

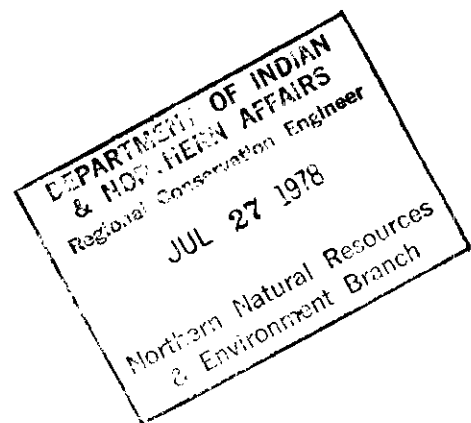
Drilling Authority: # 900
(Northwest Territories)

WELL HISTORY SUMMARY REPORT

PEX - - FINA N. COLVILLE L- 21

LOCATION: L-21 67 - 50 - 126 - 00

67° 40' 37" NORTH
126° 05' 37" WEST



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SECTION I - SUMMARY OF WELL DATA

WELL NAME: PEX - - Fina N. Colville L-21

PERMITTE: Petro-Fina

NAME OF OPERATOR: Petro-Canada Exploration Inc.
ADDRESS: 727 - 7 Ave. S. W. (Suite 650)

LOCATION: Unit L, Section 21, Grid 67-50, 126-00
Latitude 67° 40' 37" N
Longitude 126° 05' 37" W
Universal Well Location Reference: 67.67694° N,
126.09361°W
Unique Well Identifier 300L216750126000

CO-ORDINATES: 67° 40' 37" N, 126° 05' 37" W

PERMIT NO.: 6336

DRILLING CONTRACTOR: Tricity Drilling Ltd., Rig A2 TYPE: Rotary (Unit 34)

DRILLING AUTHORITY NO: 900 Issued: Approved YR. 78 MO. 01 DAY 06

CLASSIFICATION: Wildcat

ELEVATIONS: GL 1095.65, KB 1108.5 (measured by altimeter)
KB-GD: 12.85

SPUD DATE: YR: 1978 MO: January DAY: 27 TIME: 6:30 a.m.

COMPLETED DRILLING
DATE: YR: 1978 MO: March DAY: 24

TOTAL DEPTH: 3921

WELL STATUS: Plugged and abandoned

DATE RIG RELEASED: YR: 1978 MO: March DAY: 28

HOLE SIZES: 17 1/2 to 411', 12 1/4 to 1515', 8 1/2 to 3921'

CASING: Conductor Pipe 13 3/8 set at 410' KB
Intermediate Casing 9 5/8 landed at 1515' KB
Production Casing: Nil

SECTION II - GEOLOGICAL SUMMARY

2.

(a) Formation Tops

	<u>Sample Depth</u>	<u>Sample Elevation</u>	<u>Log Depth</u>	<u>Log Elevation</u>
Drift				
Devonian	--	--	--	--
Bear Rock				
Siluro-Ordovician				
Ronning Group	~ 270	+839	Behind casing	
Ronning "Cherty" Mbr	650	+459	648	+461
Ronning "Rhythmic" Mbr	1300	-191	1333	-224
Cambrian	--	--	--	--
Saline River	2735	-1626	2715	-1606
Saline R. Salt.	2926	-1817	2928	-1819
Mt. Cap	3635	-2526	3603	-2493
Old Fort Island	3735	-2626	3751	-2646
Proterozoic	3800	-2691	3803	-2694
TD	3921	-2812	3921	-2812

(b) Cored Intervals:

<u>Core No.</u>	<u>Interval</u>	<u>Formation</u>	<u>Recovery</u>
1	3685-3699	Mt. Cap	12'/Cut 14
2	3700-3730	Mt. Cap	30/30
3	3730-3760	Mt. Cap-	30/30
		Old Ford Island	

(c) Core Description

<u>Core No. 1</u>	3685-3699	Cut 14 - Rec 12
	3685-93 (8')	Shale, black micromicaceous, horizontal, laminae, platy, non calcareous, scattered brachs
	3693-95.5 (2.5')	INTERLAMINATED light green shale, and light green (trace brown) slightly calcareous, to dolomitic, slightly pyritic and silty to shaly, <u>very fine sand</u> , no porosity, laminations are contorted, bioturbated
	3695.5-97 (1.5')	Shale dark grey-black non calcereous, micromicaceous scattered brachs

Coring times: 36, 47, 47, 29, 30, 33, 42, 31, 16, 14, 17, 37, 37, 33 minutes

Core No. 2	3700-06	Shale, dark grey-black
3700-3730	(6')	
Cut 30,		
Rec 30	3706-09	Dolomite, dark brown, very fine crystalline, vuggy, horizontal fractures (filled)
	(3')	
	3709-12	Bioturbated very fine sand, light brown slightly dolomitic, shaly laminations
	(3')	
	3712-3717	Dolomite, dark brown-grey, very fine-medium crystalline, vuggy, Vugs to 2.5 cm diameter, Anhydrite filled vug in 4 cm thick band, trace undissolved salt in a vug, vertical fracture partly filled (with anhydrite), scattered oil stain and fluorescence on vertical fractures, trace bleeding gas
	(5')	
	3717-19	Bioturbated very fine sand, green, silty, glauconitic, trace-poor porosity, some scattered fluorescence
	(2')	
	3719-20	Dolomitic, very fine sand, tight
	(1')	
	3720-24	Bioturbated, very fine sand, glauconitic, and silty to shaly, minor scattered spotty fluorescence, trace to poor porosity
	(4')	
	3724-28	Dolomitic, glauconitic, very fine sand trace porosity trace fluorescence
	(4')	
	3728-30	Sand, glauconitic, silty to shaly, trace porosity and fluorescence, with .25 foot dolomitic glauconitic very fine sand at base
	(2')	

Coring times: 50, 47, 38, 50, 67, 62, 24, 28, 21, 15, 15, 17, 25, 17, 12, 10, 10, 7, 7, 6, 8, 7, 6, 7, 5, 5, 6, 6, 8, 5 minutes

