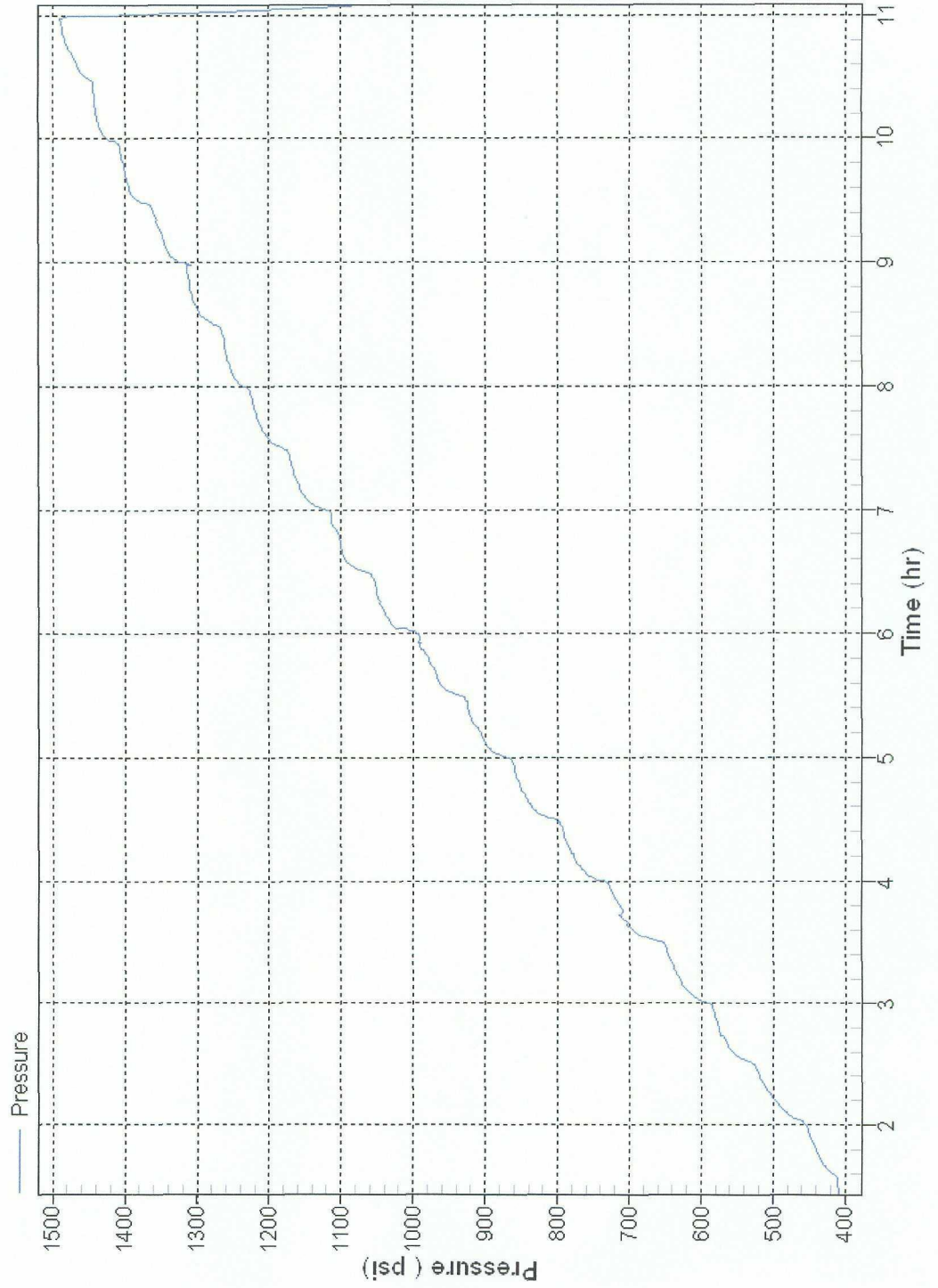




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3734' Jalmat Yates Field Sand Unit #239





