

FORM APPROVED
OMB NO. 1004-0137
Expires: March 31, 2007

5. Lease Serial No. **NM-105217**

1a. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Dry ☐ Other b. Type of Completion: ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resrv., Other _____		6. If Indian, Allottee or Tribe Name _____							
2. Name of Operator: COG Operating LLC		7. Unit or CA Agreement Name and No. _____							
3. Address: 550 W. Texas, Suite 1300		8. Lease Name and Well No.: Blue Thunder 4 Federal #1 9. AFI Well No.: 30-015-34125 SL							
4. Location of Well (Report location clearly and in accordance with Federal requirements)* At surface: 810' FSL & 660' FWL, Unit M At top prod. interval reported below _____ At total depth _____		10. Field and Pool, or Exploratory: Lusk Morrow Gas West 11. Sec., T., R., M., on Block and Survey or Area: Sec 4, T19S, R31E 12. County or Parish: Eddy 13. State: NM 17. Elevations (DF, RKB, RT, GL)*: 3553' GL							
14. Date Spudded: 10/02/2005		15. Date T.D. Reached: 11/11/2005							
16. Date Completed: 12/05/2005 ☐ D & A ☒ Ready to Prod.		17. Elevations (DF, RKB, RT, GL)*: 3553' GL							
18. Total Depth: MD TVD 12,300		19. Plug Back T.D.: MD TVD 12,253							
20. Depth Bridge Plug Set: MD TVD None		21. Type Electric & Other Mechanical Logs Run (Submit copy of each): Micro CFL / HNGS & CN HNGS							
22. Was well cored? ☒ No ☐ Yes (Submit analysis) Was DST run? ☐ No ☒ Yes (Submit report) Directional Survey? ☒ No ☐ Yes (Submit copy)		23. Casing and Liner Record (Report all strings set in well)							
Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17-1/2	13-3/8	48	555			470 C		Surf	5 sx to pit
12-1/4	8-5/8	32	3,525			1360 C		Surf	135 sx to pit
7-7/8	5-1/2	17	12,295			1900 H		1100	125 sx off DV
24. Tubing Record									
Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	
2-7/8	12,135	12,035	4-5/8						
25. Producing Intervals					26. Perforation Record				
Formation		Top	Bottom	Perforated Interval		Size	No. Holes	Perf. Status	
A)				12,130 - 12,134		4 SPF	16	Open	
B)				12,108 - 12,123		4 SPF	60	Open	
C)									
D)									
27. Acid, Fracture, Treatment, Cement Squeeze, etc.									
Depth Interval				Amount and Type of Material					
NONE				NONE					
28. Production - Interval A									
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
01/04/2006	01/09/2006	24	→	77	2233	0		51.7	Flowing
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
13/64	SI 1850		→				29,000	PRODUCING	
28a. Production - Interval B									
Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
	SI		→						

**(See instructions and spaces for additional data on page 2)*

ACCEPTED FOR RECORD

~~JAN 23 2006~~

ALEXIS C. SWOBODA
PETROLEUM ENGINEER

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

29. Disposition of Gas (Sold, used for fuel, vented, etc.)

SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
RUSTLER	625				
YATES	3,545				
DELAWARE	4,980				
BONE SPRING	6,540				
WOLFCAMP	9,909				
STRAWN	10,877				
ATOKA	11,219				
MORROW	11,398				

32. Additional remarks (include plugging procedure):

33. Indicate which items have been attached by placing a check in the appropriate boxes:

- ☒ Electrical/Mechanical Logs (1 full set req'd.)
 ☐ Geologic Report
 ☒ DST Report
 ☐ Directional Survey
 ☐ Sundry Notice for plugging and cement verification
 ☐ Core Analysis
 ☐ Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)*

Name (please print) Phyllis A. EdwardsTitle Regulatory Analyst

Signature

Phyllis A. EdwardsDate 01/17/2006

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

DISTRICT I
1625 N. FRENCH DR., ROSS, NM 86240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 86210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised JUNE 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-34125	Pool Code 80840	Pool Name Lusk Morrow West Gas
Property Code 347.47	Property Name BLUE THUNDER 4 FEDERAL	Well Number 1
OGRID No. 229137	Operator Name COG OPERATING LLC	Elevation 3553'

Surface Location

UL or lot No. M	Section 4	Township 19-S	Range 31-E	Lot Idn	Feet from the 810	North/South line SOUTH	Feet from the 660	East/West line WEST	County EDDY
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Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

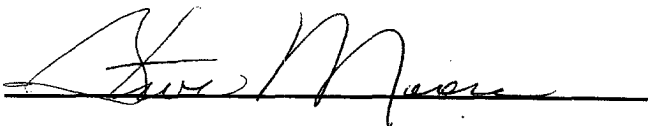
LOT 4 39.62 AC	LOT 3 39.63 AC	LOT 2 39.63 AC	LOT 1 39.64 AC
RECEIVED JAN 25 2006 JUV-ARTESIA			
GEODETIC COORDINATES NAD 27 NME Y=612959.0 N X=639377.6 E LAT.=32°41'03.50" N LONG.=103°52'49.17" W			
OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief. Signature PHYLLIS A. EDWARDS Printed Name REGULATORY ANALYST Title 1.12.06 Date			
SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MARCH 30, 2005 Date Surveyed Signature & Seal of Professional Surveyor Certificate No. GARY EDSON 12641			

OPERATOR COG Operating, LLC
WELL/LEASE Blue Thunder 4 Fed. 1
COUNTY Eddy, NM

056-0019

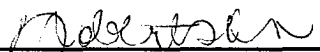
STATE OF NEW MEXICO
DEVIATION REPORT

143	1/2	6,927	1/4
349	3/4	7,054	3/4
521	3/4	7,180	1
811	1/4	7,307	1
1,096	1/4	7,356	1
1,382	1	7,561	1/2
1,509	1/4	7,656	1 1/4
1,763	3/4	7,783	3/4
2,016	3/4	8,005	1
2,270	1 1/2	8,226	3/4
2,397	3/4	8,448	3/4
2,587	1/2	8,677	1 1/4
2,777	1/4	8,898	1 1/2
2,999	3/4	9,057	2
3,190	3/4	9,184	2
3,379	1	9,310	2 1/2
3,663	1/2	9,405	2
3,980	1/2	9,475	2
4,296	1/4	9,570	1 3/4
4,614	1	9,665	2
4,741	1	9,791	2
4,867	1	9,918	1 3/4
4,994	1	10,045	2
5,121	1 1/2	10,299	2
5,248	1 1/4	10,425	1/2
5,406	1	10,552	1/4
5,596	1 1/2	10,679	3/4
5,723	1 1/4	10,805	1
5,914	2	10,932	1/2
6,040	2	11,059	3/4
6,167	2	11,185	3/4
6,293	1 3/4	11,376	1
6,420	2	11,756	1
6,547	1	12,277	1
6,800	3/4		

BY: 

STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me on November 28, 2005, by Steve Moore on behalf of Patterson - UTI Drilling Company, LP, LLLP.


