WEST TATHLINA AREA - N.W.T. Ottawa

DIGITAL SEISMIC SURVEY

651-6-4-3

for

CANADIAN PACIFIC OIL AND GAS LIMITED

by

GEOPHYSICAL SERVICE INCORPORATED

DECEMBER 1968 - APRIL 1969

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PARTY 5 - D - 1

Date August 1969

Permit Nos. 3507-3509, 3511-3515
3517, 3518, 4201, 3566,
3510, 6444

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Canadian Pacific Oil
and Gas Limited

Project No. 651-6-4-69-1

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

DIAGRAMS

I. INTRODUCTION

A digital seismic reflection survey for Canadian Pacific Oil and Gas Limited by Geophysical Service Incorporated was conducted in the Tathlina Lake region of the Northwest Territories. The survey extended from approximately 60° 30' to 61° 00' north latitude, and from 118° 00' to 119° 30' west longitude, comprising federal land permit numbers 3507-3509, 3511-3515, 3517,3518,4201,3566 (joint permits held with Chevron Standard Limited) and CPOG permits 3510 and 6444 (see Program Location Map, Plate 1, and Line Location Map, Plate 2). Access to the prospect was gained by using an existing seismic trail which angled south from its intersection at mile 150 on the Fort Simpson Trail.

Field recording began on January 4, 1969 and was completed on March 29, 1969. During this time approximately 2500 reflection profiles were shot, comprising a total of 221 miles of line.

Field recording data was processed by Geophysical Service Incorporated TIAC Computer Centre Calgary. Interpretation of the seismic data was performed by Canadian Pacific Oil and Gas Limited, Geophysical Department.

II. STATISTICAL DATA

1. PRODUCTION STATISTICS

Equipment leaves Calgary	December 28, 1968
Recording commenced	January 4, 1969
Recording completed	March 29, 1969
Equipment returns Calgary	April 2, 1969
Number of Reflection Profiles	2,495
Number of Reflection Shots	2,762
Surface Coverage (with tail spreads)	220.78 miles
Number of profiles per 10 hour day	23.88
Number of holes drilled	2,505
Total Footage	114,134 feet
Average hole depth	45.56 feet
Feet drilled per hour	18.80
Number of Rock Bits used	56
Number of Insert Bits used	673
Total Mud used	46,750 pounds
Total Bran used	9,050 pounds
Total Dynamite used	3,750 pounds
Total Caps used	3,120
Total Bulldozer time	4,534.50 hours
Total Number production days	81
Total Number travel days (includes camp move)	13
Weather days	0

2. EQUIPMENT

All equipment used on the prospect was wheel mounted.

a) Vehicular Equipment

1 Party Manager Pickup

1 Recording Truck

1 Shooting Truck

1 Survey Pickup

1 Cable Pickup

1 Spare Cable Pickup

2 Drill Trucks with 1000 Mayhew drill unit mounted

2 Water Trucks

1 Supply Truck

1 Northern Auger Contract Drill Truck with 1000 Mayhew drill unit mounted

2 Northern Auger Contract Water Trucks

1 Pankiw Contract Drill Truck with Failing drill unit and air compressor mounted

1 Pankiw Contract Water Truck

b) Camp Equipment

1 ATCO Camp on wheels, consisting of 1 kitchen unit, 1 wash unit, 2 sleeper units and 1 office unit

1 30 KW Diesel electric light plant

1 Shop with tools

1 Single side band camp radio

3. PERSONNEL

1 Party Manager

1 Instrument Engineer

1 Instrument Engineer Trainee

1 Shooter

1 Surveyor

1 Rodman

7 Helpers

2 Drillers

2 Drill Helpers

4 Contract Drillers

4 Contract Drillers' Helpers

1 Mechanic

3 Camp Personnel

4. FIELD CONDITIONS

Terrain was generally flat, muskeg covered, with numerous small lakes and marshes. Several areas of floating muskeg were also encountered. Only thin stands of small conifers existed in these areas. Lines cut through the muskeg were usually very rough, resulting in long drive times for the vehicles and necessitating many camp moves. In all, nine camp locations were used.

Thicker stands of larger coniferous and deciduous trees grew on the higher elevations, near rivers and the larger lakes. Lines cut in these areas were generally fairly smooth, and travel times were much improved.

Weather conditions varied from extreme cold January to mid-February, moderating to milder winter conditions to the end of March. About two feet of snow was present on the ground at the start of the job, with an additional foot falling during the period worked. Generally, wind was not a prominent factor.

III. FIELD PROCEDURES

1. RECORDING

All data were recorded digitally on magnetic tape using Texas Instruments 21 - Track DFS III Digital Field System with binary gain seismic amplifiers. Gain information was recorded on tape in four special bit locations, making possible the recovery of true amplitude information when the data were processed.

Data were recorded at a 1 millisecond sample rate, with the exception of the first days shooting (Line 2, S.P. 94-101) which was recorded with a 2 millisecond sample rate.

The filters used in recording the data were as follows:

a) Line 2, S.P. 94-101

Low = 8 HZ (36db/octave slope)

High = 124 HZ (72db/octave slope)

b) Line 2, S.P. 4-85 and 102-200

Line 1, S.P. 1-196

Line 4, S.P. 2-493

Low = 18 HZ (36 db/octave slope)

High = 248 HZ (72db/octave slope)

c) All remaining shot points

Low = 8 HZ (36 db/octave slope)

High = 248 HZ (72 db/octave slope)

The steep slope of the high cut filter provides the alias filter, the filter being 70 db down at one-half the sampling frequency.

Both the uphole and time break were detonated and recorded remotely by radio. However, on portions of the survey a direct uphole measurement was taken in conjunction with the recorded uphole by hooking the uphole seismometer directly to the camera. The direct

uphole reading was displayed on the monitor record, but was not recorded on tape.

All field recordings were displayed on Dri-write paper as "Direct" monitors, thus a difference in timing exists between the direct uphole (displayed on channel 25 of the direct monitor records), and the recorded uphole (displayed on channel 6 of the direct monitor records) due to the read-write head delay. The direct monitor is produced by reading the recorded data from tape just after it has been written by the write head. The time required for the data written on tape to travel from write to read heads is 6.7 milliseconds for data recorded at two millisecond sample period and 3.3 millisecond for data recorded at one millisecond sample period. Therefore, on the direct monitor the time break and timing lines are displayed at true time and all other displayed information, including uphole break and seismic data, are delayed an amount dependent on tape speed.

The digital recordings were played back for a number of shot points. Playbacks can be made as either amplifier playbacks or direct playbacks.

Amplifier playbacks are made through the binary gain amplifier system, where bandpass filtering and playback gain can be selected as desired. No auxiliary information is displayed on this type of playback.

Direct playbacks display all seismic traces and auxiliary information. The playback signals are generated from the digital-to-analog converter, smoothed by the playback filter cards, and go to the camera. Since all data are read from tape, seismic and auxiliary data retain their true time relationship except for the phase shift in the filters for the galvanometers.

Other primary recording parameters are listed in the following table:

Record length	2.0 seconds
Uphole seismometer offset	10 feet
Gain mode	Operate
Gain constant	30 db
Initial gain (average)	66db, channels 1-4, 21-24
	60 db, channels 5-8, 17-20
	54 db, channels 9-16
Final gain	114 db
Upper set limit	75% of full scale
Lower set limit	18% of full scale
Release rate	Medium
Trip delay	.256 seconds
60 HZ notch filter	Out

Instrument tests to check dynamic range, amplifier noise, DFS noise, and A.T.C. circuitry were run daily before commencing production shooting. Also, G.S.I.'s field service division ran more extensive quality control tests throughout the winter to ensure that all system modules were functioning within specifications.

