

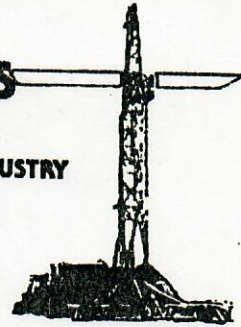


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CONSULTING GEOLOGISTS TO THE ENERGY INDUSTRY
Oil & Gas-Coal

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GEOLOGICAL WEBSITE REPORT



INTERMOUNTAIN OIL COMPANY
Teal #4

S/2 NW Section 29, T9N, R56W
Weld County, Colorado

Mathew D. Goolsby
Consulting Geologist

TABLE OF CONTENTS

	<u>Page</u>
Summary	1
Well Data	2
Daily Chronology	3
Bit Record	3
Mud Record	3
Deviation Surveys	4
Formation Tops	4
Representative Log Analysis	5
Drill Cuttings Analysis	6
DrillStem Test Report	Appendix I
Geologic Striplog	Rear Pocket

SUMMARY

The Teal #4 was spudded for Intermountain Oil Company on April 13, 1994. New Orbit Drilling's rig 5 reached a total depth in the Skull Creek on April 18. Primarily a "J" Sand test, the Teal #4 was planned as a replacement well to the South Teal #3 to the east. That well suffered water breakthrough from the lower "J", apparently due to a poor cement job. The well had been producing gas and high gravity oil before water became a problem. The "D" Sand interval was considered a secondary objective.

A "J" Sand top was logged at 5842 ft (-1327), as predicted from the mapped structure. The productive J1 sand included the log interval 5842 to 5858 ft. Logs recorded up to 13% density porosity on the normal pass, though the average was in the range of 10%. Several thin streaks exceeded 15% on the High Resolution pass. This density response was accompanied by both neutron gas cross-over and resistivity of over 100 ohms. Samples recovered from the J1 exhibited predominantly even bright yellow fluorescence and "wispy" streaming yellow cuts. Both samples and logs seemed to indicate that the entire J1 zone was above the water leg. A drillstem test was undertaken as confirmation. DST #1 tested the interval 5836 to 5834. The test blew off the bottom of the bucket. Recoveries included 2250 ft gas in pipe, 3 ft of oil, and 100 ft of mud cut water. The water recovery appeared to be filtrate. Most disappointing about the test was the shut-in pressure curves. The shut-ins built very slowly, indicating a low permeability reservoir (see DST results in Appendix I). Reservoir stimulation is not an option in this field due to the presence of a very porous water-bearing J2 immediately below J1.

The "D" Sand was encountered on logs at 5759 ft (-1244). The D1 appeared tight in samples and on logs while density porosity reached 15% in a thin streak of D2 (log depth 5768). Resistivities were below 12 ohms, indicating the presence of water. No tests were taken in the "D" Sand interval.

No other potential reservoirs were encountered in the Teal #4. The well was plugged to abandon on April 19, 1994.

WELL DATA

OPERATOR: Intermountain Oil Company

WELL NAME: Teal #4

LOCATION: 1320' FWL, 1705' FNL (S/2 NW) Section 29, T9N, R56W,
Weld Co, Colorado

FIELD: Stoneham

ELEVATION: 4505' GL, 4515' KB

ROAD DIRECTIONS: Hwy 14 to Hwy 71, north to rd 102, then east 1 1/2 mi.

DRILLING CONTRACTOR: New Orbit Drilling, Rig 5
TOOLPUSHERS: Orville N. Tuzicka

GEOLOGICAL WELLSITE SUPERVISION: Goolsby Brothers & Assoc., Inc.
GEOLOGIST: Mathew D. Goolsby

MUD ENGINEERING: Quality Drilling Fluids
ENGINEER: Robby Lakey
PROGRAM: Chemical-Gel

GEOPHYSICAL LOGGING: Schlumberger (Ft. Morgan)
ENGINEER: Mark Johnson
PROGRAM: Phasor Induction, FDC/CNL (Both w/ High Res)

HOLE SIZE: 12 1/4" to 150', 7 7/8" to TD

SURFACE CASING: 3 jts 8 5/8" set @131' KB w/ 100 sx.

SPUD DATE: 4/13/94

DATE TD REACHED: 4/18/94

SAMPLE PROGRAM: 10 ft and 5 ft intervals 5650' to TD.

TOTAL DEPTH: 5940' Driller, 5938' Logger

BOTTOM HOLE FORMATION: J Sandstone

DRILLSTEM TESTS: Pick Testers
DST #1, 5836-5854 (J Sandstone)

WELL STATUS: Plugged and Abandoned w/ 90 sx total.

DAILY CHRONOLOGY

<u>DATE</u>	<u>7 AM DEPTH</u>	<u>ROTATING HOURS PREVIOUS DAY</u>	<u>COMMENTS</u>
4/14/94	400	4	SET SURFACE
4/15/94	3380	22	
4/16/94	4920	16 3/4	BIT TRIP
4/17/94	5770	22	
4/18/94	5940(TD)	14	BIT TRIP

BIT RECORD

<u>#</u>	<u>MAKE</u>	<u>TYPE</u>	<u>SIZE</u>	<u>OUT</u>	<u>FOOTAGE</u>	<u>HOURS</u>	<u>REMARKS</u>
1A	HTC	X3A	12 1/4	150	150	1 1/2	
1	HTC	J 2	7 7/8	3541	3391	26	RT
2	STC	FDS	7 7/8	5770	2229	38 3/4	
3	STC	F 3	7 7/8	5940	170	13 1/2	RT

MUD RECORD

<u>DEPTH</u>	<u>WT</u>	<u>VIS</u>	<u>WL</u>	<u>PV</u>	<u>GEL</u>	<u>YP</u>	<u>PH</u>	<u>CHLOR</u>	<u>SOLIDS %</u>
5045	9.0	30	9.6	4	1/1	1	8.0	275	4.8
5676	9.2	44	5.6	15	3/11	10	9.0	300	6.4
5920	9.4	39	6.4	11	1/5	10	8.0	300	7.8

--- RAISED VIS TO 60 F/ LOGS ---

DEVIATION SURVEYS

<u>DEPTH</u>	<u>DRIFT</u>	<u>DEPTH</u>	<u>DRIFT</u>
150	3/4	1140	1 1/4
2323	1 1/2	3008	3/4
3477	1	4507	1 1/4
5770	3/4		

FORMATION TOPS

Elevations calculated using a KB elevation of 4515 feet.