Notary Public for Midland County, Texas
My Commission Expires: 8/23/07



J ROBERTSON
Notary Public, State of Texas
My Commission Expires:
August 23, 2007



COMPANY : COG OPERATING LLC.
 LEASE : BLUE THUNDER "4" FED. COM
 WELL NO. : # 1
 FIELD : WILDCAT
 COUNTY/STATE : EDDY / NEW MEXICO

TEST DATE : 10/30/05
 D.S.T. NO. : 1
 TEST TKT. NO. : 23417
 INVOICE NO. : 21460
 ORDER NO. :

FORMATION : WOLFCAMP
 INTERVAL (ft) : 10090 TO 10224
 TOTAL DEPTH (ft) : 10224
 ELEVATION (ft) : 3553

HOLE SIZE (in) : 7.875
 DRILL PIPE ID (in) : 3.82
 DRILL COLLAR ID (in) : 2.25
 DRILL COLLAR feet : 711

ANCHOR LENGTH (ft) : 134
 TOOL LENGTH (ft) : 53
 TOOL O.D. (in) : 5
 PACKER SIZE (in) : 7.00

RECORDER DATA AK-1KUSTER / ZI PROBE

TOP RECORDER: IN
 RECORDER NO. : 50014
 CAPACITY (psi) : 10000
 DEPTH (ft) : 10095
 CLOCK NO. : 50014
 DURATION (hrs) : 99

BOTTOM RECORDER: OUT
 RECORDER NO. : 6232
 CAPACITY (psi) : 8975
 DEPTH (ft) : 10221
 CLOCK NO. : 16121
 DURATION (hrs) : 24

MUD PROPERTIES

MUD TYPE : XCD & STARCH
 MUD WT. (#/gal) : 9.80

WATER LOSS (cc) : 28.0
 FILTER CAKE (in) : 1/32
 VISCOSITY (sec) : 30

CHLORIDE PPM : 151000
 RESISTIVITY (ohm-m) : .069

EQUIPMENT DATA

CONVENTIONAL : YES
 STRADDLE : NO
 SELECTIVE ZONE : NO
 SAMPLE CHAMBER : YES
 GAS ANALYSIS : YES

ROTARY JARS : YES
 NO. OF PACKERS : 2
 SAFETY JOINT : YES
 CIRCULATING SUB : YES
 REVERSED OUT : YES

MULTIFLOW : NO
 MILEAGE : NO
 OPERATOR TIME : NO
 OTHER : YES
 ZI ELECTRONICS (2) :

SUCCESSFUL : YES

PACKER FAILURE : NO

TOOL PLUG : NO

DECIDED NOT TO TEST : NO

FAIL TO REACH BOTTOM : NO

TIME INTERVAL DATA (min)

TOOL OPENED : 6:45 AM

TOTAL TEST TIME : 270

INITIAL FLOW : 16
 SECOND FLOW : 57
 THIRD FLOW :

INITIAL SHUT-IN : 30
 SECOND SHUT-IN : 167
 THIRD SHUT-IN :

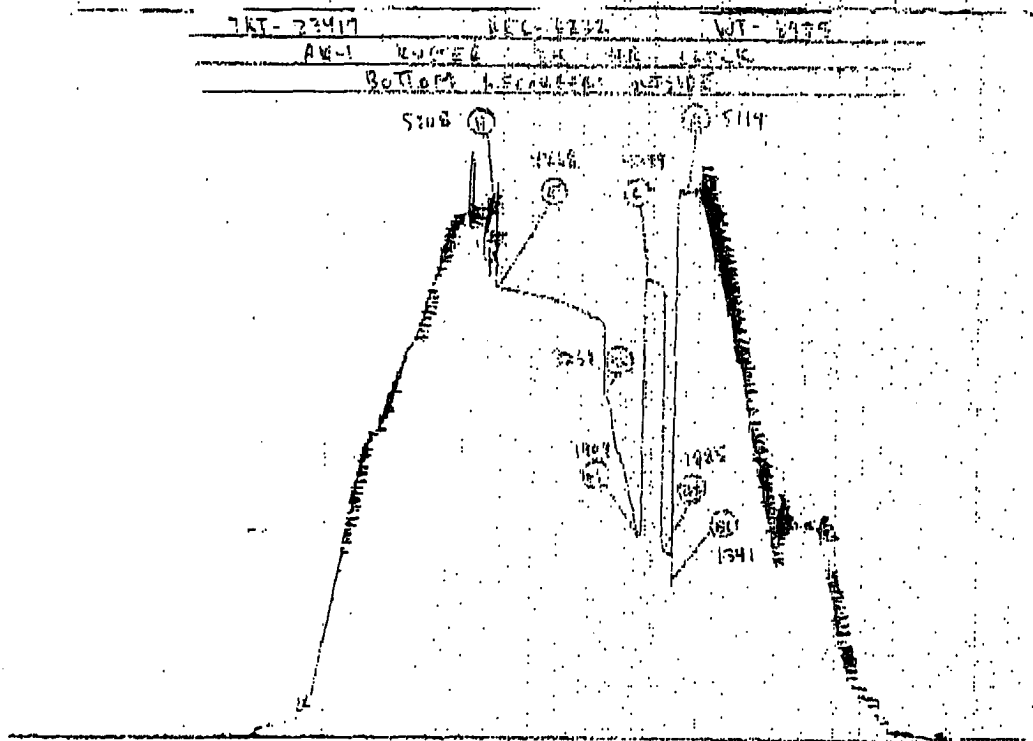
TEST TOOL OPERATOR: TOMMY WILLIAMS



COG OPERATING LLC.

BLUE THUNDER "4" FED. COM # 1
D.S.T. NO. : 1

		CORRECTED READING	FIELD READING
A	INITIAL HYDROSTATIC:	5082 PSI	5082 PSI
B-1	INITIAL FIRST FLOW :	1302 PSI	1302 PSI
B-2	FINAL FIRST FLOW :	1850 PSI	1850 PSI
C	FIRST SHUT-IN :	4308 PSI	4307 PSI
D-1	INITIAL SECOND FLOW:	1802 PSI	1802 PSI
D-2	FINAL SECOND FLOW :	3213 PSI	3213 PSI
E	SECOND SHUT-IN :	4227 PSI	4227 PSI
H	FINAL HYDROSTATIC :	5073 PSI	5082 PSI

RECOVERY DATA

PIPE RECOVERY B.H. TEMP. (deg F) 147
 GAS TO SURFACE 12 MIN. INTO FIRST FLOW PERIOD
 MUD TO SURFACE 45 MIN. & OIL TO SURFACE IN 50 MIN. OF
 THE FINAL FLOW PERIOD; FLOWED 60 BBLS. OIL & 10 BBLS
 HEAVY EMULSION (50% OIL) TO TEST TANK DURING TEST.
 PULLED 5 STANDS & REVER. TO TEST TANK AN ADDITIONAL
 52 BBLS. OF OIL; 5 BBLS. OF HEAVY EMULSION (50% OIL)
 90 FT. DRLG. MUD (TRACE OF OIL) - BELOW CIRC SUB
 (112 BBLS. TOTAL OIL & 15 BBLS. TOTAL EMULSION)

SAMPLE CHAMBER

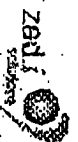
3000 LBS. OF PRESSURE
 5.00 CU. FT. OF GAS
 1000 CC'S OF FREE OIL
 41.8 GRAVITY @ 60 DEGREES