<u>Core No. 3</u> 3730-3760 Cut 30, Rec 30	3730-3747 (17')	Interbedded glauconitic very fine sand, bioturbated, shaly, and thin dolomite beds. Local shale beds, trace fluorescence and porosity at 3735 in silty sand
	3747-50 (3')	Bioturbated fine grained sand, shaly, silty
	3750-56 (6')	Fine grained glauconitic sand, moderate to poor sorting; local, fair porosity; bioturbated in top part, bedded in lower part. Local fair to good fluorescence
	3756-60 (4')	Thin interbeds of green and maroon shale and cross laminated sand. Sand - fine to medium grained, silty to shaly

Coring times: 15, 22, 25, 21, 19, 16, 13, 16, 15, 15, 17, 12, 14, 27, 35,
37, 64, 33, 20, 16, 5, 3, 5, 13, 10, 7, 8, 11, 9, 7 minutes

2. SIDE WALL CORES:

3767	No recovery
3767	Rec 35 mm soft red material (red shale?)
3772	Rec 20 mm soft red material (red shale?)
3772	Rec 25 mm soft red material (mud cake?)
3781	Rec 20 mm soft red material (mud cake?)
3781	Rec 35 mm soft red material (shale?)
3788	No recovery
3788	No recovery
3794	Rec 50 mm soft red material (mud cake or shale)
3794	Rec 30 mm soft red material (mud cake or shale)
3801	Rec 35 mm soft red material (mud cake or shale)
3801	Rec 35 mm soft red material (mud cake or shale)

2130 - 2260	dolomite, white to buff, micro to very fine crystalline, dense, partly silty, trace shale
2260 - 2270	no sample
2270 - 2430	dolomite, white to buff, brown and grey, partly silty to shaly, dense, micro-very fine crystalline, trace stylolites
2430 - 2440	no sample
2440 - 2520	dolomite, as above
2520 - 2530	no sample
2530 - 2630	dolomite, as above
2630 - 2640	no sample
2640 - 2735	dolomite, as above, with increasing shale interbeds towards base, shale is green-grey, dolomitic, silty in part
2735 - 2900	interbedded anhydritic dolomite, grey, brown, buff (pinkish) and shale, green to red, dolomitic, partly silty, pyritic
2900 - 2910	no sample
2910 - 2926	dolomitic anhydrite and shale, as above
2926 - 2990	salt, no recovery; with some minor shale and anhydrite interbeds, shale is red and green, and anhydrite, dolomitic, pink and grey
2990 - 3030	salt, no recovery
3030 - 3050	salt, no recovery; with shale and anhydrite interbeds, as above
3050 - 3120	salt, no recovery (3090 and 3100 have trace porous dolomite in samples)
3120 - 3130	no sample
3130 - 3170	salt, no recovery
3170 - 3180	no sample
3180 - 3190	? limestone, white-light grey, anhydritic, slightly dolomitic, soft, or salt? (no recovery of salt)
3190 - 3210	no samples
3210 - 3220	limestone as above, to partly shaly and ? salt, (no recovery of salt)

(d) SAMPLE DESCRIPTION

0 ~ 60	sand, loose, fine-medium grained, quartzose, sub round, some feldspar grains
60 - 70	no sample
70 - 80	sand coarse-very coarse, quartz, quartzite, feldspar
80 - 100	sand as above, with minor buff dolomite, very fine to fine crystalline
100 - 110	dolomite, buff, very fine-fine crystalline, trace porosity
110 - 120	dolomite, as above, and quartz sand (caving)
120 - 150	gravel, of dolomite, quartz, granitic, etc.
150 - 160	dolomite, some sand and gravel (sloughing?)
160 - 170	dolomite, light brown to light grey, fine crystalline, partly vuggy, some granitic and quartzose pebbles
170 - 200	pebbles of dolomite, quartz, granite
200 - 240	dolomite, light grey-buff, some edges slightly rounded, trace porosity (some pebbly, some fresh chips)
240 - 250	as above, some quartz and feldspar sand
250 - 270	dolomite, buff, grey and pink, sub round chips gravel size, some foreign pebbles
270 - 350	dolomite, fresh, light brown, light grey, poor porosity, fine crystalline, trace quartz and chert pebbles
350 - 430	dolomite, buff to light to medium grey, fine crystalline, trace pinpoint porosity, no quartz pebbles, trace calcite fill fractures
435	total depth surface hole
435 - 585	dolomite, very fine crystalline, white, buff, light grey and light brown, tight, with scattered traces of porosity, and traces of pyrite
585 - 620	dolomite, white to buff, and grey, very fine to medium crystalline, dense to trace porosity
620 - 645	dolomite, as above, and traces green shale

645 - 750	interbedded white chert and very fine to medium crystalline dolomite, white to buff and grey, scattered traces porosity and trace pyrite
750 - 810	dolomite, buff, very fine-medium crystalline, dense trace pyrite, thin green shale interbed at 770'
810 - 940	dolomite, as above, some white and grey dolomite, with white chert interbeds
940 - 1040	dolomite, white, grey and buff, very fine to medium crystalline, dense, traces of chert
1040 - 1050	INTERBEDDED DOLOMITE (as above) and white chert
1050 - 1130	dolomite, mottled white, buff and grey, to medium crystalline, tight, some minor oil stain 1100 - 1110, probably on a fracture as no intercrystalline porosity was observed
1130 - 1320	dolomite, very fine to medium crystalline, tight (trace porosity at 1250), with some white chert interbeds
1320 - 1510	lost circulation at top of this interval and drilled blind. No samples to surface
1515 - 1650	dolomite, white, light grey and buff, very fine to medium crystalline, dense, trace chert near top, dolomite with only trace oil stain with no visible porosity, traces pyrite and green shale
1650 - 1660	no sample
1660 - 1840	dolomite, very fine to fine crystalline, buff, light grey, brown and white, dense, partly shaly, trace shale, trace stylolitic partings and pyrite Note: below 1650, sample quality is poor, due to bypassing shaker as a result of lost circulation
1840 - 1850	no sample
1850 - 1890	dolomite, very fine to fine crystalline, white to buff, dense
1890 - 1920	dolomite, white to coarse crystalline, dense, trace green (intercrystalline) shale
1920 - 1940	no sample
1940 - 2130	dolomite, very fine to fine crystalline, with minor medium crystalline; white to buff, shaly to silty in part, tight, with 1' drilling break with poor porosity at 2130