2. SHOOTING PROCEDURE AND SPREAD DETAILS

Normal field procedure called for four-fold CDP shooting. Attempts were made throughout the prospect to shoot deep uphole surveys. However, difficult drilling conditions prevented most uphole surveys from extending deeper than 90 feet. The shallower uphole surveys were used to check for the depth at which optimum signal to noise ratio would be seen. Occasionally a shot considered too heavy and one considered too light were recorded from a hole also shot with optimum charge size. Final decision on the charge size and shooting

depth were made by representatives of C.P.O.C. Spread details are listed below:

Type of coverage	4 Fold CDP
Spread layout	Split, roll-along shooting, 1800' - 0 - 1800', with 75' from shot point to center of groups 12 and 13 (see Plate 3)
Number of groups	24 groups, group length of 136'
Group spacing	150', center to center
Group pattern	Inline with spread
Shot Point spacing	450'
Shot pattern	Single holes
Seismometer data	Hall Sears 20 HZ phones, 9 phones per group at 17' intervals
Charge size	1½ pounds
Hole depth	Attempted to keep depth at 45', but due to difficult drilling conditions depths were often considerably shallower

3. SURVEYING

The horizontal survey was obtained by theodolite. Numerous turning points were established along each line, and horizontal control was maintained by turning deflection angles at each turning point. Accurate distances between turning points were maintained by chainage. Shot points were then located every 450 feet along the traverse lines. Shot point number 101 of Line 2 served as the basis of horizontal control

for the entire survey. The latitude and longitude of shot point 101 was established by locating the North-West corner pin of 36-134-1-W6M, set at 60° 41' 40.7" north latitude, and 117° 59' 57.9" west longitude by the Dominion of Canada Land Surveys Branch. Using the given latitude and departure of the pin, and the north and west chainages from the pin to the shot point, the latitude at the shot point was calculated to be 60° 42' 37.8" north, and the longitude was calculated to be 118° 15' 13.0" west. The azimuth of Line 1, which intersected Line 2 at shot point 101, was established from a star shot on Polaris recorded February 24, 1969. Bearings of all other lines were calculated from the bearing of Line 1.

Shot point 101, Line 2 served as the origin of coordinates for all horizontal survey computations, and was given latitude and departure values of 400,000 feet. It was also used as the reference station for tabulations on C.P.O.G.'s seismic data sheets.

The vertical survey was obtained by transit. Two readings were taken at each turning point to ensure accurate control elevations. Each traverse was then double-run to check elevations at control stations. Reference elevations for the entire prospect was a ground level reading at 1002.0 feet taken in the center of the clearing at the Placid Chevron Gull Creek well location. No evidence of the actual well site could be found.

4. DRILLING

Drill power was provided by four drill rigs, working six shifts per day. Three of the four rigs were water rigs, the fourth being an air-water combination rig which drilled most of the winter using air.

Drilling conditions varied throughout the prospect. Muskeg was usually encountered in the top five to ten feet of drilling,

with either clay, boulders, sand, gravel or limestone, or any combinations thereof, encountered from the base of the muskeg to total depth. Many blind holes, caused by concentrations of sand or gravel, or by underground streams, slowed drill production considerably. Long water hauls over rough terrain also hampered production on certain parts of the prospect.

The higher drill production of the air rig was partially offset by the fact that it had to skip many of the holes where considerable gravel or water was encountered. These holes had to be drilled by the water rigs.

5. BULLDOZING

Bulldozing was provided by Calgary Exploration Services Ltd.

Some difficulty was experienced at the beginning of the prospect with the narrow-pad D-7's breaking through the muskeg. The arrival of a wide-pad D-6 helped alleviate this problem. Line cutting was not too difficult on the majority of the program, since most of the lines were cut through muskeg areas where only small conifers grew.

In all, about 221 miles of seismic trails were cut, using about 3960 hours of cat time. Thus, each mile of cutting took approximately 18 cat hours.

IV. DATA PROCESSING

All data processing of field records was performed by Geophysical Service Incorporated TIAC Computer Centre Calgary.

1. General

The shallow geologic section having a comparatively short seismic time period made the entire project area a challenge to any data processing procedure. In order to determine optimum processing parameters and a suitable processing sequence, and to ensure this level was maintained in all stages of data handling, a number of experimental programs were evaluated before and during production processing.

Two different routes were followed in the Raw Time Processing sequence, the underlying difference being in the manner in which normal moveout functions were determined for each line or line segment. An empirical, field record, $T_o - \Delta T$ velocity approach was taken wherever field record quality was such to support a reliable velocity evaluation. Poor reflection signal quality on the field records in specific areas forced a second route of deconvolution and digital filtering prior to $T_o - \Delta T$ velocity evaluation. While this second route added one extra processing sequence step and added to field - client turnaround time, it was deemed necessary to achieve a reliable end product.

In general, binary gain true amplitude recovery, normal moveout, equalization, deconvolution, digital filtering, with automated first break and uphole picking make up the first processing step. Package processing, permitting back-to-back processing eliminating costly turnaround time, as well as enhancing reliability, was used extensively.

The second stage of processing consisted of manually picking

all reflection times for the same geologic event on each record output from the first stage of processing. The Slave Point marker was used along the majority of lines. These pick times were input for derivation of smoothed raw time statistical statics. Concurrent with this second stage of the production data flow, first break plots were being constructed and interpreted to yield final weathering computation time adjustments to reference the seismic section to a 1900 foot datum plane.

The final processing step consisted of applying the previously derived statistical statics to single fold records which were subsequently stacked. Zero-phase digital filtering after stack was sometimes used to overcome noise problems on several lines. Time variant scaling was also used on several lines to adjust relative signal amplitudes. The structural corrections were then applied to the raw stack to yield the final structural section, which was subsequently displayed on film. See Production Processing Data Flow Chart, Plate 5, which illustrates the various phases of processing. In all cases only the first 1.500 seconds of the 2.000 second recorded field data was processed.

2. Production Processing - Raw Time

After various parameters required to process the data had been determined, all data were processed following one of the two alternative routes shown in Plate 5. An explanation of each of the processing steps follows:

a. Binary Gain True Amplitude Recovery (T.A.R.)

The application of T.A.R. ensures that a true relative amplitude relationship in a horizontal sense is established for all events, each event being proportional in amplitude to its reflection coefficient. T.A.R. has three objectives.

(a) removal of field recorded gain

(b) to compensate for loss in amplitude due to shot-receiver distance by addition of a spherical divergence correction

(c) to compensate for the effects of earth filtering effects, or inelastic attenuation by applying an appropriate exponent to the records

In the Tathlina survey, an exponent of 12.00 db per sec. was applied over a gate of 0.0 to 1.000 seconds.

b. Normal Moveout (NMO)

The two-dimensional time lag effects due to finite signal propagation velocities and shot to receiver distances make it necessary to apply space (shot-geophone distances) and time (average velocity variation with depth) corrections if common depth point stacking methods are to be effectively used. field recording geometry must be known. An accurate velocity picture, or velocity function, must be used to apply normal moveout corrections.