TEST REMARKS

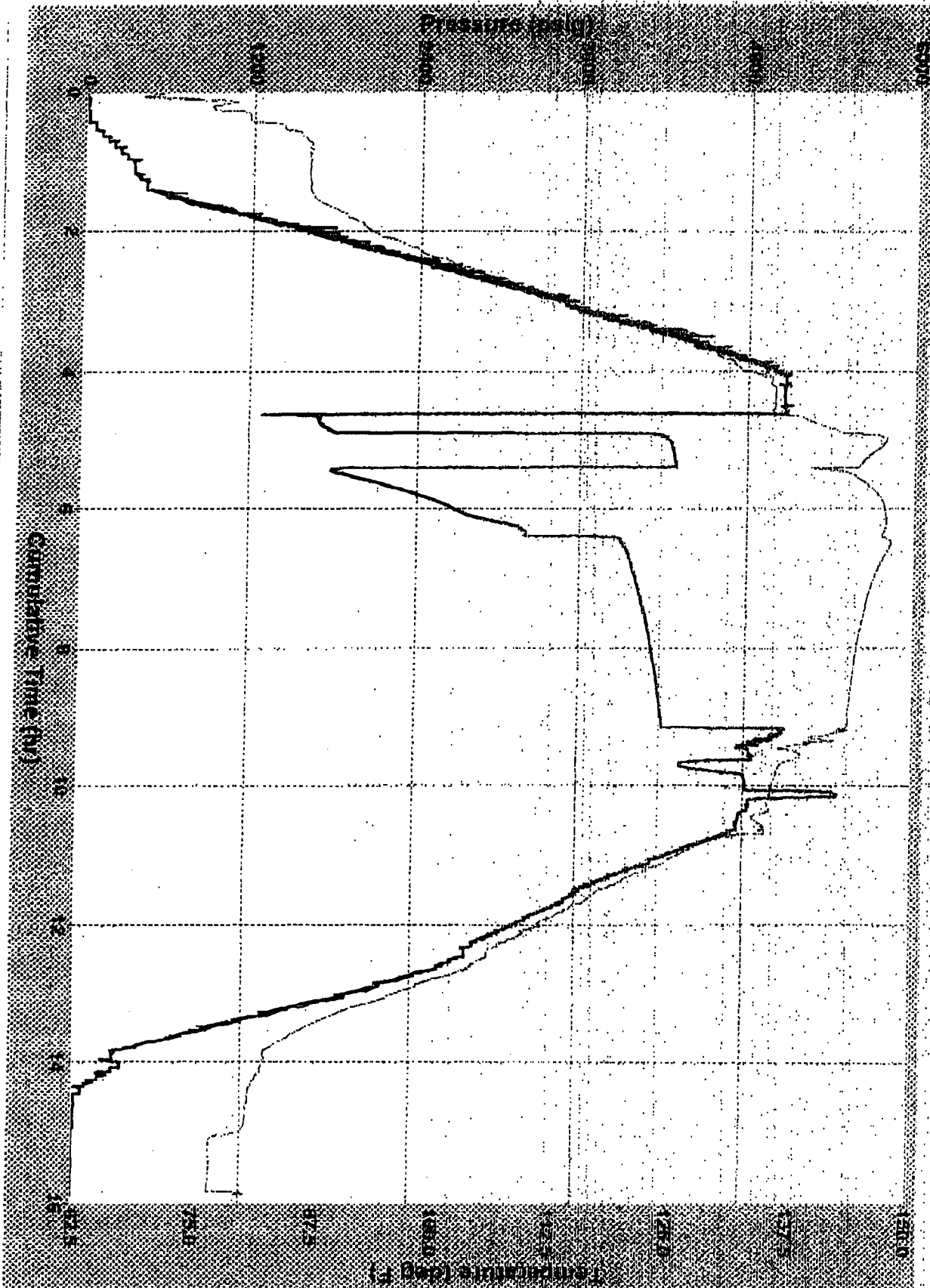
TOOL OPENED WITH STRONG BLOW, 100 LBS. ON 1/4" CHOKE IN 10 MIN. GAS TO
 SURFACE IN 12 MIN. WITH 150 LBS. (242 MCFPD) ON 1/4" & 205 LBS. (322 MCFPD)
 AT END OF THE 15 MIN. FIRST FLOW, REOPENED TOOL WITH 60 LBS. (109 MCFPD) ON
 1/4" CHOKE, 150 LBS. (242 MCFPD) IN 10 MIN. 190 LBS. (300 MCFPD) IN 20 MIN.
 DECREASING IN 22 MIN. TO 175 LBS. (278 MCFPD) IN 30 MIN. 120 LBS. (198 MCFPD)
 IN 40 MIN., MUD TO SURFACE IN 45 MIN. (300 LBS. W/FLUID), OIL SURFACED IN
 50 MIN. (325 LBS. W/FLUID) & 400 LBS. (W/FLUID) AT END OF 60 MIN. FINAL FLOW.

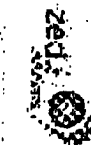


Company Name: COG OPERATING, LLC
 Well Name: BLUE THUNDER 4" FSD, COM #1
 Type of Test: DST # (11006C-10224 FT. WOLF CAMP)
 Date(s) of Test: 10-30-05



RIG TESTERS, INC. RECORDER# 50014



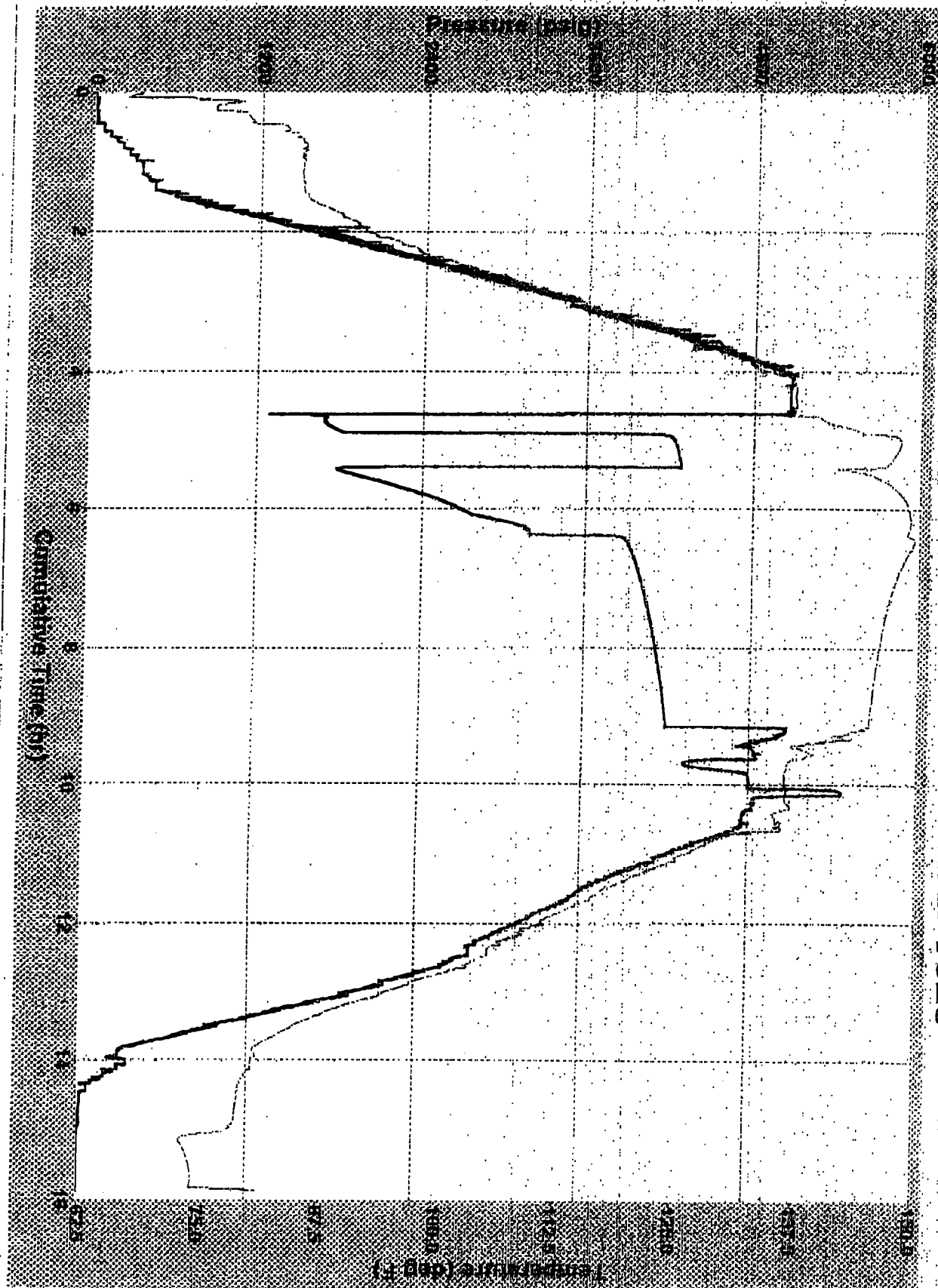


Company Name
Well Name
Type of Test
Date(s) of Test

COG OPERATING LLC
BLUE THUNDER 2" FED COM #1
DST #1 (10050-10224 FT. WOLF CAMP)
10-30-05



RIG TESTERS, INC. RECORDER# 9628





COG OPERATING LLC.