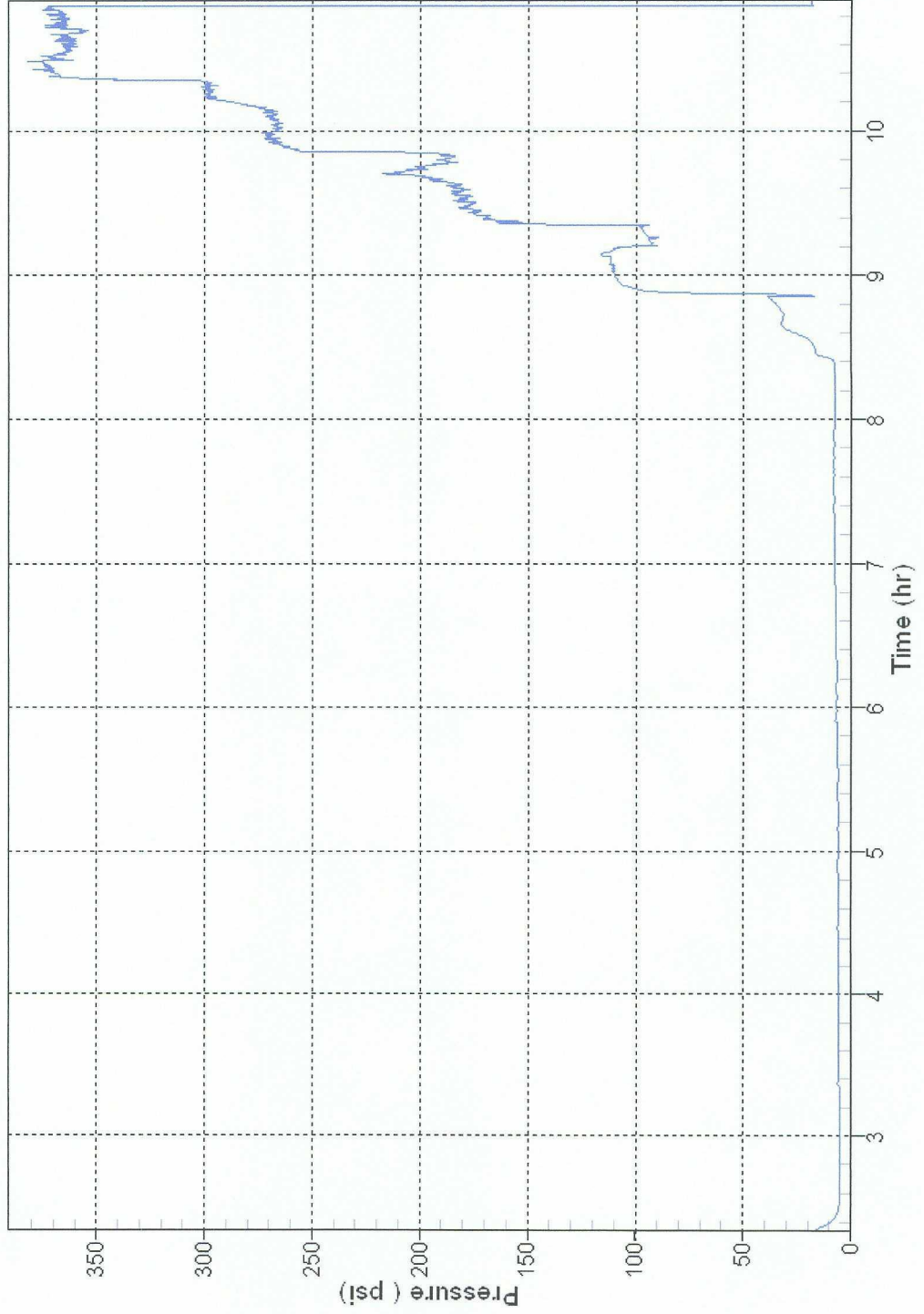
KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #239

— Pressure



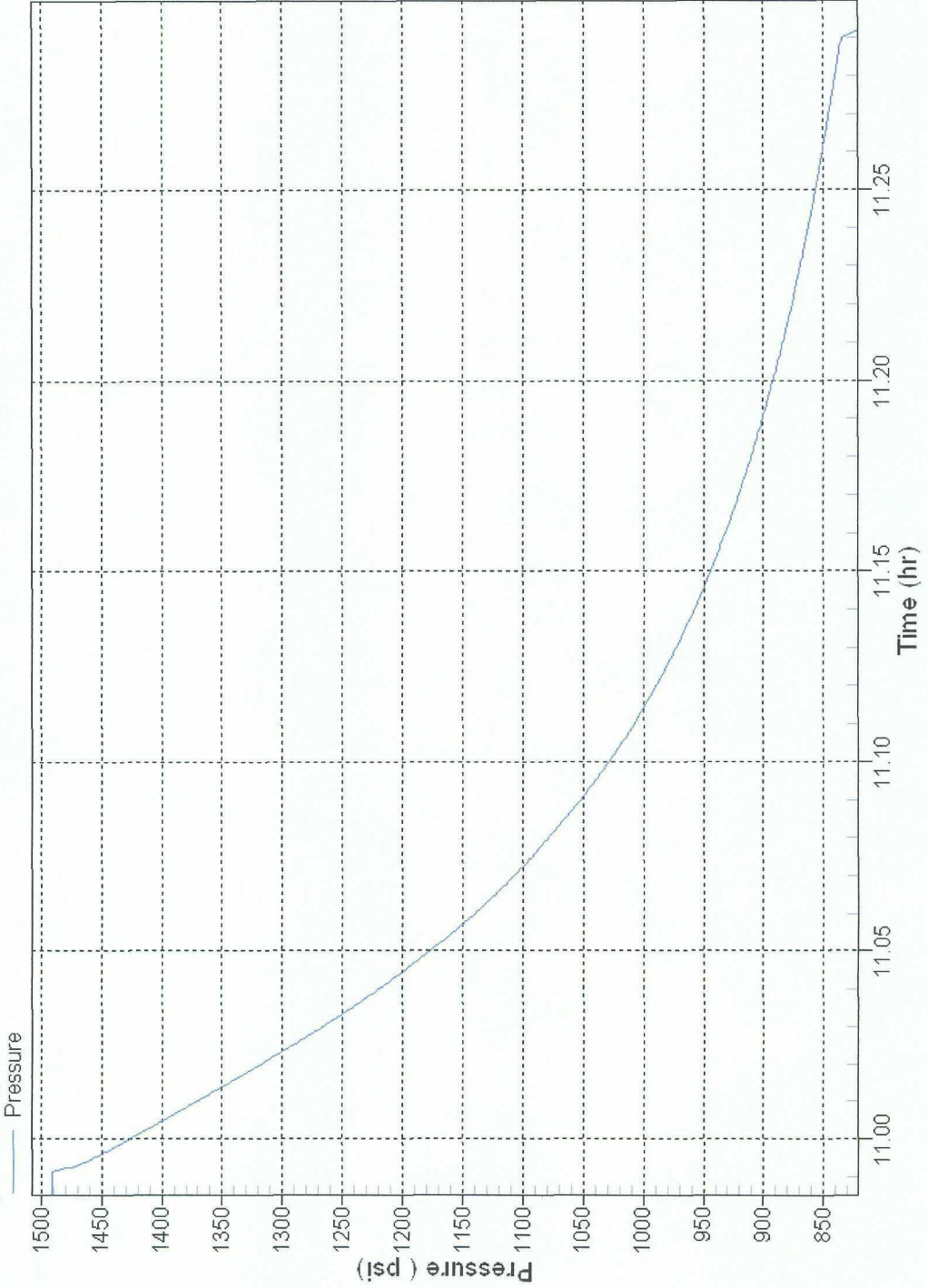


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #239





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Yates Field Sand Unit #241
November 19, 2010