<u>FORMATION</u>	<u>LOG DEPTH</u>	<u>ELEVATION</u>
Niobrara	5032	-517
Ft Hays	5257	-742
Carlile	5294	-779
X Bentonite	5655	-1140
D1 Sand	5759	-1244
D2 Sand	5766	-1251
J Silt	5820	-1305
J Sand	5842	-1327
Shull Creek	Not Logged	---
Total Depth	5938	---

REPRESENTATIVE LOG ANALYSIS

--- Log Values From First Pass ---

D SAND

Rw = 0.25, F = $.62/\phi^{2.15}$, Grain Density = 2.65

<u>Depth</u>	<u>PHI(d)</u>	<u>Rd</u>	<u>Sw%</u>	<u>Remarks</u>
5761	.19	4.2	100	Thin Bed

J SAND

Rw = .35, F = $.62/\phi^{2.15}$, Grain Density = 2.68

<u>Depth</u>	<u>PHI(d)</u>	<u>Rd</u>	<u>Sw%</u>	<u>Remarks</u>
J 1 5844	.13	37	69	Boundary Effect
5849	.13	100	42	High Res = 18% Porosity
5855	.11	50	71	
J 2 5862	.135	20	90	Probable O/W Contact
5870	.23	12	65	

DRILL CUTTINGS ANALYSIS

Samples described dry except for shows which were described from wet cuttings.

D SAND & J SAND DETAIL

<u>Depth</u> <u>Caught</u>	<u>Lagged</u> <u>Depth</u>	<u>Description</u>
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INITIAL SAMPLE LAG = 40 MINUTES

5760	5721	SH V DK GY, BLKY, SLI SLTY, FIRM
------	------	----------------------------------

D SAND

5765	5760	1% SS LT GY, LVFG/VFG, PSRTD, ANG, PYRITIC, CLY FLD & SILIC, V FIRM, NO VIS POR, 25% V SPTTY YEL FLOR, WKLY STRMG CUTS
------	------	--

5770	5764	5% SS CLR/WH, VF/MG, MSRTD, ANG/SBANG, SILIC, CLN, EST 15% POR, LOOKS PERM, SPTTY MOD/BRI YEL-WH FLOR, WISPY STRMG CUTS
------	------	---

CIRCULATE SAMPLES FOR BIT TRIP @ 5770'

(20")	5768	10% SS AA, INC VFG, SLI SPTTY PALE YEL FLOR, HD MLKY YEL CUTS
-------	------	---

(45")	5770	10% SS WH/OFFWH, LVF/VFG, ANG, SCAT CLY, SB SILIC CMT, EST 13/14% POR, SPTTY PALE YEL FLOR, MLKY CUTS
-------	------	---

5780	5772	15% SS CLR/WH, VF/FG, SBANG, M/WSRTD, SCAT CLY, EST 17% POR, NO VIS STN, 80% SPTTY MOD YEL FLOR, WKLY STRMG YEL CUTS
------	------	--

5785	5776	12% SS AA BUT INC VFG, SOME INC CLY
------	------	-------------------------------------

5790	5780	8% SS AA W/ 5% SS LT GY, LVFG, SLTY, MSRTD, TR MICA, SILIC, V FIRM, TITE, PATCHY DULL GLD FLOR, V WK MLKY CUTS
------	------	--

5795	5784	SLTY SS AA, INC SLTY & GRDG TO SLTST, SLI SDY
------	------	---

5800	5788	SLTST W/ SH LT GY BRN, SLTY, SDY, SILIC, PATCHY GLD FLOR, SLOW WK MLKY YEL CUTS
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5810	5796	SH DK BRN/DK GY, BLKY/SLI PLTY, FIRM
------	------	--------------------------------------