BLUE THUNDER "4" FED. COM # 1
D.S.T. NO. : 1

INCREMENTAL PRESSURE DATA

RECORDER NO : 50014

RECORDER CAPACITY : 10000 psi

RECORDER DEPTH : 10095 ft

ELAPSED TIME ---MIN---	TOTAL FLOW TIME, T ---MIN---	INCREMENTAL SHUT-IN TIME, DT ---MIN---	(T+DT)/DT (HORNER)	PRESSURE ---PSIG---	DELTA P ---PSIG---
FIRST FLOW					
.0	.0			1302.30	.00
2.0	2.0			1710.24	407.94
4.0	4.0			1704.87	402.57
6.0	6.0			1709.50	407.20
8.0	8.0			1726.77	424.47
10.0	10.0			1744.36	442.06
12.0	12.0			1776.30	474.00
14.0	14.0			1806.87	504.57
16.0	16.0			1844.79	542.49
16.3	16.3			1850.80	548.50
FIRST SHUT-IN					
16.3	16.3	.00	.000	1850.80	.00
16.8	16.3	.50	33.520	3977.49	2126.69
17.3	16.3	1.00	17.260	4150.35	2299.55
17.8	16.3	1.50	11.840	4187.00	2336.20
18.3	16.3	2.00	9.130	4208.70	2357.90
18.8	16.3	2.50	7.504	4221.85	2371.05
19.3	16.3	3.00	6.420	4230.40	2379.60
19.8	16.3	3.50	5.646	4237.43	2386.63
20.3	16.3	4.00	5.065	4243.02	2392.22
20.8	16.3	4.50	4.613	4247.10	2396.30
21.3	16.3	5.00	4.252	4251.04	2400.24
22.3	16.3	6.00	3.710	4257.00	2406.20
23.3	16.3	7.00	3.323	4262.18	2411.38
24.3	16.3	8.00	3.033	4265.99	2415.19
25.3	16.3	9.00	2.807	4269.60	2418.80
26.3	16.3	10.00	2.626	4272.72	2421.92
28.3	16.3	12.00	2.355	4277.90	2427.10
30.3	16.3	14.00	2.161	4282.65	2431.85
32.3	16.3	16.00	2.016	4286.77	2435.97
34.3	16.3	18.00	1.903	4290.30	2439.50
36.3	16.3	20.00	1.813	4293.72	2442.92
38.3	16.3	22.00	1.739	4296.95	2446.15
40.3	16.3	24.00	1.678	4299.70	2448.90
42.3	16.3	26.00	1.625	4302.83	2452.03
44.3	16.3	28.00	1.581	4305.53	2454.73
46.3	16.3	30.00	1.542	4308.00	2457.20
SECOND FLOW					
48.5	18.5			1802.30	.00
51.5	21.5			1870.80	68.50
54.5	24.5			1964.90	162.60
57.5	27.5			2063.40	261.10

COG OPERATING LLC.

BLUE THUNDER "4" FED. COM # 1
D.S.T. NO. : 1

INCREMENTAL PRESSURE DATA

RECORDER NO : 50014

RECORDER CAPACITY : 10000 psi

RECORDER DEPTH : 10095 ft

ELAPSED TIME	TOTAL FLOW TIME, T	INCREMENTAL SHUT-IN TIME, DT	(T+DT)/DT (HORNER)	PRESSURE	DELTA P
---MIN---	---MIN---	---MIN---	---	---PSIG---	---PSIG---
SECOND FLOW					
60.5	30.5			2158.60	356.30
63.5	33.5			2238.50	436.20
66.5	36.5			2320.90	518.60
69.5	39.5			2406.00	603.70
72.5	42.5			2484.90	682.60
75.5	45.5			2551.80	749.50
78.5	48.5			2612.70	810.40
81.5	51.5			2669.70	867.40
84.5	54.5			2724.00	921.70
87.5	57.5			2776.00	973.70
90.5	60.5			2887.90	1085.60
93.5	63.5			3004.40	1202.10
96.5	66.5			3120.80	1318.50
99.5	69.5			3169.70	1367.40
102.5	72.5			3213.10	1410.80
105.5	75.5			3213.10	1410.80

SECOND SHUT-IN					
105.5	75.5	.00	.000	3213.10	.00
106.5	75.5	1.00	76.480	3869.43	656.33
107.5	75.5	2.00	38.740	3893.02	679.92
108.5	75.5	3.00	26.160	3903.70	690.60
109.5	75.5	4.00	19.870	3911.46	698.36
110.5	75.5	5.00	15.096	3918.09	704.99
111.5	75.5	6.00	11.580	3923.40	710.30
112.5	75.5	7.00	11.783	3928.30	715.20
113.5	75.5	8.00	10.455	3932.98	719.88
114.5	75.5	9.00	9.387	3937.20	724.10
115.5	75.5	10.00	8.548	3941.23	728.13
117.5	75.5	12.00	7.290	3949.00	735.90
119.5	75.5	14.00	6.391	3956.26	743.16
121.5	75.5	16.00	5.718	3962.93	749.83
123.5	75.5	18.00	5.193	3969.60	756.50
125.5	75.5	20.00	4.774	3975.95	762.85
128.5	75.5	23.00	4.282	3980.96	771.86
131.5	75.5	26.00	3.903	3985.84	780.74
134.5	75.5	29.00	3.603	4002.65	788.95
137.5	75.5	32.00	3.359	4010.15	797.05
140.5	75.5	35.00	3.157	4018.14	805.04



COG OPERATING LLC.