**Step Rate Test
Event Summary**

Gradient

Time	Event	Pressure
12:18:45	Start Instrument	
12:22	Surface	317
12:30	1000	813
12:36	2000	1300
12:43	3000	1785
12:50	3944	2239

Step Rate Test

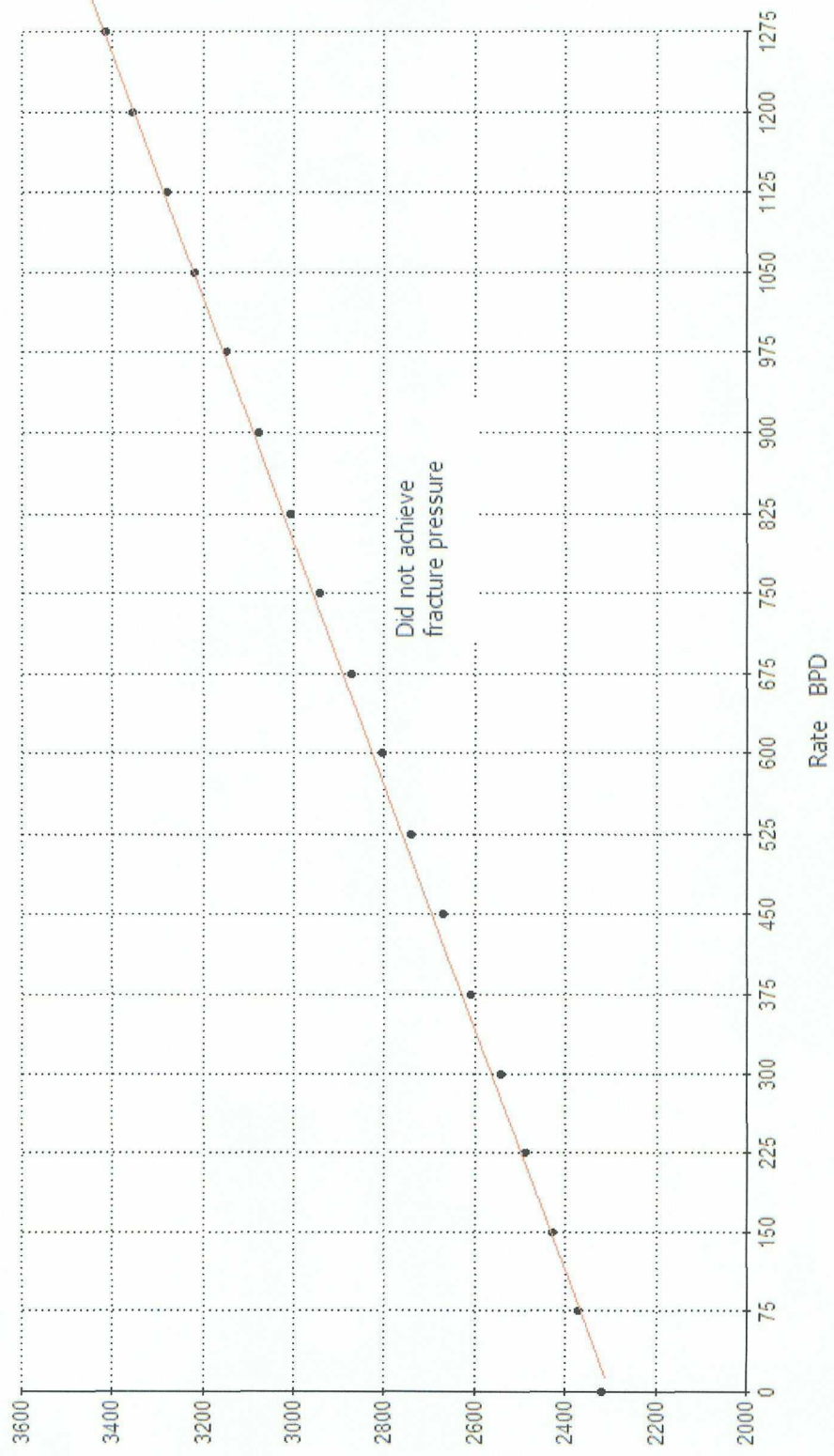
Time	Rate bpd	BHP	Surface
1:45	0	2318	470
2:15	75	2372	547
2:45	150	2431	650
3:15	225	2490	753
3:45	300	2544	838
4:15	375	2610	909
4:45	450	2671	973
5:15	525	2740	1048
5:45	600	2805	1115
6:15	675	2874	1187
6:45	750	2945	1261
7:15	825	3009	1338
7:45	900	3079	1414
8:15	975	3151	1492
8:45	1050	3221	1569
9:15	1125	3280	1633
9:45	1200	3356	1722
10:15	1275	3417	1790
Did not achieve fracture pressure			



