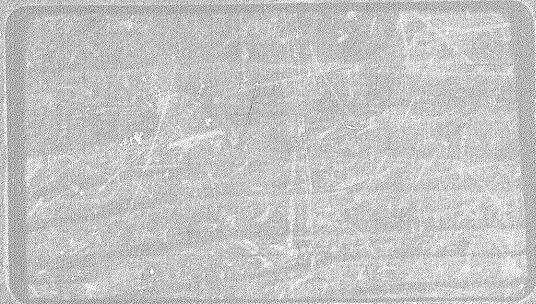


FORM 100-115
REVISED 10-6-54



AMERICAN PETROLEUM CORPORATION

MINNESOTA DEPARTMENT
OF REVENUE

REVISED
WELL HISTORY REPORT
PAN AM BEAVER YTG-01
UNIT G SECTION 1 GRID 60°10'N, 124°15'W
YUKON TERRITORY

by:
N. Greer
Professional Assistant
Approved by:



A.F. Holan
Area Foreman



AMOCO CANADA PETROLEUM COMPANY LTD.
444 - 7th Ave. S.W.
Calgary 2, Alberta

I N D E X

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A T T A C H M E N T S

Core Analysis
Gas Analysis
Water Analysis
Core Description
Sample Description

WELL HISTORY
REPORT

Section I - Summary of Well Data

- (a) Well Name and Number
Pan Am Beaver YTG-01
- (b) Permittee
Pan American Petroleum Corporation
- (c) Operator
Amoco Canada Petroleum Company Limited
444 - 7th Avenue S.W., Calgary, Alberta
- (d) Location
Unit G Section 1 Grid 60°10'N, 124°15'W
Latitude 60°00'25" N Longitude 124°15'48"W
Universal Well Location 60.00694°N Lat. 124.2633°W Long.
Unique well identifier 300G016010124150
- (e) Co-ordinates
1020.20' West of East boundary & 984.99' North of South boundary of Unit G
Sec. 1 Grid 60°10'N 124°15'W
- (f) Permit No.
1002
- (g) Drilling Contractor
Name: Loffland Brothers Company of Canada
Rig: #221
Type: Rotary Unit 914A
- (h) Drilling Authority
#325 Issued October 15, 1968
- (i) Classification
Wildcat Exploratory
- (j) Elevation
Ground: 2800.3' G.L.
KB: 2616.8'
- (k) Spudded
December 6, 1968
- (l) Completed Drilling
August 3, 1969

(m) Depths
TD 14,762 PBD 14,472

(n) Well Status
Gas Producer - Suspended

(o) Rig Released
August 20, 1969

(p) Hole Size
1. 17 1/2" 0 - 1201'
2. 12 1/4" 1201 - 10,904'
3. 8 1/2" 10,904 - 14,650'
4. 6" 14,650 - 14,762'

(q) Casing
Casing Size: 13 3/8"
Grade: J-55
Weight: 54.5#
Amount: 38 jts.
Set at: 1201' KB

Casing Size: 9 5/8"
Grade: N-80 & S00-95
Weight: 40 - 43.5 = 47#
Amount: 285 jts.
Set at: 10903.8'

Casing Size: 7"
Grade: S00-95 & N-80
Weight: 23# - 26#
Amount: 345 jts.
Set at: 14,650'

Hot Oil String
Casing Size: 5 1/2"
Grade: J-55
Weight: 17#
Amount: 62 jts.
Set at: 2622.79'

Section II - Geological Summary

Formation Tops

<u>TOPS</u>	<u>DEPTHS</u>	<u>SUB SEA</u>
KB	0	2616.5
Fantasque Chert	1428	1188.5
Mattson Sand	2090	526.5
(Shale Limestone unit)	4078	-1461.5
Mississippian Shale	4935	-2318.5
Limestone	9977	-7361.5
Banff	10756	-8139.5
1st Black	11620	-9003.5
2nd Black	12955	-10338.5
Mid Devonian Carbonate	13492	-10875.5

Section III - Engineering Summary

(a) Drill Stem Tests

D.S.T. #1

Drill Stem Testing & Coring Ltd. March 14, 1969 7173' - 7220'
PF - 5 mins; Water Cushion - 1000'; VO - 60 mins; ISI - 60 mins;
FSI - 105 mins; IHP - 3873; ISIP - 3904; IFP - 2859; FFP - 3574;
FSIP - 3900; FHP - 3865; Strong blow on preflow WC to surface in 1 min;
Gas to surface in 3 mins. Est. 35 MMCF/D flow; No fluid recovery.

D.S.T. #2

Drill Stem Testing & Coring Ltd. April 8, 1969 8760 - 8868'
WC - 1000, PF - 5 mins; ISI - 60 mins; FSI - 60 mins; VO - 75 mins;
IHP - 4919; FHP - 4866; plugged recorder, packers leaked during shut-in,
false reading fluid recovery 350' mud.

D.S.T. #3

Drill Stem Testing & Coring Ltd. May 29, 1969 Mississippian 10,170 - 10,220'
WC 2000'; PF - 5 mins; VO - 540 mins; ISI - 60 mins; FSI - 480 mins;
IHP - 5652; ISIP - 5427; IFP - 965; FFP - 1845; FSIP - 4051; FHP - 5435;
Good blow. Gas to surface in 10 mins. TSTM, fluid recovery 1870' mud
2000' Water cushion.

D.S.T #4

Halliburton Services Ltd. August 5, 1969
Nahanni 14,575 - 14,762' Misrun.
Stinger did not enter packer thus no seat

D.S.T. #5
Halliburton Services Ltd. August 6, 1969 Bahanni 14,575 - 14,762'
PF - 15 mins; WC - 3000'; VO - 510 mins; ISI - 60 mins; FSI - 180 mins;
IHP - 6102; ISIP - 5400; IFP - 1745' FFP - 3949; FSIP - 5860; FHP - 6102;
Weak blow. Gas to surface in 6 hours, total fluid recovery - 7290'
fluid 3000' water cushion, 4290' formation water.

(b) Casing Record

Surface Casing

Hole size: 17 1/2"
Conductor Size: 13 3/8"
Weight: 54.5#
Grade: J-55
Joints run: 38
KB setting depth: 1201'
Cement & Additives: 1150 sx + 2% CaCl₂
Date run: Dec. 23/68
Date Cemented: Dec. 24/68

Intermediate Casing

Hole size: 12 1/4"
Casing Size: 9 5/8"
Weight: 40#, 43.5# 47#
Grade: N-80, 800-95
S-95
Joints run: 285
KB setting depth: 10903.80'
Cement & Additives: 500 sx O.W. +
.4% HR-4 plus
2000 sxs OW + 12%
Gel + .8% HR-7
Date Run: May 23, 1969
Date Cemented: May 23 & 24, 1969

Production Casing

Hole Size: 8 1/2"
Casing Size: 7"
Weight: 23 & 26#
Grade: 800-95 N-80
Joints Run: 345
KB Setting depth: 14650'
Cement & Additives: 850 sx OW + 20% silica + 4% gel + 1.5% HR-12, 200 sx OW
+ 20% silica + 1.25% HR-12.
Date Run: July 31, 1969
Date Cemented: July 31, 1969

Hot Oil String

Hole Size: inside 7" casing
Casing Size: 5 1/2"
Weight: 17#
Grade: J-55
Joints Run: 62
KB setting depth: 2622.79'
Cement & Additives: suspended
Date run: Aug. 9/69
Date cemented: NA

D.S.T. #5
Halliburton Services Ltd. August 6, 1969 Bahanni 14,575 - 14,762'
PF - 15 mins; WC - 3000'; VO - 510 mins; ISI - 60 mins; FSI - 180 mins;
IHP - 6102; ISIP - 5400; IFP - 1745' FFP - 3949; FSIP - 5860; FHP - 6102;
Weak blow. Gas to surface in 6 hours, total fluid recovery - 7290'
fluid 3000' water cushion, 4290' formation water.

(b) Casing Record

Surface Casing

Hole size: 17 1/2"
Conductor Size: 13 3/8"
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Joints run: 38
KB setting depth: 1201'
Cement & Additives: 1150 sx + 2% CaCl₂
Date run: Dec. 23/68
Date Cemented: Dec. 24/68

Intermediate Casing

Hole size: 12 1/4"
Casing Size: 9 5/8"
Weight: 40#, 43.5# 47#
Grade: N-80, 800-95
S-95
Joints run: 285
KB setting depth: 10903.80'
Cement & Additives: 500 sx O.W. +
.4% HR-4 plus
2000 sxs OW + 12%
Gel + .8% HR-7
Date Run: May 23, 1969
Date Cemented: May 23 & 24, 1969

Production Casing

Hole Size: 8 1/2"
Casing Size: 7"
Weight: 23 & 26#
Grade: 800-95 N-80
Joints Run: 345
KB Setting depth: 14650'
Cement & Additives: 850 sx OW + 20% silica + 4% gel + 1.5% HR-12, 200 sx OW
+ 20% silica + 1.25% HR-12.
Date Run: July 31, 1969
Date Cemented: July 31, 1969

Hot Oil String

Hole Size: inside 7" casing
Casing Size: 5 1/2"
Weight: 17#
Grade: J-55
Joints Run: 62
KB setting depth: 2622.79'
Cement & Additives: suspended
Date run: Aug. 9/69
Date cemented: NA

(c) Bit Record

<u>BIT</u>	<u>SIZE</u>	<u>TYPE</u>	<u>MAKE</u>	<u>IN</u>	<u>OUT</u>	<u>FOOTAGE</u>	<u>HOURS</u>
1	12 1/4"	M4NG-J	Security	Rat Hole			
2	17 1/2"	YH	Reed	0	133	133	23 1/4
3	17 1/2"	YSI-J	Reed	133	353	220	40 3/4
4	17 1/2"	YSI-J	Reed	353	495	142	39 1/4
5	12 1/4"	YSI-J	Reed	495	583	88	30 1/2
6	17 1/2"	YH-J	Reed	583	698	115	32 1/2
7	17 1/2"	YH-J	Reed	698	967	269	52
8	17 1/2"	YJ-J	Reed	967	1201	234	41 3/4
9	12 1/4"	STI4G-J	Reed	1201	1489	288	12 1/4
10	12 1/4"	H7G-J	Security	1489	1534	45	7 1/2
11	12 1/4"	L4H-J	Smith	1534	1540	6	1
12	12 1/4"	5JS-J	Smith	1540	1540	0	0
13	12 1/4"	5JS-J	Smith	1540	2074	534	50 1/4
14	12 1/4"	SC5G-J	Reed	2074	2111	37	8 1/4
15	12 1/4"	H7G-J	Security	2111	2144	33	9
16	12 1/4"	H7G-J	Security	2144	2228	84	11
17 (13RR)	12 1/4"	SC5G-J	Reed	2228	2462	234	44
18	12 1/4"	H10-J	Security	2462	2821	359	43
19	12 1/4"	YC2G-J	Reed	2821	2957	136	34 1/4
20	12 1/4"	YC2G-J	Reed	2957	3125	168	34 1/4
21	12 1/4"	YC2G-J	Reed	3125	3333	208	37 3/4
22	12 1/4"	YC2G-J	Reed	3333	3613	280	46 1/2
23	12 1/4"	YC2G-J	Reed	3613	3891	278	53
24	12 1/4"	YC2G-J	Reed	3891	4274	383	72 1/4
25	12 1/4"	X55R	Hughes	4274	5005	731	79 1/2
26	12 1/4"	SCM-J	Reed	5005	5079	74	22 3/4
27	12 1/4"	M4NG-J	Security	5079	5197	118	8
28	12 1/4"	M4NG-J	Security	5197	5497	300	23 1/4
29	12 1/4"	Y2H-J	Smith	5497	5555	58	12 1/2

BIT	SIZE	TYPE	MAKE	IN	OUT	FOOTAGE	HOURS
30	12 1/4"	M4NG-J	Security	5555	5824	169	20 1/2
31	12 1/4"	M4NG-J	Security	5824	5862	38	5 1/4
32	12 1/4"	M4NG-J	Security	5862	5862	0	56 1/2
33	12 1/4"	M4NG-J	Security	5862	5893	31	56 3/4
34	12 1/4"	OWV	Hughes	5893	6054	161	38 1/4
35	12 1/4"	SSIG-J	Reed	6054	6190	136	33 1/2
36	12 1/4"	M4LC-J	Security	6190	6347	157	33 3/4
37	12 1/4"	M4LC-J	Security	6347	6650	303	46
38	12 1/4"	SSIG-J	Reed	6650	7073	423	74
39	12 1/4"	SSIG-J	Reed	7073	7160	87	13
40 (CB-1)	8 1/2"	Dia.	Christensen	7160	7160	1	3/4
41 (CB-2)	8 1/2"	Dia.	Christensen	7160	7163	3	7
42	8 1/2"	H-10-J	Security	7163	7202	39	18 3/4
43	8 1/2"	YHG-J	Reed	7202	7220	18	6 1/2
44	12 1/4"	H7UG-J	Security	7160	7199	39R	10 3/4
45	12 1/4"	H7UG-J	Security	7199	7222	29R (2D)	14 3/4
46	12 1/4"	H7UG-J	Security	7222	7235	13	5 3/4
47	12 1/4"	X55R-J	H.W.	7235	7385	150	57 1/2
48	12 1/4"	X55R-J	H.W.	7385	7498	213	50 1/4
49	12 1/4"	SC5G-J	Reed	7598	7781	183	59 1/2
50	12 1/4"	SSIG-J	Reed	7781	8342	561	70 1/2
51	12 1/4"	SSIG-J	Reed	8342	8740	398	60 1/2
52	8 1/2"	YM-J	Reed	8740	8770	30	3 1/4
53 (CB-3)	8 7/16"	Dia.	Christensen	8764	8808	6R (38)	30
54 (50RR)	8 1/2"	YMJ	Reed	8808	8868	60	6
55	12 1/4"	SSIG-J	Reed	8740	8875	128R (7D)	11 3/4
56	12 1/4"	SSIF-J	Reed	8875	9185	310	30 1/2
57	12 1/4"	L4H-J	Smith	9185	9314	129	30 1/4
58 (55RR)	12 1/4"	SSIF-J	Reed	9314	9763	449	64 1/4
59	12 1/4"	M4NG-J	Security	9763	9954	191	39 3/4
60	12 1/4"	M4NG-J	Security	9954	9991	37	9
61	12 1/4"	H7UF-J	Security	9991	10003	12	6 1/2
62	12 1/4"	X55R-J	H.W.	10003	10045	42	10
63 (CB-3)	8 7/16"	Dia.	Christensen	10045	10080	35	29
64	12 1/4"	X55R-J	H.W.	10045	10093	35R (13D)	10 1/4
65 (CB 4)	8 7/16"	Dia.	Christensen	10093	10143	50	36 1/4
66	12 1/4"	SC5G-J	Reed	10118	10143	25R	7 1/4
67	12 1/4"	7J-S	Smith	10143	10150	7	12 1/2
68 (CB-5)	8 11/16"	Dia.	Christensen	10150	10187	37	16 1/4
69 (CB5RR)	8 11/16"	Dia.	Christensen	10187	10197	10	3 3/4
70 (CB5RR)	8 11/16"	Dia.	Christensen	10197	10220	23	6
71 (CB5RR)	8 11/16"	Dia.	Christensen	10220	10223	3	2
72 (CB4RR)	8 11/16"	Dia.	Christensen	10223	10257	34	15 3/4
73	12 1/4"	X55R-J	H.W.	10150	10293	107R 36D	33 3/4 & 14
74	12 1/4"	SCM-J	Reed	10293	10309	16	12
75	12 1/4"	YHG	Reed	10309	10411	102	27 1/2
76	12 1/4"	M4LG-J	Security	10411	10509	98	23 3/4
77	12 1/4"	M4LG-J	Security	10509	10580	71	23 1/4
78	12 1/4"	M4LG-J	Security	10580	10696	116	34 1/2
79	12 1/4"	VZH-J	Smith	10696	10755	59	10 3/4

BIT	SIZE	TYPE	MAKE	IN	OUT	FOOTAGE	HOURS
80	12 1/4"	H7G-J	Security	10755	10770	15	7 1/4
81	12 1/4"	H7G-J	Security	10770	10904	134	35 1/2
82 (77RR)	12 1/4"	M4LG-J	Security	10904	10904	0	Circ.
83	8 1/2"	S4-J	Security	10904			"
84	8 1/2"	YM-J	Reed	10127	10127	0*	6 1/2
85	8 1/2"	H7G-J	Security	10127	10127	0*	14 1/2
86		N11		10127	10184	57*	13 1/2
87	8 1/2"	YM-J	Reed	10184	10192	8*	11 1/4
88 (86RR)		M111		10192	10242	50*	12 1/2
89	8 1/2"	YSIF-J	Reed	10242	10272	30*	1/2
90 (89RR)	8 1/2"	QSIG-J	Reed	10272	10904	632*	
91	8 1/2"	YSIG-J	Reed	10904	11121	217	32 1/2
92	8 1/2"	K2H-J	Smith	11121	11384	263	27 1/4
93	8 1/2"	SIG-J	Reed	11384	11671	287	27 3/4
94	8 1/2"	YSIF-J	Reed	11671	11873	202	21 1/2
95	8 1/2"	YHG-J	Reed	11873	11899	26	12
96	8 1/2"	W4H-J	Smith	11899	11928	29	7 1/2
97	8 1/2"	X55R-J	H.W.	11928	11958	30	5 1/4
98	8 1/2"	X55R-J	H.W.	11958	12152	194	34
99	8 1/2"	X55R-J	H.W.	12152	12286	134	24 1/2
100	8 1/2"	M8J-SB	Security	12286	12503	217	20 3/4
101	8 1/2"	SS5-J	Smith	12503	12659	156	19 3/4
102	8 1/2"	SS6-J	Smith	12659	12760	101	20 3/4
103	8 1/2"	M88-J	Security	12760	13019	259	32 1/2
104	8 2/3"	M88-J	Security	13019	13291	272	34 1/2
105	8 1/2"	SCM-J	Reed	13298	13437	139	18 3/4
			Corrected depth	13298'		7	
106	8 1/2"	SS5-J	Smith	13437	13514	77	10 3/4
107	8 1/2"	H-8-J	Security	13514	13530	16	2 1/4
108	8 7/16"	Dia.	Christensen	13530	13591	61	23
109	8 1/2"	H8-J	Security	13591	13663	72	10 1/2
110	8 7/16"	Dia.	Christensen	13663	13723	60	19
111	8 1/2"	Dia.	Christensen	13723	13765	42	12 1/4
112	8 1/2"	Dia D27	Christensen	13765	13927	162	51
113	8 1/2"	Dia.	Christensen	13927	13964	37	14 3/4
114	8 1/2"	Dia.	Christensen	13964	13973	9	5 1/2
115	8 1/2"	H8-J	Security	13973	14049	76	9 3/4
116	8 1/2"	H8-J	Security	14049	14175	126	16 1/4
117	8 1/2"	Dia.	Christensen	14175	14208	33	6 3/4
118	8 1/2"	H8-J	Security	14208	14336	128	10 1/2
119	8 1/2"	SS-7	Smith	14336	14410	74	7
120	8 1/2"	Dia.	Christensen	14410	14434	24	2 3/4
121	8 1/2"	YC4G-J	Reed	14434	14650	216	17 1/4
122	8 1/2"	H8-J	Security				for circulating

Total number of bits used - 111

* Drill out cement and run in

(a) Mud Report

Type - (a) Milbar (b) Milgel
Quantity (a) 9773, 100# units
(b) 2937, 100# units

(e) Deviation Record

<u>DEPTH</u>	<u>DEVIATION (Degrees)</u>	<u>DEPTH</u>	<u>DEVIATION (Degrees)</u>
30	1/8	3125	1 3/4
95	1/2	3239	1 3/4
130	1/8	3333	1
160	1/8	3613	1 1/4
185	1/8	3893	2 3/4
285	1/2	3945	2 1/2
343	1/2	4017	2 1/4
374	3/4	4264	4
416	1/2	4290	4
437	1	4766	3 3/4
482	1 3/4	5000	3 1/2
522	1	5450	1
543	1	5816	5 1/2
583	1 1/4	5824	5 1/4
606	3/4	5847	6 3/4
646	3/4	5893	6
730	1	5932	6 1/4
764	3/4	6000	7
895	3/4	6116	7
993	3/4	6180	6 1/4
1050	1	6217	6 1/2
1087	1	6275	6 1/2
1112	3/4	6340	6
1280	3/4	6400	5 7/8
1355	3/4	6458	6 1/4
1477	1/2	6529	7
1515	1 1/8	6713	8 1/2
1546	3/4	6745	9
1675	1/4	6804	9 3/4
1733	1	6870	9 1/2
1799	1	6930	9 1/2
1830	7/8	6992	9 1/4
1922	1	7056	8
2050	7/8	7108	7
2074	1 1/8	7160	7 1/4
2100	1 1/2	7192	8
2105	1 1/2	7220	8
2202	1 1/4	7232	7 3/4
2330	1	7279	9 1/4
2450	1 1/4	7305	7 1/4
2608	1 1/2	7336	7 1/2
2738	1 3/4	7367	7
2810	1 1/2	7420	7 1/2
2957	1 1/2	7546	8

<u>DEPTH</u>	<u>DEVIATION (Degrees)</u>	<u>DEPTH</u>	<u>DEVIATION (Degrees)</u>
7594	8	10293	12
7645	8	10411	10 1/2
7700	7	10693	8 1/2
7775	6 1/8	10953	6
7835	6	11115	5 1/2
7924	6	11380	6
8050	6 1/2	11814	11 1/2
8270	7 1/2	12150	13
8460	7 3/4	12284	10
8583	7 1/2	12654	15 1/2
8709	7 3/4	12750	16
8765	7 1/2	13019	16
8868	7 1/4	13435	18
8990	7 3/4	13512	18
9124	8 3/4	13663	16 1/2
9185	9 1/4	13920	16 3/4
9218	9 1/4	14173	14 3/4
9406	8 1/2	14333	11
9525	10	14405	9
9590	9		
9748	10 1/4		
9761	11		
9867	11		
9950	11		
9990	11 1/2		
10040	11		
10088	11 1/2		
10150	12		

(f) Abandonment Plugs

Not applicable

(g) Lost Circulation Zones

2780' - 2813' partial loss - Corrected with the use of Kwik Seal and Milgel
3070' - 3092' lost 80 bbls. mud
6520' - lost 25 bbls. mud, corrected with the use of sawdust.