BLUE THUNDER "4" FED. COM # 1
D.S.T. NO. : 1

INCREMENTAL PRESSURE DATA

RECORDER NO : 50014

RECORDER CAPACITY : 10000 psi

RECORDER DEPTH : 10095 ft

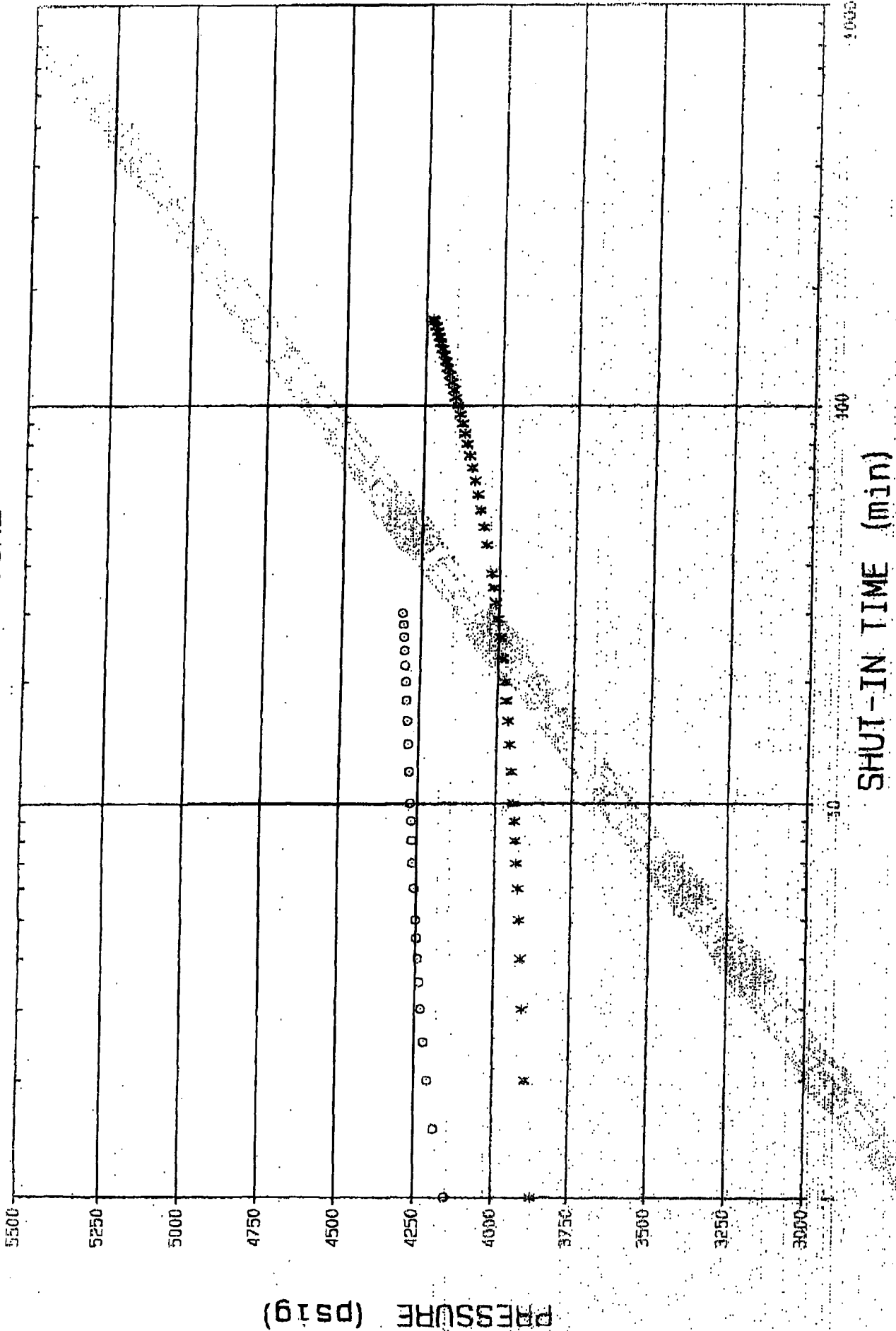
ELAPSED TIME ---MIN---	TOTAL FLOW TIME, T ---MIN---	INCREMENTAL SHUT-IN TIME, DT ---MIN---	(T+DT)/DT (HORNER) -----	PRESSURE ---PSIG---	DELTA P ---PSIG---
SECOND SHUT-IN					
143.5	75.5	38.00	2.986	4025.55	812.45
150.5	75.5	45.00	2.677	4042.40	829.30
155.5	75.5	50.00	2.510	4053.75	840.65
160.5	75.5	55.00	2.372	4064.65	851.55
165.5	75.5	60.00	2.258	4075.00	861.90
170.5	75.5	65.00	2.161	4084.94	871.84
175.5	75.5	70.00	2.078	4094.57	881.47
180.5	75.5	75.00	2.006	4103.90	890.80
185.5	75.5	80.00	1.944	4112.64	899.54
190.5	75.5	85.00	1.888	4121.26	908.16
195.5	75.5	90.00	1.839	4129.60	916.50
200.5	75.5	95.00	1.795	4137.52	924.42
205.5	75.5	100.00	1.755	4144.99	931.89
210.5	75.5	105.00	1.719	4152.70	939.60
215.5	75.5	110.00	1.686	4159.73	946.63
220.5	75.5	115.00	1.656	4166.77	953.67
225.5	75.5	120.00	1.629	4173.50	960.40
230.5	75.5	125.00	1.604	4180.02	966.92
235.5	75.5	130.00	1.581	4186.27	973.17
240.5	75.5	135.00	1.559	4192.40	979.30
245.5	75.5	140.00	1.539	4198.32	985.22
250.5	75.5	145.00	1.521	4204.07	990.97
255.5	75.5	150.00	1.503	4209.60	996.50
260.5	75.5	155.00	1.487	4214.93	1001.83
265.5	75.5	160.00	1.472	4220.18	1007.08
270.5	75.5	165.00	1.457	4225.40	1012.30
272.5	75.5	166.98	1.452	4227.30	1014.20

REMARKS

THE INCREMENTAL DATA, PLOTS AND ANALYSIS ARE FROM THE ELECTRONIC RECORDER
(PLEASE REFER TO DERIVATIVE DIAGNOSTICS ANALYSIS FOR FURTHER INFORMATION)
PRESSURE ASCII FILES ARE AVAILABLE ON DISKETTE UPON REQUEST.



PRESSURE TIME



○ FIRST SHUT-IN
* SECOND SHUT-IN

COG OPERATING LLC.

BLUE THUNDER "4" FED. COM # 1



RigTesters, Inc.
ABILENE - MIDLAND - GRAHAM

Well Test Report

COG OPERATING LLC. BLUE THUNDER "4" FED. COM #1

Well identification

Well ID	BLUE THUN"4" #1	Well location	S. LOCO HILLS
County/District	EDDY	State, Country	NEW MEXICO
Company	COG OPER. LLC.	Division	MIDLAND

Fluid properties

Prod/Inj fluid	OIL	GOR	750:1
Water cut	0%	Condensate yield	UNKNOWN
API gravity	41.8	Gas spec. grav.	0.7
Viscosity	0.56923 cp	Pseudo-critical T	382.97 deg R
Pseudo-critical P	664.37 psia	H2S mole fraction	
CO2 mole fraction		N2 mole fraction	
Compressibility(t)	15.239 e-6/psi	Formation vol factor	1.3874 RB/STB

Reservoir properties

Porosity	0.12 frac	Formation thickness	58 ft
Wellbore radius	0.32813 ft	Prod-observer distance	
Water-Oil Contact	UNKNOWN	Gas-Oil Contact	N/A
Gas-Water Contact	N/A	Rock compressibility	
Reservoir temperature	147 deg F	Pressure for properties	4388.7 psia