Melrose Operating

Step Rate Test

Jalmat Yates Field Sand Unit #241

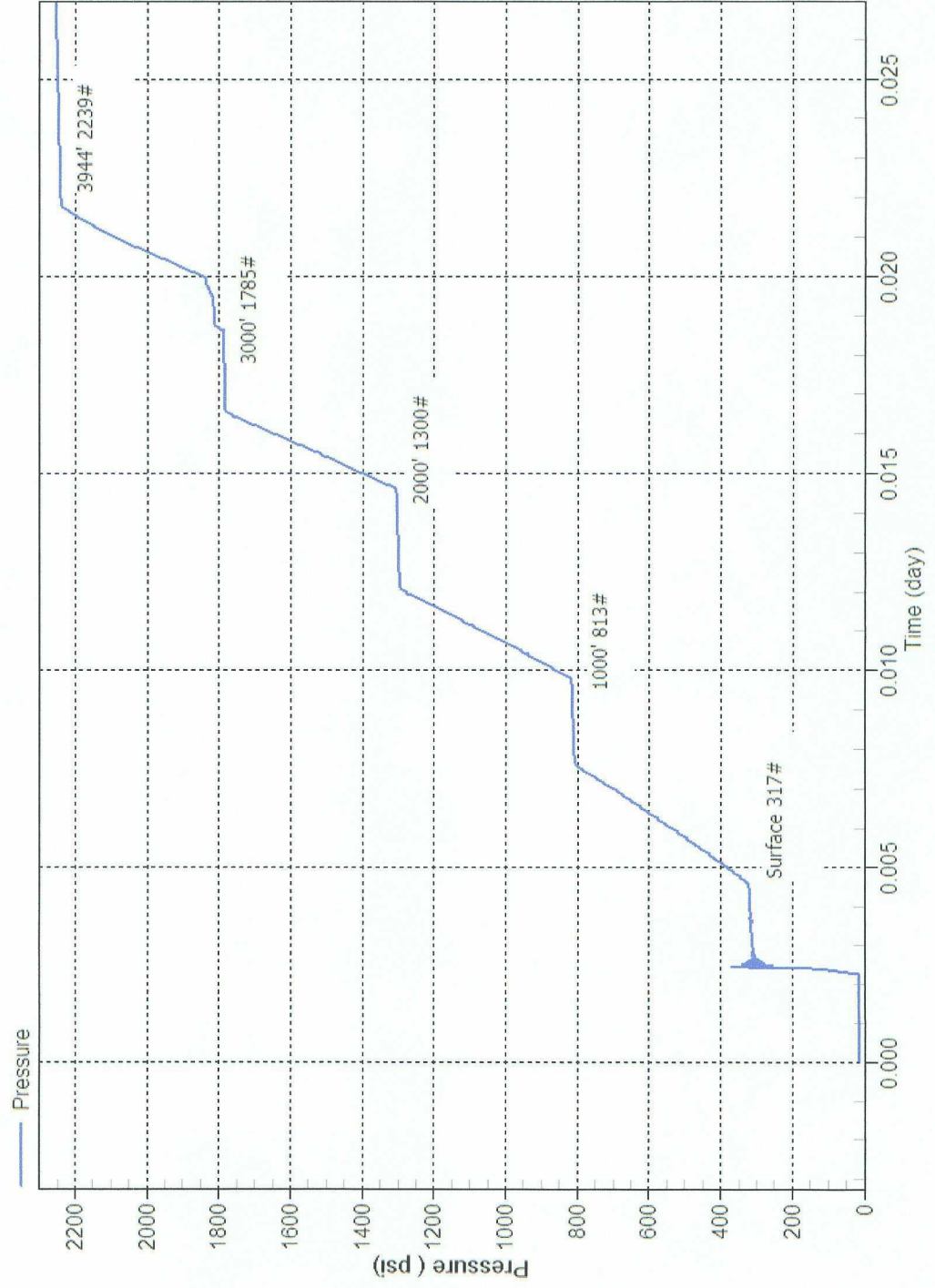




Melrose Operating

Gradients

Jalmat Yates Field Sand Unit #241

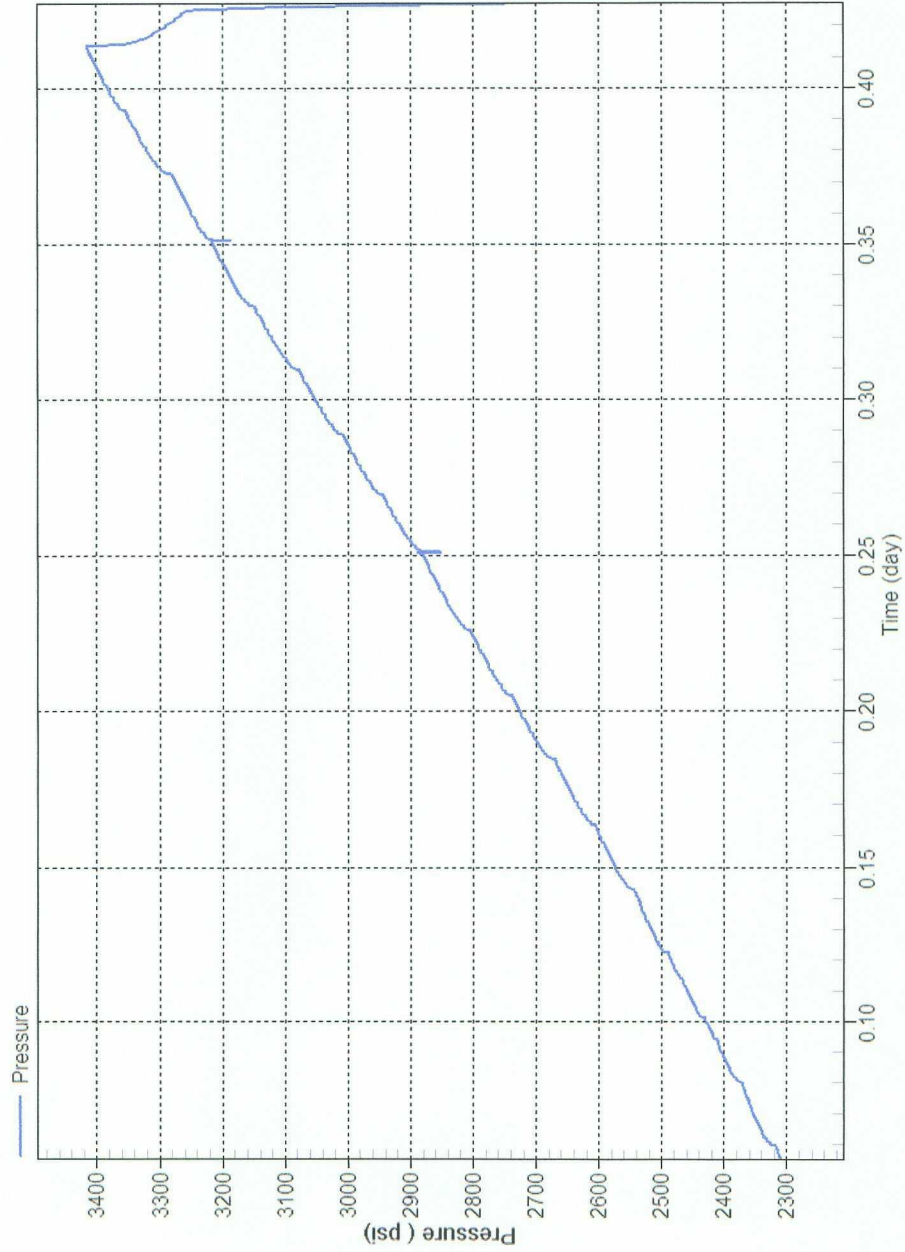




KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Pressure vs Time 3944' Jalmat Yates Field Sand Unit #241