5820	5804	SH AA
------	------	-------

5830	5822	SH PRED DK GY, BLKY, SOME SPLTY, FIRM
------	------	---------------------------------------

J SILT

5840	5832	SH AA & 5% SH V DK GY, DK BRN, SILIC, SLI CARB, FIRM
------	------	--

5850	5838	INC SH DK GY BRN/BLK, SILIC, SLI CARB, OCC SLTY
------	------	---

J SANDSTONE

5855	5842	15% SS CLR/OFF WH, VF/MG, PSRTD, ANG/SBRD, FCMTD BUT FREQ UNCONSL GRNS, EST 11/14% POR, NO VIS STN BUT SLI RAINBOW IN WET SMPL, 80% MOD/BRI YEL SLI PATCHY FLOR, WISPY STRMG CUTS
5860	5850	SS CLR, VF/FG, SCAT MG, MSRTD, ANG, CLN, SILIC, EST 15/16% POR, SOME VIS LT HNY STN, PETRO TASTE, PRED EVN BRI YEL FLOR, GOOD WISPY STRMG CUTS
5865	5859	SS AA BUT INC SILIC CMT, EST 13% POR, FLOR BCMG PATCHY PALE/BRI, POSS OIL/WATER CONTACT
5870	5863	SS CLR/WH, F/CG, MSRTD, SBANG/RD, SOME FROST, SCAT CLY, EST 13/17% POR, PATCHY PALE YEL-GLD FLOR, WK MLKY YEL CUTS; INC SH V DK GY, SLTY, SILIC
5875	5868	SS AA, SLI INC FG
5880	5875	SS F/CG, SBANG/RD, SOME UNCONSL, SCAT CLY, EST 14/16% POR, SCAT PALE FLOR, NO CUTS
5890	5883	SS AA
5900	5892	SS CLR/OFFWH, INC VF/FG, SBANG/SBRD, SCAT CLY FL, EST 14% POR, NO SHOWS
5910	5894	SS PRED CLR, VF/FG, MSRTD, SBANG/RD, SILIC, FCMTD, EST 17% POR, NSFOC
5920	5899	AA W/ 10% SS LT TAN, VF/FG, INC RD, FREQ CLY CMT, BRIT, EST 13/15% POR, NO SHOWS
5930	5910	60% SS LT GY BRN, VF/FG, MSRTD, MOST RD, FREQ WH CLY CMT, EST 13% POR, NO SHOWS
5940	5927	80% SS LT GY, VF/FG, M/WSRTD, SBANG/RD, SOME CLY FL, EST 12/14% POR, NO SHOWS
CIRCULATE OUT AFTER SHORT TRIP @ DRILLER'S TD OF 5940'		
45"	5940	70% SS LT GY, PRED VFG, MSRTD, INC SBANG, CLY FL, EST 12% POR, NSFOC W/ SH V DK GY, SBSPLTY, FIRM (SKULL CREEK)

D Sand

5800

J Silt

J Sand

DST #1

GR

CALI

FR

SP---

---SFQF

---IMQF

---IDQF

5900

FR

FR

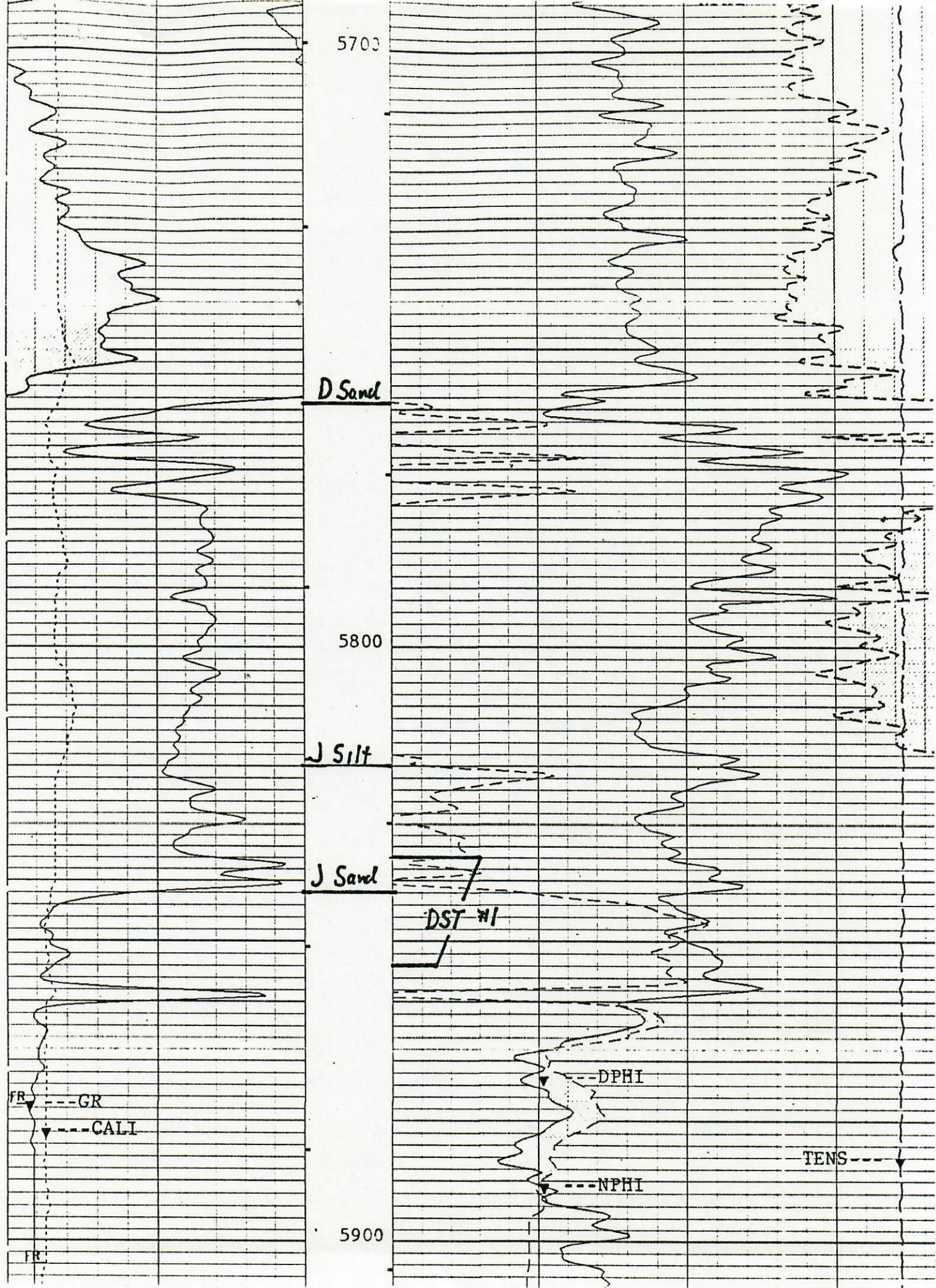
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TENS---



