

# CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton — Fort St. John — Calgary

## WATER ANALYSIS REPORT

Field ..... Well No. **Kotaneelee A-1**  
 Operator **Pan American Petroleum Corporation** Date Received **May 21, 1963**  
 Formation **Mid Devonian Carbonate** Depths **14,407' - 14,470'**  
 Other pertinent data **D.S.T. #1, Middle sample. DST #1 Middle Sample**  
**11300-14470 Hook wall packer inside 7" CSA 11560 TO 4 hrs. 49 min. Shut-in**  
**4 hrs 28 min. IHP 5276 psi, ISIP NA, IFP 643 psi, FFP 724 psi, FSIP 1036 psi,**  
**FHP 5276 psi. Gas to surface 40 min. TSDM** Date Sampled: **Not Known** Lab. No. **E21663-1**  
**Rec. 1500 gas cut mud.**

### PARTS PER MILLION (MILLIGRAMS PER LITER)

Na & K	Ca	Mg	Fe	SO <sub>4</sub>	Cl	CO <sub>2</sub>	HCO <sub>3</sub>	OH	H <sub>2</sub> S
26979	159	21	present	8979	23300	1870	16900		

### MILLIGRAM EQUIVALENTS

1173.59	7.93	1.73		186.76	657.06	62.27	277.16		
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### MILLIGRAM EQUIVALENTS IN PERCENT

49.59	0.34	0.07		7.89	27.77	2.63	11.71		
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#### Total Solids in Parts per Million

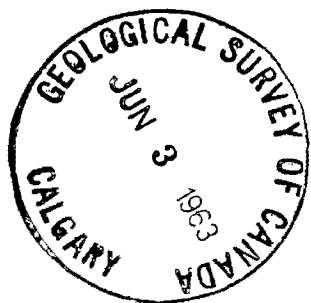
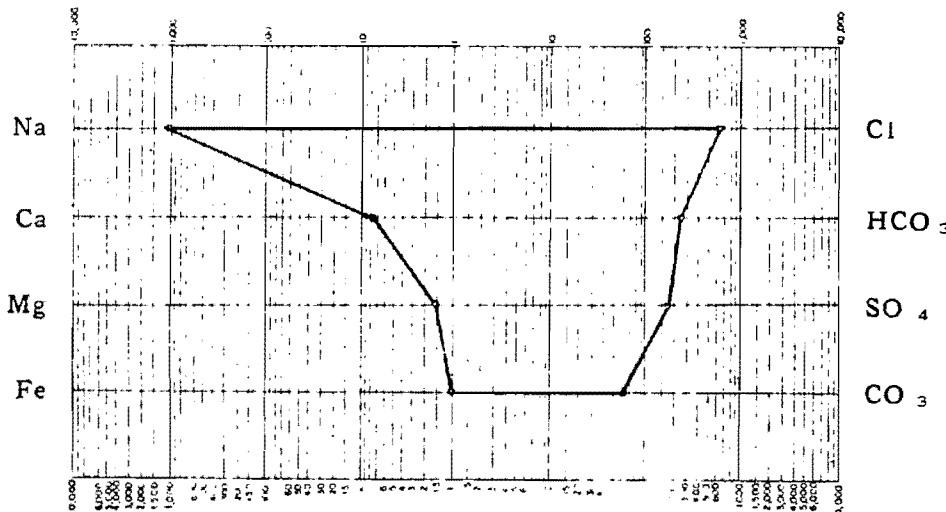
By evaporation **98,700**  
 After ignition **49,100**  
 Calculated **69,631**  
 Specific Gravity **1.058**  
 Observed pH **8.8**  
 Resistivity **0.216** ohm meters @ 68° F.