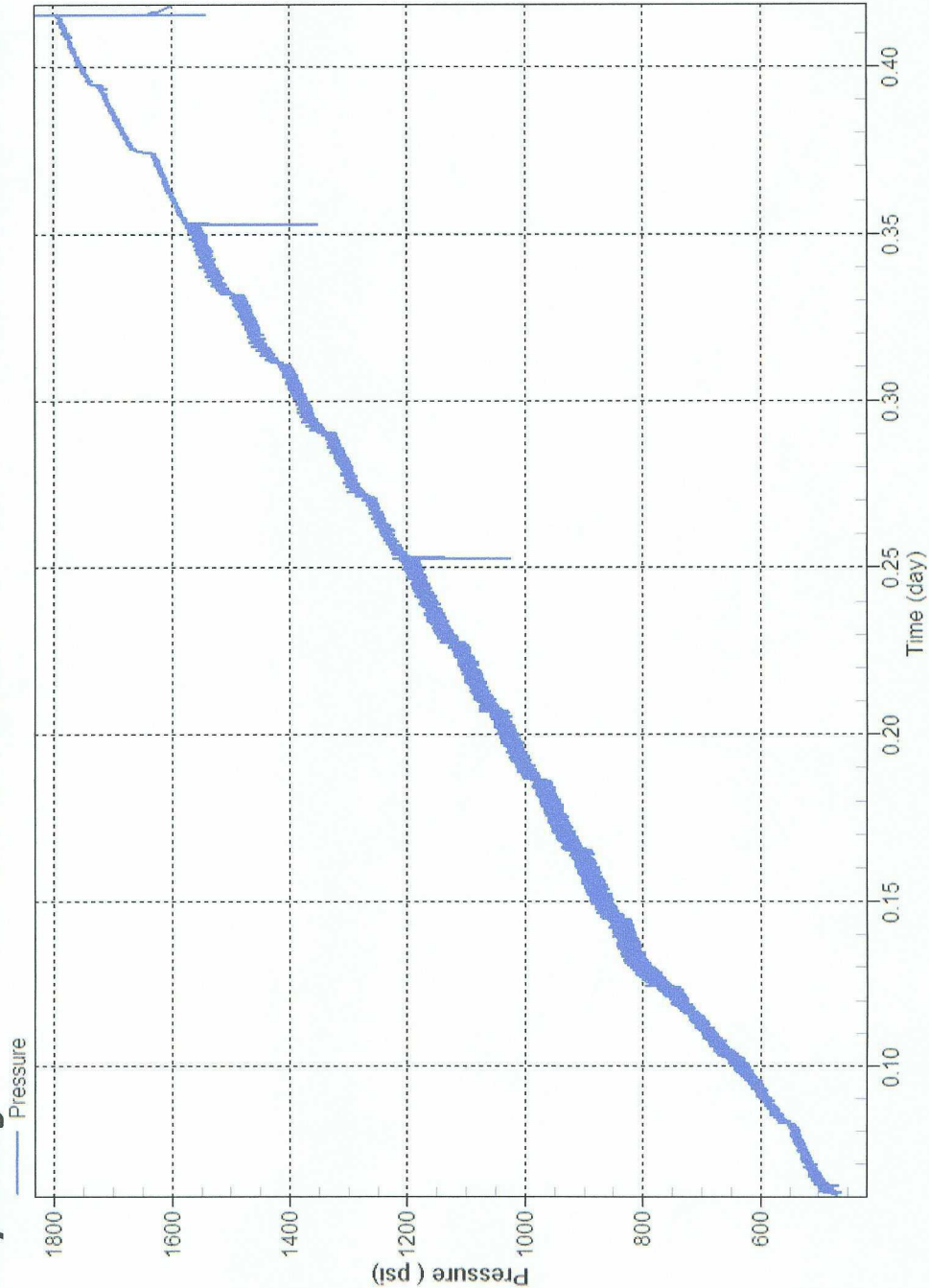


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #241



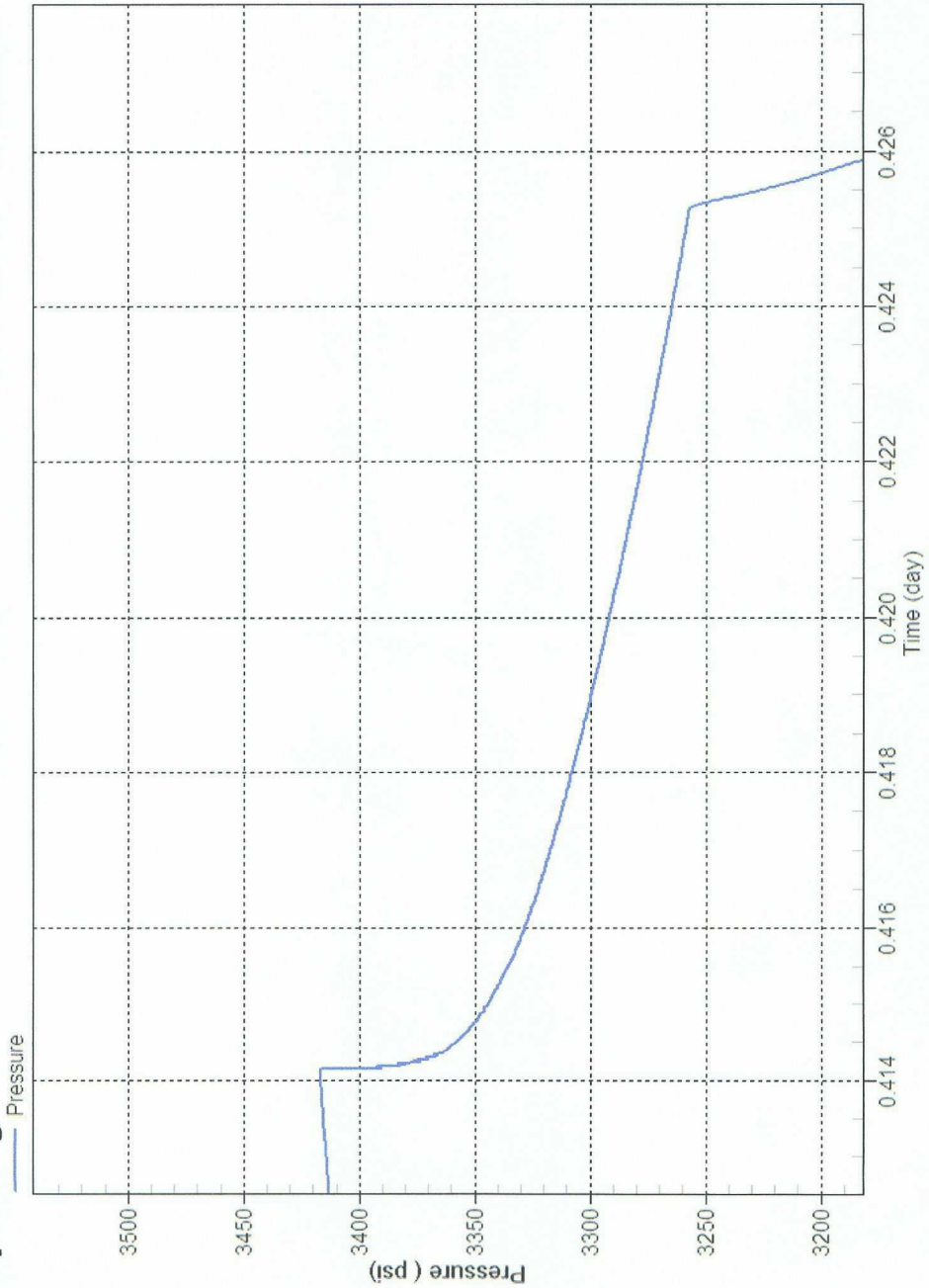


KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #241





KUYKENDALL

BOTTOM HOLE PRESSURE, INC.

Melrose Operating
Jalmat Yates Field Sand Unit #247
November 17, 2010

Step Rate Test
Event Summary

Gradient

Time	Event	Pressure
10:47:21	start instrument	
10:57	surface	347
11:05	1000	818
11:12	2000	1285
11:20	3000	1750
11:27	3928	2177