APPENDIX I
DRILLSTEM REPORT



PICK TESTERS

Box 341

Sterling, CO 80751

Contractor **Orbit Drilling**
 Rig No. **5**
 Spot **1320' FWL & 1705' FNL**
 Sec **29**
 Twp. **9 N**
 Rng. **56 W**
 Field **Stoneham**
 County **Weld**
 State **Colorado**
 Elevation **4515' KB**
 Formation **J Sand**

Surface Choke **1/4"**
 Bottom Choke **3/4"**
 Hole Size **7 7/8"**
 Core Hole Size **None**
 DP Size & Wt. **4 1/2" 16.60**
 Wt. Pipe **None**
 I.D. of DC **2 1/4"**
 Length of DC **446'**
 Total Depth **5942'**
 Type Test **Straddle**
 Interval **5836'- 5854'**

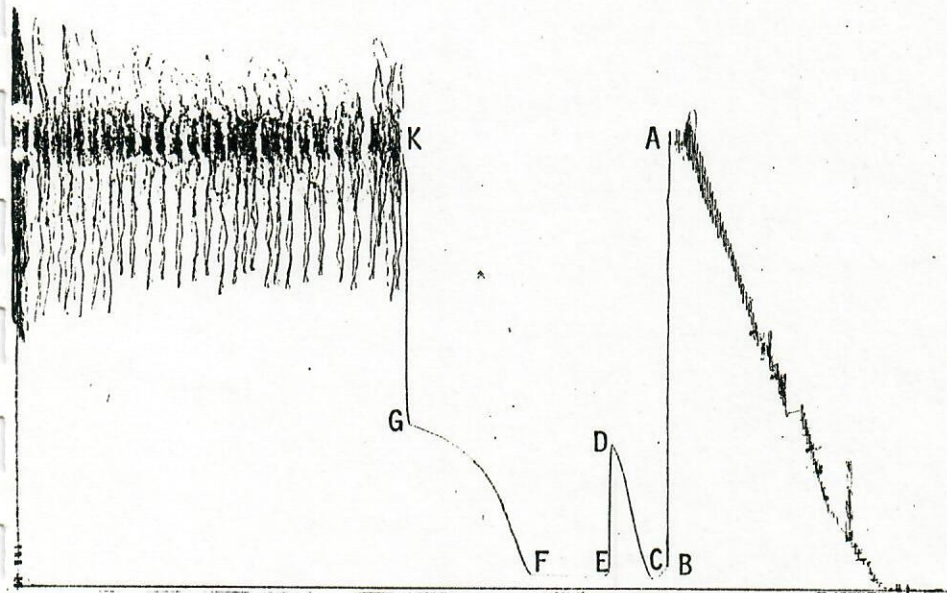
Mud Type **Chemical/Gel**
 Weight **9.5**
 Viscosity **60+**
 Water Loss **--**
 Filter Cake **--**
 Resistivity **2.8 @ 70 °F**
1,961 Ppm. NaCl °F
 B.H.T. **150**
 Co. Rep. **Matt Goolsby**
Rick Grimmette
 Tester **David Pickering**

REPORTED CORRECTED

Opened Tool @ **17:18** hrs.
 Flow No. 1 **15** **12** min.
 Shut-in No. 1 **30** **29** min.
 Flow No. 2 **60** **59** min.
 Shut-in No. 2 **90** **91** min.
 Flow No. 3 **None Taken** min.
 Shut-in No. 3 **" "** min.

Recorder Type **Kuster AK-1**
 No. **13338** Cap. **4950** psi
 Depth **5867** feet
 Inside **x** Clock
 Outside Range **12** hrs.

Initial Hydrostatic A **2916**
 Final Hydrostatic K **2858**
 Initial Flow B **136**
 Final Initial Flow C **64**
 Initial Shut-in D **968**
 Second Initial Flow E **102**
 Second Final Flow F **85**
 Second Shut-in G **1096**
 Third Initial Flow H
 Third Final Flow I
 Third Shut-in J



Pipe Recovery

2250' Gas above fluid
 103' Total fluid = 0.50 bbl., consisting of:
 3' Oil = 0.01 bbl.
 100' Mud cut water w/slight trace of oil = 0.49 bbl.

Resistivity:

Top: 3.5 @ 78 Deg F/1.89 @ Res Temp/1,397 ppm NaCl., 849 ppm Cl.
 Bottom: 2.5 @ 78 Deg F/1.35 @ Res Temp/1,990 ppm NaCl., 1,210 ppm Cl.

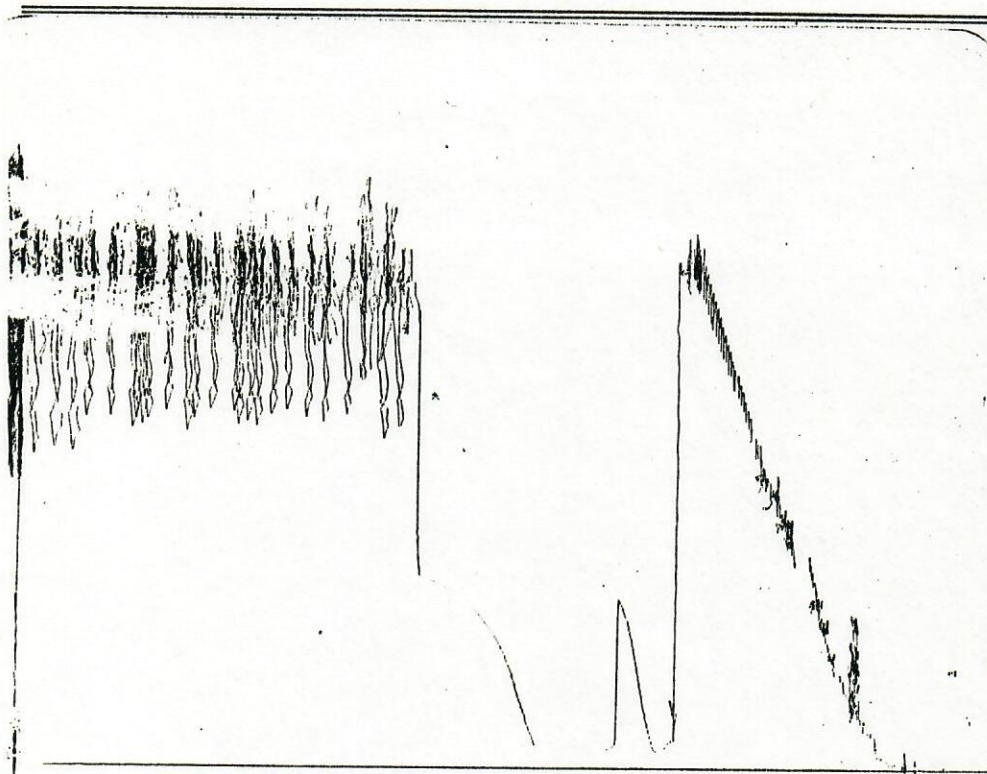
1st Flow: Tool opened with a slight blow, increased to a good blow off bottom of bucket in 7 minutes and remained thru flow period.