3220 - 3240	no samples, due to rapid drill rate through the salt section and sometimes bucket tips over in shaker box
3240 - 3260	limestone, anhydritic, partly shaly, interbedded? with salt (no recovery) , limestone is chalky to earthy, light brown grey
3260 - 3280	interbedded green shale, some grey green, and dolomitic anhydrite, buff to light grey, with a thin anhydritic dolomite interbed
3280 - 3290	no sample
3290 - 3330	dolomite, anhydritic to shaly, white to buff, microcrystalline, minor green shale interbeds
3330 - 3340	no sample
3340 - 3350	dolomite as above
3350 - 3390	interbedded shale green-grey, dolomitic, and anhydritic dolomite, microcrystalline, partly shaly, buff to brown and grey
3390 - 3450	dolomite buff to brown and grey, partly shaly, micro to very fine crystalline, dense, with interbeds of green and grey calcareous shale
3450 - 3490	dolomite, buff to dark brown, very fine-fine crystalline, trace to poor porosity, cherty (brown), minor brown-grey shaly dolomite
3490 - 3510	dolomite, very fine crystalline, brown, cherty, shaly, tight
3510 - 3635	dolomite, brown to grey, micro-very fine crystalline partly calcareous, grading to limestone, dolomitic near top, partly shaly, with minor shale interbeds 3580 - 3585 had trace brach imprint 3580, 3605, and 3615 glauconitic dolomite, and trace pyrite with associated glauconite 3610 and 3625 traces brown chert
3635 - 3670	shale, medium-dark grey, and brown, micromicaceous
3670 - 3685	dolomite, buff-brown, silty in part, very fine-fine crystalline with trace oil stain, no visible porosity, probably on a fracture, <u>with</u> minor shale interbeds, and very fine sand at base; sandstone, very fine grained, white to light brown silty, glauconitic, dolomitic, tight
3685 - 3699	Core #1, Please refer to core description.

3700 - 3730	Core #2, Please refer to separate description.
3730 - 3760	Core #3, See Detail
3760 - 3800	red (rusty), fine and some medium grained sand, partly iron oxide fill porosity, partly siliceous, to white; tight, with minor red shale in top 10 feet. Sand sub round, quartzose
3800 - 3910	shale, light-medium grey, hard, sandy to silty, with minor thin siliceous fine to medium clean sand interbeds, tight; increasing in bottom 40'
3921	T. D.

(e) PALEONTOLOGICAL DETERMINATIONS

None Available

SECTION III - ENGINEERING SUMMARY

(a) Report of Drill Stem Tests

DST #1, OLD FORT ISLAND, 3709' - 3921'

Times: 5, 60, 120, 180

Flow on P.F. FAB incr. to strong. No GTS

Flow on F.F. FAB on V.O., GTS in 60 min., TSTM, 1' flame holding
steady to end of test

Pressures: P.F.P.47 psi

IHP 2031 IFP 47 ISIP 765

FHP 2019 FFP 35 FSIP 1568

Recovered 67' gas cut mud

DST #2, MT. CAP, 3668' - 3683'

Times: 5, 60, 60, 120

Flow on P.F. Fair initial blow decreasing to weak air blow

On Valve Open: Weak air blow decreasing to nil in 60 minutes

Pressures: P.F.P.37

IHP 2035 IFP 37 ISIP 49

FHP 2022 FFP 37 FSIP 111

no plugging, DST OK

Rec. 15' drilling mud

(b) Casing Record

Surface Casing:

	SIZE	DATE	GRADE	WEIGHT	AMOUNT	# JOINTS	SET AT	SACKS CEMENT & ADDITIVES
CONDUCTOR PIPE	13 3/8	Feb 11/78	H-40	48 lb	413.23	13	410 KB	Arctic Quicks. 875 No Retns plus-cemented cellar with 200 sacks 3% CaCl ₂
INTERMEDIATE CASING	9 5/8	Mar 6/78	K-55	36 lb	1517.94	36	1515 KB	1st Stage 150 sack oilwell neat, bump plug to 500 psi. above pumping pressure. Float held okay. Plug down on first stage 3:30 a.m., Mar. 6/78 Second Stage: Ran 390 sacks of 8% GEL Plug down 2:15 a.m. Mar. 7/78, at 1137 KB No returns