A number of wells and corresponding well tops were used initially to project a general area trend and geological picture. Wells scattered around the survey area served as a velocity grid control:

BRIGGS TATHLINA LAKE No. 5	60° 44' 44" N - 117° 31' 09" W
BRIGGS TATHLINA LAKE NO. 3	60° 40' 29" N - 117° 31' 10" W
SHELL MOBIL ALEXANDRA NO. 6	60° 18' 45" N - 119° 18' 45" W
WILKINSON REDKNIFE NO. 1	60° 59' 26" N - 119° 11' 10" W
WILKINSON REDKNIFE NO. 2	60° 52' 29" N - 119° 22' 23" W
CALSTAN IMP. BOUVIER L-69	60° 48' 34" N - 118° 43' 00" W

Time-depth curves for the above last three wells were supplied, but near surface velocity estimates had to be made. A raw time velocity function derived from a sonic log analysis of Briggs Tathlina Lake No. 3 was primarily used as the starting point of all derived functions. Plate A-9 of the Appendix relates the well locations to the seismicline locations. The average velocity ($\bar{V}$) to the Slave Point was determined from the raw two-way reflection time to the Slave Point (T_o) versus the amount of moveout (ΔT) on this reflector along the survey lines or line segments wherever field record, or in the second processing route - deconvolved and digitally filtered records, permitted a reliable analysis. Using the calculated $\bar{V}$ to the Slave Point, the sonigram-derived velocity function was appended to it to obtain average velocities below the Slave Point and immediately above it.

Precambrian and Twin Falls reflection times were picked and a corresponding T_o - ΔT analysis was carried out wherever reliably possible. It should be noted that the near surface function segment of later processed lines was altered to enhance the recovery of very shallow horizons which were refractively distorted.

c. <u>Deconvolution (DCN)</u>

The deconvolution operator employed over the prospect was a 14 point, 4 millisecond filter which was designed from, and applied to, every trace. The design gate for the filter was from 0.250 to 0.850 seconds. Normalization of the filters resulted in approximate equalization of average absolute

amplitudes of traces in auto-correlation gates after application of the filters.

d. Zero-Phase Digital Band Pass Filtering (DGF)

Initially a 27 point 20-70 Hz digital bandpass filter was applied to the deconvolved data. Later, the bandpass was increased to 20-80 Hz. Filters with a higher number of points were used to attack severe low frequency noise trains on single-fold records and on the stacked output of later processed lines. Extremely strong ground-roll conditions, in the 10-15 Hz range, often obscured the inside 6 to 8 traces of the records in the zone of interest. This ground-roll could not be completely removed, even with the use of a sharp cutoff digital filter.

e. Statistical Smoothed Raw-Time Statics (C-3)

(i) Derivation

Whenever a line is shot using CDP methods, each surface position is used a number of times. When processing CDP records, it is necessary to apply time shifts to individual traces which can be related to the surface positions of the terminal points - the shot and the receiver. C.J. Blum's common surface point static synthesis is the basis of C-3 Statistical Statics. Its use enhances the reliability of manually picked times over a series of near traces from single fold records having a good acoustical definition of a primary seismic event, such as the Slave Point was in this area, and forms a consistent set of static shifts to optimize CDP stacking. Its output is a raw-time section. Its use

is recommended in areas where shallow markers are suspected to be faulted or otherwise structurally complex, and for optimum multiple interpretation.

(ii) Application

A simple static program was used to apply the derived values. It included an edit option to zero (or "kill") entire traces. Proper editing is necessary to remove spikes, clipping, wild traces, etc., that would be harmful to the section quality in stacking. All single fold records after statics and editing were displayed to obtain a visual check of the accuracy of the applied shifts. Residual problems are more readily apparent once all static patterns are smoothed. Multiple interference across the spread could be checked with increasing offset from the shot point.

f. Common Depth Point Stack (DPS)

Four traces from a common subsurface point were summed to produce one output trace per subsurface point. The long offset traces were scaled according to the spread geometry, using first break suppression to eliminate: (i) surface noises, (ii) distortion related to first arrival energy and (iii) NMO problems associated with the far traces on the shallow data. A stacking technique with space equalization over a specified time gate was used in conjunction with dead trace detection and amplitude recovery procedures to ensure proper modulation on the stacked output.

g. Time Variant Scaling (TVS)

To enhance the interpretative situation on final sections, remodulation of digital tape either uniformly with record time or according to an input schedule of relative amplitudes versus time is sometimes desired. Although time variant scaling primarily functions as a multi-gated trace equalization process, scaling was done on an individual trace and record basis.

3. Production Processing - Structural

a. First Break and Uphole Time Picking

Automated first break picking (Cal - 27) was used throughout the project. Field tape records after binary gain T.A.R. were input to this program. In order to miss early arrival noise, start of search times for first breaks were specified on a trace by trace basis and changed with varying first break arrival times for different lines and line segments. The criterion used for a first break is that it was likely the first non-zero value on tape, in a specific time and space (trace) window, greater than 2^5 (i.e. 32 mv.) in absolute magnitude and that the trace continued to oscillate after a picked break time. In some instances, pick times deteriorated because of front end noise. Manual picking of first breaks aided in refining the picks in the rougher record areas.

Early in the project, automated uphole time picking was added to this program. A manual pick on the read after write monitor records of the direct uphole time and instrument uphole time, combined with the computer pick time of the recorded uphole, resulted in increased weathering

computation accuracy.

b. Plotting and Interpretation

For every third shot point, first break pick times were plotted and interpreted for subsequent weathering calculations. In areas of difficult interpretation, either because of rapidly changing weathering depths or near surface conditions which were reflected in poorly defined first break times, considerably more shot points than usual were picked and computed in order to clarify the near surface problems.

A two layer case, with the second layer velocity of 16,000 ft./sec. assumed constant, proved to be an exceptionally good plot fit. The thickness of the first low velocity layer varied dramatically on portions of several lines. A replacement velocity of 16,000 ft./sec. to reference the seismic section to a flat datum plane of 1900 feet was used for the full extent of the project.

The method of computation is outlined below.

c. Computations

$$\text{U.H. Corr.} = 2\left[\frac{Esp - Ds - Ed}{Vd}\right] + Tuh$$

$$H = \left[\frac{\text{Int. } T - Tuh}{2 \cos \theta}\right] \cdot V_1$$

$$D_c = 2H\left[\frac{1}{V_1} - \frac{1}{V_d}\right]$$

$$T_c = \text{UH Corr} + D_c$$

where:

E_{sp} = Elevation of shot point (ft.)

D_s = Depth of shot (ft.)

E_d = Elevation of Datum Plane = Constant 1900 feet

V_d = Replacement velocity to Datum = 16,000 ft./sec. assumed

Tuh = Uphole time (sec.)

Int. T= Intercept Time of Weathering Plot Velocity Slopes in second layer (sec.)

V_1 = Velocity in upper layer (ft./sec.)

V_2 = Velocity in subweathering layer = 16,000(ft./sec.) assumed

Sin θ= V_1/V_2

H = Weathering depth (ft.)

D_c = Drift Correction (sec.)

U.H. Corr. = Uphole Correction (sec.)

T_c = Total Correction (sec.)

d. <u>Application</u>

A statics routine was used to introduce the structural computation values into the raw time stack sections of all lines in the prospect. Intermediate depth points between computed control locations were manually interpolated.