2nd Flow: Tool opened with a 1/2" blow, increased to a good blow off bottom of bucket in 1 minute and remained thru flow period.

INTERMOUNTAIN OIL CO.
TICKET #1465TEAL #4
J SAND ~ 5836'- 5854'DST #1
04-18-1994

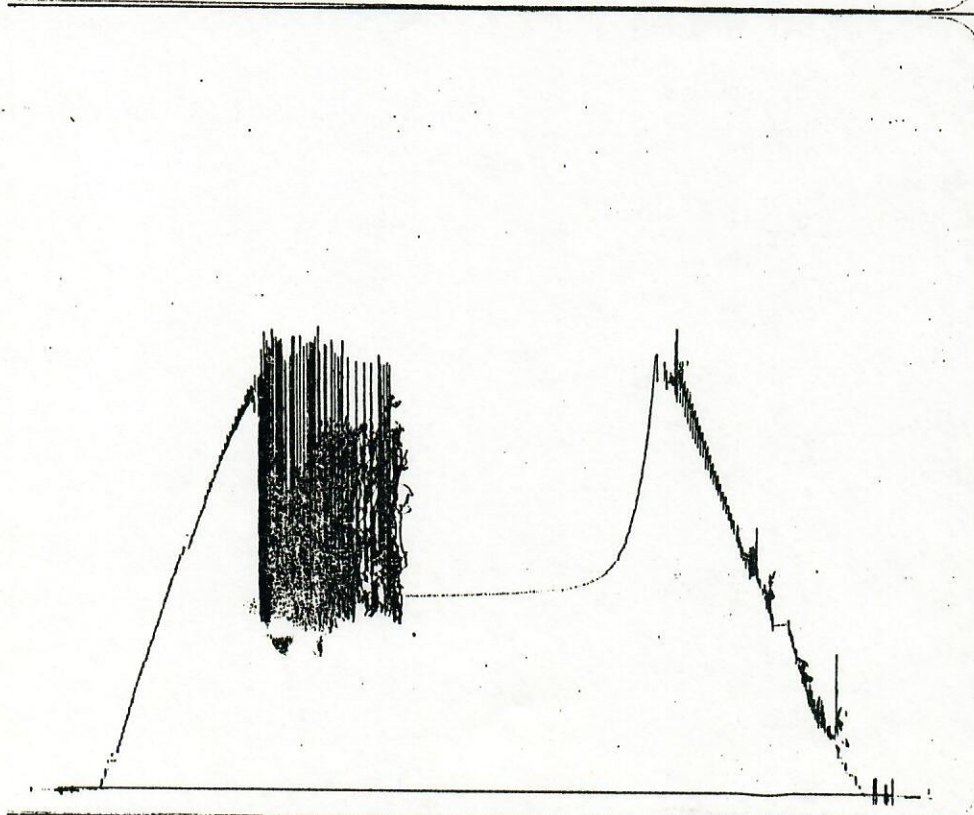
Company: Intermountain Oil Co.
Well: Teal #4
DST No: 1

04-18-1994



Recorder Type	Kuster AK-1		
No. 13617	Cap. 4550	psi	
Depth	5862	feet	
Inside x	Clock		
Outside	Range 12	hrs.	

Initial Hydrostatic	A	2922
Final Hydrostatic	K	2867
Initial Flow	B	154
Final Initial Flow	C	77
Initial Shut-In	D	972
Second Initial Flow	E	99
Second Final Flow	F	95
Second Shut-In	G	1101
Third Initial Flow	H	
Third Final Flow	I	
Third Shut-In	J	



Recorder Type	Kuster AK-1		
No. 6249	Cap. 4950	psi	
Depth	5873	feet	
Inside	Clock		
Outside x	Range 12	hrs.	

Initial Hydrostatic	A	
Final Hydrostatic	K	
Initial Flow	B	
Final Initial Flow	C	
Initial Shut-In	D	
Second Initial Flow	E	
Second Final Flow	F	
Second Shut-In	G	
Third Initial Flow	H	
Third Final Flow	I	
Third Shut-In	J	

Bled to: 1408

Company: Intermountain Oil Co.
Well: Teal #4
DST No: 1

04-18-1994

SAMPLER REPORT

Pressure in Sampler:	80	psig
Total Volume of Sampler:	2150	cc.
Total Volume of Sample:	1700	cc.
Oil:	200	cc.
Water:	1500	cc.
Mud:	None	cc.
Gas:	Trace	cu. ft.
Other:	None	

Resistivity

Make up Water	@	°F of Chloride Content	ppm.
Mud Pit Sample	2.8 @ 70	°F of Chloride Content	1,961 ppm.
Gas / Oil Ratio	Gravity	°API @	°F

Where was sample drained On Location.