Production Casing: Nil

(c) BIT RECORD

BIT #	SIZE	MAKE	TYPE	JET SIZE	IN OUT	FOOTAGE	HOURS	CONDITION
1A	12 1/4	Reed	Y316	2/16	0 - 130	130	15 3/4	4-3-I
2A	12 1/4	H. W.	JD7	1/16	130 - 288	158	22	2-2-I
3A	12 1/4	H. W.	JD7	2/22	288 - 409	121	32 1/2	3-1-I
4A (2ARR)	12 1/4	H. W.	JD7	2/22	409 - 435	26	13 1/4	3-1-I
5A	17 1/2	Smith	Reamer	--	washed out 100 - 262	162	--	--
6A	17 1/2	Smith	Reamer	2/20, 3/open	262 - 314	52	18 1/2	2-3-0
7A	17 1/2	Smith	Reamer	"	314 - 372	58	24 1/4	2-3-0
8A	17 1/2	Smith	Reamer	3/16, 2/20	372 - 411	39	16 3/4	2-2-0
1	8 1/2	H. W.	JD7	3/18	435 - 674	239	35 1/4	7-1-I
2	8 1/2	Reed	FP52J	3/18	674 - 1330	656	78 3/4	4-1-0
3	8 1/2	H. W.	JD7	Open	1330 - 1439	109	22 1/2	4-2-I
4	8 1/2	Reed	S31G	2/20, 1/18	1439 - 1513	74	8 1/4	3-1-I
5A	12 1/4	Reed	S21G	2/22, 1/15	435 - 536	101	16 3/4	5-1-I
6A	12 1/4	Reed	FP51	2/18, 1/22	536 - 960	424	32 1/4	2-3-I
7A	12 1/4	H. W.	J-22	3/22	960 - 1220	260	23 1/2	2-2-0
8A	12 1/4	--	H77SG	3/22	1220 - 1255	35	9	3-1-I
A	12 1/4	--	L4HS	3/20	1255 - 1262	7	6	2-7-I
10A	12 1/4	Reed	S216J	2/18, 1/22	1262 - 1280	18	7 1/4	7-5-0
11A	12 1/4	H. W.	J-33	1/18, 2/20	1280 - 1487	207	34	2-2-0
12A	12 1/4	H. W.	JD7	1/18, 2/20	1487 - 1515	28	15 3/4	2-2-I
13	8 1/2	H. W.	JD8	2/13, 1/14	1515 - 1656	141	18 3/4	4-1-I
14	8 1/2	Reed	FP52	1/20, 1/18, 1/15	1656 - 2366	710	72 3/4	5-1-0
15	8 1/2	Reed	FP52	3/15	2366 - 3518	1152	79 1/2	4-2-I
16	8 1/2	Smith	F4	3/15	3518 - 3685	167	25 1/4	1-1-I
1D	6 3/32	Chris. Diamond	Core	--	3685 - 3699	14	9 1/4	Good
2D	6 3/32	"	"	--	3700 - 3730	30	8 1/4	Good
3D	6 3/32	"	"	--	3730 - 3760	30	19	Good
17(16RR)	8 1/2	Smith	(RR)F4	3/15	Ream 3700-3760 3760 - 3921	329	42 1/2	2-1-I

(d) Mud Report (Type and Amount Used)

DATE	DEPTH	WEIGHT	V.I.S.	W.L.	F.C.	P.H.
Jan. 27	25	WATER				
28	128	8.7 lb	48 cc			
29	191	9.2	51			9.5
30	295	9.2	62			9.5
31	382	9.3	55			9.5
Feb. 1	429	9.5	57			9.5
2	435	9.4	--			--
4	435	9.3	58			9.0
5	435	9.4	57			7.0
6	435	9.5	70			10.0
7	435	9.5	84			10.0
8	435	9.4	84			10.0
9	435	9.4	80			10.0
10	435	9.4	80			10.0
11	435	9.4	80			10.0
12	435	--	--			---
13	435	--	--			---
14	--	--	--			---
15	488	--	34			---
16	645	8.8	34			11.0
17	815	9.0	34		2/32	10.0
18	974	9.1	36		2/32	9.5
19	1187	9.2	34		2/32	10.5
20	1330	Mixing lost circ. material				
21	1367	Water (Drilling blind)				
22	1461	Water	"	"		
23	1513	Water	"	"		
24	1513	Water				
25	Ream Depth 440	Water (Set 2 plugs above LC Zone before reaming)				
26	590	8.8	33		2/32	11.5
27	900	9.0	34		2/32	10.5
28	1024	9.2	35		2/32	10.5

Mud Report (continued)

DATE	DEPTH	WEIGHT	V.I.S.	W.L.	F.C.	P.H.
Mar. 1	1220	9.2	34		2/32	10.0
2	1262	9.3	34		2/32	10.0
3	1299	Water (Reaming through lost cir. zone)				
4	1428	Water				
5	1500	Water				
6	1515	Water				
7	1515	--				
8	1515	--				
9	1585	Water in 8 1/2" new hole				
10	1716	8.3	42			
11	1956	9.0	34	18.0	2/32	11.0
12	2177	9.1	38	21.4	2/32	10.5
13	2366	9.2	43	23	2/32	10.5
14	2565	9.7	38	20.6	2/32	10.5
15	2800	8.4	31	NC	2/32	11.5
16	3098	9.6	37	10	4/32	11.0
17	3434	10.5	50	90	4/32	11.7
18	3552	10.7	107	10-15	3/32	10.7
19	3685	10.5	150	3.4	2/32	10.7
20	3699	10.5	75	4	2/32	11.2
21	3712	10.5	47	7.1	2/32	11.7
22	3745	9.9	67	15.6	2/32	10.5
23	3760	10.2	58	15.8	2/32	10.5
24	3880	10.3	65	10.1	2/32	11.0
25	3921	10.2	50	10.1	2/32	10.3
26	3921	10.2	50	10.1	2/32	10.3

(e) Deviation Record

DEGREES	DEPTH	DEGREES	DEPTH	DEGREES	DEPTH
3/4	100	3/4	1071	1	1237
3/4	146	3/4	1104	2	1268
3/4	219	1/2	1136	1 5/8	1299
7/8	248	1/2	1167	1	1360
1/4	276	1	1198	1 1/2	1394
3/4	332	3/4	1230	1	1425
3/4	389	1	1262	2	1456
1 3/4	400	3/4	1293	2	1488
In reamed hole		1 1/4	1325	1/4	1515
1	198	1 1/4	1337	Surveys in 8 1/2"	
7/8	283	3/4	1369	new hole	
7/8	306	7/8	1400	1/2	1539
3/4	339	1 1/8	1432	1	1570
1 1/4	368	3/4	1463	1	1601
1 1/8	411	3/4	1495	7/8	1633
3/4	460	7/8	1509	1 1/2	1705
3/4	487	surveys in 12 1/4"		1	1736
3/4	516	reamed hole		1 1/4	1799
1	543	3/4	455	1	1862
1 1/8	598	7/8	483	1 1/2	1925
7/8	629	1	512	1 1/2	1987
1/4	661	1	536	1 1/2	2048
1 1/4	724	1 1/4	564	1 1/2	2143
1	755	1/4	596	1 1/2	2238
3/4	787	1/2	627	2	2332
1	815	1	658	1 1/4	2396
1	850	1 1/2	721	1 1/4	2489
3/4	881	3/4	784	1 1/2	2582
3/4	913	3/4	816	1	2676
1	943	1	911	1 1/4	2770
3/4	976	3/4	965	1 1/2	2897
1	1008	1/2	1062	1 1/2	3305
3/4	1039	7/8	1156	1 1/2	3651
				1 1/2	3921