V. RESULTS AND INTERPRETATION

The permit area lies in the northern half of the Western Canadian Sedimentary Basin. North of the permit area, gas shows had been encountered in the Upper Elk Point in Briggs Rabitt Lakes No. 1 and No. 3 and the Wilkinson Redknife River No. 2 wells. The Calston Imperial Bouvier L -69 well found the Slave Point formation to be of a highly fossiliferous nature, close to reefal development, as well as encountereing a gas show in the Upper Elk Point.

Reflection quality averaged fair throughout the area, the poorer record areas generally occurred where thicker muskeg cover prevailed. Some deterioration of record quality was also found in the most northerly part of Line 15 where surface limestone rendered drilling shot holes to the desired depth too slow and costly.

As there were no wells in the permit area to seismically tie, reflections were identified using sonograms and sonic log results from the closest wells adjacent to the permit area. The two most prominent and continuous reflections were identified as the tops of the Upper Devonian Twin Falls member of the Grumbler Group and the Middle Devonian Slave Point formation. A third deeper reflection, of poorer quality and continuity, by interval appeared to be of Pre-Cambrian origin. Other reflecting events present, of poorer quality and lacking character and continuity were not specifically identified in the absence of direct seismic well ties. Structural time maps were prepared of the three identified reflection events.

The three horizons mapped show regional dip to the south, south-west, the Upper Twin Falls member dipping at a much steeper rate than the underlying Slave Point formation. To the west, the Twin

Falls and Slave Point reflections merge into one, seismic evidence is not conclusive as to whether the Twin Falls is absent to the west or the Slave Point has disappeared. Regionally the Slave Point to Pre-Cambrian interval shows gradual thickening to the South.

A number of anomalies, generally small in area, and in some cases associated with small faults are shown on the three structural maps. The faulting indicated, appears to be of basement origin and, with one exception, dying out immediately above the Slave Point formation. Displacement is quite small. The most easterly fault shown, appears to have somewhat larger displacement and to have affected the Twin Falls member.

The Slave Point Pre-Cambrian high at the intersections of Lines 19, 17 and Line 2, shows some thickening of the Slave Point to Pre-Cambrian interval which may be indicative of Slave Point build-up. The Twin Falls shows a small closure at the intersection of Line 17 and 2 with a slight thinning of the Twin Falls to Slave Point interval.

A Slave Point and Pre-Cambrian high at shot points 23 and 24 Line 5 is shown. A similar thickening of the Slave Point to Pre-Cambrian interval and thinning of the Twin Falls to Slave Point interval occurs. Additional east-west seismic line control would be desirable across the anomaly.

A high trend on both the Slave Point and Pre-Cambrian horizon has small closures contoured at the intersection of Line 11 and 4 to the north and across Line 14 shot point 121. A small saddle area separates the two closures. Some thickening of the Slave Point to Pre-Cambrian interval occurs. The Twin Falls member appears absent as the closure exists to the west of a possible pinch out of the Twin Falls against the Slave Point.

The closure on all horizons at the intersection of Lines 5 and 20,

Lines 20 and 8 appears to be of structural origin suggesting a basement high. The Slave Point to Pre-Cambrian interval thins slightly, the upper Twin Falls to Slave Point interval shows no change.

Several other small local closures are indicated on all three horizons, however, interval changes are slight, suggesting possible isolated minor basement highs.

VI. SUMMARY AND CONCLUSIONS

The West Tathlina Area seismic survey results revealed three isolated anomalous closed features with associated thickening of the Slave Point to Pre-Cambrian interval suggesting possible local reefal build-up of the Slave Point formation. Areal closure is generally small. Other small anomalous features discovered are believed to originate from small local basement highs or associated with local basement faulting of small displacement which with one exception, dies out immediately above the Slave Point formation.

It is believed that the small anomalous features discovered could be of value as hydrocarbon traps, either from local reefal build-up of the Slave Point formation or as structural closures originating from isolated basement highs, although areal closure is generally limited.

PROGRAM LOCATION MAP

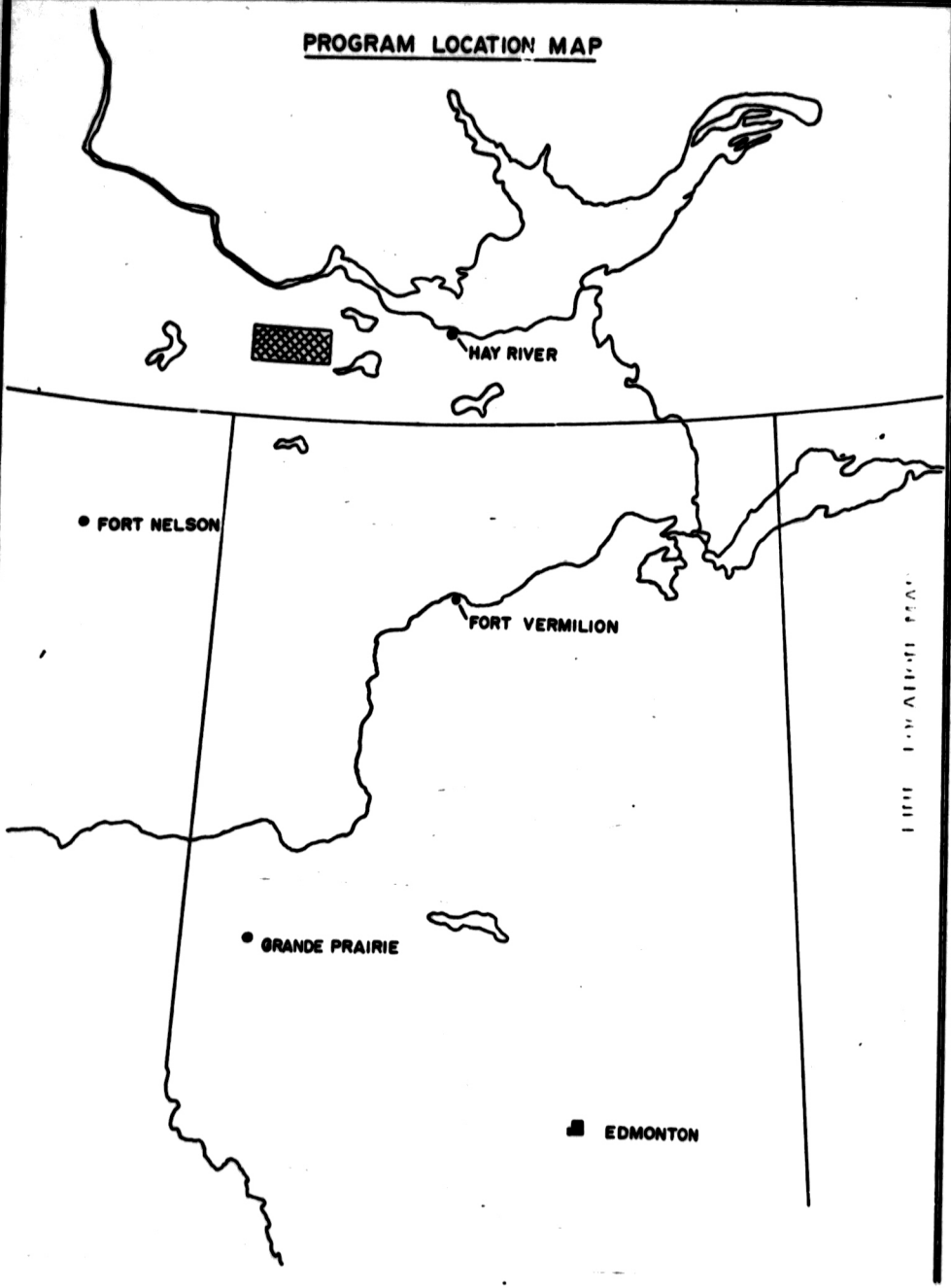
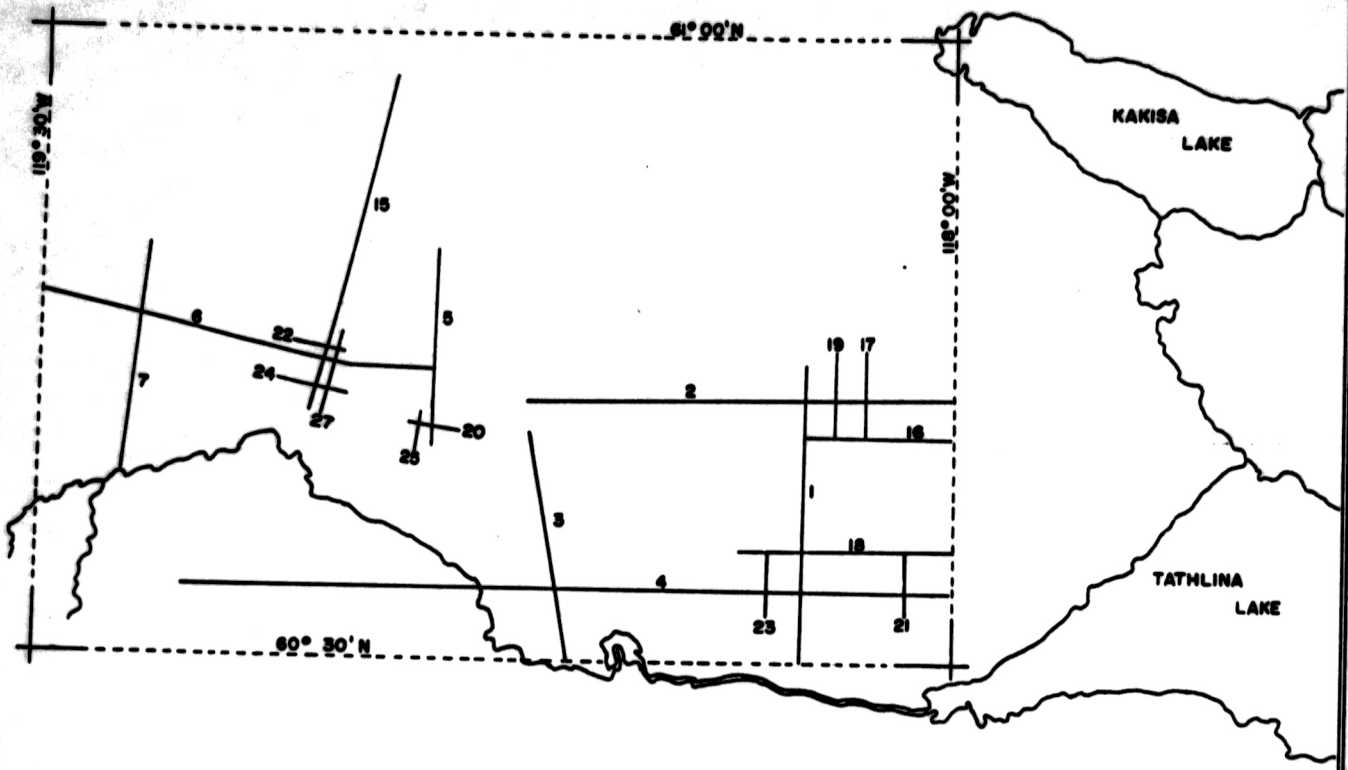