#### Properties of Reaction in Percent

Primary salinity **71.32**  
 Secondary salinity **----**  
 Primary alkalinity **27.86**  
 Secondary alkalinity **0.82**  
 Chloride salinity **77.87**  
 Sulfate salinity **22.13**

Remarks and conclusions **Extremely large amount of organic matter present in total solids. The analyses were made on water extracted from mud. The water was dark wine colored and is a filtrate.**

LOGARITHMIC PATTERN  
MEQ per unit



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## WATER ANALYSIS REPORT

Field ..... Well No. **Kotaneelee A-1**  
 Operator **Pan American Petroleum Corporation** ..... Date Received **May 23, 1963**  
 Formation ..... Depths **14,407' - 14,470'**  
 Other pertinent data **D.S.T. #1. Bottom Sample.**

Date Sampled: **Not Known** Lab. No. **E21663-2**

### PARTS PER MILLION (MILLIGRAMS PER LITER)

Na & K	Ca	Mg	Fe	SO <sub>4</sub>	Cl	CO <sub>3</sub>	HCO <sub>3</sub>	OH	H <sub>2</sub> S
23591	146	18	present	8238	19200	1255	17100		

### MILLIGRAM EQUIVALENTS

1026.25	7.29	1.48		171.35	541.44	41.79	280.44		
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### MILLIGRAM EQUIVALENTS IN PERCENT

49.58	0.35	0.07		8.28	26.15	2.02	13.55		
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#### Total Solids in Parts per Million

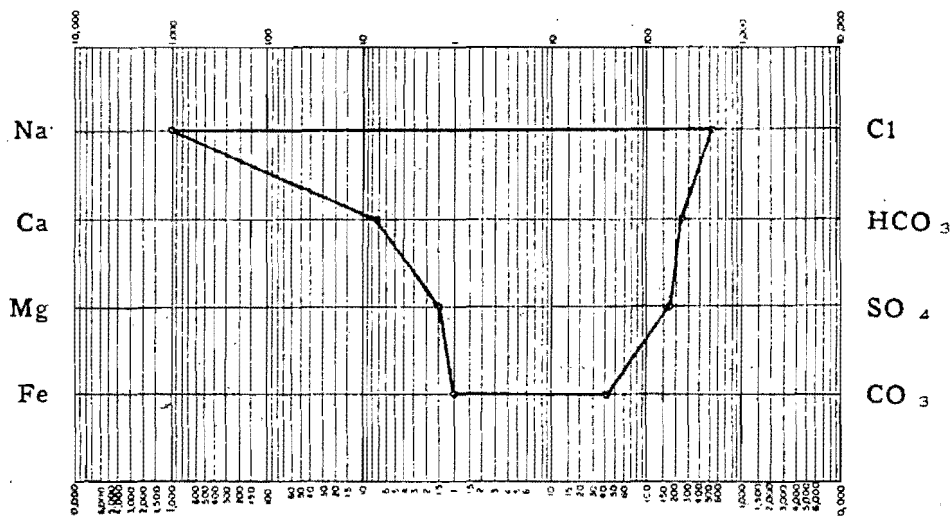
By evaporation ..... **96,800**  
 After ignition ..... **47,520**  
 Calculated ..... **60,870**  
 Specific Gravity ..... **1.054**  
 Observed pH ..... **8.7**  
 Resistivity **0.228** ohm meters @ 68° F.

#### Properties of Reaction in Percent

Primary salinity ..... **68.86**  
 Secondary salinity ..... **----**  
 Primary alkalinity ..... **30.30**  
 Secondary alkalinity ..... **0.84**  
 Chloride salinity ..... **75.95**  
 Sulfate salinity ..... **24.05**

Remarks and conclusions **Extremely large amount of organic matter present in total solids. The analyses were made on water extracted from mud. The water was dark wine colored and is a filtrate.**

LOGARITHMIC PATTERN  
MEQ per unit



Pan Am Al Kotaneelee P50

PK 50

Tray

For missing intervals, see progress report

60°10'00"N 124°00'00"W

40-14200 feet 1392 samples

Reserve sent to Calgary

1 Nov 63

Washing Date 18 Mar 64

N.W.T.