(h) Report of Blowouts

5005' gas kick - controlled, no additional problem
10735' gas kick - no indication of gas on following trip.

Section IV - Logs

<u>DATE</u>	<u>RUN NO.</u>	<u>TYPE</u>	<u>INTERVAL</u>
May 16/69	1	✓ Dual Induction - Laterolog	10883 - 1201
May 17/69	1	✓ Sonic Amplitude	10860 - 6800
May 17/69	1	✓ 4 Arm High Resolution Continuous Dipmeter	10904 - 10854
May 17/69	1	Directional (Computed)	10853 - 1201
May 17/69	1	✓ Borehole Compensated Sonic	10860 - 1202
May 24/69	2	✓ Temperature	10164 - 800
May 27/69		✓ Completion Record	10845 - 4800
July 1/69	2	Directional (Computed)	13181 - 10896
July 1/69	2	✓ Borehole Compensated Sonic	13191 - 10600
July 25/69	2	✓ Synergetic Log System	
July 25/69	2	✓ Dual Induction - Laterolog	14599 - 10896
July 25/69	3	* Borehole Compensated Sonic	14604 - 13191
July 26/69	1	✓ Sidewall Neutron Porosity	14562 - 10896
July 26/69	1	✓ Formation Density (Compensated)	14602 - 10895
July 27/69	1	✓ 4 Arm High Resolution Continuous Dipmeter	14624 - 10896
July 27/69	3	Directional (Computed)	14624 - 10896
Aug. 4/69		✓ Completion Record	13550 - 13320
		* Amplitude w/BHC-S log	14590 - 10894

Section V - Analysis

- (a) Core Analysis - See Attached Analysis
- (b) Water Analysis - See Attached Analysis
- (c) Gas Analysis - See Attached Analysis
- (d) Oil Analysis - Nil

Section VI - Completion Summary

(a) Tubing Record

Size: 3 1/2" Joints run: 431
 Weight: 9.3# KB setting depth 14,059'
 Grade: C-75 Date Run: Aug. 11/69
 Packer: 7" Baker Model "D" set @14,046'.

(b) Perforation Record

1. May 28, 1969, (10,170' - 10,220') 1 SP2F w/ 3 3/8" Hyperjet.
(perforations cemented off - see below)
2. August 14, 1969 (14,150' - 14,210') 1 SP3F w/ 2" scallop Hyperjet.

(c) Cementation Record

May 31, 1969 (10,170' - 10,220') squeeze off perforations with 200 sx O.W. cement + 0.7% HR-7 + 1.5% CFR-2.

June 7, 1969 (10,170' - 10,220') squeeze off perforations with 75 sx N.O.W. cement + 9 bbls. H₂O + 0.1% HR-12 + 1.5% CFR-2. First cementing unsuccessful.

August 7, 1969 (14,475' - 14,672') close open hole with 100 sx O.W. cement + 1.75% HR-12 + 10 bbls H₂O.

(d) Acidization and Fracturing Record

May 30, 1969 (10,170' - 10,220') Acidized with 4,000 gals. acid and 10 gals./1000 gals. inhibitor, type HAI-50.

August 18, 1969 (14,150' - 14,210') Acidized with (1) 1000 gals. 15% HCl followed by 400 bbls. water, followed by 5,000 gals. 28% HCl, tail in with 5,000 gals. water.

REVISED
WELL HISTORY REPORT
PAN AM BEAVER YTG-01
UNIT G SECTION 1 GRID 60°10'N, 124°15'W
YUKON TERRITORY



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. F69-1455-2

Received: Aug. 6, 1969 Reported: Aug. 11, 1969 Well: location: Pan Am. Beaver Y-9-01

Operator: AMOCO CANADA PETROLEUM COMPANY LTD. Field or Area: Beaver River

Elev.: K.B. 2617 Grid. 2500 Zone/Formation: Nahanni

Method of Production: D.S.T. #5 Sampled from: Middle

Sample Interval: 14,650' - 14,762' Date: Aug. 6, 1969

OTHER PERTINENT DATA Recovered 7200' fluid.

(Signed)

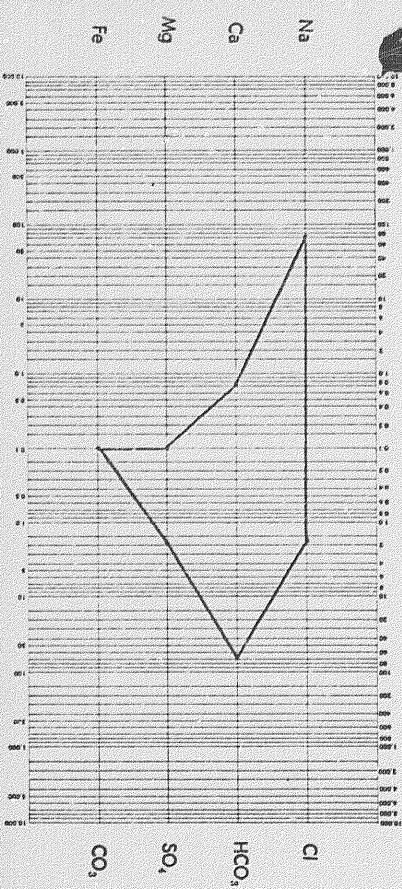
Mg./L	Na	K	Ca	Mg	SO ₄	Cl	CO ₃	HCO ₃
1,685			15	1	95	64		4,290

Meq./L	73.31	0.75	0.08	1.98	1.80	70.36
--------	-------	------	------	------	------	-------

Meq./L	49.44	0.51	0.05	1.34	1.21	47.45
--------	-------	------	------	------	------	-------

Total Solids Mg/L: By Evaporation 6,384 Fe --- Specific Gravity 1.004 @60°F Observed pH 8.2 @ 78 °F
 Calculated 6,150 After Ignition 4,376 H₂S --- Refractive Index 1.3330 @25°C Resistivity 1.86 ohm meters @ 68 °F

Pattern Unit Meq/L



Remarks and Conclusions

Analysis determined on pale yellow coloured water filtered from slightly muddy water. Organic matter detected in total solids.

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. F69-1455-3

Received: Aug. 6, 1969 Reported: Aug. 11, 1969

Well: Location: Pan Am. Beaver Y-6-01 - 17-6-01

Operator: AMOCO CANADA PETROLEUM COMPANY LTD.

Field or Area: Beaver River

Elev.: K.B. 2417 Grd. 2600

Zone/Formation: Nahanni

Sample Interval: 14,650' - 14,762'

Method of Production: D.S.T. #5

Sampled from: Top of Tool

Sampled by:

Date: Aug. 6, 1969

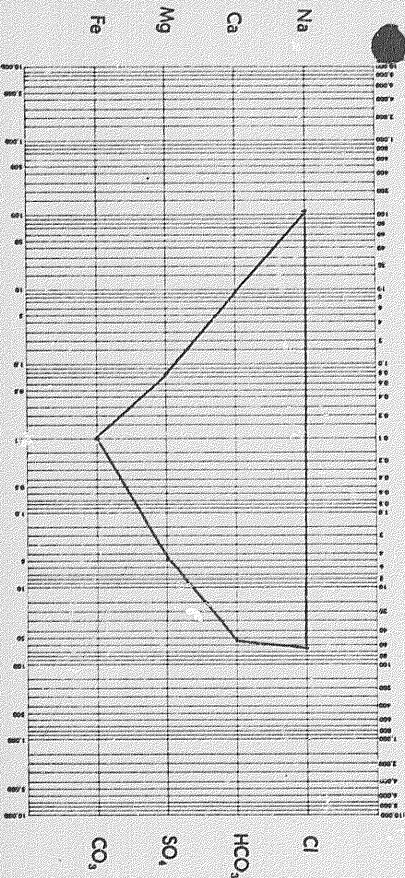
OTHER PERTINENT DATA Recovered 7200' Fluid.

(Signed)

Mg./L	Na	K	Ca	Mg	SO ₄	Cl	CO ₂	HCO ₃
2,689			188	9	240	2,405		3,310
Meq./L	116.97		9.38	0.74	4.99	67.82		54.28
Meq. %	46.02		3.69	0.29	1.96	26.68		21.36

Total Solids Mg/L: By Evaporation 9,104 Fe Trace Specific Gravity 1.007 @60°F Observed pH 7.2 @ 77 °F
 Calculated 8,841 After Ignition 6,616 H₂S Present Refractive Index 1.3330 @25°C Resistivity 1.01 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on pale green coloured water filtered from slightly muddy water. Organic matter detected in total solids.

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. F69-1455-1

Received Aug. 6, 1969 Reported Aug. 11, 1969 Well: Location: Pan Am. Beaver 4-0-01-17-0-01

Operator: AMOCO CANADA PETROLEUM COMPANY LTD. Field or Area: Beaver River

Elev.: K.B. 2617 Grid: 2600 Zone/Formation: Nahanni

Method of Production: D.S.T. #5 Sampled from: Top of Fluid Sampled by:

OTHER PERTINENT DATA Recovered 7200' Fluid.

Sample Interval: 14,650' - 14,762'

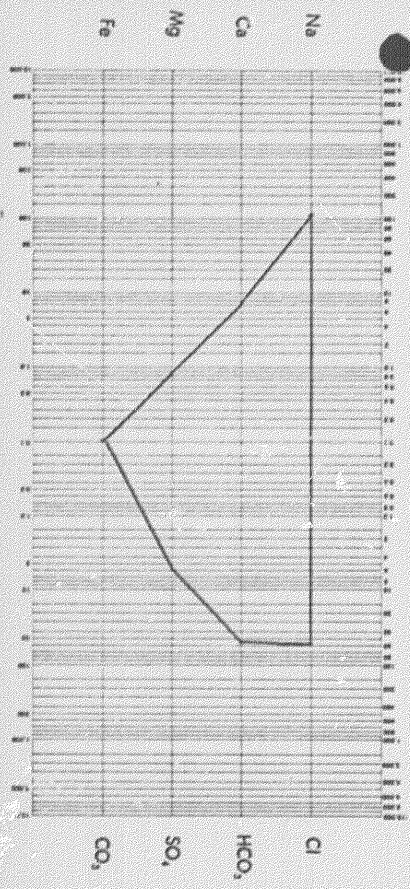
Date: Aug. 6, 1969

(Signed)

Mg/L	Na	K	Ca	Mg	SO ₄	Cl	CO ₂	HCO ₃
2,596			154	10	289	2,104		3,420
112.93			7.68	0.82	6.01	59.33		56.09
46.50			3.16	0.34	2.47	24.43		23.10

Total Solids Mg/L: 8,573
 By Evaporation 9,076
 After Ignition 6,576
 Pattern Unit Meq/L

Fe Trace
 H₂S ---
 Specific Gravity 1.007 @ 60°F
 Observed pH 7.7 @ 78 °F
 Refractive Index 1.3330 @ 25°C
 Resistivity 1.06 ohm meters @ 68 °F



Remarks and Conclusions
 Analysis determined on pale brown coloured water filtered from very muddy water. Organic matter detected in total solids.

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. E69-9956-3

Received: April 16, 1969 Reported: April 21, 1969

Well: location: Pan Am. Beaver River **Y1 6-01**

Operator: PAN AMERICAN PETROLEUM CORPORATION
Elev.: K.B. Grd. Zone/Formation:

Field or Area: Beaver River - Yukon

Sample Interval:

Method of Production: D.S.T. #2

Sampled from: Top of Tool

Sampled by: ---

Date: April 8, 1969

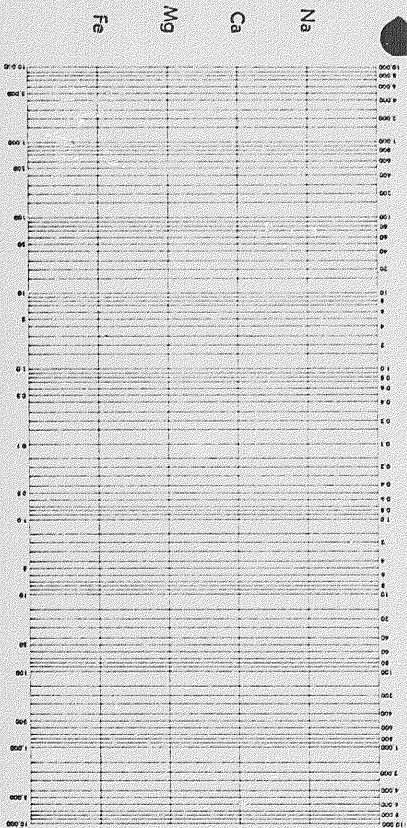
OTHER PERTINENT DATA

(Signed)

Mg./L	Na	K	Ca	Mg	SO ₄	Cl	CO ₂	HCO ₃
						622		
Meg./L								
Meg. %								

Total Solids Mg./L.: Calculated By Evaporation After Ignition Fe H₂S Specific Gravity Refractive Index Observed pH 9.2 @ 72 °F Resistivity 2.51 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions: Colourless water filtered from mud. The water is mud filtrate water.

E69-9956-1: Top of cushion.

RESISTIVITY: 23.99 Ohm-Meters @ 68°F.

HCO₃: Colourless water with some sediment and fine suspended matter.

E69-9956-2: Sampled from 352' above tool.

RESISTIVITY: 2.77 Ohm-Meters @ 68°F.

CO₂: Colourless water filtered from mud.

CGL-4

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton

Fort St. John

Calgary

GAS ANALYSIS REPORT: Lab. No. 66-2531 Received: Mar. 18, 1969 Reported: March 21, 1969Well: Pan Am. Beaver River JT G-01 Operator: Pan American Petroleum CorporationField or Area: _____ Location: _____ Elev.: K.B. Grd. _____

Zone and Formation: _____ Sample Interval: _____

Well production at sampling time: Oil _____ bpd; Gas _____ MCFD; Water _____ bpd.

Sampled from: _____ Sampled by: _____ Date: _____

Pressure: (a) at point of sampling _____ psig (b) Gas Bomb pressure _____ psig

Temperature: (a) at point of sampling _____ °F (b) Separator _____ °F

Pressures: Reservoir _____ Tubing _____ Casing _____ Separator _____

OTHER PERTINENT DATA _____ Container: CL-215

(Signed)

COMPOSITION	% by Volume	G.P.M. in Imp. Gal. @ 60°F. & 14.65 PSIA	G.P.M. (Calculated)	SPECIFIC GRAVITY
Helium	.02		pentanes + .000	Calculated .569
Hydrogen sulfide	.00		at 12 lbs. .000	by Weight .572
Carbon dioxide	1.03		at 15 lbs. .000	CRITICALS (Calculated)
Nitrogen	1.03		at 22 lbs. .000	Pc 675.1
Methane	97.54		at 26 lbs. .000	Tc 315.3
Ethane	.31		VAPOR PRESSURE (Calc.) @ 100°F. Pentanes + .00	
Propane	.02	.005	H ₂ S Grains per 100 cu. ft. @ 60°F. & 14.65 p.s.i.a. 0	
Isobutane	.00	.000	GROSS B.T.U. (Calc.) @ 60°F. & 14.65 p.s.i.a. (dry) 988.0	
N-butane	.00	.000	Acid Gas Free 998.3 (sat.) 970.7	
Isopentane	.00	.000	DEW POINT (Calc.) p.s.i. 950 1050 1200	
N-pentane	.00	.000	FAH -56 -56 -56	
Hexanes	.00	.000	Mol. Wt. Total Gas 16.506 Heptanes + .000	
Heptanes	.00	.000		
Octanes	.00	.000		
Nonanes	.00	.000		
Decanes +	.00	.000		
TOTAL	100.00	.005		

DATA

CGI

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton - Fort, St. John, - Calgary

CAS ANALYSIS REPORT: Lab. No. C69-5177 Received: Aug. 25, 1969 Reported: August 27, 1969

Well: Beaver River YT 6-01 Operator: AMOCO CANADA PETROLEUM COMPANY LTD.

Field or Area: _____ Location: _____ Elev.: K.B. _____ Grd. _____

Zone and Formation: _____ Sample Interval: _____

Well production at sampling time: Oil _____ bpd; Gas _____ MCFD; Water _____ bpd.

Sampled from: _____ Sampled by: _____ Date: _____

Pressure: (a) at point of sampling _____ psig (b) Gas Bomb pressure _____ psig

Temperature: (a) at point of sampling _____ °F (b) Separator _____ °F

Pressures: Reservoir _____ Tubing _____ Casing _____ Separator _____

OTHER PERTINENT DATA Sample Containers: HA 8, SS20

(Signed)

COMPOSITION	% by Volume	G.P.M. in Imp. Gal. @ 60°F. & 14.65 PSIA	G.P.M. (Calculated)	SPECIFIC GRAVITY
Helium	.01		pentanes + .000	Calculated .614
Hydrogen sulfide	.63		at 12 lbs. .000	by Weight .645
Carbon dioxide	7.35		at 15 lbs. .000	CRITICALS (Calculated)
Nitrogen	3.67		at 22 lbs. .000	Pc 699.6
Methane	88.25		at 26 lbs. .000	Tc 356.7
Ethane	.09		VAPOR PRESSURE (Calc.) @ 100°F. Pentanes + .00	
Propane	.00	.000	H ₂ S Grains per 100 cu. ft. @ 60°F. & 14.65 p.s.i.a. 395	
Isobutane	.00	.000	GROSS B.T.U. (Calc.) @ 60°F. & 14.65 p.s.i.a. (dry) 894.1	
N-butane	.00	.000	Acid Gas Free 967.3 (sat.) 878.4	
Isopentane	.00	.000	DEW POINT (Calc.) p.s.i. 950 1050 1200	
N-pentane	.00	.000	FAH -56 -56 -59	
Hexanes	.00	.000	Mol. Wt. Total Gas 18.662 Heptanes + .000	
Heptanes	.00	.000	Sample received with a pressure of 225 psig. at 78°F.	
Octanes	.00	.000		
Nonanes	.00	.000		
Decanes +	.00	.000		
TOTAL	100.00	.000		

DATA

AMOCO CANADA PETROLEUM COMPANY LTD.

BENTALL BUILDING
444 7th AVENUE S.W.
CALGARY 2, ALBERTA, CANADA.

January 23, 1970

FILE: LLH-24-WF

SPECIAL CORE TESTS
PAN AM BEAVER YT G-01

File in Well History Report

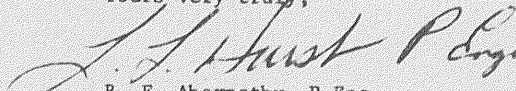
Resources & Economic Development
Group
Dept. I.A.&N.D.
3303 - 33 Street N.W.
Calgary 44, Alberta

Attention: Mr. B. H. J. Thoms, P.Eng.
Oil Conservation Engineer

Dear Sir:

Further to our letter of November 20, 1969, File: LLH-132-WF please be advised that reaction time, fluid loss, X-ray analysis, solubility and flow capacity tests have been performed on two feet of core from the Pan Am Beaver YT G-01 well. Samples #84 and #93 from Core #19 were used and destroyed during the testing. A copy of the test results is enclosed for your information. Thank you for your early handling of our request.

Yours very truly,



B. F. Abernathy, P.Eng.
Chief Engineer

RAG:ss
Attachment



CHEMICAL RESEARCH AND DEVELOPMENT DEPARTMENT

HALLIBURTON COMPANY

DUNCAN, OKLAHOMA

LABORATORY REPORT

No. S30-B36-69

To Mr. W. H. Beecroft

Date December 10, 1969

Halliburton Services, Ltd.

Calgary, Alberta, Canada

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management. It may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

We give below results of our examination of the submitted cores.

Submitted by W. H. Beecroft for Amoco (Pan Am) Canada, Ltd.

Marked _____

Amoco (Pan Am) Canada, Limited
Pan Am Beaver YT G-01 (Beaver C-1) Lease
Nahanni Dolomite of Devonian age formation
BHT - 350°F

Core	Depth
84	14,189
93	14,198

PURPOSE

These cores were submitted for analysis and specified laboratory tests.

RESULTS

The results of the requested laboratory test information is included in the data section of this report.

Reaction time tests and fluid loss tests were run on Core #84 (14,189'). Acid etched fracture flow capacity tests were run on Core #93 (14,198').

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that Halliburton shall not be liable for any loss or damage whether due to act or omission resulting from such report or its use.

DATA

X-ray Analysis

	Core #84 (14,189')	Core #93 (14,198')
Quartz	Small-Moderate	Small
Feldspar	Small	Small
Dolomite	Major	Major
Mixed Layer Clays	Small	Small

Calculated Solubility of CaCO₃ in Acid

Acid	Pounds per 1000 gal. Acid
15% HCl	1840
9% Formic	834
10% Acetic	704
Mod Acid 202	2544
Mod Acid (20% HCl)	3157
28-34% HCl	3435 to 4172

NOTE: The quantity or type of inhibitor or retarder will not affect the total solubility, however, it will affect the time to achieve total solubility.

Fluid Loss Tests

Conditions:

Acid-----Mod Acid 202
 Temperature-----350°F
 Core-----No. 84 at 14,189'
 Core Size-----3/4" OD x 2" long

Results:

- Test #1. Original permeability to 2% NH₄Cl was 0.22 md.
 Acid containing 50# Matriseal II per 1000 gallons blew through the core immediately with no fluid loss control at 1000 psi.
- Test #2. Original permeability to 2% NH₄Cl was 0.20 md.
 An E_w of 0.0009 was achieved using 100# Matriseal II/1000 gallons of acid after 10 minutes at 500 psi. The acid blew through immediately after raising the pressure to 1000 psi.

DATA

X-ray Analysis

	Core #84 (14,189')	Core #93 (14,198')
Quartz	Small-Moderate	Small
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 An E_w of 0.0009 was achieved using 100# Matriseal II/1000 gallons of acid after 10 minutes at 500 psi. The acid blew through immediately after raising the pressure to 1000 psi.