PLATE 1



LINE LOCATION MAP

PLATE 2

SPREAD CONFIGURATION

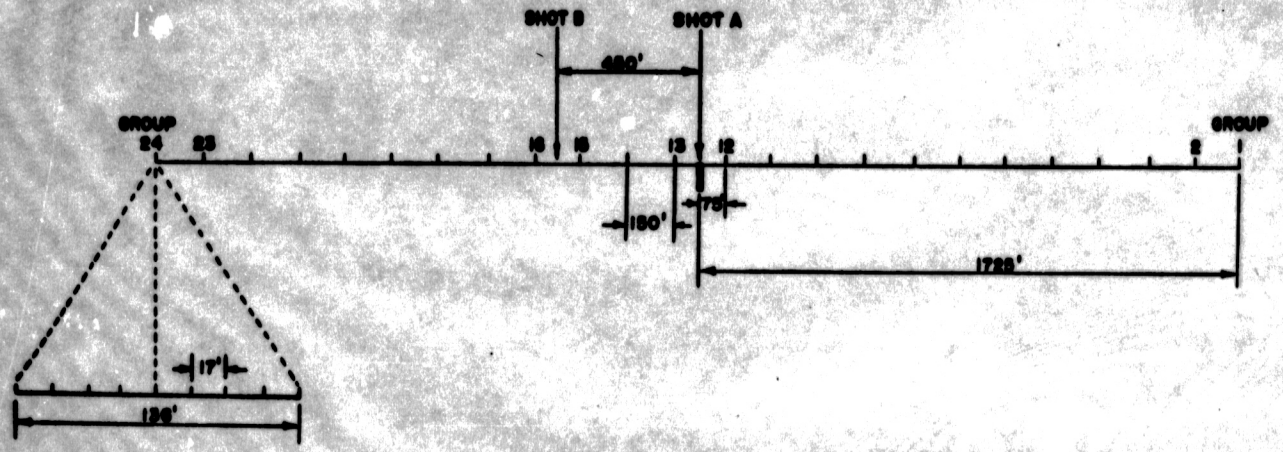


PLATE 3

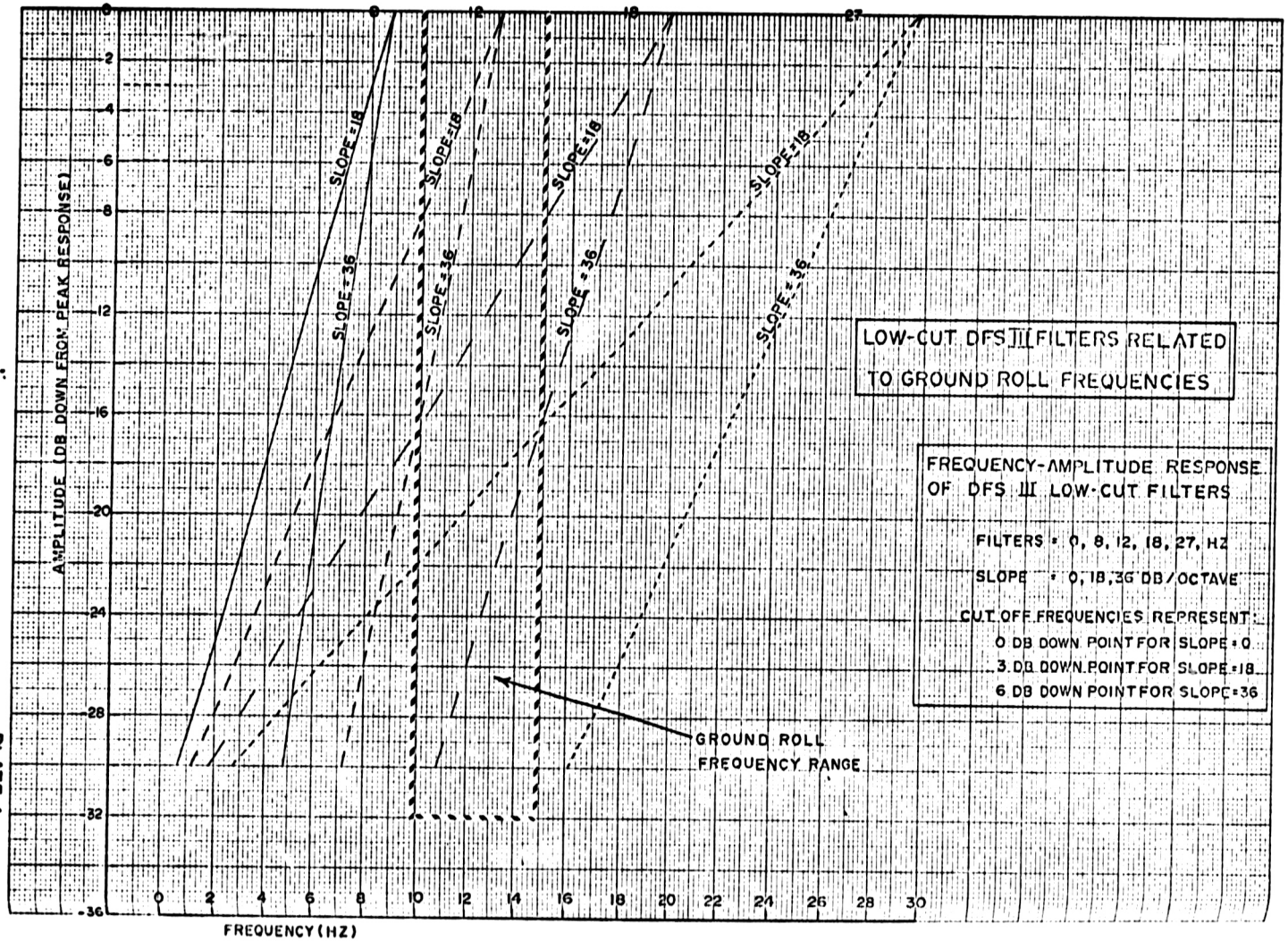