Remarks:

Company: Intermountain Oil Co.

Well: Teal #4, DST #1

Field: Stoneham

[Monday: Apr. 18, 1994]

Page 1

REC #	DAY	REAL TIME	DT (HRS)	BHP (PSIA)
----------	-----	--------------	-------------	---------------

Gauge #13338 @ 5867 ft:

Opened for flow #1:

1	0	17:18: 0	0.0000	136.25
2	0	17:18:59	0.0165	135.23
3	0	17:20: 3	0.0342	116.06
4	0	17:21: 2	0.0507	116.14
5	0	17:24: 2	0.1007	79.84
6	0	17:27: 1	0.1502	67.74
7	0	17:30: 2	0.2006	64.36

Closed for shut-in #1:

8	0	17:30: 2	0.0000	64.36
9	0	17:31: 1	0.0163	72.05
10	0	17:32: 3	0.0334	86.40
11	0	17:33: 0	0.0495	104.27
12	0	17:34: 2	0.0665	125.41
13	0	17:35: 3	0.0835	150.33
14	0	17:36: 4	0.1004	175.51
15	0	17:37: 1	0.1164	198.65
16	0	17:38: 2	0.1332	229.46
17	0	17:39: 2	0.1500	263.24
18	0	17:40: 2	0.1667	297.80
19	0	17:41:59	0.1990	379.81
20	0	17:44: 4	0.2337	488.23
21	0	17:46: 3	0.2669	574.96
22	0	17:48: 2	0.3000	670.25
23	0	17:50: 2	0.3332	756.10
24	0	17:52: 3	0.3669	818.01
25	0	17:54: 1	0.3997	874.43
26	0	17:56: 0	0.4327	920.80
27	0	17:57:59	0.4659	956.71
28	0	17:58:44	0.4782	967.68

Opened for flow #2:

29	0	18: 2:26	0.0000	102.01
30	0	18: 3:29	0.0176	91.09
31	0	18: 4:25	0.0332	85.47
32	0	18: 5:28	0.0507	80.48
33	0	18: 8:26	0.1001	74.67
34	0	18:11:28	0.1505	71.16
35	0	18:14:25	0.1998	70.07
36	0	18:17:26	0.2501	70.31
37	0	18:22:26	0.3333	70.70
38	0	18:27:28	0.4174	73.52
39	0	18:32:28	0.5005	75.74
40	0	18:37:27	0.5836	77.46
41	0	18:42:26	0.6668	79.19

Company: Intermountain Oil Co.