DATA CONT'D

Acid Etched Fracture Flow Capacity Tests

Acid	Additive	Etching Time (min)	Core Removed and Crushed (in)	Fracture Flow Cap. (md. ft.)
15% HCl	1.0% HAI-50	20	.026	95,394
		40	.062	179,020
9% Formic	0.5% MSA Inhibitor	20	.008	268
		40	.012	622
10% Acetic	0.5% MSA Inhibitor	20	.011	<10
		40	.012	<10
		60	.012	<10
Mod Acid 202	1.0% HAI-50 1.0% CRA [®] -22	20	.014	51,572
		40	.021	103,628
Mod Acid (20% HCl)	1.2% HAI-50 1.0% HLX-92	20	.019	22,964
		40	.033	94,208
30% HCl	2.0% HAI-50 1.0% HLX-92	20	.026	44,150
		40	.064	50,518
30% HCl	2.0% HAI-50	20	.022	72,364
		40	.042	93,046

Procedure: The acid was flowed past the simulated fracture face of Core #93 (14,198') at 1000 psi and 300°F. The fracture flow capacity was determined using a closure pressure of 1/3# psi per foot of depth. The calculated BHTP using water (8.33#/gal.) and 6000 psi as the instantaneous shut-in-pressure is approximately 12,150# for a BHTP gradient of 0.855. The only time this value would be reached as a closure pressure would be with a completely empty well with no pressure.

A visual examination of the acid etched cores indicated no crushing with no indication of softening to the extent that the fracture flow capacity would be reduced to any appreciable extent with additional closure pressure.

DATA CONT'D

Static Reaction Time Tests

Conditions:

Temperature-----350°F
 Pressure-----1500 psi
 Fracture Width-----0.24"
 Core Size-----3/4" OD x 2" long
 Core-----No. 84 at 14,189'

<u>Acid</u>	<u>Additive</u>	<u>Reaction Time (min.)</u>
15% HCl	1.0% HAI-50	4.2
9% Formic	0.5% MSA Inhibitor	24
10% Acetic	0.5% MSA Inhibitor	82
Mod Acid 202	1.0% HAI-50 1.0% CRA [®] -22	102
Mod Acid (20% HCl)	1.2% HAI-50 1.0% HLX-92	138
30% HCl	2.0% HAI-50 1.0% HLX-92	27
30% HCl	2.0% HAI-50	11
Mod Acid 202*	1.0% HAI-50	34

*Not requested

Data contained in Book #1579, pages 39, 40 and 41; Book #1602, page 45; and Book #1563, page 40.

cc: Mr. F. M. Anderson
 Mr. J. A. Knox
 Mr. F. N. Harris
 Mr. L. F. Maier
 Mr. J. K. Reynolds
 Mr. J. G. Boyd

Respectfully submitted,

Laboratory Analyst

Fring-Crowell-Morris
 GS

HALLIBURTON SERVICES

By S. E. Fredrickson
 S. E. Fredrickson

DATA CONT'D

Static Reaction Time Tests

Conditions:

Temperature-----350°F
 Pressure-----1500 psi
 Fracture Width-----0.24"
 Core Size-----3/4" OD x 2" long
 Core-----No. 84 at 14,189'

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Data contained in Book #1579, pages 39, 40 and 41; Book #1602, page 45; and Book #1563, page 40.

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Respectfully submitted,

Laboratory Analyst

Fring-Crowell-Morris
 GS

HALLIBURTON SERVICES

By S. E. Fredrickson
 S. E. Fredrickson



TYPE TREATMENT CEMENT SQUEEZE

DATE May 31, 1969

ATTACH TO TICKET NO. C68342

STAGE No. 1

PAGE No. 1

DISTRICT FORT ST. JOHN

COMPANY PAN AMERICAN PETROLEUM CORP. WELL BEAVER RIVER 46-01 FIELD BEAVER RIVER LSD SEC TWP RGE W

THE FOLLOWING INFORMATION WAS FURNISHED BY THE WELL OWNER OR HIS AGENT.

FORMATION	DATE CASING SET	PERF. FROM	TO	SHOTS/FT.
TUBING: OD	WT.	DEPTH		SHOTS/FT.
CASING: OD	WT.	DEPTH		SHOTS/FT.
LINER: OD	FROM	TO		SHOTS/FT.
PACKER: TYPE	SET AT	OPEN HOLE: SIZE	FROM	TO
MAX. ALLOWABLE PRESS.: TSG.	CSG.	TREAT. INTERVAL: FROM	TO	
PURPOSE OF SQUEEZE		CAPACITY: TSG.	AN-NULUS	CSG./OPEN HOLE

MATERIALS USED

MIXING FLUID: TYPE		BBL.
CEMENT: TYPE	<u>Oilwell</u>	<u>200</u> SACKS
ACCELERATOR: TYPE		%
RETARDER: TYPE	<u>HR-7</u>	<u>.7</u> %
FLUID LOSS ADDITIVE: TYPE	<u>CFR-2</u>	<u>1.5</u> %
OTHER ADDITIVES: TYPE		%
TYPE		%
TYPE		%
FLUID AHEAD OF CEMENT: TYPE		GAL.
ACID: TYPE		GAL. %
LABORATORY THICKENING TIME	<u>5</u> HOURS	<u>+</u> MIN.

TREATMENT SUMMARY

PUMP EQUIP. (TYPE)	<u>Twin T-10 Unit #668</u>	
PUMPS ON TUBING	CSG.	SQUEEZE MANIPULATED <input checked="" type="checkbox"/>
CEMENT WAS:	BATCH MIXED <input type="checkbox"/>	CONTINUOUSLY MIXED <input checked="" type="checkbox"/>
VOLUMES:		
	FLUID AHEAD OF CEMENT	<u>30</u> Water BBL.
	SLURRY MIXED	<u>35</u> BBL.
	SLURRY SQUEEZED	<u>27 1/2</u> BBL.
	DENSITY MEASUREMENTS	<u>15.5</u> LBS./GAL.
	FLUID LOSS OF SLURRY (C.C.) 7 1/2 MIN.	<u>30</u> MIN.
	MIXING TIME	<u>12</u> MIN. DISPLACING TIME <u>40</u> MIN.
	TOTAL TIME CEMENT IN WELL BORE	<u>4</u> HR. MIN.
	FINAL SQUEEZE PRESSURE: DESIRED	<u>400</u> OBTAINED

TREATING LOG

TIME	PRESSURE PSI	CASING Drill Pipe	VOLUME PUMPED (BBL.)	VOLUME IN FORMATION (BBL.)	RATE (BPM.)	REMARKS
7.28	850		30		4 1/2	Start water ahead.
7.50						Mix cement.
7.54			10			Water behind cement.
8.30			124 1/2			Mud to displace pipe.
8.37				10	2	10 bbl's cement in formation.
8.48				5	1/4	5 bbl's at 1/4 bbl. per minute in formation.
9.18						Wait for 30 minutes.
9.37				3	1/4	In formation.
10.04						Wait for 25 minutes.
10.09				1/4		Wait for 5 minutes.
10.17	400			2		Wait 5 minutes.
10.22				1/4		Wait 5 minutes.
10.27				1/4		Wait 5 minutes.

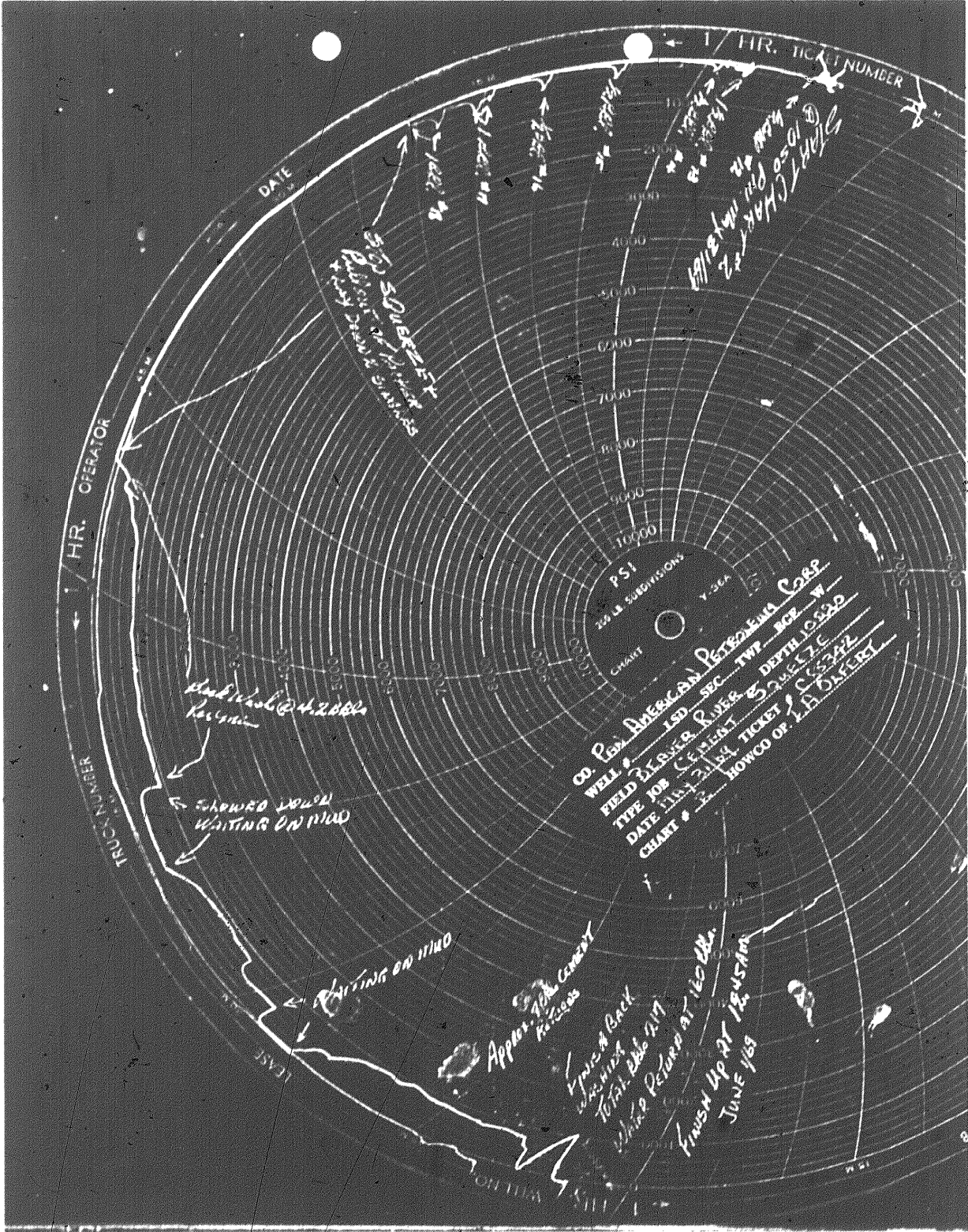
SUMMARY OF PLANNED PROGRAM

HALLIBURTON OPERATOR I.A. Olfert

COMPANY REPRESENTATIVE _____

C88342

TIME HOUR: MIN	PRESSURE (P.S.I.)		VOLUME PUMPED (BBL.)	VOLUME IN FORMATION (BBL.)	FEED RATE (B.P.M.)	REMARKS
	TUBING	CASING				
10.32				1/4		Pump 1/4 bbl. and wait 5 minutes.
10.37				1/4		Pump 1/4 bbl. and wait 5 minutes.
10.42				1/4		Pump 1/4 bbl. and wait 5 minutes.
10.47				1/2		Pump 1/2 bbl. and wait 5 minutes.
10.52				1 1/2		Pump 1 1/2 bbl's and wait 5 minutes.
10.58				1/2		Pump 1/2 bbl. and wait 8 minutes.
11.06				1/2		Pump 1/2 bbl. and wait 5 minutes.
11.11				1/2		Pump 1/2 bbl. and wait 5 minutes.
11.16				1		Pump 1 bbl. and wait 5 minutes.
11.20				1		Pressure built up to 400 psi and bled off.
11.50			217			Backwashed with mud.



HR. OPERATOR

TRUCK NUMBER

DATE

1/2 HR. TICKET NUMBER

PSI

200 LB. SUBDIVISIONS

Y-364

C4481

CD. CON. AMERICAN PETROLEUM CORP.
150 SEC. TWP. RGE. W.
FIELD EL PASO RIVER & DEWITT CO.
TYPE JOB CEMENT
DATE 11/23/51 BY TICKET # C53272
CHART # HOWCO OF L.A. DISTRICT

SQUEEZE

SHOWED DOWN
WAITING ON 11100

WAITING ON 11100

Approx. 700 lbs. Cement

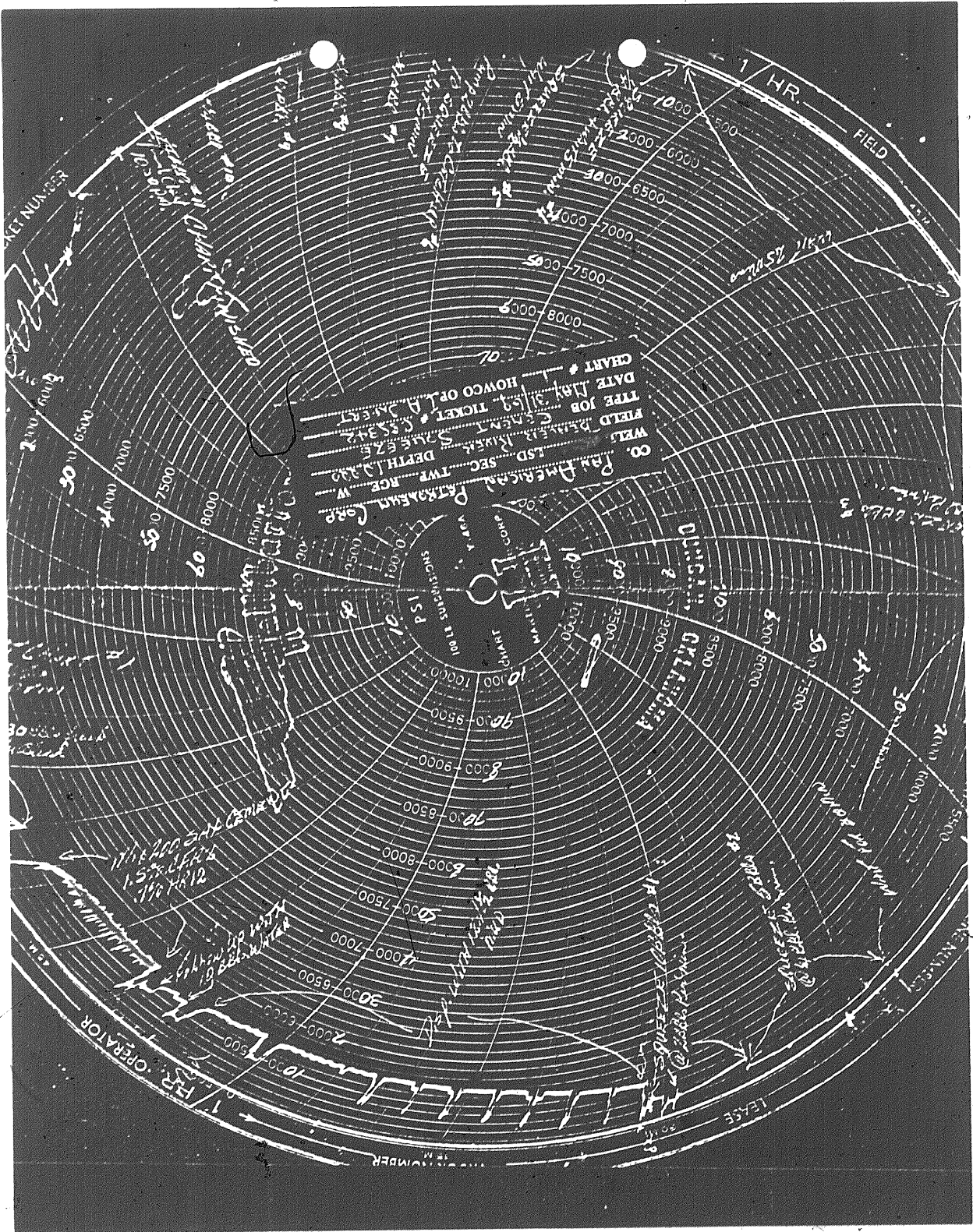
Finish & Back

Total 200 lbs. 11/19

When Return at 160 lbs.

Finish Up at 180 lbs.

JUNE 1959



CO. Patrol American Corp.
 LSD. SEC. TWT. AGE. W.
 WELL NUMBER 1116 200 5440
 FIELD CENTRA-D
 TYPE JOB GENERAL SURVEY
 DATE MAY 31 1954
 HOWCO OF L.A. DISTRICT
 CHART #

AMERICAN PATROL CORP.
 100 FT SURVEILLANCE
 CHART #

1 HR. FIELD
 LEASE
 OPERATOR
 NET NUMBER
 1000-500
 1000-5500
 1000-6000
 1000-6500
 1000-7000
 1000-7500
 1000-8000
 1000-8500
 1000-9000
 1000-9500
 1000-10000
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 1000-100000



SQUEEZING PORT

TYPE TREATMENT CEMENT SQUEEZE

DATE June 7, 1969

ATTACH TO TICKET No. C88349

STAGE No. 1

DISTRICT FORT ST. JOHN

PAGE No. 1

THE FOLLOWING INFORMATION WAS FURNISHED BY THE WELL OWNER OR HIS AGENT.

FORMATION Lower Mississippian CASING SET May 24/69 PERF. FROM 10170 TO 10220 SHOTS/FT. 2
 TUBING: OD 9 5/8 WT. 43.5 DEPTH 10904 PERF. FROM TO SHOTS/FT.
 CASING: OD 9 5/8 WT. 43.5 DEPTH 10904 PERF. FROM TO SHOTS/FT.
 LINER: OD FROM TO PERF. FROM TO SHOTS/FT.
 PACKER: TYPE SET AT OPEN HOLE SIZE FROM TO
 MAX. ALLOWABLE PRESS. TSG. CSG. 3000 TREAT. INTERVAL: FROM 10170 TO 10220
 PURPOSE OF SQUEEZE Shut off perforations. CAPACITY: TSG. 169 ANNULUS CSG./OPEN HOLE.

MATERIALS USED

MIXING FLUID: TYPE Water 9 SBL.
 CEMENT: TYPE OWC Neat 75 SACKS
 ACCELERATOR: TYPE %
 RETARDER: TYPE HR-12 0.1 %
 FLUID LOSS ADDITIVE: TYPE CFR-2 1.5 %
 OTHER ADDITIVES: TYPE %
 TYPE %
 TYPE %
 TYPE %
 FLUID AHEAD OF CEMENT: TYPE Water 420 GAL.
 ACID: TYPE GAL. %
 LABORATORY THICKENING TIME 3+ HOURS MIN.

TREATMENT SUMMARY

PUMP EQUIP. (TYPE) Twin 7-10
 PUMPS ON TUBING CSG. SQUEEZE MANIFOLDED
 CEMENT WAS: BATCH MIXED CONTINUOUSLY MIXED
 VOLUMES:
 FLUID AHEAD OF CEMENT 10 SBL.
 SLURRY MIXED 17 SBL.
 SLURRY SQUEEZED 4 SBL.
 DENSITY MEASUREMENTS 14.6 LBS./GAL.
 FLUID LOSS OF SLURRY (C.C.) 7 1/2 MIN. 30 MIN.
 MIXING TIME 5 MIN. DISPLACING TIME 30 MIN.
 TOTAL TIME CEMENT IN WELL BORE 4 HR. MIN.
 FINAL SQUEEZE PRESSURE: DESIRED 2900 OBTAINED 2850

TREATING LOG

TIME	PRESSURE TUBING	PRESSURE CASING	VOLUME PUMPED (SBL.)	VOLUME IN FORMATION (SBL.)	RATE (SPM.)	REMARKS
5.50						Start recorder.
5.55	300		10			Water ahead, start mixing cement.
6.05	300		27			Finish mixing. Start displacement.
6.35	300		169			Finish displacing and hoist 8 stands.
7.20	1300		198			Start backwash.
8.00	1300					Stop backwash, rig to squeeze.
8.12						Start squeeze.
8.15	2750		7		2.3	Stop.
8.47	2350					Start.
8.48	2650		1		1	Stop.
9.17	2450		1/2		1/2	Start.
9.18	2650		1/2		1/2	Stop.
9.27	2600					Start.
9.28	2900		1/2		1/2	Stop.
9.56	2850					SUMMARY OF PLANNED PROGRAM Bleed off, job complete.
Mix 75 sacks OWC plus 1.5% CFR-2 and 0.1% HR-12. Displace to perforations and squeeze to formation.						