PLATE 4

PRODUCTION PROCESSING DATA FLOW CHART

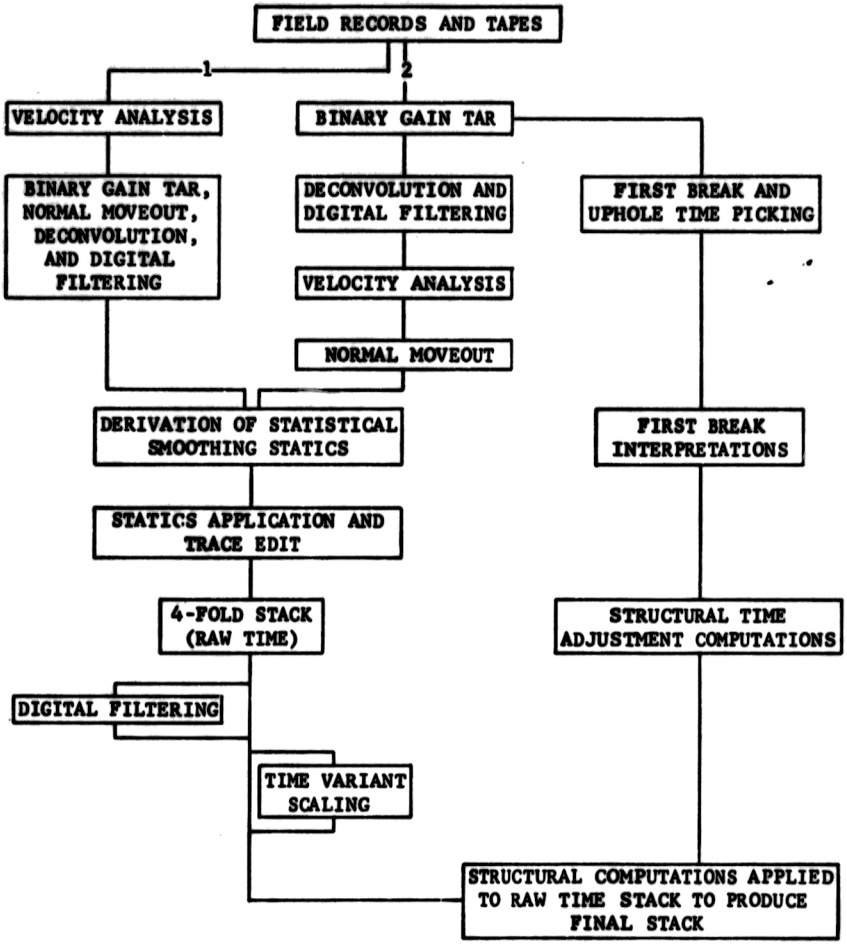
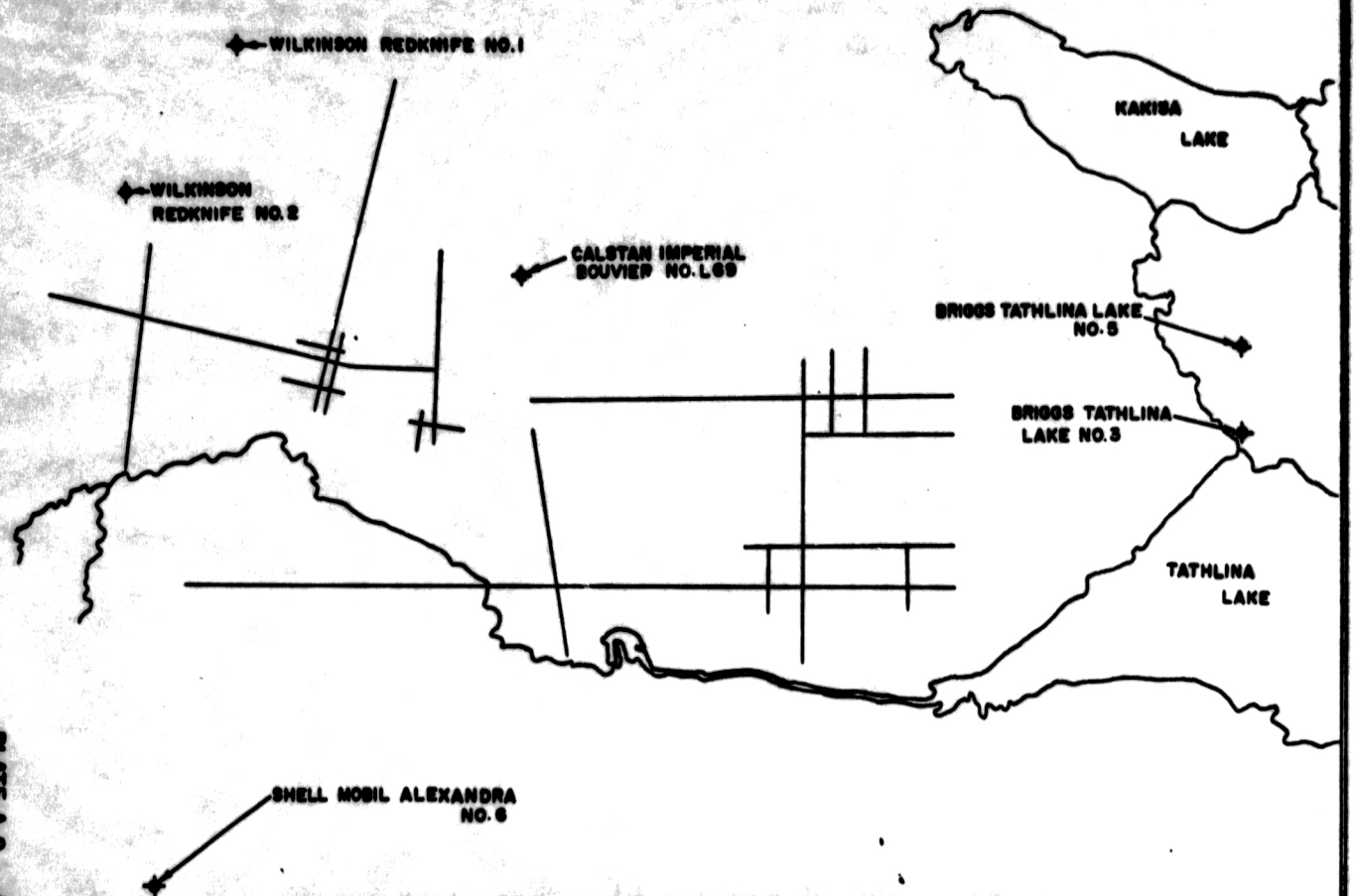