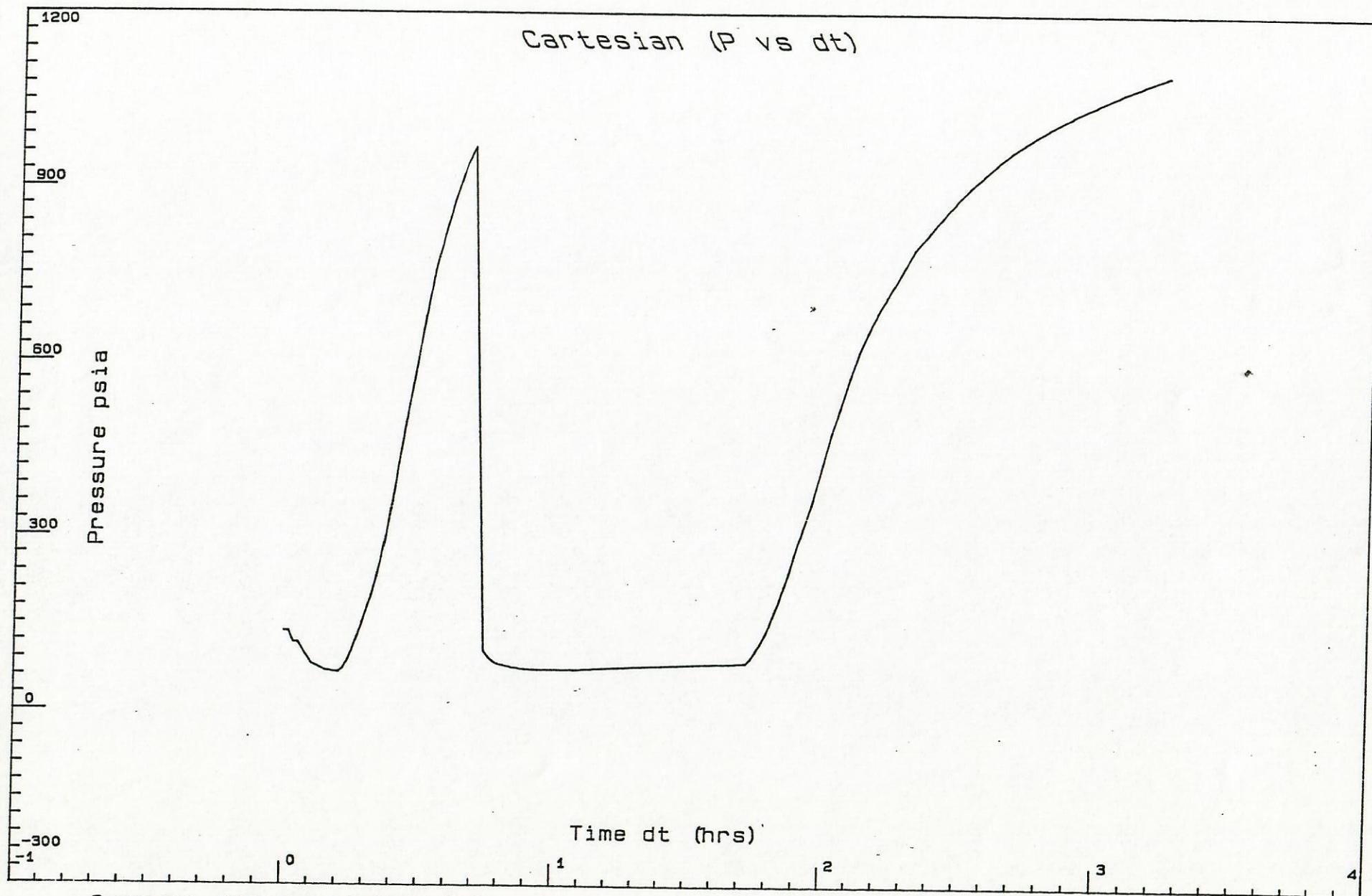
Well: Teal #4, DST #1

Field: Stoneham

[Monday: Apr. 18, 1994]