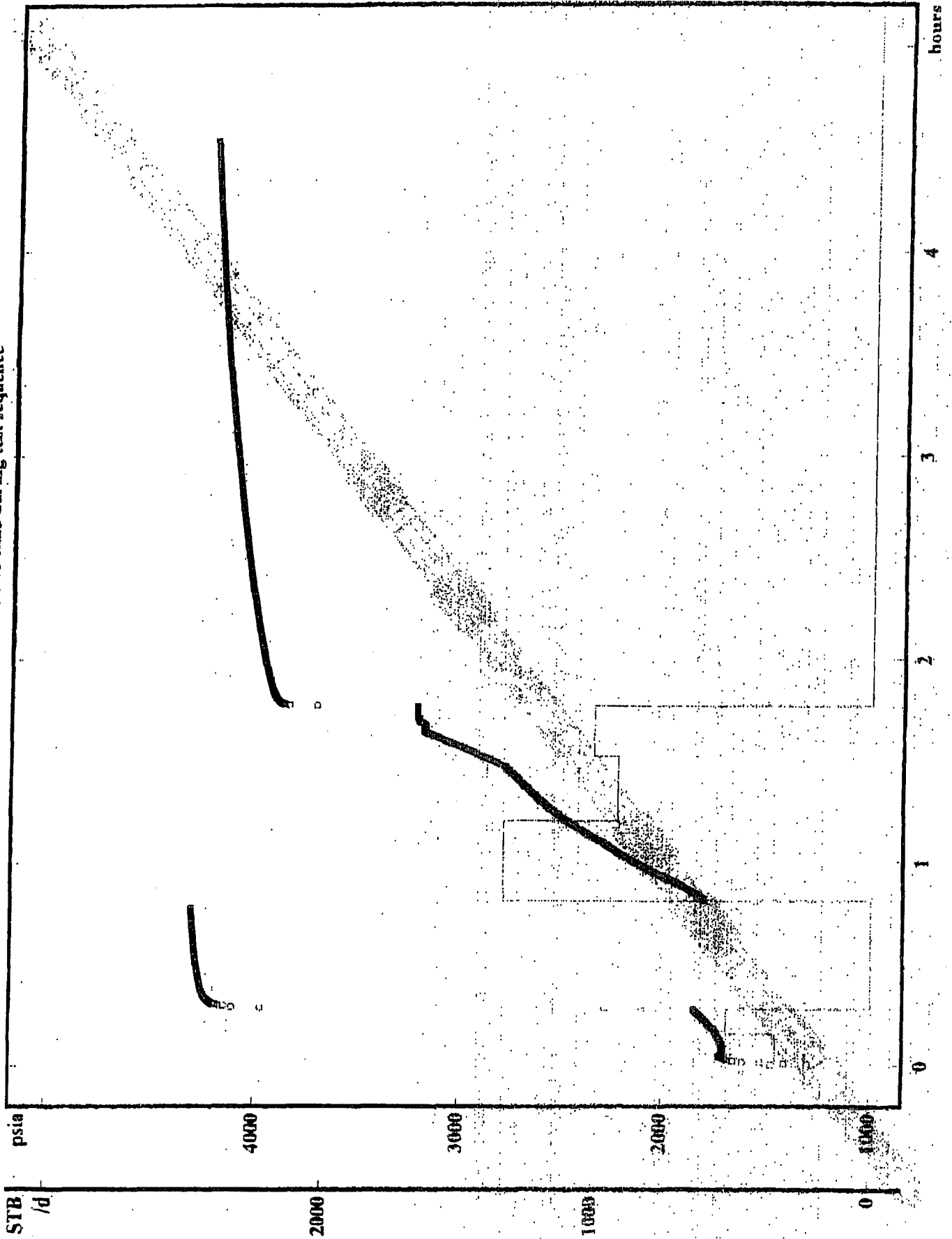
Comments

THE DERIVATIVES INDICATE A HETEROGENEOUS RESERVOIR WITH MODERATE PERMEABILITY & IMPROVING SKIN. BOTH SHUT-IN PERIODS INDICATE DUAL POROSITY RESPONSE IN MID TIME DATA. THE SEVERE INCREASE IN LATE TIME DATA OF THE FINAL SHUT-IN PERIOD AND INCREASE OF MORE THAN 8 FOLD OF SLOPE VALUE INDICATES PRESENCE OF BARRIERS / BOUNDARIES. ALTHOUGH TRUE RADIAL FLOW HAD NOT BEEN OBTAINED & CALCULATIONS MAY BE SUBJECT TO QUESTION, A REGRESSION MODEL ANALYSIS WAS PERFORMED IN AN EFFORT TO BETTER DETERMINE FORMATION PARAMETERS & IS REPRESENTED BY A SOLID LINE PLOTTED OVER THE ACTUAL DATA WITH CONFIDENCE INTERVALS (MARGIN OF ERROR) SHOWN NEXT TO MAJOR CALCULATIONS. THE FIXED PARAMETERS USED WERE AN EST. 12% POROSITY 58 FT. OF NET PAY & AVERAGE (TIME WEIGHTED) PRODUCTION OF 1083 BOPD FOR THE FINAL FLOW PERIOD. THE RATES WERE BASED ON DENSITY OF FLUID RECOVERED VS FLOWING PRESSURES. THE TOTAL RADIUS OF INVESTIGATION CALCULATED APPROX. 157 FT. FROM THE WELLBORE. ** NOTE; THE MODEL USED WAS INTERSECTING BARRIERS, WHERE THE ACTUAL SCENARIO MAY DIFFER. THE BARRIERS / BOUNDARIES ARE PROBABLY DUE TO LIMITATIONS OF FRACTURED POROSITY WHICH IS SURROUNDED BY LOWER MUCH CONDUCTIVITY MATRIX POROSITY.



COG OPERATING LLC. BLUE THUNDER "4" FED. COM #1

Pressure and flow rate vs time during test sequence

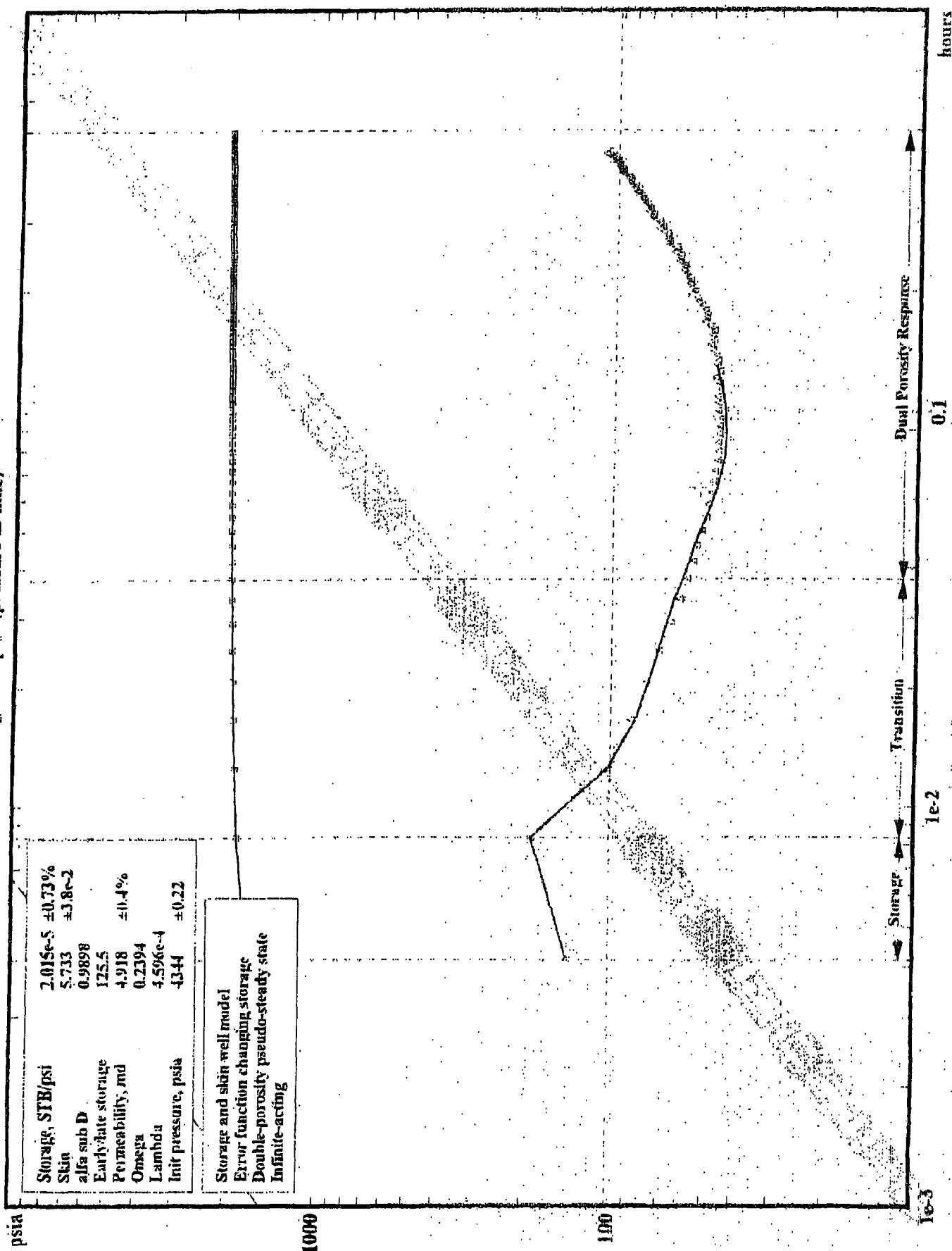


BST #1 10090 - 10224 FT. WOLFCAMP



COG OPERATING LLC. BLUE THUNDER "4" FED. COM #1

Diagnostic plot (pressure & time)