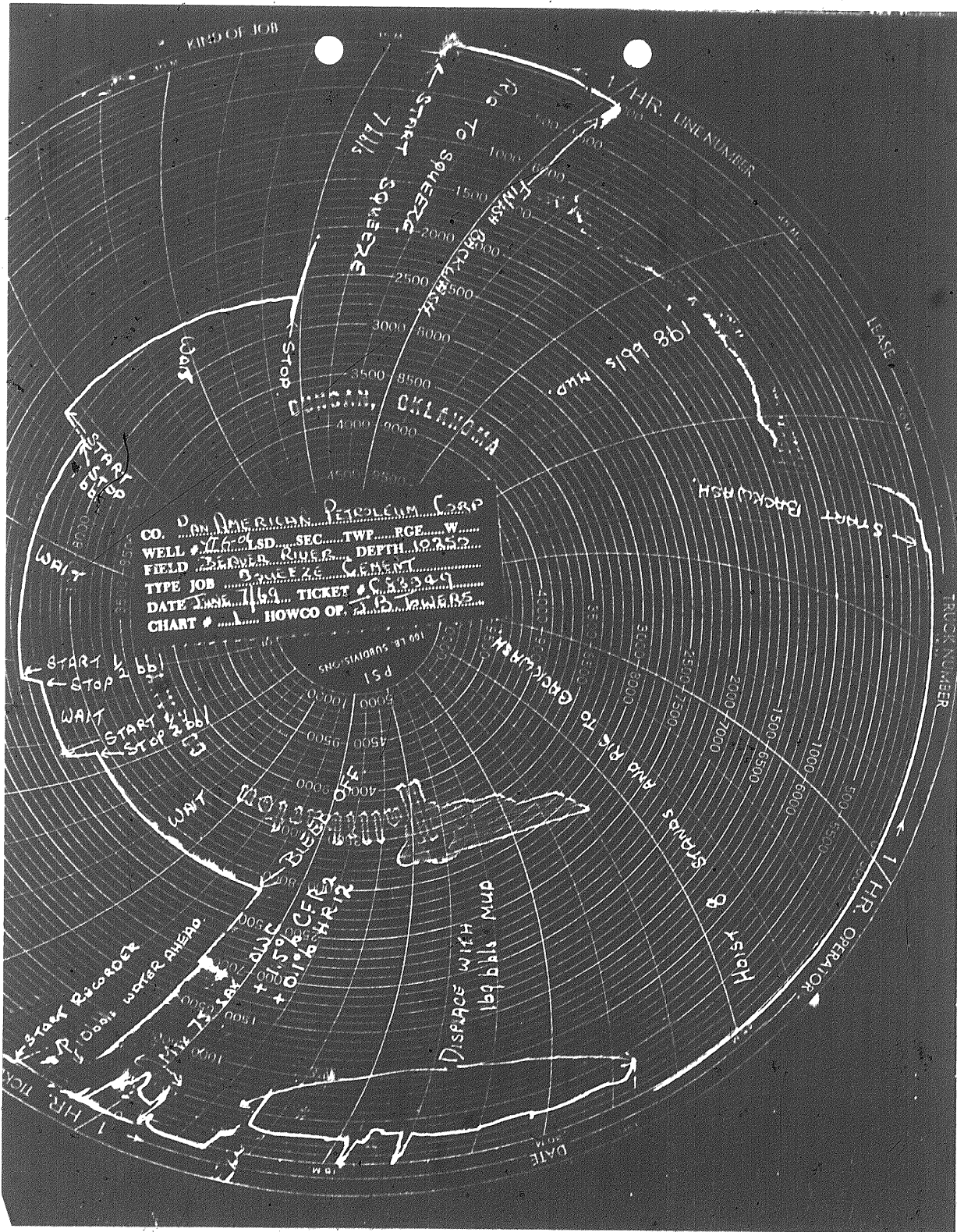
HALLIBURTON OPERATOR J. B. Towers

COMPANY REPRESENTATIVE F. Bondar

HOWCO 7878108

COPIES REQUESTED

SQUEEZE CEMENTING SERVICE
 PAN AMERICAN PETROLEUM CORP. WBL
 PAN AM BEAVER RIVER
 BEAVER RIVER 130 SEC TWP RGE W
 Y 6-01





TYPE TREATMENT 4000 GALLONS ACID

DATE May 30, 1969

ATTACH TO TICKET No. C88341

STAGE No. 1

PAGE No. 1

DISTRICT FORT ST. JOHN

CHEMICAL SERVICE
 COMPANY PAN AMERICAN PETROLEUM CORP. WELL BEAVER RIVER Y7-6-01 FIELD BEAVER RIVER
 L9D SEC TWP R02 W

THE FOLLOWING INFORMATION WAS FURNISHED BY THE WELL OWNER OR HIS AGENT.

FORMATION Lower Nahanai	DATE CASING SET	PERF. FROM 10170	TO 10220	SHOTS/FT.	
TUBING: OD	WT.	DEPTH 10904	PERF. FROM	TO	SHOTS/FT.
CASING: OD 9 5/8	WT. 43.5	DEPTH 10904	PERF. FROM	TO	SHOTS/FT.
LINER: OD	FROM	TO	PERF. FROM	TO	SHOTS/FT.
PACKER: TYPE Baker Model D	SET AT 10135	OPEN HOLE: SIZE	FROM	TO	
MAX. ALLOWABLE PRESS.: TSG.	CSG. 3000	TREAT. INTERVAL: FROM	TO		
TREAT. THRU: <input checked="" type="checkbox"/> ANNULUS	<input type="checkbox"/> CSG.	<input type="checkbox"/> TSG./ANNULUS	<input type="checkbox"/> CAPACITY: TSG.	ANNULUS	CSG./OPEN HOLE
<input type="checkbox"/> Drill Pipe			BOTTOM HOLE TEMP 210	DEGREES	

TYPE TREATMENT 1: Acid	4000 GAL.	MATERIAL USED	4000 GAL.	TREATMENT SUMMARY
TYPE TREATMENT 2: .....	..... GAL.	HYDRAULIC HORSE POWER AVAILABLE	.....	.....
INHIBITOR: TYPE HAI-50	10 GAL./1000 GAL.	HHP. ON TSG. 2600	CSG. 0	MANIFOLDED <input type="checkbox"/>
N COMPOUND TYPE .....	..... GAL./1000 GAL.	INJECTION RATES: BPM.		
PENETRANT TYPE .....	..... GAL./1000 GAL.	TREATING	DISP.	AVERAGE
OTHER ADDITIVES .....	..... GAL. LB./1000 GAL.	PRESSURES: PSI. BREAKDOWN FROM No Break Down		
SURFACTANT: TYPE .....	..... GAL.	MIN.	MAX.	DISP.
MIXED IN .....	..... GAL. OF	INSTANT SHUTDOWN	5 MIN.	
DIVERTING AGENTS: TYPE .....	..... AMOUNT	VOLUMES: FLUID TO FILL HOLE		
TYPE .....	..... AMOUNT	1ST STAGE: TYPE .....	..... GAL.	}
LABORATORY REACTION TIME 1 .....	..... MIN.	2ND STAGE: TYPE .....	..... GAL.	
2 .....	..... MIN.	3RD STAGE: TYPE .....	..... GAL.	
		4TH STAGE: TYPE .....	..... GAL.	
		FLUSH FLUID: TYPE .....	..... BBL.	
		TOTAL FLUID PUMPED INTO WELL:	..... BBL.	

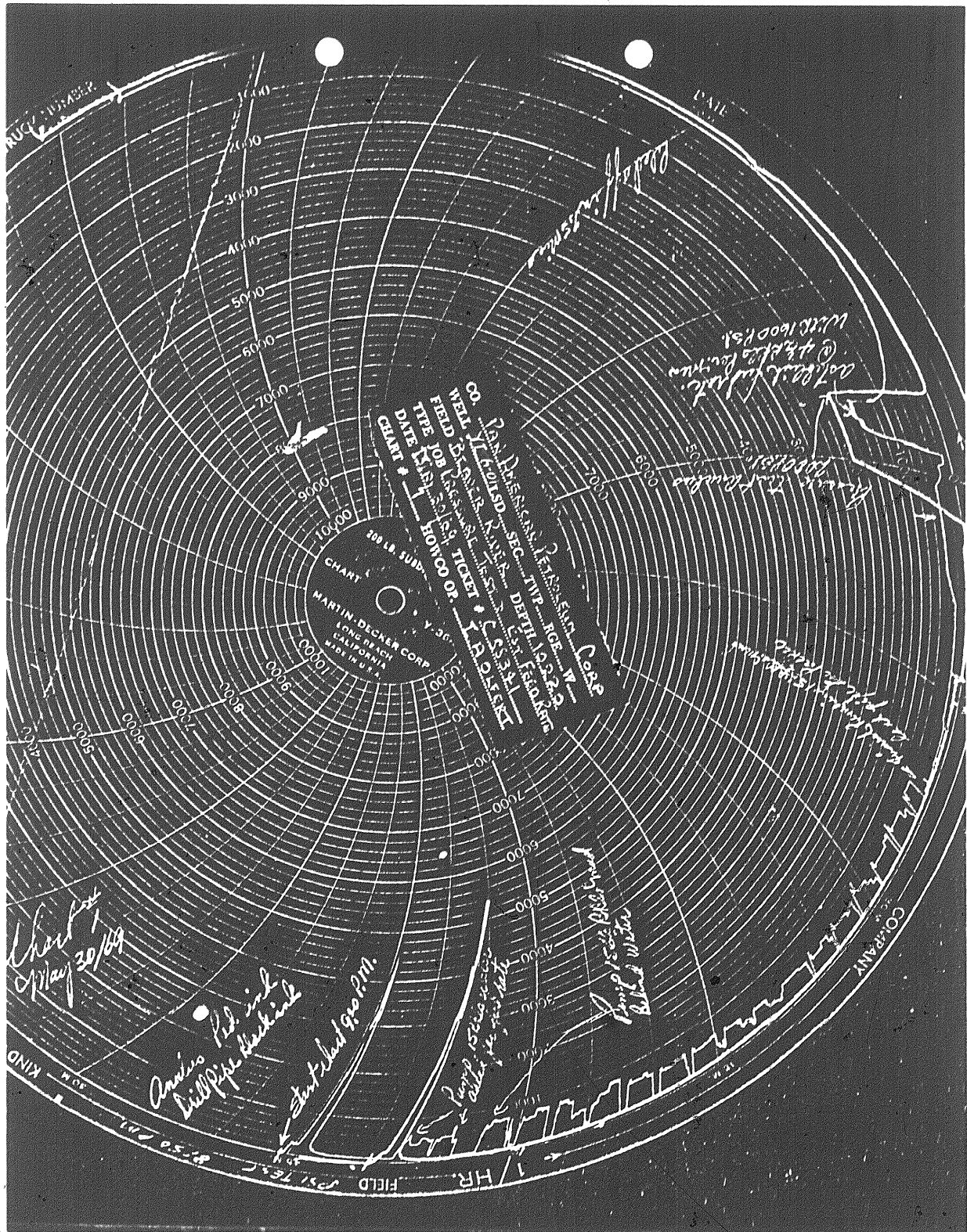
TREATING LOG

TIME	PRESSURES TUBING	PRESSURES CASING	VOLUME PUMPED (BBL.)	VOLUME IN FORMATION (BBL.)	RATE (BPM.)	REMARKS
4.30			15			Water ahead.
4.43			97			Acid.
4.57			73			Water behind acid.
5.30						Set packer and pressure test annulus, 2000 ps.
5.35				106		Acid and 10 bbl's water in formation.
5.52						Shut in and held pressure.
7.00						Bleed off and flow well into flare pit.

SUMMARY OF PLANNED PROGRAM

HALLIBURTON OPERATOR I. A. Olcott

COMPANY REPRESENTATIVE



WELL NUMBER

DATE

CO. PAN DE AZÚCAR PETROLEUM CORP
WELL DE AZÚCAR RANCHO DE SAN FELIX
TYPE JOB C.A.S. TICKET # C-3333
DATE 11/15/69 HOWOOP R.D. DECKER
CHART #

7000 ft
@ 4 1/2 inch
with 1600 ft

Amvino 1 1/2 inch
Drill pipe 4000 ft

300 LB. SUB.
Y-30
MARTIN DECKER CORP
LONG BEACH
CALIFORNIA
MADE IN U.S.A.

Chart #
May 30/69

Amvino 1 1/2 inch
Drill pipe 4000 ft

Start at 1:00 P.M.

Pump 1 1/2 inch
Blind wire

COMPANY

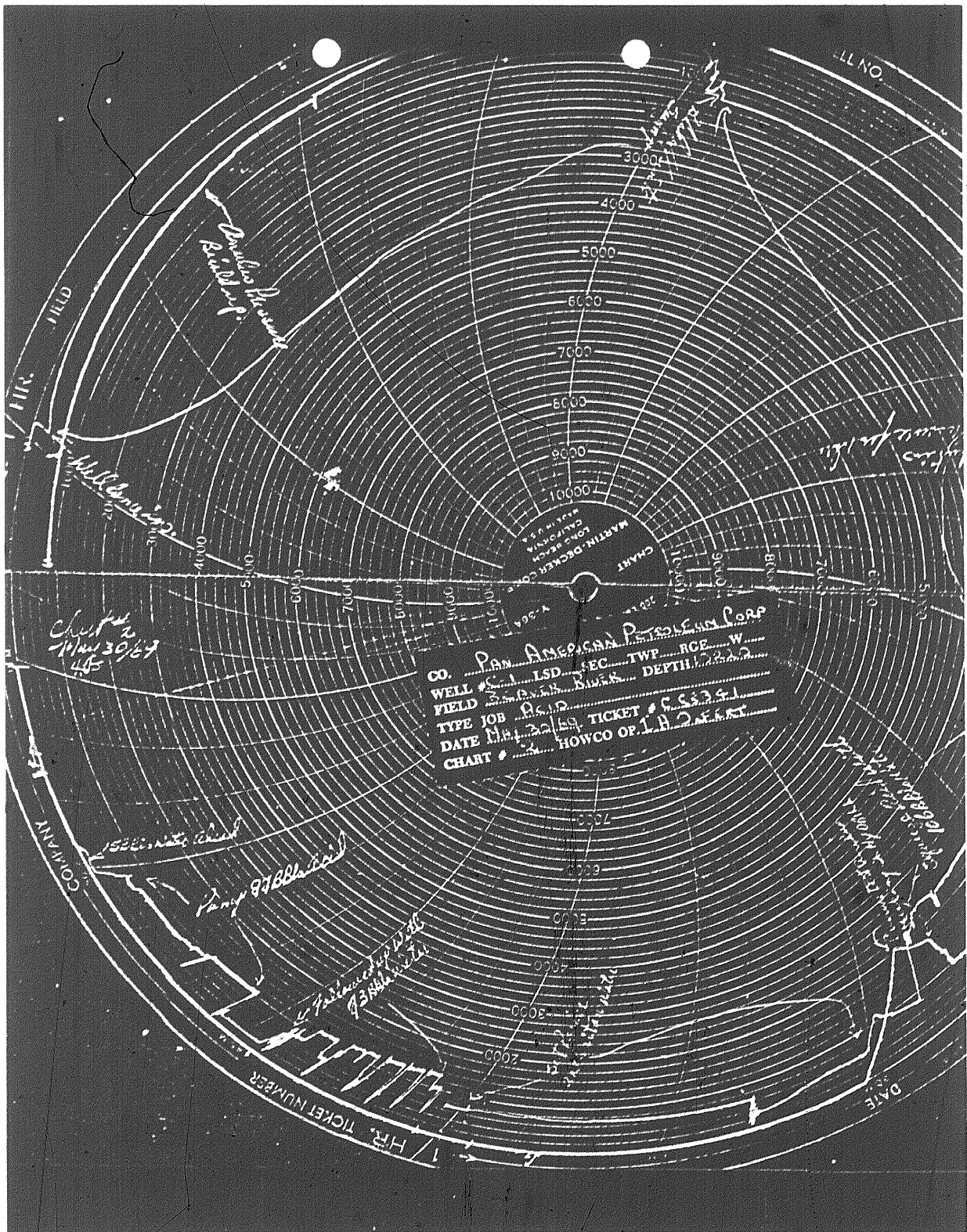
KIND

W.C.P.

8.50 AM

FIELD TEST

1 HR.



CO. PAN AMERICAN PETROLEUM CORP
 WELL # 30121 LSD REC TWP RCE W
 FIELD 28 28 28 DEPTH 28 28
 TYPE JOB AC 10
 DATE May 23 1959 TICKET # 653351
 CHART # 1 HOWCO OF L.A. DIST.

Pan American Petroleum Corp

*Chart # 30121
48-5*

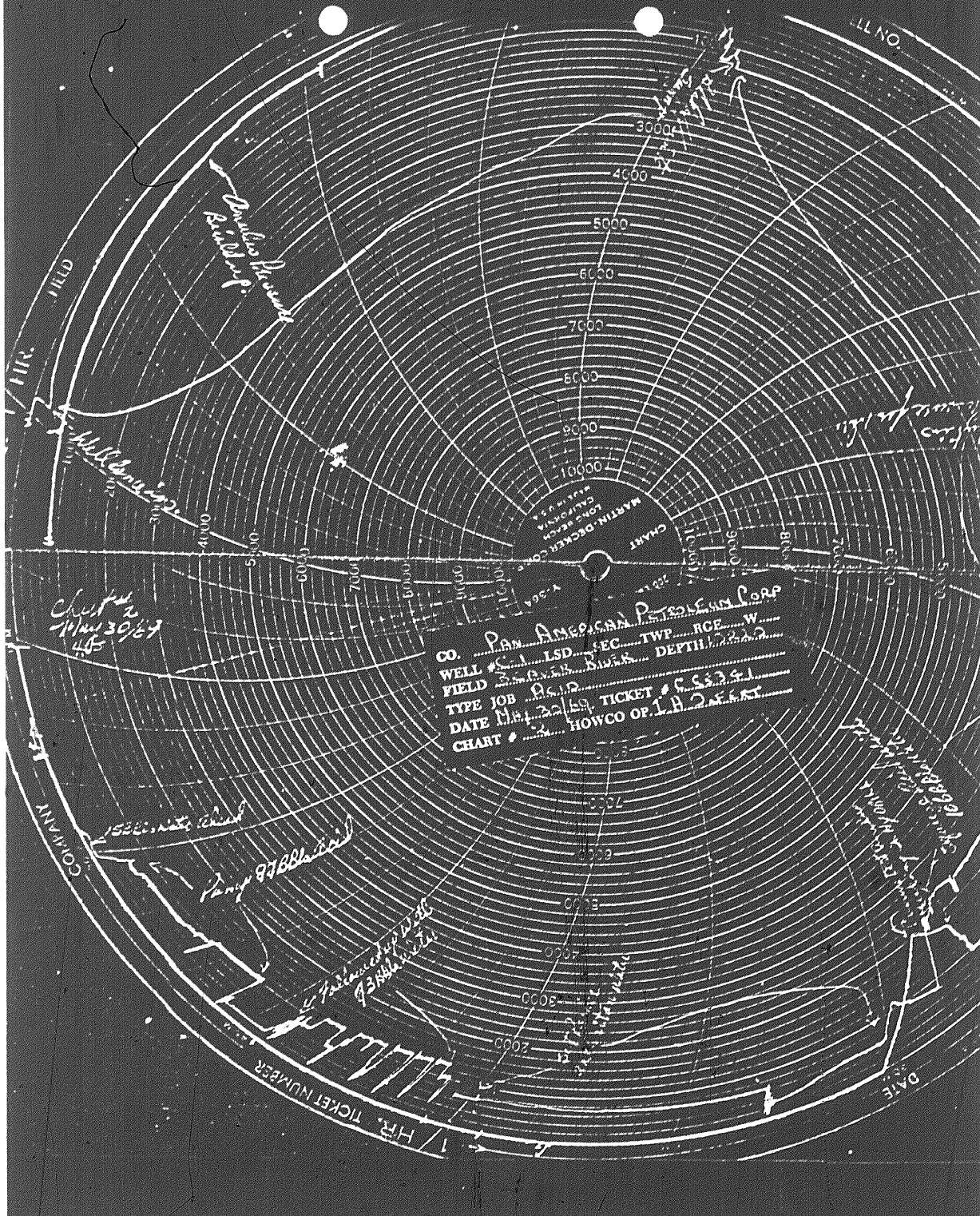
COMMAN

5500. water control

Range 27 28 28

5000. water control

5000. water control



SQUEEZE CEMENTING SERVICE



TYPE TREATMENT SQUEEZE OPEN HOLE FULL

DATE August 7, 1969

ATTACH TO TICKET NO. 92386

STAGE NO. 1

PAGE NO. 1

DISTRICT FORT ST. JOHN

COMPANY SQUEEZE CEMENTING SERVICE
 MOCO CANADA PERIODIC LTD. WELL
 PAN AM BRAVER 76-01 FIELD
 BRAVER RIVER L50
 SEC
 TWP
 RGE
 W

THE FOLLOWING INFORMATION WAS FURNISHED BY THE WELL OWNER OR HIS AGENT.

FORMATION Nahanni	DATE CASING SET Aug. 1/69	PERF. FROM TO SHOTS/FT.
TUBING: OD 3 1/2	WT. 13.3	DEPTH 14575
CASING: OD 7"	WT. 23,26,29	DEPTH 14580
LINER: OD FROM TO SHOTS/FT.	PERF. FROM TO SHOTS/FT.	PERF. FROM TO SHOTS/FT.
PACKER: TYPE Baker Model D	SET AT 14575	OPEN HOLE SIZE 6" FROM 14580 TO 14672
MAX. ALLOWABLE PRESS.: TBG. 4000	CSG.	TREAT. INTERVAL: FROM 14475 TO 14672
PURPOSE OF SQUEEZE Close open hole.		CAPACITY: TBG. 10.7 ANNULUS 385. CSG./OPEN HOLE .4

MATERIALS USED		TREATMENT SUMMARY	
MIXING FLUID: TYPE Water	10 BBL.	PUMP EQUIP. (TYPE) Twin T-10	
CEMENT: TYPE Oilwell	100 SACKS	PUMPS ON TUBING 1 CSG.	SQUEEZE MANIFOLDED <input type="checkbox"/>
ACCELERATOR: TYPE	%	CEMENT WAS: BATCH MIXED <input type="checkbox"/>	CONTINUOUSLY MIXED <input checked="" type="checkbox"/>
RETARDER: TYPE HR-12	1.75 %	VOLUMES:	
FLUID LOSS ADDITIVE: TYPE	%	FLUID AHEAD OF CEMENT	5 BBL.
OTHER ADDITIVES: TYPE	%	SLURRY MIXED	20 BBL.
TYPE	%	SLURRY SQUEEZED	10 BBL.
TYPE	%	DENSITY MEASUREMENTS	14.5 LBS./GAL.
FLUID AHEAD OF CEMENT: TYPE Water	210 GAL.	FLUID LOSS OF SLURRY (C.C.) 7 1/2 MIN.	30 MIN.
ACID: TYPE	GAL. %	MIXING TIME 6 MIN.	DISPLACING TIME 15 MIN.
LABORATORY THICKENING TIME 5 HOURS	30 MIN.	TOTAL TIME CEMENT IN WELL BORE 1 HR.	20 MIN.
		FINAL SQUEEZE PRESSURE: DESIRED 4000	OBTAINED 3500

TREATING LOG

TIME	PRESSURE TUBING	PRESSURE CASING	VOLUME PUMPED (BBL.)	VOLUME IN FORMATION (BBL.)	RATE (BPM.)	REMARKS
7.30	4000	4000				Test lines to 4000, no surface leaks.
7.35						Start feed rate.
7.41	4500		3	3	.5	Stop, pull stinger.
7.54						Start water ahead, packer closed.
7.56	1500	500	5		2.5	Stop pump.
8.11		500				Start mix.
8.17	7500	500	20		4	Finish mix.
8.17						Start water behind.
8.18	1300	500	5		5	Stop pump.
8.22						Start displace.
8.38	2000	500	75		5	Stop displace.