PETROLEUM SECTION  
FUELS AND STRATIGRAPHY DIVISION  
GEOLOGICAL SURVEY OF CANADA

Record of Well Samples

Name of Well *Pan Am. R.* Sectional Map Sheet  
Name of Company *Not a needle P50* Name Symbol *P50*

Location; L.S.D.	Section	Township	Range	Meridian
Depths Received	From	to	Storage, Section	Bunker Bags
Depths Bottled	From	to	Storage, Cabinet	Trays
Depths Reserved	From	to	Storage, Section	Bunker Bags
Depths Disintegrated	From	to	Storage, Cabinet	Trays

Black line indicates samples received. Red line indicates samples bottled.  
Green line indicates samples disintegrated

#21

*14,200*  
*40 - ~~1200~~ feet = 1392 samples*

*Nov 1/63 x 1392 samples  
Blairmont  
So. Calgary: March 18/64*

10	430	850	1270	1690	2110	2530	2950	3370	3790
20	440	860	1280	1700	2120	2540	2960	3380	3800
30	450	870	1290	1710	2130	2550	2970	3390	3810
40	460	880	1300	1720	2140	2560	2980	3400	3820
50	470	890	1310	1730	2150	2570	2990	3410	3830
60	480	900	1320	1740	2160	2580	3000	<del>3420</del>	3840
70	490	910	<del>1330</del>	1750	2170	2590	3010	3430	3850
80	500	920	1340	1760	2180	2600	3020	3440	3860
90	510	930	1350	1770	2190	2610	3030	3450	3870
100	520	940	1360	1780	2200	2620	3040	3460	3880
110	530	950	1370	1790	2210	2630	3050	3470	3890
120	540	960	1380	1800	2220	2640	3060	3480	3900
130	550	970	1390	1810	2230	2650	3070	3490	3910
140	560	980	1400	1820	2240	2660	3080	3500	3920
150	570	990	1410	1830	2250	2670	3090	3510	3930
160	580	1000	1420	1840	2260	2680	3100	3520	3940
170	590	1010	1430	1850	2270	2690	3110	3530	3950
180	600	1020	1440	1860	2280	2700	3120	3540	3960
190	610	1030	1450	1870	2290	2710	3130	3550	3970
200	620	1040	1460	1880	2300	2720	3140	3560	3980
210	630	1050	1470	1890	2310	2730	3150	3570	3990
220	640	1060	1480	1900	2320	2740	3160	3580	4000
230	650	1070	1490	1910	2330	2750	3170	3590	4010
240	660	1080	1500	1920	2340	2760	3180	3600	4020
250	670	1090	1510	1930	2350	2770	3190	3610	4030
260	680	1100	1520	1940	2360	2780	3200	3620	4040
270	690	1110	1530	1950	2370	2790	3210	3630	4050
280	700	1120	1540	1960	2380	2800	3220	3640	4060
290	710	1130	1550	1970	2390	2810	3230	3650	4070
300	720	1140	1560	1980	2400	2820	3240	3660	4080
310	730	1150	1570	1990	2410	2830	3250	3670	4090
320	740	1160	1580	2000	2420	2840	3260	3680	4100
330	750	1170	1590	2010	2430	2850	3270	3690	4110
340	760	1180	1600	2020	2440	2860	3280	3700	4120
350	770	1190	1610	2030	2450	2870	3290	3710	4130
360	780	1200	1620	2040	2460	2880	3300	3720	4140
370	790	1210	1630	2050	2470	2890	3310	3730	4150
380	800	1220	1640	2060	2480	2900	3320	3740	4160
390	810	1230	1650	2070	<del>2490</del>	2910	3330	3750	4170
400	820	1240	1660	<del>2080</del>	2500	2920	3340	3760	4180
410	830	1250	1670	2090	2510	2930	3350	3770	4190
420	840	1260	1680	2100	2520	2940	3360	3780	4200