(f) Abandonment Plugs

Plug #1 3921 - 3600 with 250 sacks oilwell neat cement P.D. 10:14 p.m. Mar. 27/78
 Plug #2 2930 - 2650 with 200 sacks oilwell neat cement P.D. 11:30 p.m. Mar. 27/78
 Plug #3 1600 - 1400 with 300 sacks Arctic Set cement 12:45 a.m. Mar. 28/78
 Plug #4 surface - 200 with 200 sacks Arctic Set cement 9:30 a.m. Mar. 29/78

(g) Lost Circulation Zones

	FORMATION	ZONE	DEPTH INTERVALS	AMOUNT MATERIAL LOST
Feb. 20-22	Ronning	Cherty-Rhythmic	1325-1400	est. 400 bbl mud 5950 bbl water
Mar. 3 - 6	Ronning	while reaming above to 12 1/4"		est. 200 bbl mud lost est. 12,000 bbl water
10	Ronning	Rhythmic	1655	450 bbl drlg. fluid
12	Ronning	Rhythmic	2080	50 bbl mud

(h) Report of Blowouts

Nil

SECTION IV - LOGS

DATE	RUN	INTERVAL	TYPE LOG RUN
Feb. 23	1	410 - 1515	Dual Induction/SFL 2" & 5" scales
23	1	410 - 1515	BHC Sonic Log, GR-CAL 2" & 5" scales
23	1	410 - 1515	CNL-FDC-GR-CAL 5" scales
	2	1515 - 3920	Dual Laterolog 2" & 5" scale
	2	1510 - 3920	BHC Sonic Log, GR-CAL 2" & 5" scale
	2	1510 - 3920	CNL-FDC-GR-CAL 5" scale
	2	1510 - 3920	4 arm dipmeter 5" scale

Velocity Geophone depths: 100, 200, 300, 400, 500, 650,
1000, 1535, 1955, 2400, 2715, 2928, 3368, 3600, 3743,
3803, 3921

See sidewall cores (see CORE SECTION)

SECTION V - ANALYSIS

- (a) Core
 - (b) Water
 - (c) Gas
 - (d) Oil - Nil
- See following pages

SECTION V - ANALYSIS

(a) Core:

NO.	DEPTH FEET	FT REP	PERM. MILLIDARCYS			PERM FT.	POR. %	POR. FT.	DENSITY		VISUAL EXAMINATION
			Kmax	K90°	Kv				BULK	GRAIN	
1	3712.4-12.9	0.5	3.16	1.91	40.01	1.58	5.4	2.70	2.81	2.96	SV, PPV, A, F
2	3714.5-15.3	0.8	0.53	0.08	40.01	0.42	2.3	1.84	2.81	2.87	SV, PPV, F
3	3717.5-18.2	0.7	0.04	0.04	40.01	0.03	7.9	5.53	2.48	2.70	FS SILTY
4	3726.3-26.7	0.4	0.31	0.28	40.01	0.12	11.1	4.44	2.35	2.65	FS SHY
5	3744.9-45.7	0.8	0.19	0.16	40.01	0.15	2.8	2.24	2.65	2.73	FS
6	3752.0-52.8	0.8	3.17	3.09	40.01	2.54	9.9	7.92	2.37	2.63	FS CARB
7	3755.6-56.0	0.4	0.99	0.87	0.05	0.40	7.3	2.92	2.56	2.76	FS
8	3758.9-59.3	0.4	2.24	2.07	40.01	0.90	3.4	1.36	2.58	2.67	FS F



CHEMICAL & GEOLOGICAL LABORATORIES LTD.
EDMONTON FORT ST. JOHN CALGARY

19.

CONTAINER IDENTITY
6101

— GAS ANALYSIS —

LABORATORY NUMBER
C78-1275

OPERATOR NAME AND ADDRESS
PETROCANADA EXPLORATION INC 650 - Guinness House 727 - 7th Ave. S.W. Calgary T2P 0Z

SAMPLE LOCATION
L-21

WELL OR SAMPLE LOCATION NAME
Pex Fina N. Colville L-21

FIELD OR AREA
North Colville

POOL OR ZONE
Oil Fort Island

NAME OF SAMPLER
Lynes United Services Ltd.

TEST TYPE & NO.
DST 1

TEST RECOVERY
65' Gas Cut Mud

TEST INTERVAL OR PERFS
3709' - 3921'

POINT OF SAMPLE
Flare Line

AMT & TYPE OF CUSHION
MUD RESISTANCE

TYPE OF PRODUCTION
PUMPING FLOWING GAS LIFT SWAB

PRODUCTION RATES
WATER BBL/D OIL BBL/D GAS MCF/D

PRESSURES - PSIG

TEMPERATURES (°F)

CONTAINER WHEN SAMPLED WHEN RECEIVED
SEPARATOR TREATER RESERVOIR 5

DATE SAMPLED (D/M/Y) DATE RECEIVED (D/M/Y) DATE ANALYSED (D/M/Y)
25/3/78 31/3/78 6/4/78

ANALYST
B. Anderson

COMP	MOL % AIR FREE AS RECD	MOL % AIR FREE ACID GAS FREE	CON GP1 @ 60°F & 14.65 PSIA AIR FREE AS RECD
H ₂	1.04	1.04	
He	0.03	0.03	
N ₂	24.21	24.22	
CO ₂	0.05	0.00	
H ₂ S	0.00	0.00	
C ₁	68.62	68.66	
C ₂	4.15	4.15	
C ₃	1.33	1.33	0.303
IC ₄	0.14	0.14	0.038
NC ₄	0.27	0.27	0.070
IC ₅	0.06	0.06	0.018
NC ₅	0.07	0.07	0.021
C ₆	0.02	0.02	0.007
C ₇	0.01	0.01	0.004
C ₈	TRCE	TRCE	0.001
C ₉	TRCE	TRCE	0.001
C ₁₀	0.00	0.00	0.000
TOTAL	100.00	100.00	0.463