SUMMARY OF PLANNED PROGRAM

HALLIBURTON OPERATOR C. Thorson

COMPANY REPRESENTATIVE F. Bondar

PAN AM 6-1 BEAVER RIVER 6-1 YTC-01
60°10'N 124°15'W

K.B. 2616 Ground 2600

CORE ANALYSIS SUMMARY :

- CORE #1 7160 - 7162 No recovery
- CORE #2 7162 - 7163 Recovered 8"
Quartz sandstone, very fine grained, consolidated, siliceous, slightly dolomitic, horizontal fractures filled with argillaceous material, porosity 5 - 8%.
- CORE #3 8764 - 8808 Recovered 44'
8764 - 8772 Shale, light grey, platy, soft, slightly dolomitic and micaceous with stringers of dark brown, micro-crystalline argillaceous dolomite, beds ranging from 2 - 3".
8772 - 8772.5 Stringer fine/medium crystalline limey dolomite, good vuggy porosity, secondary dolomite lined vugs.
8772.5 - 8808 Shale, medium/dark grey, blocky, slightly micaceous, calcite filled fractures, stringers of dolomite, dark brown, micro-crystalline, very argillaceous, beds 2 - 3" thick, no visible porosity.
- CORE #4 10,045 - 10,080 Recovered 35'
Limestone, mottled, dark grey/brown/white crypto-crystalline to very fine crystalline, siliceous, dense, tight; occasional shale partings, very carbonaceous, few thin secondary calcite lined fractures. Stringers of dark grey, sub-lithographic dolomite, occasional stylolites, crinoids, gas kick at 10,069'.
- CORE #5 10,093 - 10,143 Recovered 50'
Limestone, mottled, dark grey/brown/white crypto-crystalline, very siliceous, dolomitic, occasional thin to hairline fractures secondary calcite lined, occasional thin shale partings, black carbonaceous, occasional stylolites and thin open fractures, occasional trace crinoids. Traces of slickensides, pyrite and feldspar. Trace of inter-crystalline porosity at 10,133'.
- CORE #6 10,150 - 10,178 Recovered 28'
Limestone, wispy banded black/grey white, mottled, crypto/very fine crystalline, siliceous, argillaceous in part, thin interbeds limey dolomite, crypto-crystalline, very siliceous, with interbeds of shale, black, carbonaceous, calcareous to dolomitic. Hairline secondary calcite filled fractures, fossiliferous near base of cored interval with light grey limestone inclusions, pyritic. Last foot of core showed some bleeding gas.

CORE ANALYSIS SUMMARY con't

- CORE #7 10,178 - 10,187 Recovered 9'
- Shale, dark grey/black, carbonaceous, micro-micaceous, soft, dolomitic, thin interbeds of limestone and dolomite inclusions. Trace of pyrite monaxon spicules. Middle part of interval contains thin interbeds of limey dolomite and limestone, dark grey, sub-lithographic/micro-crystalline, very argillaceous, siliceous, badly fractured.
- CORE #8 10,187 - 10,197 Recovered 10'
- Limestone, dolomitic, micro-crypto-crystalline, argillaceous, occasional black shale partings, carbonaceous, calcareous and penecontemporaneous. Stringers of dolomite, sub-lithographic, brown/grey, very argillaceous; 10,189 thin horizontal fracture with gas bleeding from fracture, occasional thin hairline fractures with secondary calcite fill.
- CORE #9 10,197 - 10,220 Recovered 23'
- Limestone, dolomitic, finely laminated, dark grey/grey white, argillaceous, micro-crystalline, shaley, siliceous, some horizontal bedding fractures, shale, black, carbonaceous, waxy to shiny, slightly calcareous with finely laminated limestone, crypto-crystalline to very fine crystalline; 10,209 - 10,210 open vertical and horizontal fractures, bleeding gas. Near base of cored interval badly fractured bleeding gas, limestone beds of very fine/coarse crystalline, very crinoidal with shell fragments. Occasional hairline secondary calcite lined fractures.
- CORE #10 10,220 - 10,223 Recovered 3'
- Dolomite, lithographic, dark brown grey, argillaceous, very siliceous, dense, interbedded shale, black, carbonaceous, waxy, calcareous, thin stringers of dolomitic limestone, dark grey, micro-crystalline, very siliceous, dense, cherty with abundant shell fragments, becomes very shaley near base.
- CORE #11 10,223 - 10,257 Recovered 34'
- Whispy interbedded limestone, grey white, micro-crystalline to coarse crystalline, crinoidal in part, shell fragments, pyritic, occasional thin shale partings, black, carbonaceous, vertical and horizontal fractures, trace of slickensides, occasional interbeds of dolomite, argillaceous, very shaley, occasional hairline calcite filled fractures. Near base of cored interval limey dolomite to dolomitic limestone, micro- to very fine crystalline, earthy with shale stringers, scattered crinoids and shell fragments, fair inter-crystalline to vuggy porosity from 10,250 - 10,251.

CORE ANALYSIS SUMMARY con't

- CORE #12 13,530 - 13,568 Recovered 38'
- Dolomite, white to medium grey, secondary calcite lined fractures, dark grey shale stringers, some small vugs, tight, no porosity.
- CORE #13 13,568 - 13,591 Recovered 23'
- Dolomite, white to medium grey, secondary calcite lined fractures, dark grey shale stringers, some small vugs, tight, no porosity.
- CORE #14 13,663 - 13,723 Recovered 60'
- Dolomite, medium grey, crypto- to micro-crystalline, abundant small fractures with calcite fill; 13,673 pinpoint vuggy porosity, trace of quartz in vugs; 13,680 - 13,686 35% fractured, dense, calcite filled, small to medium vugs 4% est. porosity. Last 13' of core becomes slightly shaly with trace of siltstone, tight, dense, some slightly ribboned calcite filled fractures, no porosity.
- CORE #15 13,724 - 13,764 Recovered 40'
- Dolomite, medium grey 90% lithoclast with 10% calcite filled fractures, dense, occasional stringers of dark grey dolomitic shale, trace of vertical fractures with pyrite from 13,743 - 13,751, dolomite as above, some good horizontal fractures with fracture porosity of 7%, trace of shale stringers, some small vugs 1% porosity, large vugs 2%. Last 10' of core interval has some good small/medium vugs and abundant vertical fractures with large/medium vugs, fair to good porosity.
- CORE #16 13,927 - 13,964 Recovered 37'
- Dolomite, medium grey, crypto-fine crystalline, with mottling of milky white coarse crystalline dolomite, abundant thin hairline white dolomite filled fractures, few vugs $\frac{1}{2}$ " to 1", occasional carbonaceous partings with shell fragments and crinoids, occasional stylolites; 13,948 - 13,950 badly brecciated and infilled with white dolomite, several small vugs to $\frac{1}{2}$ "; 13,953 - 13,957 badly fractured and brecciated infilled with coarse crystalline dolomite, occasional vugs to 1" with euhedral quartz crystals. Last 3' of core is badly fractured at angle to core with abundant black carbonaceous partings, trace of sulphur and galena, small vugs to $\frac{1}{2}$ ", contains crinoids and shell fragment.
- CORE #17 13,964 - 13,970 Recovered 5'
- Dolomite, dark grey, very argillaceous, micro- to fine crystalline, abundant secondary white milky dolomite as patchy and fracture infilling, fossiliferous with occasional stylolites; abundant open fractures 10° to vertical, pinpoint to $\frac{1}{2}$ " vugs, occasional vugs to 1".

CORE ANALYSIS SUMMARY con't

- CORE #12 13,530 - 13,568 Recovered 38'
- Dolomite, white to medium grey, secondary calcite lined fractures, dark grey shale stringers, some small vugs, tight, no porosity.
- CORE #13 13,568 - 13,591 Recovered 23'
- Dolomite, white to medium grey, secondary calcite lined fractures, dark grey shale stringers, some small vugs, tight, no porosity.
- CORE #14 13,663 - 13,723 Recovered 60'
- Dolomite, medium grey, crypto- to micro-crystalline, abundant small fractures with calcite fill; 13,673 pinpoint vuggy porosity, trace of quartz in vugs; 13,680 - 13,686 35% fractured, dense, calcite filled, small to medium vugs 4% est. porosity. Last 13' of core becomes slightly shaly with trace of siltstone, tight, dense, some slightly ribboned calcite filled fractures, no porosity.
- CORE #15 13,724 - 13,764 Recovered 40'
- Dolomite, medium grey 90% lithoclast with 10% calcite filled fractures, dense, occasional stringers of dark grey dolomitic shale, trace of vertical fractures with pyrite from 13,743 - 13,751, dolomite as above, some good horizontal fractures with fracture porosity of 7%, trace of shale stringers, some small vugs 1% porosity, large vugs 2%. Last 10' of core interval has some good small/medium vugs and abundant vertical fractures with large/medium vugs, fair to good porosity.
- CORE #16 13,927 - 13,964 Recovered 37'
- Dolomite, medium grey, crypto-fine crystalline, with mottling of milky white coarse crystalline dolomite, abundant thin hairline white dolomite filled fractures, few vugs $\frac{1}{2}$ " to 1", occasional carbonaceous partings with shell fragments and crinoids, occasional stylolites; 13,948 - 13,950 badly brecciated and infilled with white dolomite, several small vugs to $\frac{1}{2}$ "; 13,953 - 13,957 badly fractured and brecciated infilled with coarse crystalline dolomite, occasional vugs to 1" with euhedral quartz crystals. Last 3' of core is badly fractured at angle to core with abundant black carbonaceous partings, trace of sulphur and galena, small vugs to $\frac{1}{2}$ ", contains crinoids and shell fragment.
- CORE #17 13,964 - 13,970 Recovered 5'
- Dolomite, dark grey, very argillaceous, micro- to fine crystalline, abundant secondary white milky dolomite as patchy and fracture infilling, fossiliferous with occasional stylolites; abundant open fractures 10° to vertical, pinpoint to $\frac{1}{2}$ " vugs, occasional vugs to 1".

PAN AM C-1 BEAVER RIVER G-1 Y 7 G-01
60°10'N 124°15'W

K.B. 2616 Ground 2600

SAMPLE DESCRIPTIONS :

0 - 4600 Not Logged

4600 - 4640 Shale, medium/dark grey, blocky and splintery, silty to limey in part, pyritic.

4650 - 4670 Sandstone, very fine grained, grading into siltstone, limey in part, tight, no shows.

4680 - 4750 Sandstone, very fine grained, tight, limey in part, interbedded grey shale, blocky and platy, pyritic.

4760 - 4820 Sandstone, very fine grained, tight, grading into siltstone, shaley to limey in part, scattered calcite.

4830 - 4880 Shale, light to dark grey/black, blocky and platy, some bituminous and soft, pyritic.

4890 - 4930 Sandstone, grey/off white, very fine grained, silty, shaley, limey, tight, no shows.

4940 - 5030 Shale, medium grey, blocky and platy, micaceous, pyritic, silty in part, traces of crinoid stems.

5040 Sandstone, grey, shaley, very fine grained, grading into siltstone, no shows.

5050 - 5530 Shale, grey, blocky and platy, some siltstone, micaceous, pyritic, scattered calcite and crinoids; occasionally limey; occasional traces of anhydrites and ironstone.

5540 - 5580 Sandstone, grey/brown, very fine grained, grading into siltstone, shaley, quartzose, tight, trace of ironstone.

5590 - 5690 Shale, grey, blocky and platy, micaceous, pyritic, streak of sandstone as above; silty.

5700 - 5850 Shale, grey/brown, occasionally black and bituminous, traces of grey brown siltstone, pyritic, trace of ironstone.

5860 - 6100 Shale, medium grey/brown, soft, platy, calcareous in part, thin stringers of dark brown, lithographic dolomite, with stringers of quartz sandstone and limestone, occasional trace of crinoids and pyrite.

6100 - 6330 Shale, light/medium grey, silty and slightly dolomitic, abundant dense crypto-crystalline dolomite, stringers of quartz sandstone and siltstone, abundant calcite and pyrite.

PAN AM C-1 BEAVER RIVER G-1 YTG-01
60°10'N 124°15'W

K.B. 2616 Ground 2600

SAMPLE DESCRIPTIONS :

0 - 4600 Not Logged

4600 - 4640 Shale, medium/dark grey, blocky and splintery, silty to limey in part, pyritic.

4650 - 4670 Sandstone, very fine grained, grading into siltstone, limey in part, tight, no shows.

4680 - 4750 Sandstone, very fine grained, tight, limey in part, interbedded grey shale, blocky and platy, pyritic.

4760 - 4820 Sandstone, very fine grained, tight, grading into siltstone, shaley to limey in part, scattered calcite.

4830 - 4880 Shale, light to dark grey/black, blocky and platy, some bituminous and soft, pyritic.

4890 - 4930 Sandstone, grey/off white, very fine grained, silty, shaley, limey, tight, no shows.

4940 - 5030 Shale, medium grey, blocky and platy, micaceous, pyritic, silty in part, traces of crinoid stems.

5040 Sandstone, grey, shaley, very fine grained, grading into siltstone, no shows.

5050 - 5530 Shale, grey, blocky and platy, some siltstone, micaceous, pyritic, scattered calcite and crinoids; occasionally limey; occasional traces of anhydrites and ironstone.

5540 - 5580 Sandstone, grey/brown, very fine grained, grading into siltstone, shaley, quartzose, tight, trace of ironstone.

5590 - 5690 Shale, grey, blocky and platy, micaceous, pyritic, streak of sandstone as above; silty.

5700 - 5850 Shale, grey/brown, occasionally black and bituminous, traces of grey brown siltstone, pyritic, trace of ironstone.

5860 - 6100 Shale, medium grey/brown, soft, platy, calcareous in part, thin stringers of dark brown, lithographic dolomite, with stringers of quartz sandstone and limestone, occasional trace of crinoids and pyrite.

6100 - 6330 Shale, light/medium grey, silty and slightly dolomitic, abundant dense crypto-crystalline dolomite, stringers of quartz sandstone and siltstone, abundant calcite and pyrite.

PAN AM C-1 BEAVER RIVER G-1 YTG-01
60°10'N 124°15'W

K.B. 2616 Ground 2600

SAMPLE DESCRIPTIONS :

0 - 4600 Not Logged

4600 - 4640 Shale, medium/dark grey, blocky and splintery, silty to limey in part, pyritic.

4650 - 4670 Sandstone, very fine grained, grading into siltstone, limey in part, tight, no shows.

4680 - 4750 Sandstone, very fine grained, tight, limey in part, interbedded grey shale, blocky and platy, pyritic.

4760 - 4820 Sandstone, very fine grained, tight, grading into siltstone, shaley to limey in part, scattered calcite.

4830 - 4880 Shale, light to dark grey/black, blocky and platy, some bituminous and soft, pyritic.

4890 - 4930 Sandstone, grey/off white, very fine grained, silty, shaley, limey, tight, no shows.

4940 - 5030 Shale, medium grey, blocky and platy, micaceous, pyritic, silty in part, traces of crinoid stems.

5040 Sandstone, grey, shaley, very fine grained, grading into siltstone, no shows.

5050 - 5530 Shale, grey, blocky and platy, some siltstone, micaceous, pyritic, scattered calcite and crinoids; occasionally limey; occasional traces of anhydrites and ironstone.

5540 - 5580 Sandstone, grey/brown, very fine grained, grading into siltstone, shaley, quartzose, tight, trace of ironstone.

5590 - 5690 Shale, grey, blocky and platy, micaceous, pyritic, streak of sandstone as above; silty.

5700 - 5850 Shale, grey/brown, occasionally black and bituminous, traces of grey brown siltstone, pyritic, trace of ironstone.

5860 - 6100 Shale, medium grey/brown, soft, platy, calcareous in part, thin stringers of dark brown, lithographic dolomite, with stringers of quartz sandstone and limestone, occasional trace of crinoids and pyrite.

6100 - 6330 Shale, light/medium grey, silty and slightly dolomitic, abundant dense crypto-crystalline dolomite, stringers of quartz sandstone and siltstone, abundant calcite and pyrite.

SAMPLE DESCRIPTIONS con't

- 6340 - 6630 Shale, light grey, very silty and dolomitic, medium brown/grey siltstone. Stringers of dark brown crypto-crystalline dolomite and limestone; occasional traces of anhydrite and quartz sandstone, abundant calcite and pyrite.
- 6640 - 7150 Shale, light/medium grey, flaky, soft, micaceous, abundant stringers of quartz sandstone and dolomite as above. Abundant calcite and siltstone, occasional crinoid fragments.
- CORE #1 7160 - 7162 no recovery
- CORE #2 7162 - 7163 see Core Analysis.
- 7164 - 7212 Quartz sandstone, very fine/fine grained (fractured), well consolidated, sub-round/sub-angular, abundant light grey dolomitic shale, pyrite and calcite cavings.
- 7213 - 7550 Shale, light/medium grey, slightly dolomite and slightly micaceous, soft; abundant siltstone, interbedded quartz sandstone, very fine grained porosity, live and dead oil shows, abundant calcite lined fractures with occasional traces of anhydrite and crinoids. Occasional traces of dark brown crypto-crystalline dolomite.
- 7560 - 7850 Shale, light/medium grey, flaky, lumpy with abundant anhydrite and pyrite, occasional trace of calcareous light brown siltstone and thin stringers of very fine grained quartz sandstone, pyritic.
- 7860 - 8070 Shale, light grey, platy, slightly micaceous, abundant grey brown siltstone. Occasional thin interbeds of very fine grained quartz sandstone and light/medium brown crypto-crystalline dolomite. Abundant anhydrite and calcite, pyrite.
- 8080 - 8150 Shale, light grey, platy, soft, calcareous in part, calcite lined fractures, trace of pyrite.
- 8160 - 8270 Shale, light/medium grey, abundant anhydrite, trace calcite lined fractures, occasional trace of very fine grained quartz sandstone grading to siltstone.
- 8280 - 8764 Shale, light grey, platy and slightly micaceous, trace of black blocky shale, abundant calcite with occasional traces of anhydrite, interbedded siltstone and dark brown crypto- to micro-crystalline dolomite, calcite lined fractures, occasional pyrite.
- CORE #3 8764 - 8803 see Core Analysis.

SAMPLE DESCRIPTIONS con't

- 8809 - 9180 Shale, light grey, slightly calcareous, micaceous, soft, platy, occasional interbeds of black blocky shale, abundant siltstone and very fine grained quartz sandstone, thin interbeds of medium/dark brown crypto-crystalline dolomite, traces of anhydrite and calcite lined fractures, pyritic.
- 9190 - 10,012 Shale, dark grey/black, micro-micaceous, platy; interbedded brown/dark reddish brown, lithographic/micro-crystalline dolomite, occasional traces of quartz sandstone. Thin occasional interbeds of slightly calcareous siltstone. Calcite lined fractures with occasional secondary dolomite lined fractures, abundant anhydrite stringers. Occasional traces of brachiopods, ostracods and crinoids, and a trace of monaxon spicules.
- 10,013 - 10,045 Limestone, brown/white, grey, very fine - crypto-crystalline speckled, very silty, cherty, slightly argillaceous, tight with interbeds of shale, dark grey/black, trace of calcite crystals fractured.
- CORE #4 10,045 - 10,080 see Core Analysis.
- 10,081 - 10,093 Limestone, dark grey/brown, crypto-very fine crystalline, siliceous, argillaceous, hard, trace of siltstone and limey dolomite.
- CORE #5 10,093 - 10,143 see Core Analysis.
- 10,144 - 10,150 Limestone as above.
- CORE #6 10,150 - 10,178 see Core Analysis.
- CORE #7 10,178 - 10,187 see Core Analysis.
- CORE #8 10,187 - 10,197 see Core Analysis.
- CORE #9 10,197 - 10,220 see Core Analysis.
- CORE #10 10,220 - 10,223 see Core Analysis.
- CORE #11 10,223 - 10,257 see Core Analysis.
- 10,257 - 10,400 Limestone and dolomitic limestone, dark grey/brown crypto-crystalline to very fine crystalline, very siliceous, argillaceous, secondary calcite filled fractures. Shale, medium grey/black, carbonaceous, micro-micaceous, trace of pyrite.

SAMPLE DESCRIPTIONS con't

- 10,410 - 10,750 Shale, dark grey/black, blocky, brittle, micro-micaceous, slightly calcareous in part, thin interbeds of limestone, light grey/brown, very fine/fine crystalline, argillaceous, occasional stringers of brown siltstone and dark reddish brown lithographic dolomite, very dense, argillaceous. Calcite lined fractures, slight trace of anhydrite, pyritic.
- 10,760 - 10,900 Shale, medium/dark grey, calcareous, interbeds of limestone, light grey/brown, very fine crystalline, mottled, argillaceous, badly fractured secondary calcite lined stringers of anhydrite, abundant clear quartz crystals, stringers of dolomite as above, pyritic, trace of occasional crinoid.
- 10,910 - 11,210 Shale, light grey, trace of black shale, slightly calcareous in part, occasional white anhydrite and pyrite.
- 11,220 - 11,250 Shale, grey, calcareous, interbedded brown argillaceous limestone, trace of black shale.
- 11,250 - 11,620 Shale, dark grey, calcareous, occasional stringers of black shale, pyritic, with slight trace of quartz crystals.
- 11,630 - 12,180 Shale, black/dark grey, slightly calcareous in part, occasional trace of calcite and pyrite.
- 12,190 - 12,955 Shale, dark grey, occasional trace of black shale, occasional thin interbeds dark grey micro-crystalline, argillaceous dolomite, trace of calcite, traces of brown chert and crinoid fragments, pyrite.
- 12,966 - 13,260 Shale, black, pyritic, calcareous in part, trace of dark grey shale with occasional trace of dolomite as above.
- 13,270 - 13,490 Shale, black, pyritic, thin interbeds of greyish brown argillaceous limestone and black micro-crystalline dolomite, calcite lined fractures, traces of monaxon spicules and crinoids, trace of graphite.
- 13,500 - 13,530 Dolomite, white/medium grey, micro-crystalline, trace of black calcareous shale & secondary calcite lined fractures, trace of pyrite and some porosity.
- CORE #12 13,530 - 13,568 see Core Analysis.
- CORE #13 13,568 - 13,591 see Core Analysis.
- 13,591 - 13,663 Dolomite, medium grey/light brown, micro- to fine crystalline, trace of argillaceous and siliceous quartzitic siltstone, secondary calcite and secondary dolomite lined fractures, trace of vuggy and inter-crystalline porosity.