4210	4830	5450	6070	6690	7310	7930	8550	9170	9790
4220	4840	5460	6080	6700	7320	7940	8560	9180	9800
4230	4850	5470	6090	6710	7330	7950	8570	9190	9810
4240	4860	5480	6100	6720	7340	7960	8580	9200	9820
4250	4870	5490	6110	6730	7350	7970	8590	9210	9830
4260	4880	5500	6120	6740	7360	7980	8600	9220	9840
4270	4890	5510	6130	6750	7370	7990	8610	9230	9850
4280	4900	5520	6140	6760	7380	8000	8620	9240	9860
4290	4910	5530	6150	6770	7390	8010	8630	9250	9870
4300	4920	5540	6160	6780	7400	8020	8640	9260	9880
4310	4930	5550	6170	6790	7410	8030	8650	9270	9890
4320	4940	5560	6180	6800	7420	8040	8660	9280	9900
4330	4950	5570	6190	6810	7430	8050	8670	9290	9910
4340	4960	5580	6200	6820	7440	8060	8680	9300	9920
4350	4970	5590	6210	6830	7450	8070	8690	9310	9930
4360	4980	5600	6220	6840	7460	8080	8700	9320	9940
4370	4990	5610	6230	6850	7470	8090	8710	9330	9950
4380	5000	5620	6240	6860	7480	8100	8720	9340	9960
4390	5010	5630	6250	6870	7490	8110	8730	9350	9970
4400	5020	5640	6260	6880	7500	8120	8740	9360	9980
4410	5030	5650	6270	6890	7510	8130	8750	9370	9990
4420	5040	5660	6280	6900	7520	8140	8760	9380	10000
4430	5050	5670	6290	6910	7530	8150	8770	9390	10010
4440	5060	5680	6300	6920	7540	8160	8780	9400	
4450	5070	5690	6310	6930	7550	8170	8790	9410	
4460	5080	5700	6320	6940	7560	8180	8800	9420	
4470	5090	5710	6330	6950	7570	8190	8810	9430	
4480	5100	5720	6340	6960	7580	8200	8820	9440	
4490	5110	5730	6350	6970	7590	8210	8830	9450	
4500	5120	5740	6360	6980	7600	8220	8840	9460	
4510	5130	5750	6370	6990	7610	8230	8850	9470	
4520	5140	5760	6380	7000	7620	8240	8860	9480	
4530	5150	5770	6390	7010	7630	8250	8870	9490	
4540	5160	5780	6400	7020	7640	8260	8880	9500	11.020
4550	5170	5790	6410	7030	7650	8270	8890	9510	
4560	5180	5800	6420	7040	7660	8280	8900	9520	
4570	5190	5810	6430	7050	7670	8290	8910	9530	
4580	5200	5820	6440	7060	7680	8300	8920	9540	
4590	5210	5830	6450	7070	7690	8310	8930	9550	
4600	5220	5840	6460	7080	7700	8320	8940	9560	
4610	5230	5850	6470	7090	7710	8330	8950	9570	
4620	5240	5860	6480	7100	7720	8340	8960	9580	
4630	5250	5870	6490	7110	7730	8350	8970	9590	
4640	5260	5880	6500	7120	7740	8360	8980	9600	
4650	5270	5890	6510	7130	7750	8370	8990	9610	
4660	5280	5900	6520	7140	7760	8380	9000	9620	13.140
4670	5290	5910	6530	7150	7770	8390	9010	9630	
4680	5300	5920	6540	7160	7780	8400	9020	9640	
4690	5310	5930	6550	7170	7790	8410	9030	9650	
4700	5320	5940	6560	7180	7800	8420	9040	9660	
4710	5330	5950	6570	7190	7810	8430	9050	9670	
4720	5340	5960	6580	7200	7820	8440	9060	9680	
4730	5350	5970	6590	7210	7830	8450	9070	9690	
4740	5360	5980	6600	7220	7840	8460	9080	9700	
4750	5370	5990	6610	7230	7850	8470	9090	9710	
4760	5380	6000	6620	7240	7860	8480	9100	9720	
4770	5390	6010	6630	7250	7870	8490	9110	9730	
4780	5400	6020	6640	7260	7880	8500	9120	9740	
4790	5410	6030	6650	7270	7890	8510	9130	9750	
4800	5420	6040	6660	7280	7900	8520	9140	9760	14.200
4810	5430	6050	6670	7290	7910	8530	9150	9770	
4820	5440	6060	6680	7300	7920	8540	9160	9780	