GROSS HEATING VALUE BTU/FT³
@ 60°F AND 14.65 PSIA

MOISTURE AND ACID GAS FREE

MEASURED	CALCULATED	DETERMINED DEW POINT	VAPOUR PRESS. RESTRICTION
	821.		15.4

SPECIFIC GRAVITY

MOISTURE FREE AS SAMPLED	MOISTURE AND ACID GAS FREE
MEASURED	MEASURED
CALCULATED	CALCULATED
0.686	0.690
	0.690

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED	ACID GAS FREE
pPc	pPc
dTc	dTc
624.2 psia	624.0 psia
328.0 °R	327.0 °R

H₂S Grains per 100 cu. ft. @ 60 F. & 14.65 p.s.i.a. 0.0

MOL. WT. Total Gas 20.0 C₇+ 96.0

GROSS HEATING VALUE (METRIC CALC.)

30.74 MJ/M³ @ 15 CEL & 101.325 kPa (abs)

Sample corrected for 5.43% Air Contamination.



CONTAINER IDENTIFY

-- WATER ANALYSIS --

LABORATORY NUMBER

C78-1307

OPERATOR NAME AND ADDRESS

PETROCANADA EXPLORATION INC. 650 Guinness House 727 - 7th Ave. S.W. Calgary

SAMPLE LOCATION

WELL OR SAMPLE LOCATION NAME

ELEVATIONS GR

L-21

Pex Fina N. Colville L-21

1013.2 1000

FIELD OR AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

North Colville

Old Fork Island

Lynes United Services Ltd.

TEST TYPE & NO.

TEST RECOVERY

DST 1

65' Gas Cut Mud

TEST INTERVAL OR PERFS

POINT OF SAMPLE

AMT & TYPE OF CUSHION

MUD RESISTIVITY

Top Of Tool

@

3709' - 3921'

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER

BBLS/D OIL

BBLS/D GAS

MCF/D

PRESSURES - PSIG

TEMPERATURES (°F)

SEPARATOR TREATER

RESERVOIR

CONTAINER

WHEN

WHEN

SEPARATOR TREATER

CONTAINER

WHEN

WHEN

DATE SAMPLED (D/M/Y) DATE RECEIVED (D/M/Y) DATE ANALYZED (D/M/Y)

ANALYST

REMARKS

25/3/78

30/3/78

6/4/78

D. Barber

TOTAL SOLIDS Mg/L

ION	MG/L	MG%	MEQ/L	ION	MG/L	MG%	MEQ/L
Na	115730	38.84	5034.26	Cl	176900	59.34	4985.76
K				Br			
Ca	721	0.24	35.98				
Mg	97	0.03	7.97	HCO ₃	793	0.27	13.01
Ba				SO ₄	3819	1.28	79.44
Sr				CO ₃	0	0.00	0.00
Fe	TRACE			OH	0	0.00	0.00

BY EVAPORATION	BY EVAPORATION
372100 @ 110°C	@ 110°C
AT IGNITION	CALCULATED
289100	297960
ORGANIC MATTER: PRESENT	

SPECIFIC GRAVITY	REFRACTIVE INDEX
1.194 @ 20°C	1.3758 @ 20°C

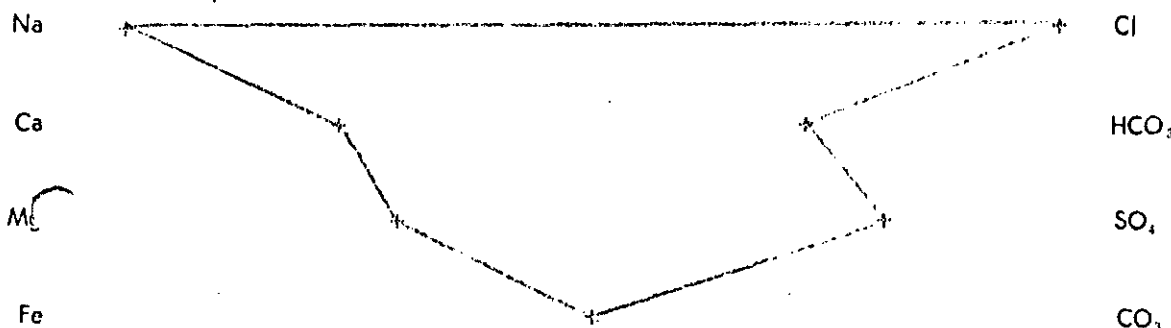
OBSERVED PH	RESISTIVITY (Ohm-cm)
7.8 @ 76 °F	0.045 @ 76 °F

H₂S NIL

REMARKS AND CONCLUSIONS

Yellow colored filtrate recovered from mud.