SAMPLE DESCRIPTIONS con't

- CORE #14 13,663 - 13,723 see Core Analysis.
- CORE #15 13,723 - 13,764 see Core Analysis.
- 13,764 - 13,927 Dolomite, light/medium grey, micro- to very fine crystalline, very argillaceous, silica cemented quartz siltstone, abundant milky white coarse crystalline secondary dolomite filled fractures, vuggy porosity, trace of disseminated pyrite, occasional traces of clear quartz crystals and secondary calcite filled fractures, shale cavings.
- CORE #16 13,927 - 13,964 see Core Analysis.
- CORE #17 13,964 - 13,970 see Core Analysis.
- CORE #18 13,970 - 13,973 see Core Analysis.
- 13,974 - 14,175 Dolomite, light/medium grey, micro- to very fine crystalline, very argillaceous, abundant secondary white coarse crystalline dolomite lined vugs, secondary calcite lined fractures, occasional trace of clear quartz crystals, thin stringers of dark grey/black shale, trace of pyrite and fossil fragments.
- CORE #19 14,175 - 14,208 see Core Analysis.
- 14,208 - 14,410 Dolomite as above.
- CORE #20 14,410 - 14,435 see Core Analysis.
- 14,435 - 14,650 Dolomite, medium dark grey with buff interbeds, sub-lithographic/micro-crystalline, abundant coarse crystalline milky white secondary dolomite, stringers of carbonaceous shale and trace of bitumen, trace of euhedral quartz crystals; secondary calcite lined fractures, traces of disseminated pyrite and gilsonite, stylolina present along with traces of crinoids. Vuggy and inter-crystalline porosity.
- 14,650 Driller's T.D.

CORE LABORATORIES — CANADA, LTD.
CALGARY, ALBERTA

COMPANY: CAN AMERICAN PETROLEUM CORPORATION
 WELL: CAN AM BEAVER YT G-01
 LOCATION: WILDCAT, BEAVER RIVER AREA, YUKON TERRITORY

FORMATION: DRILLING FLUID WATER BASE MLD
 ELEVATION: —
 ANALYSIS: —
 REMARKS: —

PAGE: 1 of 1
 FILE: CNF-4-4620
 DATE REPORT: APRIL 9/69
 ANALYSTS: RM

AN — APPARENT VISCOSITY
 AR — APPARENT PERMEABILITY
 BR — BULK RESISTANCE
 CR — CRISTALLINITY
 DR — DENSITY
 ER — ELEVATION
 FR — FRACTURE
 GR — GRAIN
 HR — HORIZONTAL FRACTURE
 IR — INTERFACIAL
 JR — JUNCTION
 KR — KRYSTALLINITY
 LR — LAMINATION
 MR — MASS FRACTION
 NR — NUCLEAR
 OR — ORIENTATION
 PR — PORE VOLUME
 QR — QUANTIFICATION
 SR — SHALE
 TR — THERMAL STABILITY
 UR — ULTRASTRUCTURE
 VR — VISCOSITY
 WR — WEIGHT

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCY			PERMEABILITY FEET	POROSITY %	POROSITY FEET	DENSITY		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	K900	KV				BULK	GRAIN	
CORE No. 3	7162.0'	— 7163.0'	(Rec. 8")	(1 piece)							
SS	7162.0-7162.2	0.2	0.23	—	—	0.05	3.0	0.60	—	—	I, F
FD	7162.2-7162.8	0.6	75.30	51.40	3.74	45.18	2.2	1.32	2.57	2.63	I, F
-	7162.9-7163.0	0.2	—	—	—	—	—	—	—	—	Lost Core

CORE LABORATORIES - CANADA LTD.
CALGARY ALBERTA

PAGE - 1 of 3
FILE - CIP-4-4650
DATE REPORT - JUNE 16, 1969
ANALYSTS - EK MH AD

COMPANY - PAN AMERICAN PETROLEUM CORPORATION
WELL - PAN AM BEAVER YT G-01
FIELD - WILDCAT-BEAVER RIVER AREA, YUKON TERRITORY
LOCATION - 60°00' 25.00" N
124°15' 48.00" W

FORMATION - WATER BASE MUD
DRILLING FLUID - FULL DIAMETER
ELEVATION ANALYSIS
REMARKS

SAMPLE NUMBER	INTERNAL REPRESENTED FEET		PERMEABILITY TO AIR WILDCATS		PERMEABILITY FEET	POROSITY %	POROSITY FEET	DENSITY		RESIDUAL SAT. PORE %		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	KMIN				BULK	GRAIN	OIL	TOTAL WATER	
CORE NO. 3 8764.0' - 8808.0' (REC. 44.0') (11 BOXES)												
-	8764.0-8808.0	44.0	-	-	-	-	-	-	-	-	-	Dense
-	8808.0-10045.0	1237.0	-	-	-	-	-	-	-	-	-	Drilled
CORE NO. 4 10045.0' - 10080.0' (REC. 35.0') (9 BOXES)												
-	10045.0-10051.3	6.3	-	-	-	-	-	-	-	-	-	Appears Dense, F
-	10051.3-10055.0	1.7	-	-	-	-	-	-	-	-	-	Appears Dense
1	10055.0-10054.2	1.2	0.12	<0.01	0.14	0.1	0.12	2.68	2.69	-	-	Dense, F
-	10054.2-10060.0	5.8	-	-	-	-	-	-	-	-	-	Appears Dense
2	10060.0-10061.2	1.2	<0.01	<0.01	-	0.3	0.36	2.65	2.66	-	-	Appears Dense
-	10061.2-10067.8	6.6	-	-	-	-	-	-	-	-	-	Appears Dense
3	10067.8-10068.0	1.2	2.27	<0.01	2.72	0.1	0.12	2.66	2.67	-	-	Dense F
-	10069.0-10075.4	6.4	-	-	-	-	-	-	-	-	-	Appears Dense
-	10075.4-10078.1	2.7	-	-	-	-	-	-	-	-	-	Dense Vertical Fracture
4	10078.1-10079.0	0.9	0.16	<0.01	0.14	0.2	0.18	2.65	2.66	-	-	Dense F
-	10079.0-10080.0	1.0	-	-	-	-	-	-	-	-	-	Appears Dense
-	10080.0-10093.0	13.0	-	-	-	-	-	-	-	-	-	Drilled
CORE NO. 5 10093.0' - 10144.0' (REC. 51.0') (13 BOXES)												
-	10093.0-10129.6	36.6	-	-	-	-	-	-	-	-	-	Appears Dense
5	10129.6-10130.6	1.0	0.08	<0.01	0.08	2.5	2.50	2.60	2.67	-	-	PPV
-	10130.6-10133.7	3.1	-	-	-	-	-	-	-	-	-	Appears Dense
6	10133.7-10134.7	1.0	2.35	<0.01	2.35	0.4	0.40	2.66	2.67	-	-	Dense F

CORE LABORATORIES - CANADA, LTD.
CALGARY ALBERTA

COMPANY - PAN AMERICAN PETROLEUM CORPORATION
WELL - PAN AM BEAVER YT G-01

PAGE - 2 of 3
FILE - CNP-4-4680

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCS			POROSITY %	POROSITY FEET	DENSITY BULK	DENSITY GRAIN	RESIDUAL SAT. PORE %		VISUAL EXAMINATION
	DEPTH	THICK	KHAX	KSP	KV					OIL	TOTAL WATER	
CORE NO. 5 (Cont'd)												
-	10134.7-10144.0	9.3	-	-	-	-	-	-	-	-	-	Appears Dense
-	10144.0-10150.0	6.0	-	-	-	-	-	-	-	-	-	Drilled
CORE NO. 6 10150.0' - 10178.0' (REC. 28.0') (8 BOXES)												
-	10150.0-10161.5	11.5	-	-	-	-	-	-	-	-	-	Appears Dense
-	10161.5-10162.4	0.9	9.04	<0.01	<0.01	0.3	0.27	2.66	2.67	-	-	Dense F
-	10162.4-10175.4	13.0	-	-	-	-	-	-	-	-	-	Appears Dense
-	10175.4-10176.0	0.6	13.00	1.99	<0.01	0.8	0.48	2.64	2.66	-	-	Dense F
-	10176.0-10178.0	2.0	-	-	-	-	-	-	-	-	-	Appears Dense
CORE NO. 7 10178.0' - 10187.0' (REC. 9.0') (3 BOXES)												
-	10178.0-10187.0	9.0	-	-	-	-	-	-	-	-	-	Appears Dense
CORE NO. 8 10187.0' - 10197.0' (REC. 10.0') (3 BOXES)												
-	10187.0-10197.0	10.0	-	-	-	-	-	-	-	-	-	Appears Dense
CORE NO. 9 10197.0' - 10220.0' (REC. 23.0') (6 BOXES)												
-	10197.0-10220.0	23.0	-	-	-	-	-	-	-	-	-	Appears Dense
CORE NO. 10 10220.0' - 10223.0' (REC. 3.0') (1 BOX)												
-	10220.0-10223.0	3.0	-	-	-	-	-	-	-	-	-	Appears Dense
CORE NO. 11 10223.0' - 10257.0' (REC. 34.0') (9 BOXES)												
-	10223.0-10257.0	34.0	-	-	-	-	-	-	-	-	-	Appears Dense

WELL: PAN AM BEAVER YT G-01

PAGE: 3 of 3

FORMATION:

SUMMARY INTERVAL: 10045.0 - 10257.0

FILE: CNP-4-4680

TOTAL FOOTAGE: 212.0

FOOTAGE ANALYZED: 8.0

FOOTAGE NOT ANALYZED: TOTAL: 204.0 DENSE 185.0 LOST .0 DRILLED 19.0 *NABR .0 RUBBLE .0

SUMMARY OF ANALYZED CORE:

TOTAL

BY PERM RANGES:

LESS THAN 0.10 Md.

0.10 0.49 Md.

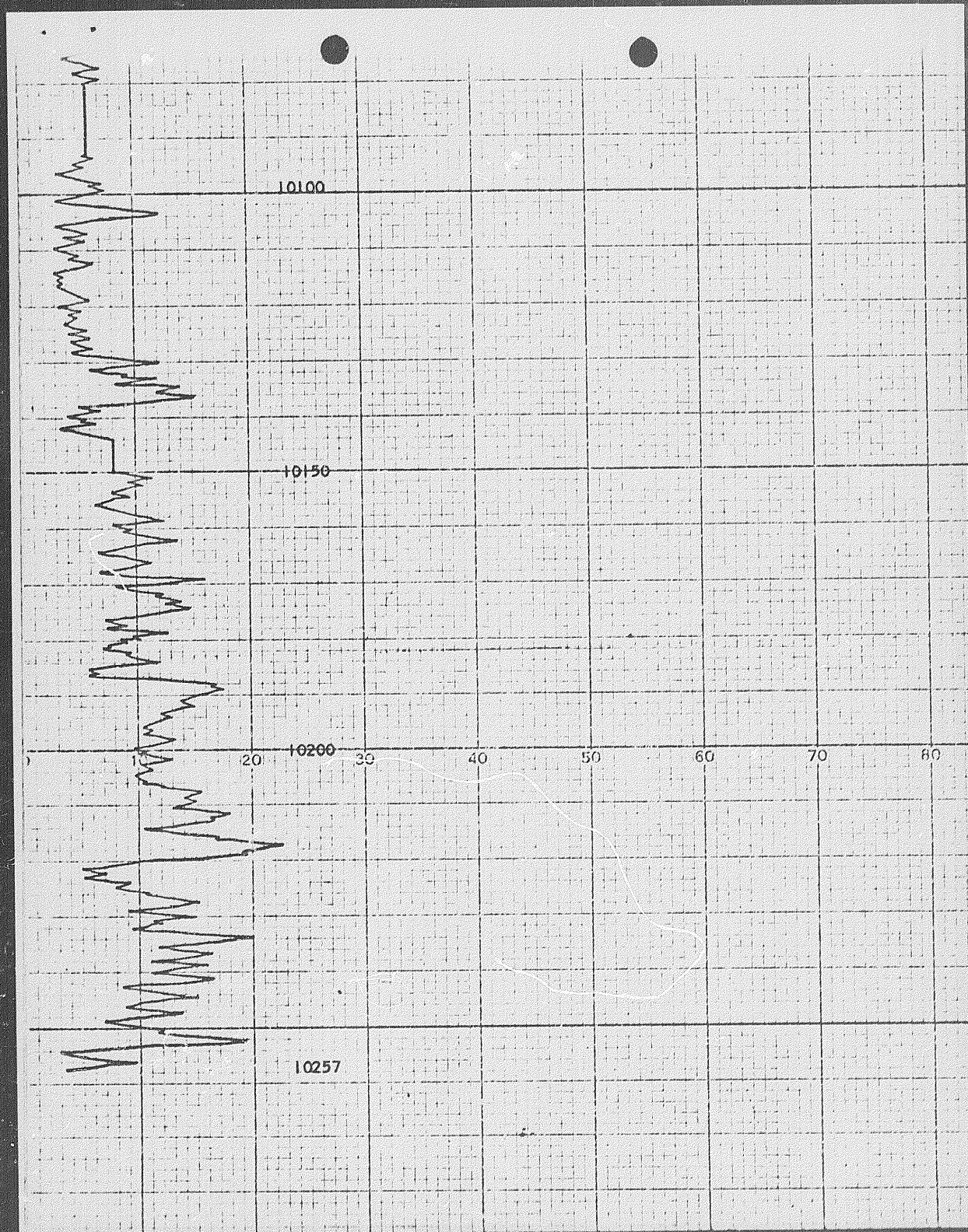
0.50 0.99 Md.

1.00 9.99 Md.

GREATER THAN 9.99 Md.

FOOTAGE	% OF ANALYZED CORE	WEIGHTED AVERAGE POROS. %	POROSITY FEET	WEIGHTED AVERAGE PERM. MD.	PERM. FEET	WEIGHTED AVERAGE RESID. OIL %	WEIGHTED AVERAGE TOT. WATER
8.0	100.00	.55	4.43	2.67	21.38	.00	.00
2.2	27.50	1.30	2.86	.04	.08	.00	.00
2.1	26.25	.14	.30	.14	.29	.00	.00
.0	.00	.00	.00	.00	.00	.00	.00
3.1	38.75	.25	.79	4.26	13.21	.00	.00
.6	7.50	.80	.48	13.00	7.80	.00	.00

*NOT ANALYZED BY REQUEST



CORE LABORATORIES - CANADA LTD.
EDMONTON ALBERTA

COMPANY AM000 CANADA PETROLEUM COMPANY LTD. FORMATION DEVONIAN PAGE 1 of 10
 WELL PAN AM BEAVER YT G-01 DRILLING FLUID WATER BASE MUD FILE CNP-1-9655
 FIELD WILDCAT-BEAVER RIVER AREA, YUKON TERR. ELEVATION ANALYSIS DATE REPORT OCT. 28/69
 LOCATION 60°00' 25.00" N; 124°15' 48.00" W. ANALYSIS REMARKS FULL DIAMETER GLAZED SURFACE ON ALL SAMPLES REMOVED
 ANALYSTS GM DD MY

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCY'S		K _{AV}	POROSITY %	POROSITY FEET	DENSITY	RESIDUAL SAT. PORE %		VISUAL EXAMINATION	
	DEPTH	THICK	K _{MAX}	K _{MIN}					OIL	TOTAL WATER		
CORED INTERVALS: 13,530.0' - 13,591.0'; 13,663.0' - 14,432.0'												
CORE NO. 12 13,530.0' - 13,568.0' (REC 33.7) (9 BOXES)												
1	13530.0-13531.7	1.7	0.45	0.09	<0.01	0.77	1.0	1.70	2.76	2.79	I STY	
2	13531.7-13533.4	1.7	0.35	0.18	<0.01	0.60	0.8	0.36	2.80	2.82	I STY	
3	13533.4-13534.5	1.1	0.22	0.11	<0.01	0.24	0.8	0.88	2.75	2.77	I STY	
4	13534.5-13535.7	1.2	0.54	0.25	0.06	0.65	1.3	1.56	2.76	2.79	I STY	
5	13535.7-13537.3	1.6	0.47	0.26	0.09	0.75	1.6	2.56	2.75	2.78	I STY HF	
6	13537.3-13539.1	1.8	0.24	0.08	<0.01	0.43	1.5	2.70	2.76	2.80	I STY HF	
7	13539.1-13540.8	1.7	0.76	0.49	0.09	1.29	2.3	3.91	2.72	2.79	I HF	
8	13540.8-13542.8	2.0	*	3.32	0.53	6.64	2.3	4.60	2.74	2.80	I HF	
9	13542.8-13544.0	1.2	5.56	0.30	0.07	6.67	1.7	2.04	2.76	2.80	I STY HF	
10	13544.0-13545.2	1.2	*	0.33	0.66	0.40	2.1	2.52	2.75	2.81	I STY HF	
11	13545.2-13546.4	1.2	0.11	0.10	<0.01	0.13	1.2	1.44	2.76	2.79	I STY HF	
12	13546.4-13548.1	1.7	0.10	0.10	<0.01	0.17	1.4	2.38	2.76	2.79	I STY HF	
13	13548.1-13549.5	1.4	2.86	2.54	<0.01	4.00	1.6	2.24	2.74	2.79	I STY HF	
13A	13549.5-13551.3	1.8	0.06	0.03	<0.01	0.11	1.1	1.98	2.73	2.76	I STY	
13B	13551.3-13553.1	1.8	0.16	0.13	<0.01	0.29	1.0	1.60	2.75	2.78	I STY	
14	13553.1-13555.1	2.0	7.00	1.21	<0.01	14.00	1.1	2.20	2.74	2.77	I STY HF	
15	13555.1-13556.8	1.7	5.93	1.69	<0.01	10.08	1.3	2.21	2.75	2.79	I STY HF	
16	13556.8-13557.7	0.9	0.88	0.82	<0.01	0.79	1.5	1.35	2.78	2.82	I STY HF	
17	13557.7-13559.6	1.9	0.05	<0.01	<0.01	0.10	1.0	1.90	2.78	2.81	I STY HF	
18	13559.6-13561.6	2.0	17.61	0.80	<0.01	35.22	0.9	1.80	2.76	2.78	I STY HF	
19	13561.6-13563.7	2.1	0.21	0.06	<0.01	0.44	1.2	2.52	2.79	2.82	I STY	
20	13563.7-13568.0	4.3	-	-	-	-	-	-	-	-	LOST CORE	
CORE NO. 13 13,568.0' - 13,591.0' (REC 23.0') (7 BOXES)												
20	13568.0-13568.7	0.7	*	1.22	<0.01	0.85	1.8	1.26	2.72	2.76	I STY HF	
21	13568.7-13569.8	1.1	<0.01	<0.01	<0.01	-	4.7	5.17	2.64	2.78	I HF	
22	13569.8-13570.8	1.0	12.57	5.68	<0.01	12.57	1.5	1.50	2.73	2.78	I HF	

CORE LABORATORIES - CANADA, LTD.
EDMONTON ALBERTA

COMPANY ANOCO CANADA PETROLEUM COMPANY LTD.
WELL PAN AM BEAVER YT G-01

PAGE 2 of 10
FILE CNP-1-9655

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCY'S			POROSITY %	POROSITY FEET	DENSITY		RESIDUAL SAT. PORE %		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	KAPP	KV			BULK	GRAIN	OIL	WATER	
23	13570.8-	13571.4	3.74	1.18	<0.01	1.6	0.96	2.61	2.65			HF
24	13571.4-	13572.5	3.37	<0.01	<0.01	1.2	1.32	2.76	2.79			HF
25	13572.5-	13573.2	*	3.57	<0.01	1.6	1.12	2.75	2.79			HF
26	13573.2-	13573.9	<0.01	<0.01	<0.01	1.3	0.91	2.73	2.77			
27	13573.9-	13575.0	0.97	0.48	<0.01	1.3	1.43	2.74	2.78			
28	13575.0-	13577.0	0.31	0.26	<0.01	1.4	2.80	2.77	2.81			
29	13577.0-	13579.0	0.06	0.06	<0.01	1.2	2.40	2.77	2.80			
30	13579.0-	13579.7	0.11	0.05	<0.01	1.1	0.77	2.75	2.79			
31	13579.7-	13580.7	0.11	0.03	<0.01	1.1	1.10	2.76	2.79			
32	13580.7-	13581.8	<0.01	<0.01	<0.01	1.3	1.43	2.75	2.78			
33	13581.8-	13582.5	0.7	<0.01	<0.01	1.1	0.77	2.77	2.80			
34	13582.5-	13583.5	1.0	0.03	<0.01	0.9	0.90	2.76	2.79			
35	13583.5-	13584.6	<0.01	<0.01	<0.01	0.9	0.99	2.76	2.79			
36	13584.6-	13585.8	<0.01	<0.01	<0.01	1.1	1.32	2.76	2.79			
37	13585.8-	13587.3	<0.01	<0.01	<0.01	1.0	1.65	2.74	2.77			
38	13587.3-	13589.2	<0.01	<0.01	<0.01	1.0	1.90	2.76	2.79			
39	13589.2-	13591.0	0.80	<0.01	<0.01	1.3	2.34	2.74	2.78			

CORE NO. 13 (CONT'D)

CORE LABORATORIES — CANADA, LTD.

Petroleum Reservoir Engineering

WELL: PAN AM BEAVER YT G-01
 FORMATION: DEVONIAN
 SUMMARY INTERVAL: 13530.0 - 13591.0
 TOTAL FOOTAGE: 61.0
 FOOTAGE ANALYZED: 56.7

PAGE: 3 of 10
 FILE: CNP-1-9655

FOOTAGE NOT ANALYZED: TOTAL: 4.3 DENSE .0 LOST 4.3 DRILLED .0 *NABR .0 RUBBLE .0

FOOTAGE	% OF ANALYZED CORE	WEIGHTED AVERAGE POROSITY	POROSITY FEET	WEIGHTED AVERAGE PERM. MD.	PERM. FEET	WEIGHTED RESID. OIL %	WEIGHTED TOT. WATER %
56.7	100.00	1.37	77.69	1.92	109.10	.00	.00
16.0	28.22	1.33	21.32	.02	.35	.00	.00
19.6	34.56	1.25	24.53	.26	5.02	.00	.00
6.7	11.82	1.58	10.59	.78	5.24	.00	.00
11.4	20.11	1.57	17.95	4.45	50.70	.00	.00
3.0	5.29	1.10	3.30	15.93	47.79	.00	.00

SUMMARY OF ANALYZED CORE:

TOTAL
 BY PERM RANGES:
 LESS THAN 0.10 Md.
 0.10 0.49 Md.
 0.50 0.99 Md.
 1.00 9.99 Md.
 GREATER THAN 9.99 Md.