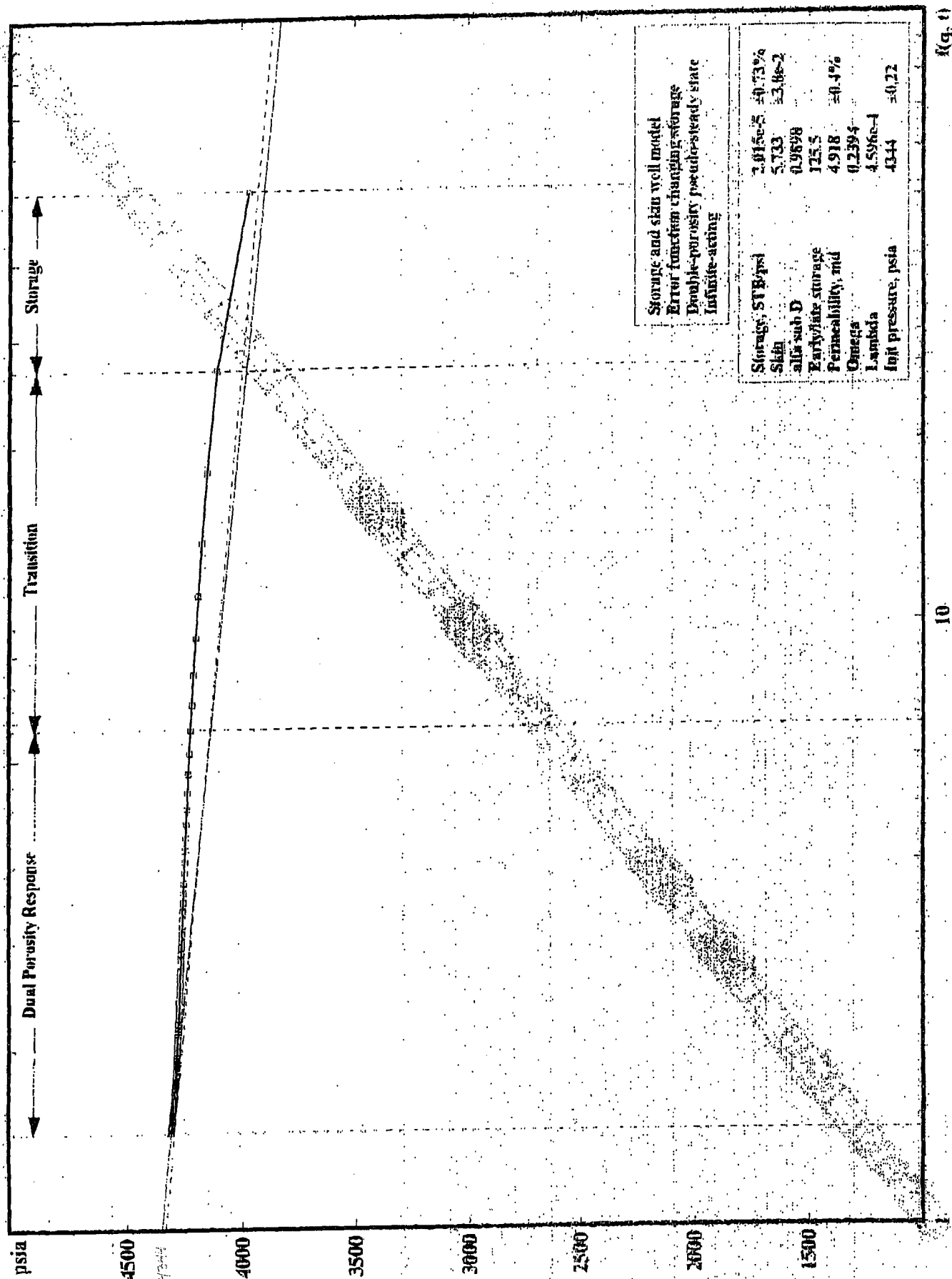


INITIAL SHUT-IN PERIOD DST #1 REGRESSION VERIFIED MODEL



COG OPERATING LLC. BLUE THUNDER "4" FED. COM #1

Variable rate Horner plot (pressure & time)

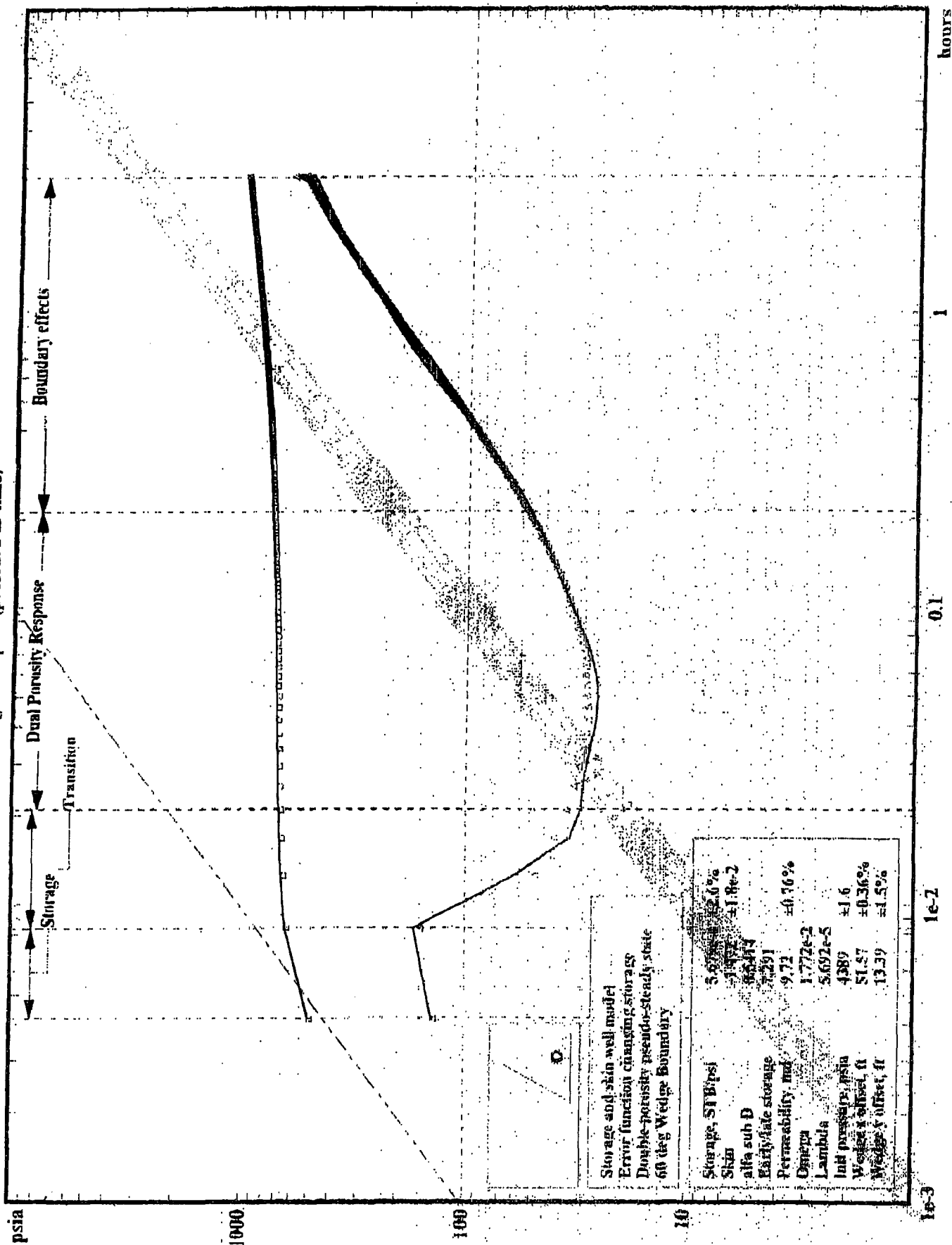


INITIAL SHUT-IN PERIOD DST #1 REGRESSION VERIFIED MODEL



COG OPERATING LLC, BLUE THUNDER "4" FED. COM #1

Diagnostic plot (pressure & time)