Plate 5.



VELOCITY CONTROL WELLS RELATIVE TO LINE LOCATIONS

PLATE A-9

Canadian Pacific

OIL AND GAS LIMITED

1-68-39

Well Name	CHLOTAPECTA CREEK (PEC)	Producing Fm.		Interval	
Location	58°26' 30" N 123°54' W	Elevation K.B.		Ground	
Province	BRITISH COLUMBIA	Total Depth		Oldest Fm.	
Area	SUMMIT; NAHANNI-TOAD RIVER SURVEY	Casing			
Commenced	SEPT. 7th. 1968	Sample Quality	GOOD		
Completed	SEPT 11th. 1968	Geologist	J.W.J. HARDY		
Status	OUTCROP SECTION	Date			

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Triassic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING · DIAG SIZE	SORTING · DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
							M		Ss f-c m/gy sl calc tr pelec casts thin cong string
									Covered
50							M		Ss m/gy m-c gr tr cross bedding
							F		Ss m/gy vf-f gr calc silt tr pelec w/interb slty foc
100							M		Ss m/gy f gr calc tr brach casts
							P		Ss m/gy f gr v calc sh crin some brac frags
50							P		Ss m/gy vfgr calc poorly exposed
							M		Ss m/gy f-m gr v sl calc w/ 2% sandy slt m/gy
200									Ss m/gy v-f gr v sl calc
									45% ss m/gy calc sl slty 45% silt m/gy sandy
							M		Ss m/gy v-f gr calc w/minor current bedding
									Silt dk/gy v calc frags pelec bracs
									Ss m/gy v-f gr calc
50									Ss m/gy f gr calc w/30% interb dk/gy shl
									Covered
							M		Ss m/gy v-m gr calc sl slty tr pelec casts
300									
							M		Ss m/gy vf gr calc sl slty 3% interb v/slty shl
							P		Interb 50% m/gy vfgr calc slty 35% silt 15% calc
							M		Ss m/gy f-m gr calc sl slty poor rare worm burrows
50									Ss m/gy f gr calc shl dk/gy slty
									Ss m/gy v-f gr calc slty interb 2% slt m/gy argill
							M		
400							M		Ss m/gy v-f gr slty calc interb 15% slt m/gy calc
									Ss m/gy v-f gr calc
									Covered
50									Ss m/gy v-f gr calc tr pelec interb w/20% slt 10% shl
									Silt m/gy sdy calc interb w/40% ss slty 10% shl
									Covered
									Ss m/gy v-fgr interb w/30% silt 10% shl m/gy calc
500									Ss m/gy fgr silty calc tr brac ammon interb slt arg
									Ss m/gy v-fgr calc slty tr brac casts interb silt
50									Ss m/gy v-fgr calc silt ammon bracs
									Silt m/gy v sandy calc pelec interb w/shl v slty ca
600									Silt m/gy sandy calc tr pelec ammon casts interb sh
									Silt m/gy calc interb w/40% shl dk/gy calc
50									From 656 thin lst m/gy r v slty w/brac ammon pelec
									Lst m/gy r sandy ammon cast pelec brac lht ned
									~~Shl dk/gy slty calc interb w/30% lst as above~~
700									Shl dk/gy slty calc interb w/15% slty lst m/gy

Silt m/gy calc interb w/40% shl dk/gy calc
From 656 thin lst m/gy r v slty w/brac common pelec

Lst m/gy r sandy common gast pelec brac Sht nod
~~Shl dk/gy slty calc interb w/30% lst as above~~
Shl dk/gy slty calc interv w/15% slty lst m/gy

Mst dk/gy calc tr pyr interb w/shl dk/gy 30% silt

Silt m/dk/gy calc sandy interb bands of ss m/gy vfg
~~Slty to brac fsg~~

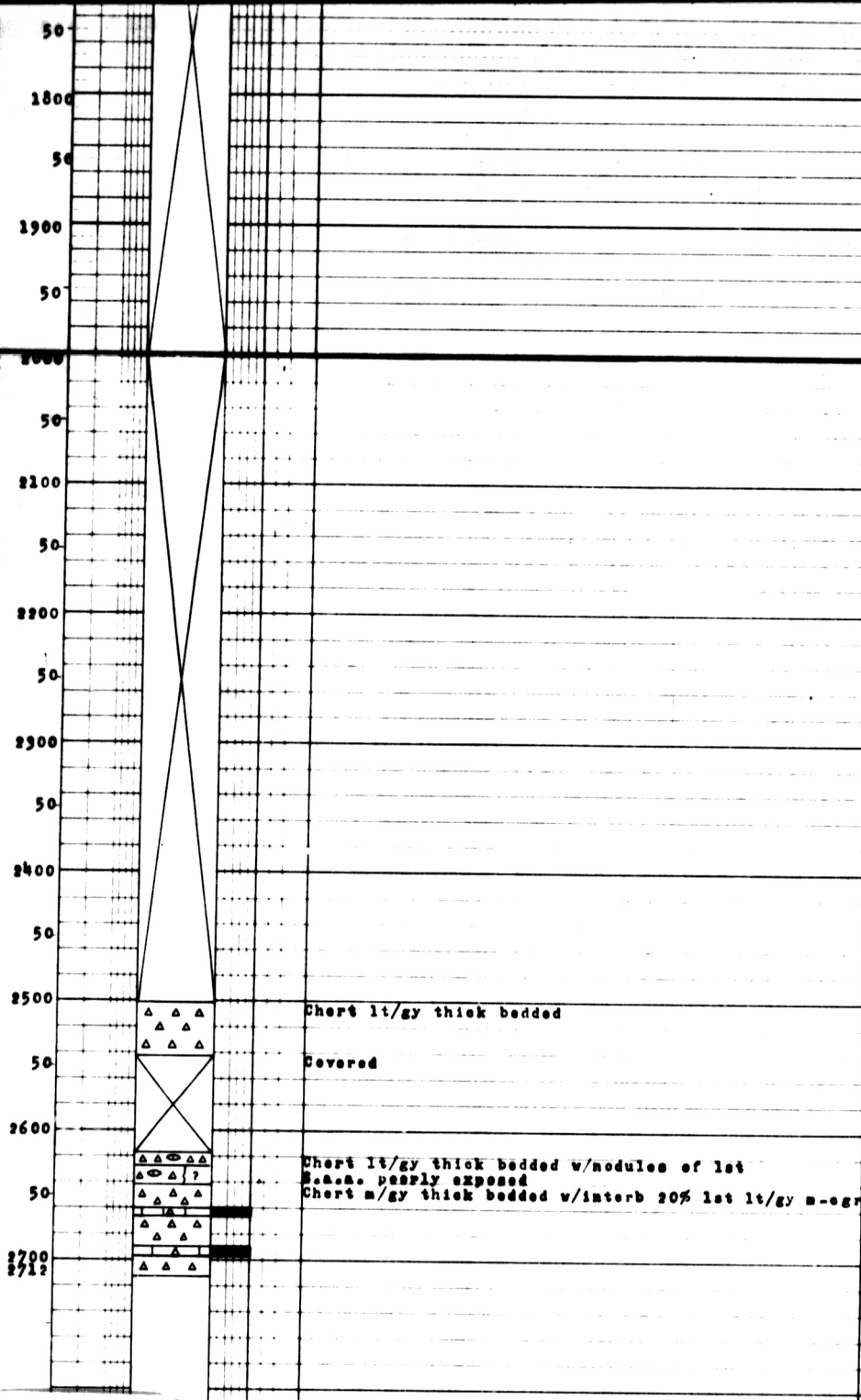
Silt m/gy sandy calc common casts interb w/50% shl