*NOT ANALYZED BY REQUEST

CORE LABORATORIES - CANADA, LTD.
CALGARY, ALBERTA

COMPANY AMOCO CANADA PETROLEUM COMPANY LTD.
WELL PAN AM BEAVER YT G-01
FIELD WILDCAT-BEAVER RIVER AREA, YUKON TERR.
LOCATION 60°00' 25.00" N; 124°15' 48.00" W.

FORMATION DEVONIAN
DRILLING FLUID WATER BASE MUD
ELEVATION FULL DIAMETER
ANALYSIS to analysis

REMARKS All samples sandblasted prior to analysis

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FILE CNP-4-4774
DATE REPORT AUG, 20, 1969
ANALYSTS CC MH

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCS				PERMEABILITY FEET	POROSITY %	POROSITY FEET		DENSITY		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	KDOP	KV	LY - LARGE VUGS			SM - SMALL VUGS	BULK	GRAIN		

CORE NO. 14 13663' - 13732 (Rec. 59, 0') (16 boxes)

1	13663.0-	13665.2	2.2	5.58	0.43	0.35	12.28	0.8	1.76	2.79	2.81	Dense F.
2	13665.2-	13667.5	2.3	0.63	0.50	-0.1	1.45	1.1	2.53	2.79	2.83	Few PPV, F.
3	13667.5-	13669.3	1.8	0.51	0.46	0.25	0.92	0.8	1.44	2.79	2.81	Dense, Sty. F.
4	13669.3-	13671.3	2.0	-	-	-	-	-	-	-	-	Dense
5	13671.3-	13672.8	1.5	0.93	0.35	-0.1	1.40	0.9	1.35	2.79	2.82	Dense F.
6	13672.8-	13674.0	1.2	1.60	0.84	0.78	1.92	1.9	2.28	2.75	2.85	Few SV, F.
7	13674.0-	13675.3	1.3	0.87	0.77	0.19	1.13	1.8	2.34	2.79	2.84	1. few SV, F.
8	13675.3-	13676.6	1.3	0.70	0.64	0.41	0.91	1.0	1.30	2.80	2.83	1. Scatt. PPV, F.
9	13676.6-	13678.0	1.4	6.18	2.19	1.48	8.65	2.8	3.92	2.75	2.83	SV, F.
10	13678.0-	13679.5	1.5	1.78	0.83	0.14	2.67	1.5	2.25	2.79	2.83	SV, F.
11	13679.5-	13680.9	1.4	0.53	0.32	0.07	0.74	0.5	0.70	2.78	2.80	Scattered SV.
12	13680.9-	13682.4	1.5	1.12	0.99	0.19	1.68	0.8	1.20	2.79	2.81	Scattered PPV, F.
13	13682.4-	13684.0	1.6	1.26	1.11	-0.1	2.02	1.5	2.40	2.78	2.82	Few SV, Sty. F.
14	13684.0-	13685.4	1.4	3.80	2.07	-0.1	5.32	2.5	3.50	2.76	2.83	1. SV, Sty. F.
15	13685.4-	13686.9	1.5	2.04	0.88	0.15	3.06	1.1	1.65	2.77	2.83	SV, Sty. F.
16	13686.9-	13688.2	1.3	2.48	1.53	0.23	3.22	2.0	2.60	2.77	2.83	SV, Sty. F.
17	13688.2-	13689.7	1.5	2.59	2.57	2.96	3.89	2.3	3.45	2.75	2.81	SV, F.
18	13689.7-	13691.0	1.3	3.15	3.09	0.18	4.10	1.5	1.95	2.78	2.82	SV, F.
19	13691.0-	13692.5	1.5	3.25	3.15	0.52	4.88	1.8	2.70	2.78	2.83	Few SV.
20	13692.5-	13694.2	1.7	5.85	1.71	0.41	9.95	1.6	2.72	2.77	2.82	Few SV, F.
21	13694.2-	13695.8	1.6	0.39	0.22	-0.1	0.62	0.3	0.48	2.79	2.80	Dense Sty. F.
22	13695.8-	13697.3	1.5	3.61	3.15	0.11	5.42	2.0	3.00	2.77	2.82	SV, F.
23	13697.3-	13698.7	1.4	12.80	6.20	0.53	17.92	1.8	2.52	2.77	2.82	Few SV, F.
24	13698.7-	13700.4	1.7	3.44	0.90	-0.1	5.85	0.5	0.85	2.78	2.80	Dense Sty. F.
25	13700.4-	13704.4	4.0	-	-	-	-	-	-	-	-	Dense
26	13704.4-	13706.3	1.9	1.61	1.44	0.19	3.06	0.2	0.38	2.79	2.80	Dense F.

CORE LABORATORIES - CANADA, LTD.
CALGARY, ALBERTA

COMPANY AMOCO CANADA PETROLEUM COMPANY LTD.
WELL PAN AM BEAVER YT G-01

PAGE 5 of 10
FILE CNP-4-4774

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCS		POROSITY %	POROSITY FEET	DENSITY BULK	DENSITY GRAIN	VISUAL EXAMINATION
	DEPTH	THICK	KMAX	KDOP					
Core No. 14 (cont'd)									
-	13706.3-	13712.8	6.5	-	-	-	-	-	Dense
25	13712.8-	13714.8	2.0	1.80	0.42	-0.1	3.60	2.79	Dense, F.
-	13714.8-	13722.0	7.2	-	-	-	-	2.79	Dense
-	13722.0-	13723.0	1.0	-	-	-	-	-	Lost core
CORE NO. 15 13723' - 13765' (Rec. 37.0') (10 boxes)									
-	13723.0-	13736.2	15.2	-	-	-	-	-	Dense
26	13736.2-	13740.0	1.8	12.30	4.91	-0.1	22.14	2.81	Dense Sty. F.
27	13740.0-	13741.8	1.8	7.71	7.29	0.33	13.88	2.81	Dense Sty. F.
28	13741.8-	13743.4	1.6	1.11	0.93	0.13	1.78	2.82	Dense F.
29	13743.4-	13745.2	1.8	19.70	11.20	0.60	35.46	2.81	I. Sty. F.
30	13745.2-	13747.1	1.9	4.66	1.42	0.23	8.85	2.81	Scattered PPV. F.
31	13747.1-	13748.9	1.8	*	-0.1	*	-	2.75	Few SV. F.
32	13748.9-	13750.7	1.8	64.00	29.80	2.18	115.20	2.78	SV. F.
33	13750.7-	13752.4	1.7	5.33	1.78	0.08	9.06	2.79	Scattered PPV. F.
34	13752.4-	13754.0	1.6	3.91	1.10	0.13	6.26	2.81	Dense F.
35	13754.0-	13755.7	1.7	4.11	0.96	-0.1	6.99	2.79	SV. F.
36	13755.7-	13756.0	2.3	*	7.37	*	16.95	2.79	Few SV. VF.
37	13756.0-	13760.0	5.0	*	9.34	*	18.68	2.83	Few SV. VF.
-	13760.0-	13765.0	5.0	-	-	-	-	-	Lost core
-	13765.0-	13927.0	162.0	-	-	-	-	-	Drilled
CORE NO. 16 13,927' - 13,963' (Rec. 36.0') (10 boxes)									
38	13927.0-	13928.1	1.1	15.00	14.60	5.29	16.50	2.76	SV. F.
39	13928.1-	13928.9	0.8	215.00	96.40	84.00	172.00	2.78	Few SV. VF.
40	13928.9-	13930.3	1.4	16.30	15.80	0.83	22.82	2.80	Few SV. F.
41	13930.3-	13931.3	1.0	4.48	1.47	1.32	4.48	2.79	Dense F.
42	13931.3-	13932.2	0.9	27.60	7.92	0.61	24.84	2.77	Few SV. F.
43	13932.2-	13933.4	1.2	4.81	3.62	0.55	5.77	2.79	Dense F.

CORE LABORATORIES - CANADA, LTD.
CALGARY, ALBERTA

COMPANY ANOCO CANADA PETROLEUM COMPANY LTD.
WELL PAN AM BEAVER YT G-01

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FILE CNP-4-4774

SAMPLE NUMBER	'INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCS			KV	POROSITY %	POROSITY FEET	DENSITY		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	K00P	KV				BULK	GRAIN	
44	13933.4-	13934.7	2.66	2.23	0.73	3.46	0.7	0.91	2.80	2.82	Few SV. F.
45	13934.7-	13936.0	8.31	7.17	0.72	10.80	1.6	2.08	2.78	2.83	Few SV. F.
46	13936.0-	13937.0	169.00	154.00	1.54	169.00	0.7	0.70	2.81	2.83	Dense F.
47	13937.0-	13938.2	5.10	5.10	0.52	6.12	0.9	1.08	2.80	2.82	Scattered SV. F.
48	13938.2-	13939.5	71.20	51.90	1.50	92.56	1.1	1.43	2.79	2.82	Few SV. F.
49	13939.5-	13941.0	67.90	33.90	2.91	101.85	0.7	1.05	2.78	2.80	Dense F.
50	13941.0-	13942.2	6.16	2.16	0.32	7.39	1.6	1.92	2.77	2.82	Few SV. F.
51	13942.2-	13943.5	6.03	2.59	0.74	7.84	0.6	0.78	2.78	2.80	Scattered SV. F.
52	13943.5-	13944.4	70.70	28.10	0.50	63.63	0.7	0.63	2.80	2.82	SV. F.
53	13944.4-	13945.0	-	-	-	-	-	-	-	-	Dense
54	13945.0-	13946.0	13.20	8.02	0.36	13.20	0.1	0.10	2.80	2.80	Dense F.
55	13946.0-	13947.2	4.41	2.65	0.97	5.29	1.0	1.20	2.80	2.83	Scattered SV. F.
56	13947.2-	13948.3	3.26	1.45	0.40	3.59	1.1	1.21	2.79	2.82	Scattered SV. F.
57	13948.3-	13949.3	36.10	8.51	0.71	38.10	1.1	1.10	2.80	2.83	SV. F.
58	13949.3-	13950.8	25.00	19.20	3.10	37.50	1.1	1.65	2.80	2.83	Scattered PPV. F.
59	13950.8-	13952.2	18.00	14.90	1.05	25.20	0.5	0.70	2.81	2.83	Dense F.
60	13952.2-	13953.8	10.80	2.24	0.30	17.28	1.3	2.08	2.79	2.82	SV. F.
61	13953.8-	13954.9	1.54	0.77	-0.1	1.69	0.7	0.77	2.80	2.82	Dense F.
62	13954.9-	13955.9	1.32	1.08	0.17	1.32	1.3	1.30	2.78	2.81	Few SV. F.
63	13955.9-	13956.5	-	-	-	-	-	-	-	-	Dense
S564	13956.5-	13957.4	16.60	3.65	0.86	14.94	1.6	1.44	2.78	2.82	I. F.
S565	13957.4-	13959.0	4.86	2.84	1.05	7.78	1.1	1.76	2.77	2.80	Few PPV. F.
S566	13959.0-	13960.2	5.81	-	-	6.96	2.8	3.36	-	-	I. F.
-	13960.2-	13961.6	7.60	-	-	10.63	2.6	3.64	-	-	I. F.
-	13961.6-	13963.0	9.67	-	-	13.53	3.4	4.76	-	-	I. F.
-	13963.0-	13964.0	-	-	-	-	-	-	-	-	Drilled

CORE LABORATORIES - CANADA, LTD.
CALGARY, ALBERTA

COMPANY AMOCO CANADA PETROLEUM COMPANY LTD.
WELL PAN AM BEAVER YT G-01

PAGE 7 of 10
FILE CNP-4-4774

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCS				PERMEABILITY FEET	POROSITY %	POROSITY FEET	DENSITY		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	KPP	KV	BULK				GRAIN		
CORE NO. 17 13964' - 13968' (Rec. 4.0') (1 box)												
67	13964.0-13965.2	1.2	312.00	25.80	60.30	374.40	3.7	4.44	2.71	2.81	SV, VF.	
68	13965.2-13966.8	1.6	56.70	4.48	34.60	90.72	1.8	2.88	2.76	2.81	Few SV, VF.	
SS69	13966.8-13968.0	1.2	107.00	-	-	128.39	2.6	3.12	-	-	I. F.	
CORE NO. 18 13968' - 13973' (Rec. 5.0') (2 boxes)												
SS70	13968.0-13970.0	2.0	1.75	-	-	3.49	2.6	5.20	-	-	I. F.	
71	13970.0-13971.4	1.4	5.80	1.91	1.39	8.12	3.4	4.76	2.70	2.80	SV, VF.	
72	13971.4-13973.0	1.6	5.42	2.15	1.34	8.67	2.3	3.68	2.75	2.81	Few SV, VF.	
-	13973.0-14175.0	202.0	-	-	-	-	-	-	-	-	Drilled	
CORE NO. 19 14175' - 14208' (Rec. 31.0) (9 boxes)												
73	14175.0-14176.5	1.5	16.80	8.93	6.44	25.20	1.4	2.10	2.79	2.83	I. few SV, F.	
74	14176.5-14178.1	1.6	3.33	3.19	3.01	5.33	1.7	2.72	2.79	2.84	I. F.	
75	14178.1-14179.8	1.7	8.48	4.47	1.61	14.42	1.8	3.06	2.79	2.84	I. Stylol. F.	
76	14179.8-14181.7	1.9	5.44	1.00	0.26	10.34	1.4	2.66	2.60	2.84	I. F.	
77	14181.7-14183.0	1.3	0.55	0.53	0.21	0.72	1.1	1.43	2.79	2.81	I. Stylol.	
78	14183.0-14184.0	1.0	0.95	0.41	0.17	0.95	1.2	1.20	2.79	2.82	I. Stylol.	
79	14184.0-14184.9	0.9	117.00	8.89	173.00	105.30	5.2	4.68	2.66	2.81	I. F.	
SS80	14184.9-14186.4	1.5	1.93	-	-	2.89	5.3	7.95	-	-	I. F.	
81	14186.4-14187.3	0.9	28.90	18.30	6.16	26.01	6.8	6.12	2.63	2.82	I. F.	
82	14187.3-14188.2	0.9	65.30	40.50	7.64	58.77	8.6	7.74	2.59	2.84	I. F.	
83	14188.2-14189.2	1.0	16.30	11.20	6.50	16.30	4.0	4.00	2.70	2.81	I. F.	
84	14189.2-14190.3	1.1	21.10	18.40	4.93	23.21	6.0	6.60	2.66	2.83	I. F.	
85	14190.3-14191.4	1.1	13.70	10.20	7.09	15.07	4.5	4.95	2.70	2.83	I. F.	
86	14191.4-14192.4	1.0	69.70	51.60	12.70	69.70	6.1	6.10	2.65	2.82	I. F.	
87	14192.4-14193.4	1.0	21.80	16.40	12.10	21.80	5.4	5.40	2.68	2.83	I. few PPV, F.	
88	14193.4-14194.4	1.0	19.20	9.94	4.20	19.20	5.0	5.00	2.68	2.82	I. F.	
89	14194.4-14195.3	0.9	9.63	6.16	0.49	8.67	4.5	4.05	2.69	2.82	I. few PPV, F.	
90	14195.3-14196.4	1.1	40.60	21.40	0.47	44.66	5.1	5.61	2.67	2.82	I. F.	
91	14196.4-14197.2	0.8	19.90	16.10	16.70	15.92	5.0	4.00	2.67	2.81	I. F.	

CORE LABORATORIES - CANADA, LTD.
CALGARY, ALBERTA

COMPANY AMOCO CANADA PETROLEUM COMPANY LTD.
WELL PAN AM BEAVER YT 5-01

PAGE 8 of 10
FILE CNP-4-4774

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCS			POROSITY %	POROSITY FEET	DENSITY		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	KROP	KV			BULK	GRAIN	
92	14197.2-	14198.0	19.90	13.80	16.20	5.2	4.16	2.67	2.82	1. few PPV. F.
93	14198.0-	14199.0	38.30	32.80	10.00	3.6	3.60	2.72	2.82	1. few PPV. F.
94	14199.0-	14200.6	2.00	1.58	0.25	1.0	1.60	2.79	2.82	Dense Sty. F.
95	14200.6-	14201.7	7.57	6.82	0.43	0.8	0.88	2.82	2.84	Dense F.
96	14201.7-	14203.1	19.10	16.80	0.16	0.7	0.98	2.82	2.84	Dense F.
97	14203.1-	14204.4	1.43	1.36	0.23	0.3	0.39	2.82	2.83	Dense F.
98	14204.4-	14206.0	10.50	4.22	0.74	1.5	2.40	2.79	2.83	Few SV. F.
-	14206.0-	14208.0	-	-	-	-	-	-	-	Lost core
-	14208.0-	14410.0	-	-	-	-	-	-	-	Drilled
CORE NO. 20 14410' - 14432' (Rec. 21.0') (6 boxes)										
99	14410.0-	14411.0	24.80	10.60	0.55	3.3	3.30	2.74	2.84	PPV. few SV. F.
SS100	14411.0-	14412.5	1.00	-	-	1.7	2.55	-	-	1. rubble
SS101	14412.5-	14413.6	0.47	-	-	6.8	7.48	-	-	1. SV. rubble
102	14413.6-	14414.5	18.80	4.35	0.80	5.3	4.77	2.68	2.83	PPV. few SV.
103	14414.5-	14415.5	34.20	33.00	0.09	2.2	2.20	2.77	2.83	SV.
104	14415.5-	14416.2	12.00	4.58	0.17	2.2	1.54	2.74	2.81	1.
105	14416.2-	14417.5	10.70	2.72	0.08	1.4	1.54	2.78	2.82	Few SV.
106	14417.5-	14418.2	1209.00	274.00	9.59	3.8	3.42	2.67	2.77	SV. few LV.
107	14418.2-	14419.2	28.90	28.60	0.12	1.6	1.60	2.75	2.80	Few SV. F.
108	14419.2-	14420.2	17.00	10.60	0.29	1.5	1.50	2.74	2.78	Few SV.
SS109	14420.2-	14421.1	0.18	-	-	1.4	1.26	-	-	1. F.
SS110	14421.1-	14422.2	0.18	-	-	1.5	1.65	-	-	1. F.
111	14422.2-	14423.1	1.66	1.14	0.08	1.7	1.53	2.79	2.84	Few SV.
112	14423.1-	14423.8	37.40	14.60	5.70	1.3	0.91	2.80	2.83	Few SV. F.
113	14423.8-	14424.9	193.00	137.00	0.84	0.5	0.55	2.80	2.81	Few PPV. F.
114	14424.9-	14425.9	10.50	4.21	0.06	1.3	1.30	2.76	2.80	Few SV. F.
115	14425.9-	14427.0	2.29	0.96	0.10	2.3	2.53	2.74	2.80	Few SV. F.
116	14427.0-	14427.7	50.20	24.10	0.09	4.2	2.94	2.67	2.79	Few SV. LV.

CORE LABORATORIES - CANADA, LTD.
CALGARY, ALBERTA

PAGE 9 of 10
FILE CNP-4-4774

COMPANY AMOCO CANADA PETROLEUM COMPANY LTD.
WELL PAN AM BEAVER YT G-01

SAMPLE NUMBER	INTERVAL REPRESENTED FEET		PERMEABILITY TO AIR MILLIDARCOYS		PERMEABILITY FEET	POROSITY %	POROSITY FEET	DENSITY		VISUAL EXAMINATION
	DEPTH	THICK	KMAX	KDOP				KV	BULK		GRAIN
117	14427.7-14428.7	1.0	79.40	63.20	0.01	2.9	2.90	2.72	2.80	Few SV.
SS118	14428.7-14429.9	1.2	0.06	-	0.06	1.3	1.56	-	-	i. f.
SS119	14429.9-14431.0	1.1	0.18	-	0.19	1.8	1.98	-	-	i. f.
-	14431.0-14432.0	1.0	-	-	-	-	-	-	-	Lost core

Core No. 20 (cont'd)

CORE LABORATORIES - CANADA, LTD.
Petroleum Reservoir Engineering

WELL: PAN AM BEAVER YT G-01
FORMATION: DEVONIAN
SUMMARY INTERVAL: 13663.0 - 14432.0
TOTAL FOOTAGE: 769.0
FOOTAGE ANALYZED: 156.9

PAGE: 10 of 10
FILE: CNP-4-4774

FOOTAGE NOT ANALYZED: TOTAL: 612.1 DENSE 36.1 LOST 9.0 DRILLED 567.0 *NABR .0 RUBBLE .0

FOOTAGE	% OF ANALYZED CORE	WEIGHTED AVERAGE POROS %	POROSITY FEET	WEIGHTED AVERAGE PERM MD	PERM FEET	WEIGHTED AVERAGE RESID OIL %	WEIGHTED AVERAGE TOT WATER %
156.9	100.00	1.84	288.78	25.99	4077.65	.00	.00
3.0	1.91	1.60	4.80	.02	.07	.00	.00
5.8	3.70	2.22	12.85	.29	1.70	.00	.00
11.9	7.58	1.03	12.29	.69	8.21	.00	.00
79.9	50.93	1.51	120.43	4.27	341.50	.00	.00
56.3	35.88	2.46	138.41	66.16	3726.17	.00	.00

*NOT ANALYZED BY REQUEST

SUMMARY OF ANALYZED CORE:

TOTAL

BY PERM RANGES:

LESS THAN 0.10 Md.

0.10 0.49 Md.

0.50 0.99 Md.

1.00 9.99 Md.