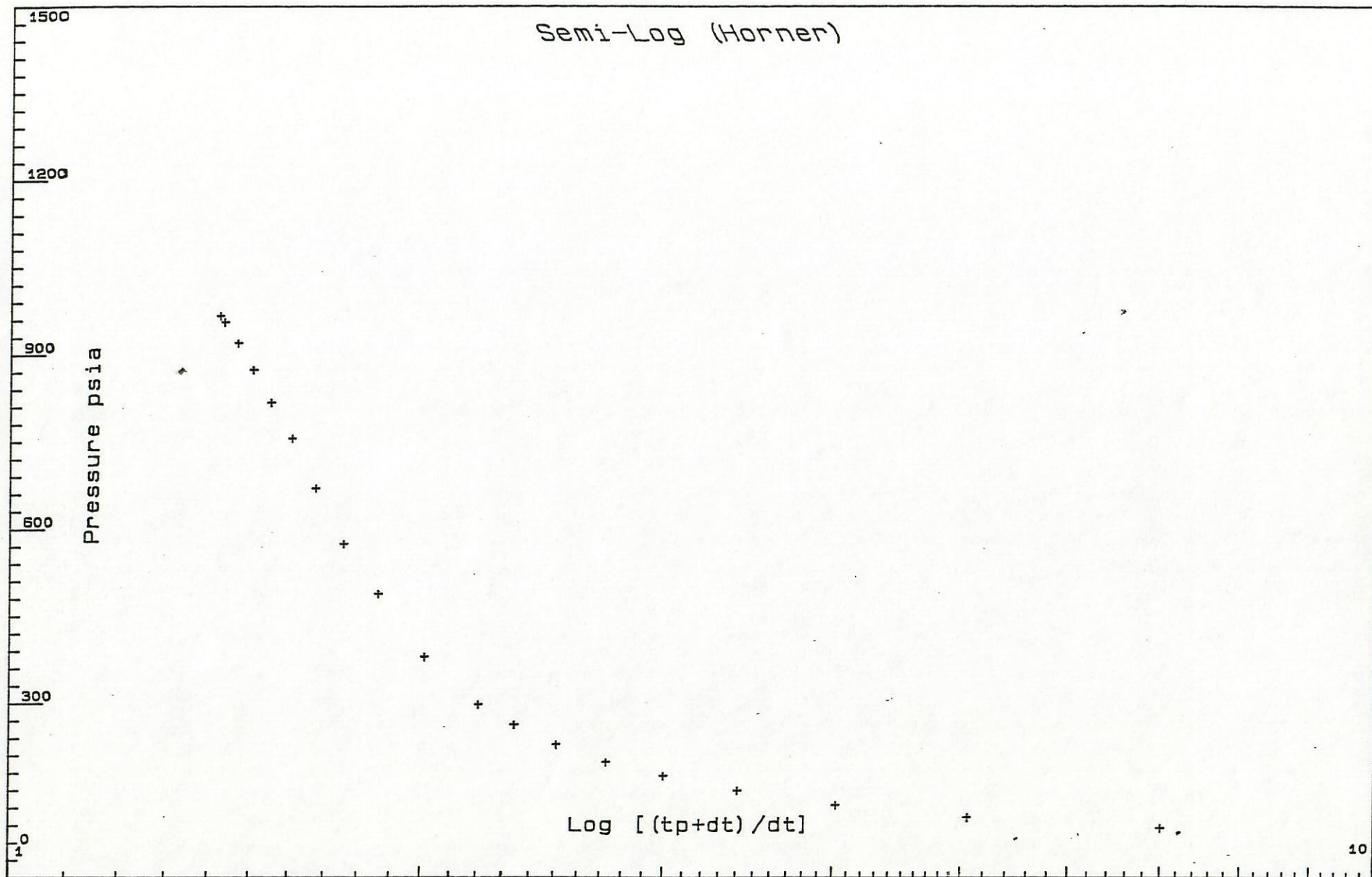
Page 2

REC #	DAY	REAL TIME	DT (HRS)	BHP (PSIA)
42	0	18:47:26	0.7499	80.68
43	0	18:52:28	0.8340	82.29
44	0	18:57:28	0.9172	83.17
45	0	19: 1:21	0.9820	84.93
Closed for shut-in #2:				
46	0	19: 1:21	0.0000	84.93
47	0	19: 2:19	0.0163	92.99
48	0	19: 3:21	0.0334	106.14
49	0	19: 4:20	0.0497	118.08
50	0	19: 5:21	0.0668	133.55
51	0	19: 6:23	0.0838	152.89
52	0	19: 7:20	0.0999	173.10
53	0	19: 8:22	0.1169	195.02
54	0	19: 9:19	0.1329	216.84
55	0	19:10:20	0.1499	239.90
56	0	19:11:21	0.1667	267.97
57	0	19:13:20	0.1997	315.79
58	0	19:15:22	0.2336	364.21
59	0	19:17:20	0.2664	420.34
60	0	19:19:21	0.3001	477.49
61	0	19:21:20	0.3331	523.46
62	0	19:23:22	0.3669	575.10
63	0	19:25:21	0.4000	619.18
64	0	19:27:20	0.4332	654.66
65	0	19:29:20	0.4664	687.22
66	0	19:31:20	0.4997	714.61
67	0	19:34:22	0.5503	754.07
68	0	19:37:20	0.5998	794.83
69	0	19:40:23	0.6505	822.92
70	0	19:43:22	0.7003	851.04
71	0	19:46:21	0.7501	877.56
72	0	19:49:21	0.7999	901.97
73	0	19:52:20	0.8499	922.39
74	0	19:55:23	0.9007	943.58
75	0	19:58:20	0.9497	962.26
76	0	20: 1:20	0.9997	978.32
77	0	20: 6:21	1.0834	1003.48
78	0	20:11:19	1.1662	1025.00
79	0	20:16:24	1.2509	1044.66
80	0	20:21:22	1.3337	1062.93
81	0	20:26:21	1.4166	1078.94
82	0	20:31:23	1.5005	1093.58
83	0	20:32: 8	1.5130	1095.78



Company: Intermountain Oil Co.
Well: Teal #4, DST #1
Field: Stoneham

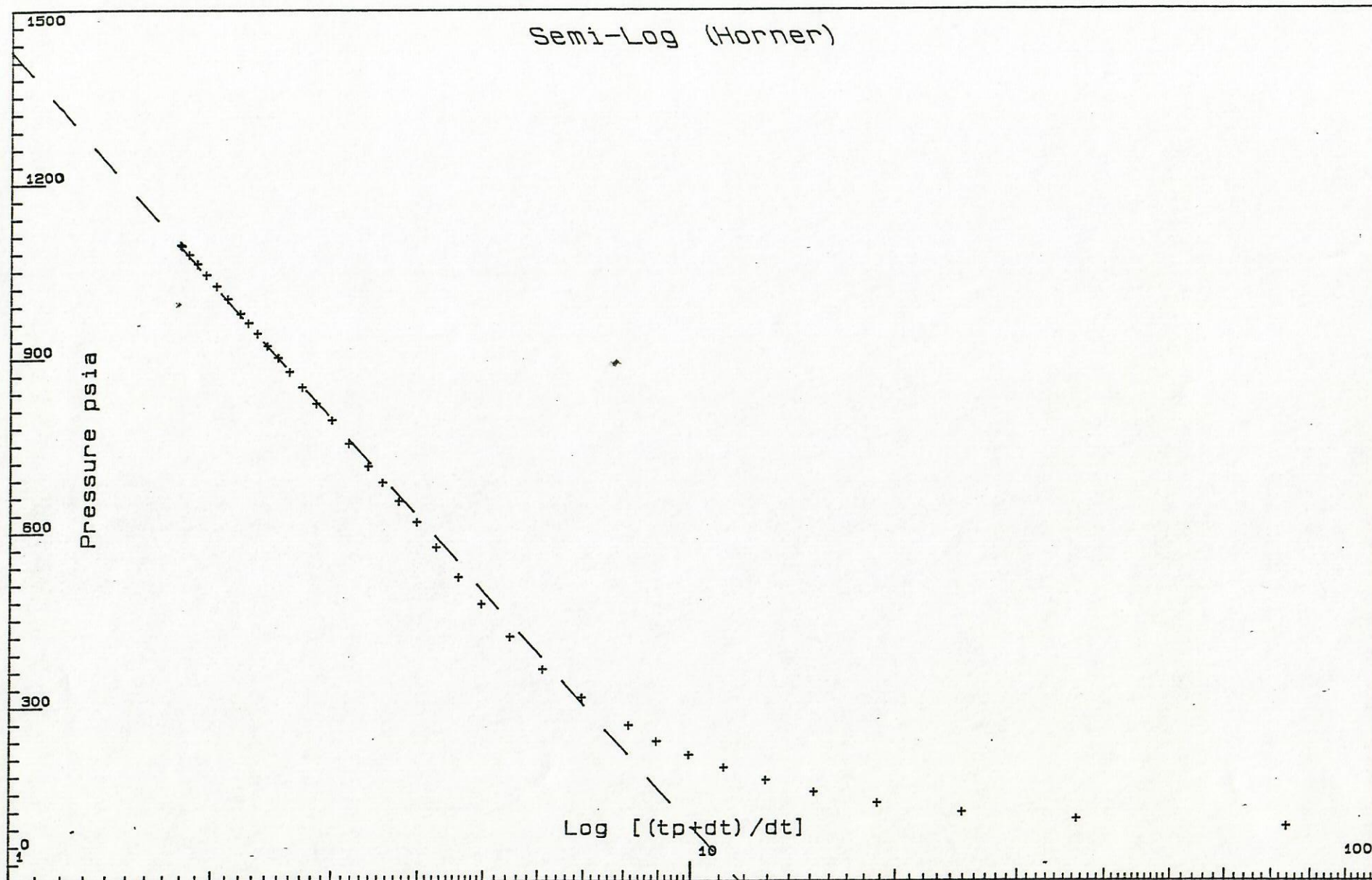
Date: 04-18-1994



Company: Intermountain Oil Co.
Well: Teal #4, DST #1
Field: Stoneham

Date: 04-18-1994

Shut-in #1:
P* - Indeterminate



Company: Intermountain Oil Co.
Well: Teal #4, DST #1
Field: Stoneham

Date: 04-18-1994

Shut-in #2:
 $P^* = 1430$ psi (Questionable)
 $M = -1334.031$ psi/cycle