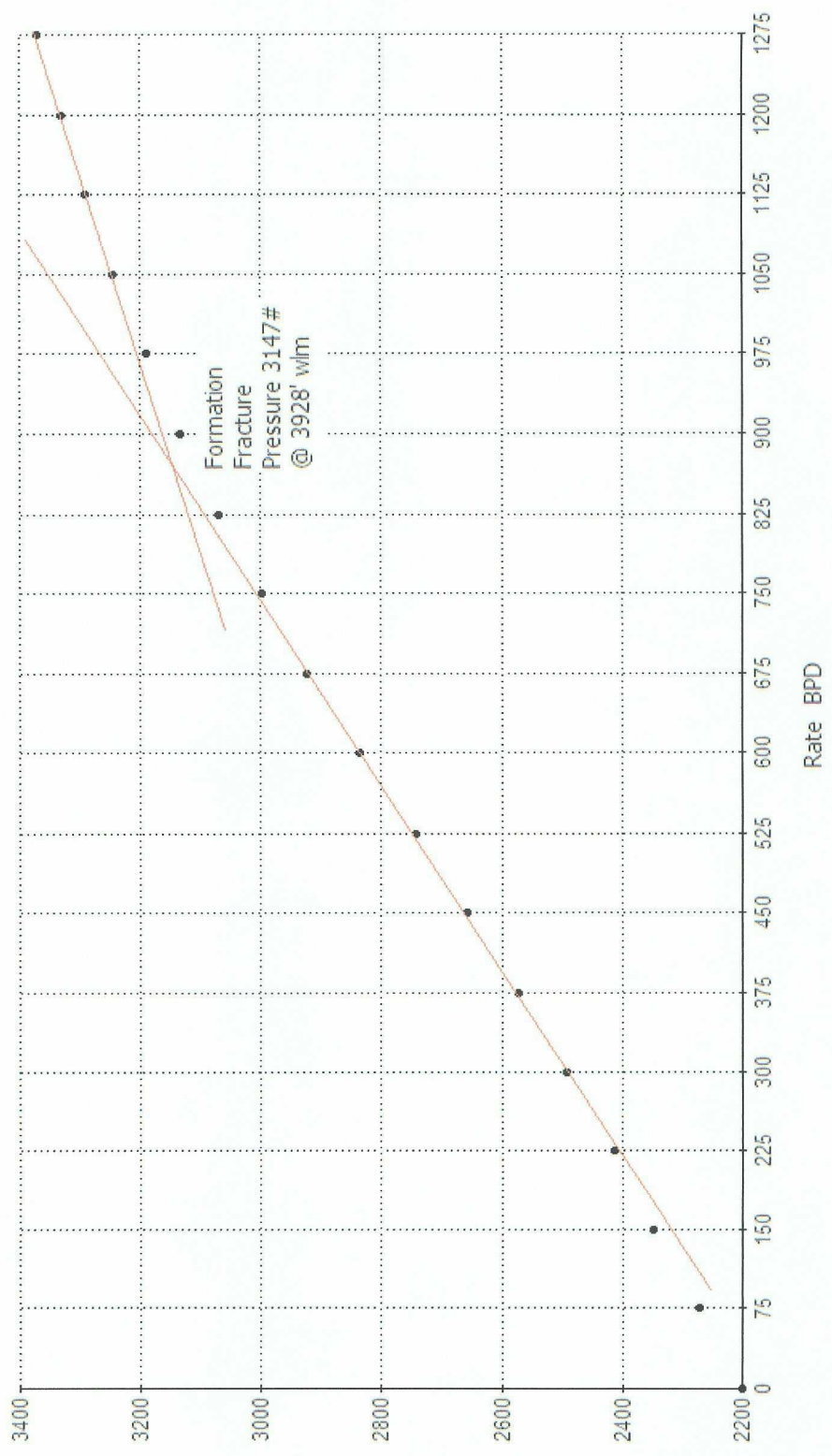
Step Rate Test

Time	Rate bpd	BHP	Surface
11:45	0	2201	440
12:15	75	2271	538
12:45	150	2349	553
1:15	225	2413	598
1:45	300	2492	661
2:15	375	2572	741
2:45	450	2657	836
3:15	525	2744	923
3:45	600	2836	1026
4:15	675	2924	1127
4:45	750	2997	1203
5:15	825	3069	1282
5:45	900	3135	1353
6:15	975	3191	1422
6:45	1050	3246	1480
7:15	1125	3292	1644
7:45	1200	3332	1654
8:15	1275	3371	1704