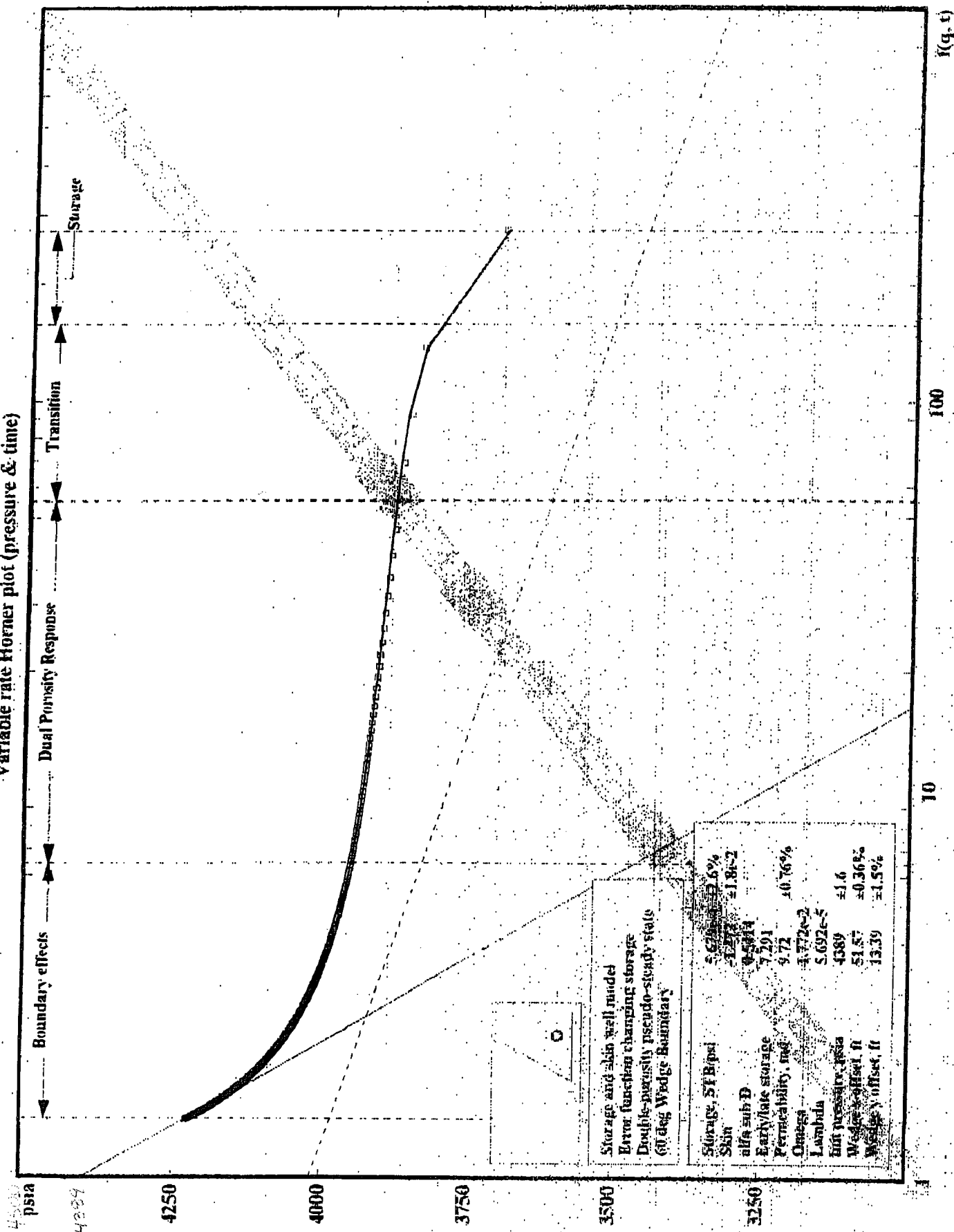


FINAL SHUT-IN PERIOD DST #1 REGRESSION VERIFIED MODEL



COG OPERATING LLC. BLUE THUNDER "4" FED. COM #1

Variable rate Horner plot (pressure & time)

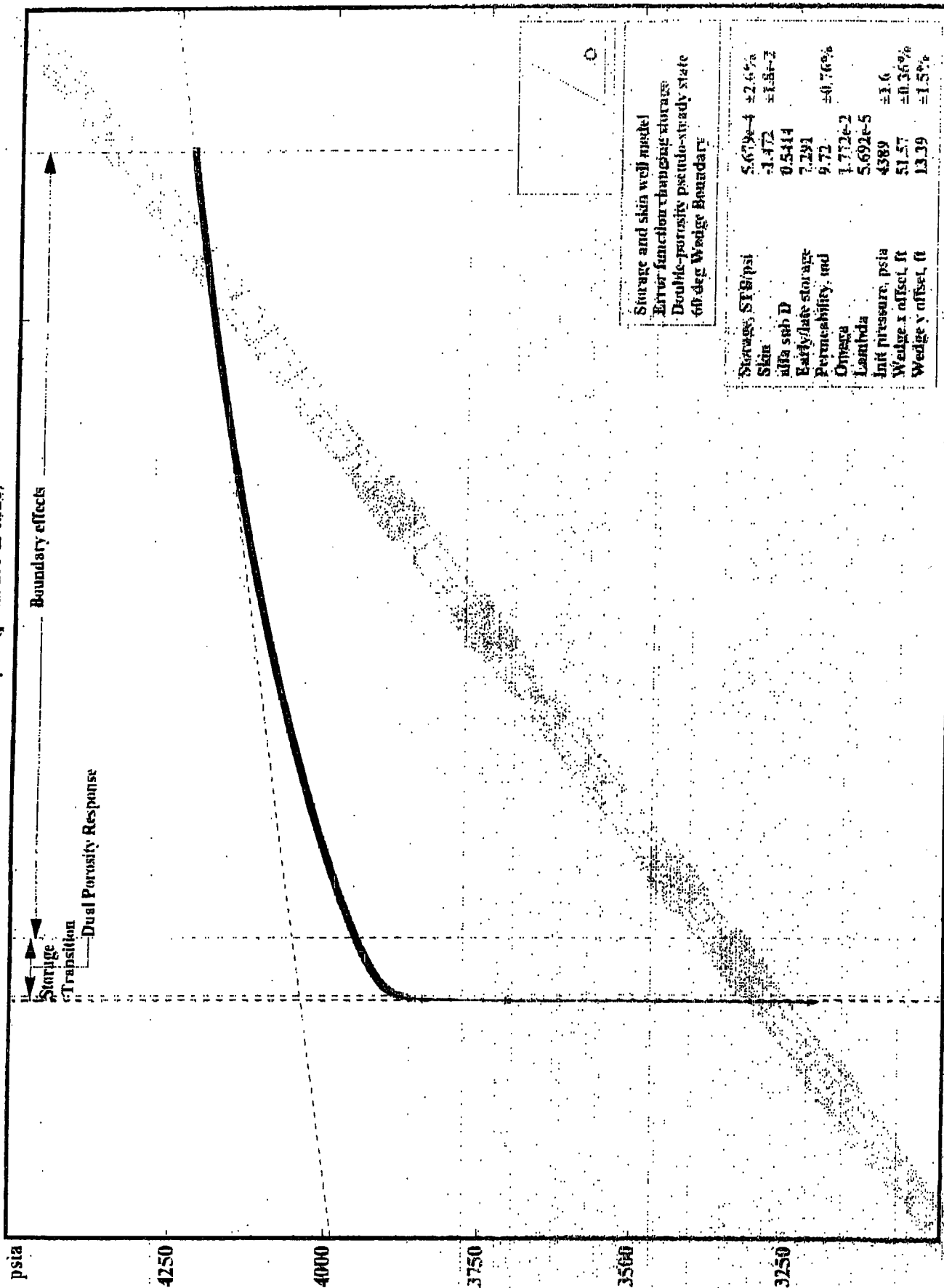


FINAL SHUT-IN PERIOD DST #1 REGRESSION VERIFIED MODEL



COG OPERATING LLC. BLUE THUNDER "4" FED. COM #1

Cartesian plot (pressure & time)



1 2 3 4 hours

FINAL SHUT-IN PERIOD DST #1 REGRESSION VERIFIED MODEL