LOGARITHMIC PATTERN MEQ PER LITER



SECTION VI - COMPLETION SUMMARY

- (a) Tubing Record: Nil
- (b) Perforation Record: Nil
- (c) Cementation Record: See Plugs
- (d) Acidization and Fracturing: Nil
- (e) Back Pressure and Production Tests: Nil

Chronological Well History

DATE	DEPTH	OPERATION	DRILLING HOURS	REMARKS
Jan. 27	25	drilling	1 1/2	
28	128	reaming	13 3/4	
29	191	clean to bottom	10	
30	295	drilling	14 3/4	
31	382	drilling	20 1/4	
Feb. 1	429	drilling	19	
2	435	fishing	1 3/4	reamer fell to approx. 90'
3	435	fishing	0	pilot hole drilled to 435'
4	435	repair table		
5	435	reaming		depth reamed to 167' reamed 67 (top 100' washed out)
6	435	reaming		reamed to 267
7	435	changing reamers		reamed to 314 (8 A.M. depth)
8	435	reaming		reamed to 365
9	435	run reamer		reamed to 372 (ran magnet & milled)
10	435	run 13 3/8 csg.		reamed to 406 (4 runs w. magnet)
11	435	reaming tight spots, reamed to <u>411'</u>		
12	435	W.O.C. (Heading up) set conductor pipe to <u>411'</u>		
13	435	HOISTING BIT & NIPPLING UP BOP'S		
14	435	prepare to run in with 8 1/2" bit		
15	488	drilling 8 1/2" hole		
16	645	drilling	22 1/2	
17	815	drilling	20 1/2	
18	974	drilling	22 3/4	
19	1187	drilling	21 3/4	
20	1330	MIXING LOST CIRC. MATERIAL, 18 1/4 HRS. DRLG (lost 200 bbl mud)		
21	1367	drilling blind	8 3/4	
22	1461	drilling blind	17 1/4	to 1513'
23	1513	wait on orders	5 1/4	ran 3 logs
24	1513	waiting on bridger plug-plaster plug 1265-1275 (Sch1)		

Chronological Well History (continued)

DATE	DEPTH	OPERATION	DRILLING HOURS	REMARKS
Feb. 25	1513	(ream depth 440')	Reaming to 12 1/4" hole	Ran McCollough Bridge plugs & cement 1262-1264 & 1268-1270
26	(Ream depth) (590)	reaming		
27	(900)	reaming		
28	(1024)	reaming		
Mar. 1	(1220)	R.I. with new bit		
2	(1262)	reaming		(on Bridge plug)
3	(1299)	reaming		below plug start lost circ.
4	(1428)			
5	(1500)	reaming		
6	(1515)	W.O. Dowell parts		first stage cemented
7	1515	NIPPLING UP B.O.P.'s		
8	1515	running in to Drill out		
9	1585	<u>drilling</u>	9	
10	1716	drilling	18 3/4	lost 450 bbl fluid at 1655' regained full circ.
11	1956	drilling	22 1/2	
12	2177	drilling	21 3/4	lost 50 bbl mud at 2080
13	2366	trip for bit		
14	2565	drilling	19 3/4	
15	2800	condition mud	19 1/2	
16	3098	condition salt mud, 12 3/4 hrs drilling		
17	3434	drilling	17 1/4	
18	3552	drilling	16 1/2	
19	3685	circ. sample	19	
20	3699	run in to ream	9 1/4	(coring) recovered 12 of 14
21	3712	CORING (#2)	8	
22	3745	CORING (#3)	8 1/4	
23	3760	reaming (at 3745)	9 hours reaming	
24	3880	drilling	19	
25	3921	hoist DST #1	7	
26	3921	Logging		

MEMORANDUM

October 22, 1987

87295ACC0062

D.B. GRASS
A-348

Visual Source Rock Report on Five Wells, Central Mackenzie Valley, NWT.

1. ~~Gulf Fine N. Colville L-21~~ ^{Cambrian} 3685-3706 ft Non-source. ?Colonial algal cells 3730-3742 ft Non-source.
2. ^{Cambrian} Atlantic Arctic Circle Ontaratue K-04 ^{Pe} 7966-8006 ft Non-source. Rare ?colonial algal cells 8008-8024 ft Non-source. Rare ?colonial algal cells 8761-8782 ft ^{Pe} Non-source. Kerogen fragments present black, TAI 7 very rare ?colonial algal cells
3. Candell et al Police Island L-66 ^{Cambrian} 4287-4313 ft Non-source
4. Imperial Windflower G-77 ^{Devonian} 1350-1370 ft Non-source
5. Union Mobil Colville D-45 ^{Cambrian} 3018-3030 ft Poor source for hydrocarbons Amorphous, blob-like, medium brown coloured kerogen abundant ?colonial algal cells (some in tetrads) 3057-3081 ft Non-source. As above but less amorphous material and very abundant algal cells. Medium brown colour on usual TAI scale would be 5, or "past peak" oil, pre-peak gas. 3102-3116 ft Non-source. ?Colonial algal cells in decreased numbers, no kerogen material as in two samples above. 3128-3136 ft Non-source. Barren. ^{Cambrian}

Comment: Normally, all samples which test non-source (less than 0.05 kerogen ml/15 gm sample) are deemed as unsuitable for further source-rock evaluation. However, samples at 3057-81 ft in the Colville D-45 well and 3685-3706 ft in the Colville L-21 well were recommended for study. This was in order to see if something could be learned of the nature of the kerogen material in these samples. A subsequent report was not enlightening on the matter. However, another sample with similar ?algal material at 3018-3030 ft in Mobil Colville D-45 indicated presence of liquid hydro- carbon generating material at early peak oil generating stage. Hence the visual reading indicated a slightly higher

CF 02862

(

WWB/WWB

WELL COMPLETION DATA
RENSEIGNEMENTS SUR LES FORAGES

Drilling Authority No. 900
N° de l'autorisation de forage
Date Issued 78-01-06
Date de délivrance

To be submitted in duplicate within thirty days after the completion, rework, abandonment, recompletion or suspension of every well.
À présenter en double dans les trente jours suivant l'achèvement, le remaniement, l'abandon et le reconditionnement de chaque puits, ou après suspension.