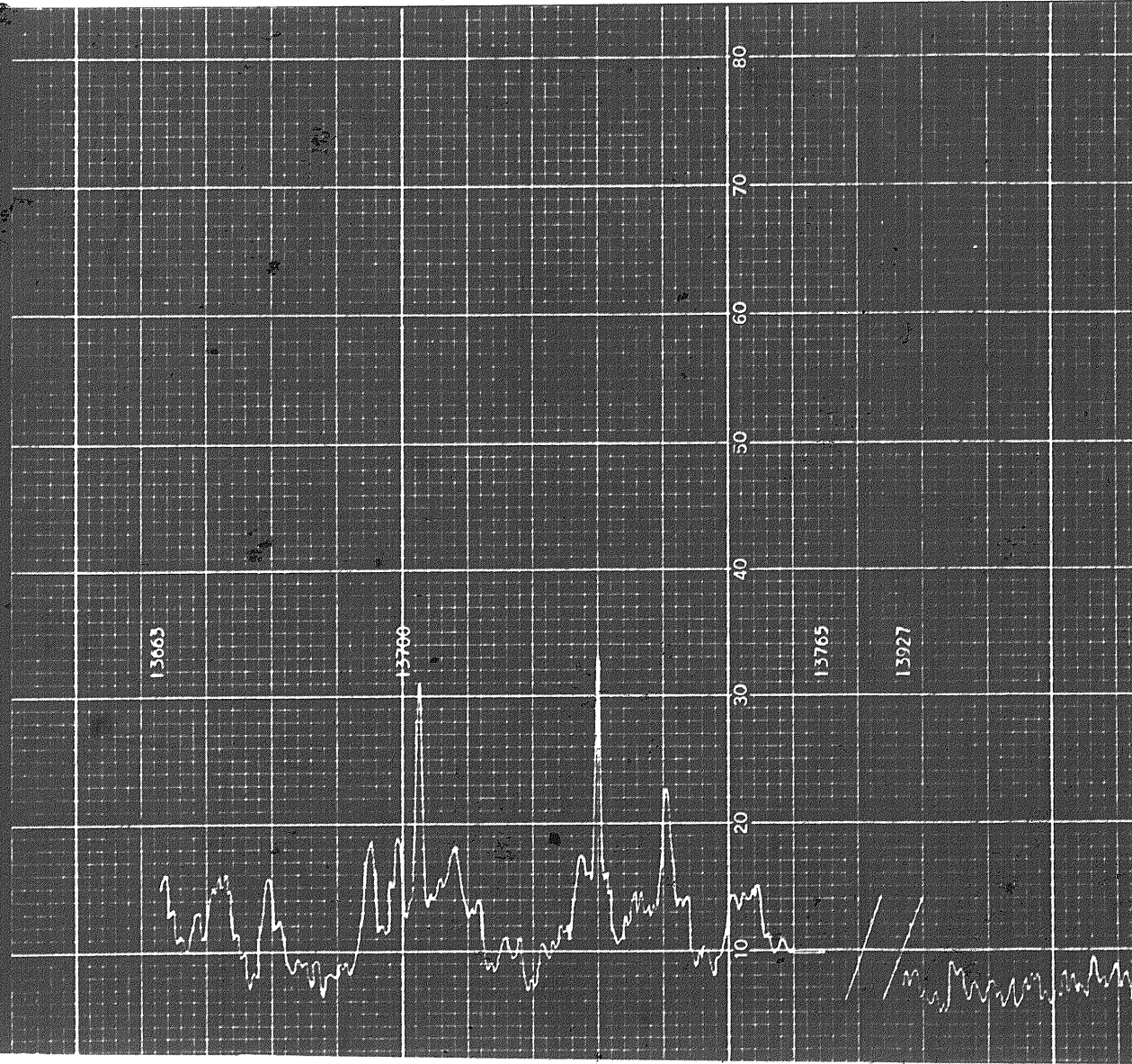
GREATER THAN 9.99 Md.

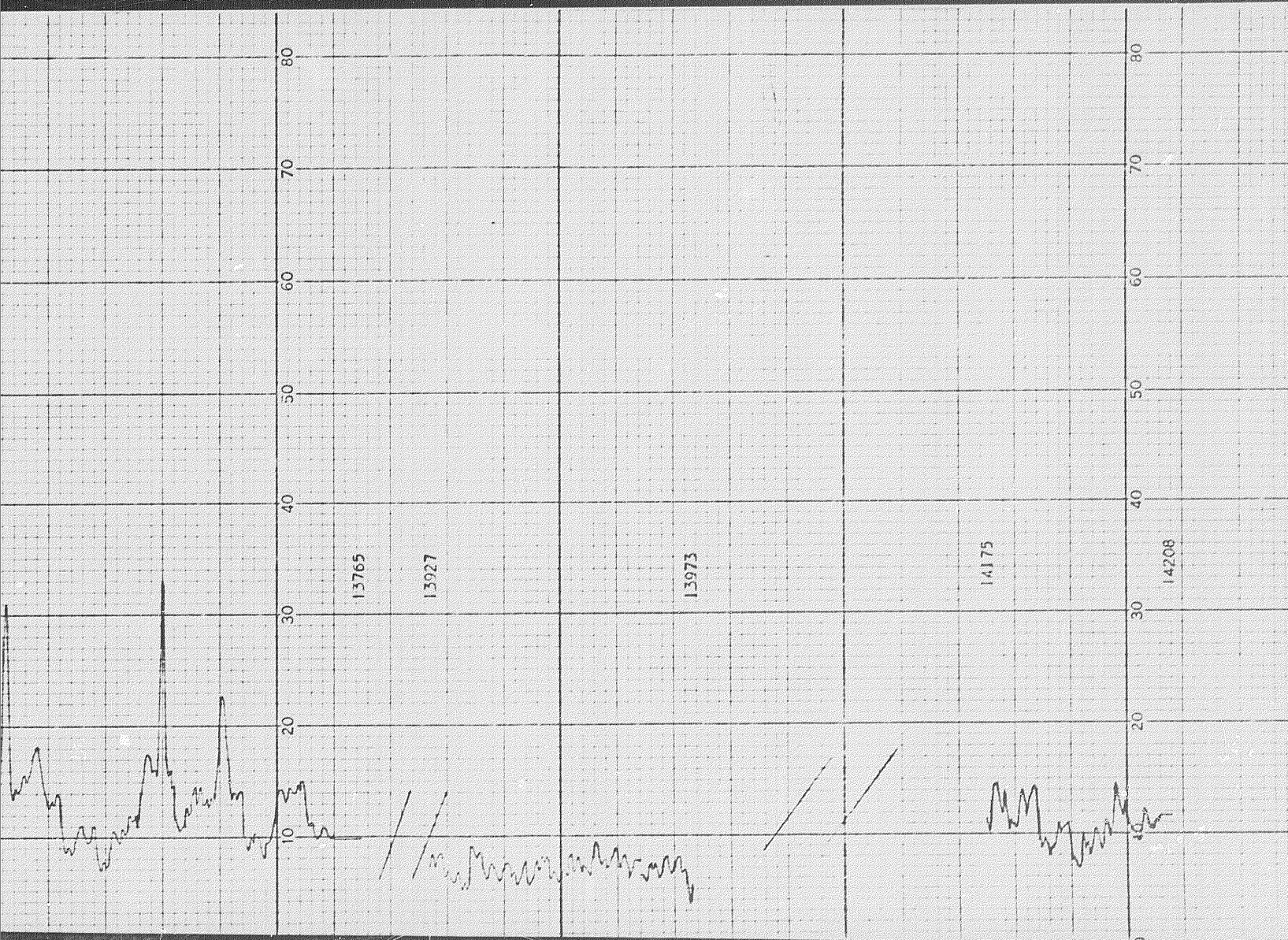
WELL PAN AM BEAVER YI G-01 DATE _____
 LOCATION _____ PROV. YUKON TERRITORIES ELEV. _____

CORE-GAMMA CORRELATION

These gamma-ray measurements are based on absorption and scatter of gamma-rays by the nuclei of atoms and are recorded on a scale of counts per inch. The gamma-ray spectrum is obtained by means of a scintillation counter and a photomultiplier tube. The gamma-ray spectrum is obtained by means of a scintillation counter and a photomultiplier tube. The gamma-ray spectrum is obtained by means of a scintillation counter and a photomultiplier tube.

T.C. 11 SECS VERTICAL SCALE: 5" = 100' SENS. 5000 CPM.







CORE LABORATORIES - CANADA LTD.

Petroleum Reservoir Engineering

COMPANY AMOCO CANADA PETROLEUM COMPANY LTD. FIELD WILDCAT - BEAVER RIVER AREA FILE CNP-1-9655

WELL PAN AM BEAVER YT G-01 DATE JULY 8/69

LOCATION 60°00' 25.00"N; 124°15'48.00"W PROV YUKON TERRITORY ELEV.

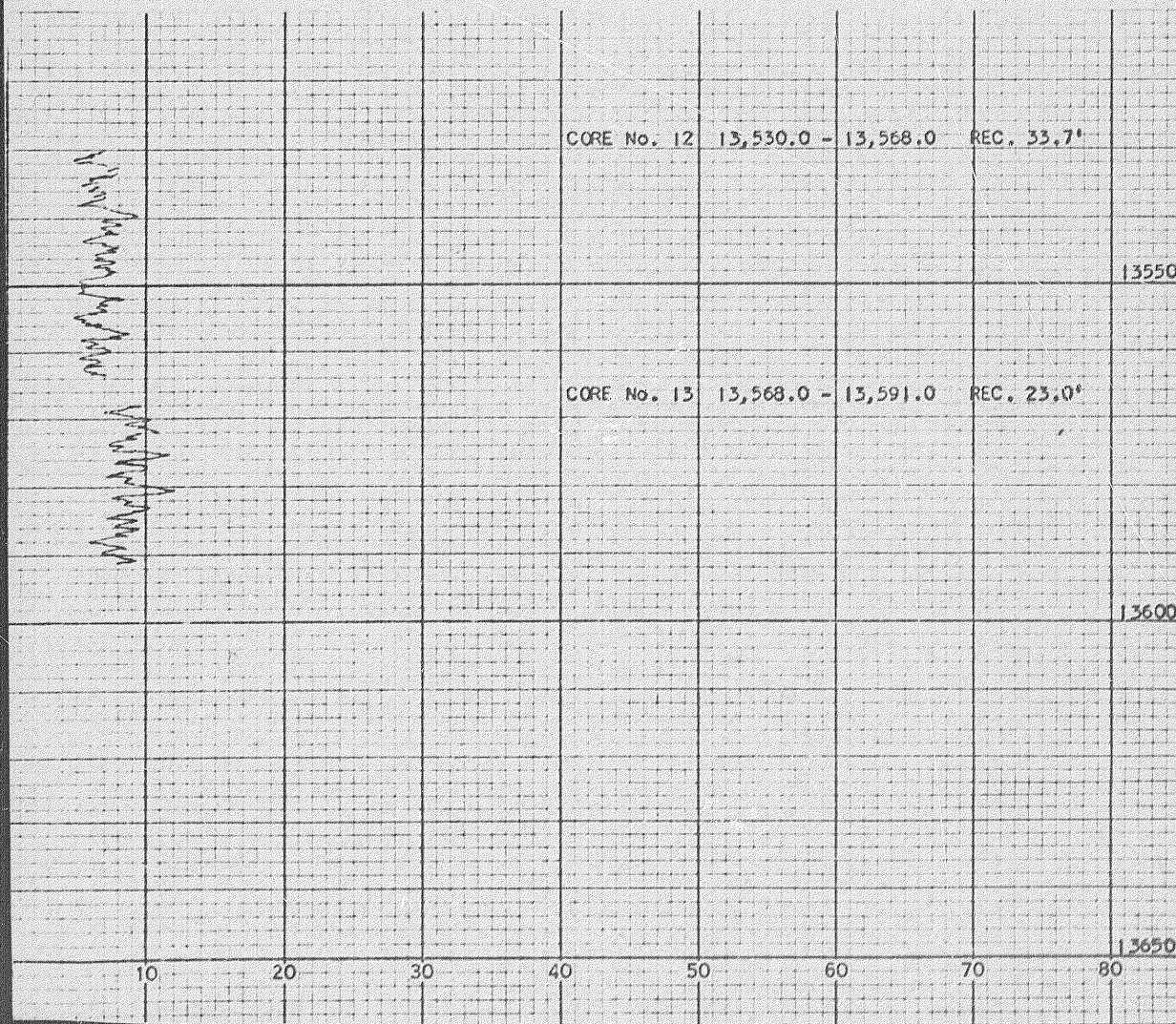
CORE-GAMMA CORRELATION

These analysis, reports or interpretations are based on observations and materials supplied by the client to whom and for whose exclusive and confidential use this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories (Canada) Ltd. (all errors and omissions excepted); and Core Laboratories (Canada) Ltd. and its officers and employees assume no responsibility and make no warranty or representation as to the performance, proper operation, or production of any well, gas or other mineral well or used in connection with this report or used or relied upon.

TC 11 SECS

VERTICAL SCALE: 5" = 100'

SENS 5000 CPM



GAS ANALYSIS REPORT: Lab. No. E69-9531 Received: Mar. 18, 1969 Reported: March 21, 1969

Well: Pan-Am Beaver River YT (7-01) Operator: Pan-American Petroleum Corporation

Field or Area: _____ Location: _____ Elev.: K.B. _____ Grd. _____

Zone and Formation: _____ Sample Interval: _____

Well production at sampling time: Oil _____ bpd; Gas _____ MCFD; Water _____ bpd.

Sampled from: _____ Sampled by: _____ Date: _____

Pressure: (a) at point of sampling _____ psig (b) Gas Bomb pressure _____ psig

Temperature: (a) at point of sampling _____ °F (b) Separator _____ °F

Pressures: Reservoir _____ Tubing _____ Casing _____ Separator _____

OTHER PERTINENT DATA _____ Container: GL-215

(Signed)

COMPOSITION	% by Volume	G.P.M. in Imp. Gal. @ 60°F. & 14.65 PSIA	G.P.M. (Calculated)	SPECIFIC GRAVITY
Helium	.02		pentanes + .000	Calculated .569
Hydrogen sulfide	.00		at 12 lbs. .000	by Weight .572
Carbon dioxide	1.03		at 15 lbs. .000	CRITICALS (Calculated)
Nitrogen	1.08		at 22 lbs. .000	Pc 675.1
Methane	97.54		at 26 lbs. .000	Tc 345.3
Ethane	.31		VAPOR PRESSURE (Calc.) @ 100°F. Pentanes + .00	
Propane	.02	.005	H ₂ S Grains per 100 cu. ft. @ 60°F. & 14.65 p.s.i.a. 0	
Isobutane	.00	.000	GROSS B.T.U. (Calc.) @ 60°F. & 14.65 p.s.i.a. (dry) 988.0	
N-butane	.00	.000	Acid Gas Free 998.3 (sat.) 970.7	
Isopentane	.00	.000	DEW POINT (Calc.) p.s.i. 950 1050 1200	
N-pentane	.00	.000	FAH -56 -56 -56	
Hexanes	.00	.000	Mol. Wt. Total Gas 16.506	Hepanes + .000
Heptanes	.00	.000		
Octanes	.00	.000		
Nonanes	.00	.000		
Decanes +	.00	.000		
TOTAL	100.00	.005		

Edmonton

Fert. St. John

Calgary

Dist'd 9/5

GAS ANALYSIS REPORT: Lab. No. 669-5177 Received: Aug. 25, 1969 Reported: August 27, 1969

Well: Old Beaver River #3 YTG-01 Operator: AMOCO CANADA PETROLEUM COMPANY LTD.

Field or Area: _____ Location: _____ Elev.: K.B. _____ Grd. _____

Zone and Formation: _____ Sample Interval: _____

Well production at sampling time: Oil _____ bpd; Gas _____ MCFD; Water _____ bpd.

Sampled from: _____ Sampled by: _____ Date: _____

Pressure: (a) at point of sampling _____ psig (b) Gas Comb pressure _____ psig

Temperature: (a) at point of sampling _____ °F (b) Separator _____ °F

Pressure: Reservoir _____ Tubing _____ Casing _____ Separator _____

OTHER PERTINENT DATA: Sample Containers: HA 8, SS20

(Signed)

COMPOSITION	% by Volume	G.P.M. in Imp. Gal. @ 60°F. & 14.65 PSIA	G.P.M. (Calculated)	SPECIFIC GRAVITY
Helium	.01		pentanes + .000	Calculated .644
Hydrogen sulfide	.63		at 12 lbs. .000	by Weight .645
Carbon dioxide	7.35		at 15 lbs. .000	CRITICALS (Calculated)
Nitrogen	3.67		at 22 lbs. .000	Pc 699.6
Methane	88.25		at 26 lbs. .000	Tc 356.7
Ethane	.09		VAPOR PRESSURE (Calc.) @ 100°F. Pentanes + .00	
Propane	.00	.000	H ₂ S Grains per 100 cu. ft. @ 60°F. & 14.65 p.s.i.a. 395	
Isobutane	.00	.000	GROSS (Calc.) @ 60°F. & 14.65 p.s.i.a. (dry) 894.1	
N-butane	.00	.000	Net Gas Free 967.3 (sat.) 878.4	
Isopentane	.00	.000	DEW POINT (Calc.) p.s.i. 950 1050 1200	
N-pentane	.00	.000	FAH -56 -56 -59	
Hexanes	.00	.000	Mol. Wt. Total Gas 18.662 Heptanes + .000	
Heptanes	.00	.000	Sample received with a pressure of 225 psig. at 78°F.	
Octanes	.00	.000		
Nonanes	.00	.000		
Decanes +	.00	.000		
TOTAL	100.00	.000		

DIVISION LABORATORY REPORT

No. C-108/69

DATE August 7, 1969

TO Mr. J. Towers,
Halliburton Services Limited,
Fort Nelson, B. C.

This report is the property of Halliburton Oil Well Cementing Co. Ltd. and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Oil Well Cementing Co. Ltd.

WE GIVE BELOW RESULTS OF OUR EXAMINATION OF Surface water and cement blends

SUBMITTED BY Amoco Canada Petroleum Company Ltd.

MARKED Amoco Beaver River C-1

PURPOSE:

One sample of water and two cement blends were submitted for Thickening Time Tests. The cement blends were identified as:

- A. Inland Halliburton Oilwell Cement plus 20% Silica Flour and 1.25% HR-12.
- B. Inland Halliburton Oilwell Cement plus 20% Silica Flour, 4% Gel and 1.25% HR-12.

NOTE: Most of the mixing water leaked from the container in transit. Sample B also leaked from the container and could not be tested.

CONCLUSIONS:

A thickening time of 2 hours, 30 minutes was determined for a 15.7 pound per gallon slurry using the submitted water and cement blend A when evaluated for 14,000 casing cementing schedule with the bottom hole circulating temperature adjusted to 280°F (BHST is assumed to be 360°F).

PROCEDURE:

The cement slurry was prepared and evaluated in accordance with procedures outlined in API RP-10B. The static temperature of the test was adjusted from a standard 206°F to 280°F.

LABORATORY REPORT
AMOCO Canada
WELL
FIELD Beaver River
LSD
SEC
TWP
RGE
W

Page 2

C-108/69
August 7, 1969

DATA:

Cement slurry properties: Inland Halliburton Oilwell Cement plus 20% Silica Flour and 1.25% HR-12 mixed with 5.21 gallons of surface water per 80 pounds cement.

Slurry weight	15.7 pounds per gallon
Slurry volume	1.21 cubic feet.

Thickening Time: 3 hours, 30 minutes at 14,000 foot casing cementing conditions with a BHCT of 280°F.

Data of the above tests are recorded in Workbook No. 32, Page 61.

Laboratory Analyst:
Beecroft 4:00

Respectfully submitted,

W. H. Beecroft

WHB:eb

W. H. Beecroft,
Division Chemist

cc: F. M. Anderson
L. F. Maier
V. H. Timmins
Amoco Canada (Grande Prairie)

HALLIBURTON OIL WELL CEMENTING CO. LTD.

EDMONTON, ALBERTA, CANADA

DIVISION LABORATORY REPORT

No. C-120/69

DATE August 12, 1969

TO Mr. T.H. Timmins
Halliburton Services Limited
Fort St. John, B.C.

This report is the property of Halliburton Oil Well Cementing Co. Ltd. and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Oil Well Cementing Co. Ltd.

WE GIVE BELOW RESULTS OF OUR EXAMINATION OF Surface Water and Cement Blend

SUBMITTED BY Amoco Canada Petroleum Company Ltd.

MARKED Amoco Beaver River C-1

PURPOSE

One gallon of surface water and two pints of cement blend, identified as Inland Halliburton Oilwell Cement plus 1.75% HR-12, were submitted for a thickening time test.

CONCLUSIONS

A thickening time of 5 hours 25 minutes was recorded for a 15.6 pound per gallon slurry, prepared with the submitted samples, when evaluated at a 14,000 foot squeeze cementing schedule with the bottom hole circulating temperature adjusted to 320°F.

LABORATORY REPORT
COMPANY Amoco Canada Petroleum Company Ltd.
WELL
FIELD Beaver River
LSD
SEC
TWP
RGE
W

Amoco Canada Petroleum Company Ltd.

File

Page 2

C-120-69
August 12, 1969

PROCEDURE

A 15.6 pound per gallon slurry was prepared in accordance with procedures outlined in API RP-10B. API thickening time schedule No. 19 (14,000 foot squeeze and plug back cementing schedule) was modified to an estimated bottom hole circulating temperature of 320°F. (Bottom hole static temperature reported to be 350°F).

DATA

Thickening Time

Modified Schedule No. 19
5 hours 25 minutes

Data of the above tests are recorded in Workbook No. 32, Page 67.

Laboratory Analyst:
W.H. Beecroft 6:00

Respectfully submitted,

W. H. Beecroft

W.H. Beecroft,
Division Chemist

cc: F.M. Anderson
L.F. Maier
G.C. Shaw
Amoco of Canada
Ltd., Grand Prairie

WF Reports
Lab No. E69-9956-3 D. S. T. 2
5/1

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Received: April 16, 1969 Reported: April 21, 1969 Well Location: Pan Am. Beaver River
Operator: PAN AMERICAN PETROLEUM CORPORATION Field or Area: Beaver River - Yukon
Elev.: K.B. Grd. Zone/Formation: Sample Interval: ---
Method of Production: D.S.T. #2 Sampled from: Top of Tool Sampled by: --- Date: April 8, 1969

(Signed)

Na	K	Ca	Mg	SO ₄	Cl	CO ₂	HCO ₃
					622		
PSM 5720-0-0-8							

Total Solids Mg/L: By Evaporation Fe Specific Gravity @60°F Observed pH 9.2 @ 72 °F
After Ignition H₂S Refractive Index @25°C Resistivity 2.51 ohm meters @ 68 °F



Remarks and Conclusions: Colourless water filter mud. The water is mud filtrate water.
E69-9956-1: Top of cushion. RESISTIVITY: 23.99 Ohm-Meters @ 68°F. Colourless water with some sediment and fine suspended matter.
E69-9956-2: Sampled from 352' above tool. RESISTIVITY: 2.77 Ohm-Meters @ 68°F. Colourless water filtered from mud.

Pattern Unit Meq/L