Fracture pressure 3147# @ 3928' 1367# surface



Melrose Operating **Step Rate Test** **Jalmat Yates Field Sand Unit #247**

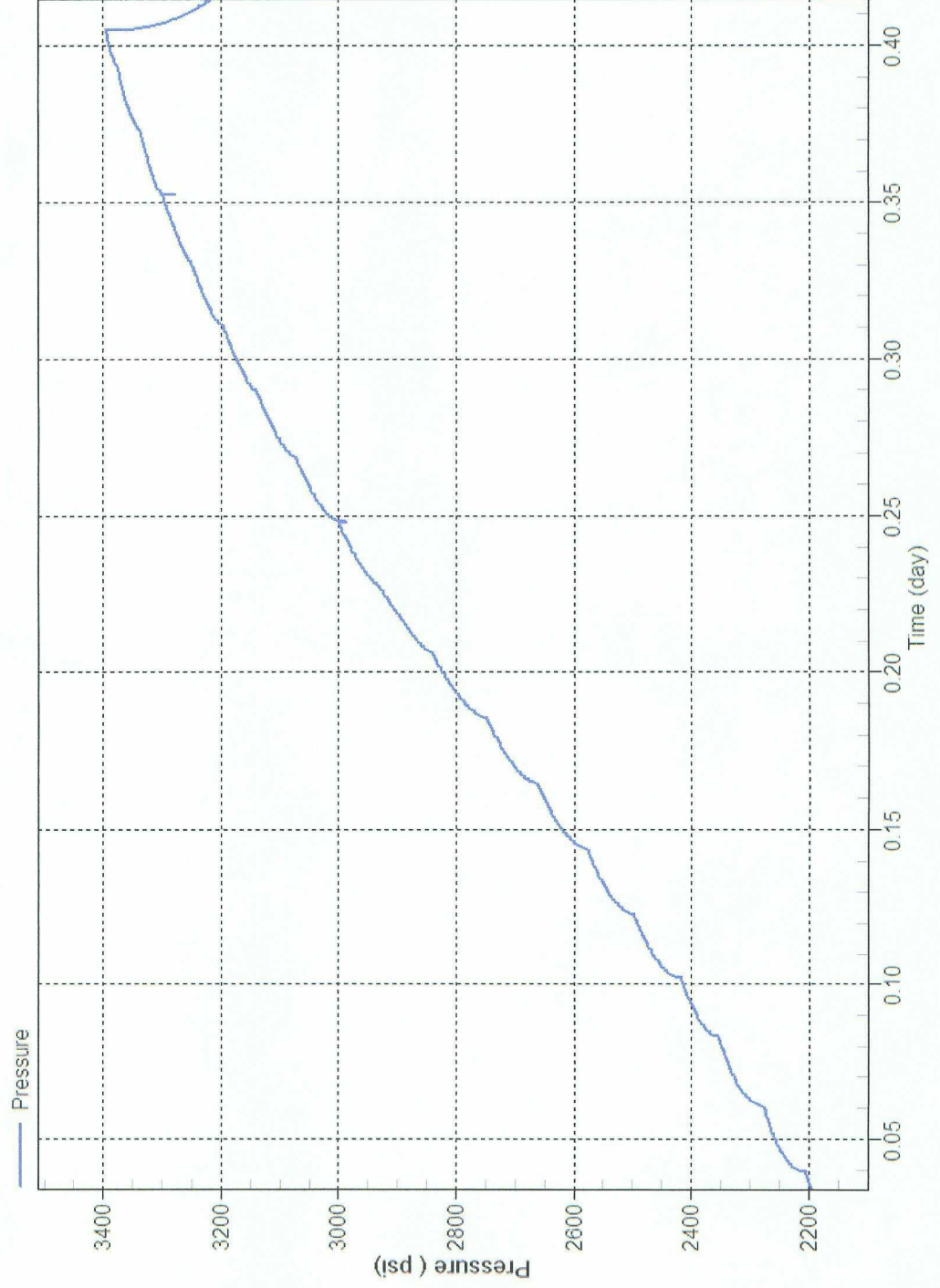




Melrose Operating **Gradients** **Jalmat Yates Field Sand Unit #247**