Well Name & No. - Nom et n° du puits
PEX Fina N. Colville L-21

Permit No. - N° de permis
6336

Lease No. - N° de concession

(Permittee, Licensee, Lessee) - (Défendeur de permis ou de licence, du concessionnaire)
Petro-Fina

Exploratory Licence No. - N° de licence de sondage

Operator - (Exécutant)
Petro-Canada

Exploratory Licence No. - N° de licence de sondage
2570

LOCATION - EMPLACEMENT

Unit - Unité
L

Section
21

Grid - Étendue quadrillée
67-50-126-00

Latitude
67 deg. 40' 37" N

Longitude
126 deg. 05' 37" W

Unique Well Identifier - Code d'ordinateur
300L216750126000

Universal Well Location Reference - Références universelles d'emplacement du puits
Lat 67.67694 deg. N Long 126.09361 deg. W

	Date	Depth - Profondeur	Pool(s) Gisement(s)
Spudded Début des travaux	78-01-27	25'	
Suspended Suspension des travaux			Interval(s) Open to Production Intervalle(s) de production
Resumed Operations Reprise des travaux			
Finished Drilling Forage terminé	78-03-24	3921	
Deepened Approfondissement			
Complete (Gas/Oil) Achèvement (Gaz/Pétrole)			Elevation: Gr. 1095.65 K.B. 1108.5 Altitude du sol du carré d'entraînement
Abandoned Abandon	78-03-25		Rig No. 2 Drilling Contractor Tri-City N° de la tour de forage Entrepreneur en forage
Rig Released Fin des travaux	78-03-28		Contractor's Business Licence No. 123 N° du permis de l'entrepreneur

CASING RECORD - TUBAGE

Casing Size (Inches) Diamètre (en pouces)	Grade Qualité	Weight Poids	Amount Longueur	Set at - Fixation à	Sacks of Cement and Additives Sacs de ciment et d'additifs
13 3/8	H-40	48	413.23	410	1125 sx Arctic QUICK SET 200 sx
					DWC + 3% CaCl ₂
9 5/8	K-55	36	1517.94	1515	150 sx Neat 390 sx DWC + 8% ge

Geological Tops Sommet des formations	Elevation - Profondeur		Core Record - Carottes					
	Depths Sous le niveau du sol	Sub-Sea Sous le niveau de la mer	From - de	To - à	Rec. Récupérées	From - de	To - à	Rec. Recup.
Devonian			3685	3699	12			
Bear Rock			3700	3730	30			
Siluro Ordovician			3730	3760	30			
Ronning Grp	270	+839						
Ronning "Cherty"	650	+459						
Ronning "Rhythmic"	1300	-191						
Cambrian								
Saline River	2735	-1626						
Saline R. Salt	2926	-1817						
Mt. Cap	3635	-2526						
Old Ft. Island	3735	-2626						
Proterozoic	3800	-2691						
T D	3921	-2812						
Log Record - Diagrammes								
Run Série	Type of Log Genre de diagramme		From - De		To - À			
1	Dual Induction SFL		1506		410			
1	BoreHole Compensated Sonic-Gr		1509		410			
1	Compensated Neutron Formation Density		1510		410			
2	Dual Laterlog		3906		1514			
2	Bore Hole Compensated -Sonic		3918		1514			
2	Compensated Neutron Formation Density		3919		1514			
2	Dipmeter		3919		1514			
2	Velocity		3920		1515			
2	Sidewall Core		3765		3801			

M 9600

AMOCO PRODUCTION COMPANY
RESEARCH CENTER

AUTHORIZED BY D. B. GRASS
TECHNICAL SERVICE NUMBER 879169

TABLE 1: ROCKEVAL PYROLYSIS DATA
DATE 05/07/90

SAMPLE NUMBER	TOP OF INTERVAL FEET	FORMATION	TOTAL ORGANIC		PPM VOLATILE		PPM GENERATED		VOL/ TOC	TEMP OF MAX GEN	VOL/ VOL + GEN
			CARBON WT% ROCKEVAL TOC	(S1 X 1000)	HYDROCARBONS	(S2 X 1000)	VOL/ TOC	HYDROCARBONS (S2 X 1000)			
UNION MOBIL COLVILLE D-45											
			D45	6720	12500	45					
I-500	3018.0	MT. CAP	.4	110		.03	1060	.27	447	.09	
I-501	3057.0	MT. CAP	< .1	30		.15	120	.60	NR	.20	
PEX FINA N COLVILLE L-21											
			L21	6750	12600						
I-502	3685.0	MT. CAP	.1	10		.01	120	.11	NR	.08	

PEX FINA N COLVILLE L-21 L21 6750 12600

I-502	3685.0 MT. CAP		.1	10		120	.11	NR	.08
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NR indicates 'not reliable'

TABLE 2: BITUMEN DATA

SAMPLE NUMBER	FIELD NO. OR DEPTH FEET TOP***BOTTOM	FORMATION	TOTAL		BITUMEN		SAT HC		BIT/		NC17/		NC18/		CPI	PR/ PH
			ORG C	WT%	BBL/AF	PPM	SAT HC	BBL/AF	PPM	SAT HC/ BITUMEN	TOC	PR	PH	BITUMEN		
UNION MOBIL COLVILLE D-45																
			D45 6720	12500	45											
I-500	3018.0 - 3030.0 MT. CAP		.4		9	511			.13	2.37	2.44		.97	1.65		

TABLE 3: VISUAL AND VITRINITE REFLECTANCE

SAMPLE NUMBER	FIELD NO. OR DEPTH FEET TOP**BOTTOM	FORMATION	VIT REFLECTANCE		KEROGEN DESCRIPTION
			%RO	COUNTS	
UNION MOBIL COLVILLE D-45			D45 6720	12500	45
I-500	3018.0 - 3030.0 MT. CAP		.32	65	AMORPHOUS

TABLE 4: ELEMENTAL ANALYSIS DATA

SAMPLE NUMBER	FIELD NO. OR DEPTH FEET TOP**BOTTOM	FORMATION	NORM. ELEMENTAL ANALYSIS, WT. %					% REC	SULFUR WT. %	ASH WT. %	ATOMIC		CARBON ISOTOPE KEROGEN
			CARBON	HYDROGEN	OXYGEN	NITROGEN					RATIO	H/C	
UNION MOBIL COLVILLE D-45													
		D45 6720 12500						45					
I-500	3018.0 - 3030.0 MT. CAP		84	7.0	8.0	1.1	79					.07	1.00