SRT Pressure vs Time 3923' Jalmat Yates Field Sand Unit #247

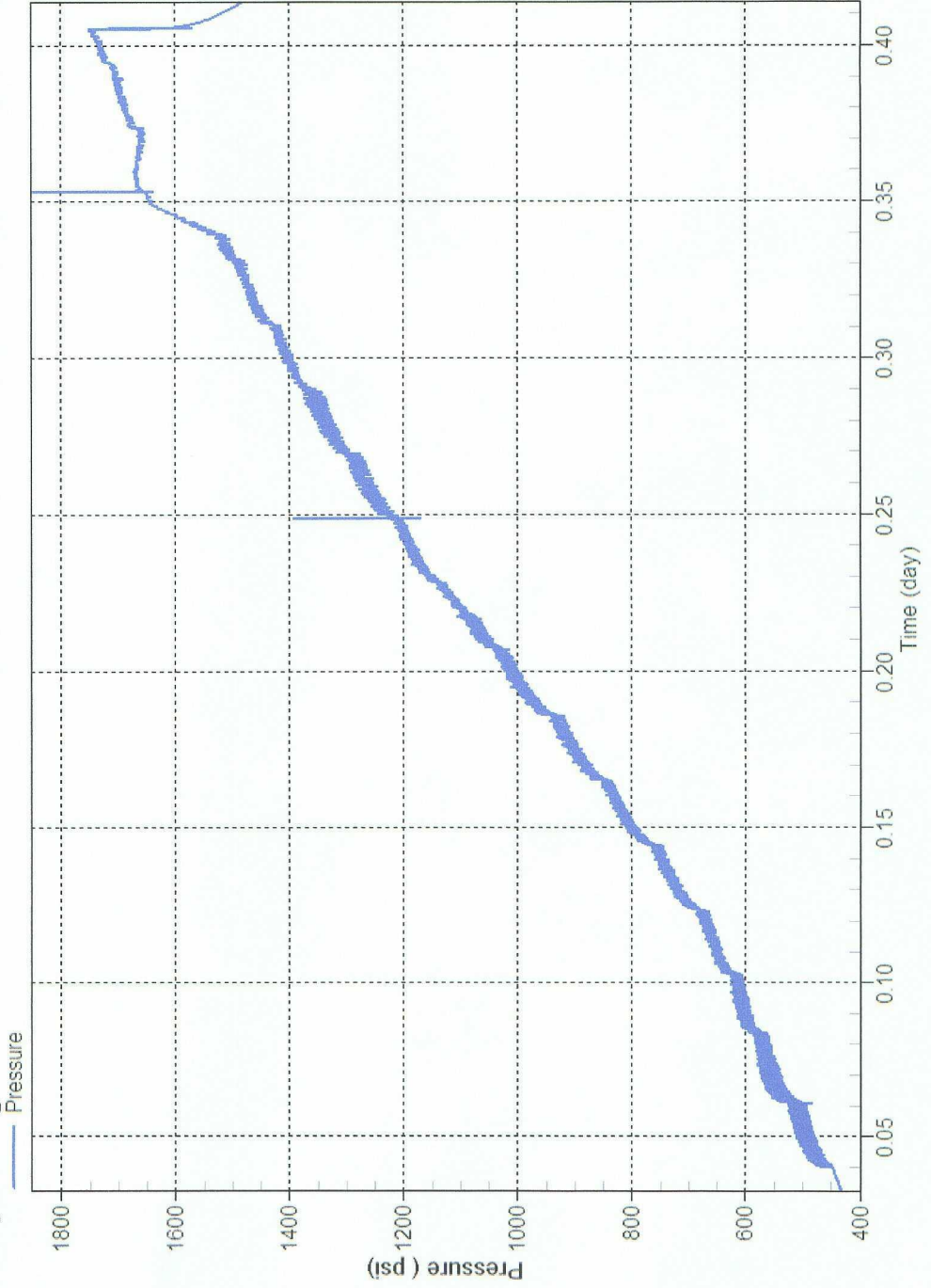




Melrose Operating

SRT Surface Pressure vs Time

Jalmat Yates Field Sand Unit #247





KUYKENDALL
BOTTOM HOLE PRESSURE, INC.

Melrose Operating

15 min Shutin

Jalmat Yates Field Sand Unit #247