Silt m/dk/gy calc tr pelec casts interb w/20% shl
Calc w/tr ripple marks
Thinly interb

Silt m/gy calc interb w/20% ss 40% shl d/gy calc slt
Echin

Shl dk/gy silty sl calc interb w/20% mst dk/gy calc
Pelec tr brac casts common casts

Covered


50
1800
50
1900
50
2000
50
2100
50
2200
50
2300
50
2400
50
2500
Chert lt/gy thick bedded
50
Covered
2600
Chert lt/gy thick bedded w/nodules of lst
Ss.s.s. poorly exposed
50
Chert m/gy thick bedded w/interb 20% lst lt/gy m-cgr
2700
2712

93

Canadian Pacific

OIL AND GAS LIMITED

1-68-38

Well Name	CHISCHA RIVER CHR	**Producing Fm.**	**Interval**
Location	58° 33' N 123° 50' W	**Elevation K.B.**	**Ground**
Province	B.C.	**Total Depth**	**Oldest Fm.**
Area	TOAD RIVER	**Casing**	
Commenced	Aug. 2. 1968	**Sample Quality**	OUTCROP
Completed		**Geologist**	J. HARDY
Status	OUTCROP	**Date**	22nd Oct 1970

INFORMATION SUMMARY Cret/Tr Section

Triassic

Total footage 1462'

LOG PREPARED BY K. CHIANG

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING · DIAG SIZE	SORTING · DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION	Depositional environment
Cret						N	0		Sh, dk gy, wthrd m gy. Cret / Tr contact	
						r.p.	5		d.a., SS. m gy.	
Tr						r.p.	C		SS. m gy. ripple mark, tracks	
						r.p.	C		SS. gy. with cross bedding.	
						r.p.	c		d.a.	
						r.p.	c		d.a.	
							7		SS, fos cross-bdg. load casts; Siltst, m gy.	
							c		SS. m gy. calc. mud cracks, burrows;	
							8		SS. m gy, ripple marks, mud cracks; Sh, dk gy, pyr. Siltst. m gy	
100							2		Siltst. m gy. calc. fos, ripple mark, burrows.	
							1		d.a.	
							1		d.a.	
							1		d.a.	
							1		d.a.	
							1		d.a.	
							1		d.a.	
							1		Siltst. m gy. calc. fos. ripple mark.	
							1		d.a.	
200							0		Sh. m gy. slt. calc, Siltst. lt gy. calc. bres	
							0'		d.a.	
							1'		Siltst. m gy. SS. calc. calc in filling.	
							3		d.a.	
							0		Siltst. m gy. calc. Sh. m gy, slt, calc.	
							3		Siltst. m gy, SS, fos	
							5		SS. m gy. slt, calc, Sh. dk gy. slt, Siltst, m gy.	
							1'		Siltst. m gy, calc, fos.	
						P.6'			SS. m gy. slt, calc, Sh. dk gy.	
							1'		SS. m gy. calc. slt, Siltst. m gy, calc, Sh, m gy, slt, SS, calc	
300							0		Siltst. m gy. SS. calc. fos, Siltst. m gy. calc	
							4		d.a.	
						P.5'			SS. m gy. slt, calc. Sh. gy bun. slt.	
						C			SS. m gy. slt, calc. fos. Slt. m gy. calc. fos;	
						P.8			Sh. m gy, slt, calc. SS. m gy. calc. pyr. fos (Ammonoids).	
						P.9			SS. m gy. calc. pyr. ammonoids	
						P.9			d.a.	
						9			SS. m gy. calc. ammonoids	
						.8			d.a.	
						4			Siltst. m gy, SS. calc, ammonoids	
400						c			SS. m gy. slt. calc. fos.	
						1'			Siltst. m gy. calc. SS. m gy. slt ammonoids, pelecypods	
						3'			SS. m gy. calc. fos. slt, Sh. m gy. Siltst. m gy. calc. fos. slt.	
						3'			Sh. dk gy. calc	
						5'			SS. m gy, fos, slt; Slt, m gy. Sh. dk gy. calc. intbd.	
						0'			d.a.; Sh. dk gy, calc;	
						4'			SS. m gy, slt, calc. fos, SS, m gy. slt. fos (ammonoids. pelecypods); Siltst. m gy, SS. m gy. fos.	
						1			Sh. dk gy. fos (ammonoids. pelecypods), Slt. m gy. calc	
						2'			Siltst. m gy. SS. calc; Sh. dk gy. SS. calc. slt.	
						5'			SS. m gy. slt. calc. Slt. m gy. SS. calc. } intbd.	
500						5'			SS. m gy. slt. calc. Slt. fos. Sh. dk gy. calc. slt	
						7			SS. m gy. slt. calc. slt pbl.	
						7			d.a.	
						7			d.a.	
						2'			Sh. m gy. calc. Sh. m gy. slt. calc. SS, Slt. m gy.	
						P.9			Slt. m gy. slt pbl. SS. m gy. calc	
						2'			SS. d.a.; Slt. m gy. calc. Sh. m gy. slt. calc. thinly bd.	
						3			From 562' - 762' Siltst & Sh intbd	
						3			Siltst. m gy. calc. ammonoids. SS stringer } intb	
						3			Sh. m gy. slt. calc.	
600						3			d.a.	
						3			d.a.	
						3			d.a.	
						3			d.a.	
						3			d.a.	
						3			d.a.	
						3			d.a.	
						3			d.a.	
700						3			d.a.	
						3			d.a.	
						3			d.a.	
						3			d.a.	

600'

3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.

700'

3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.
4 Siltst. m gy, ss, calc, ammonites (762'-828' probably intbd)
4 a.a.
4 a.a.
4 a.a.

800'

2? a.a.
0 Sh, gy, slt, calc.
0 Ls, m gy, slt
2 Siltst, m gy, ss, calc, ammonite, Sh, m gy, slt, calc intbd 828'-896' ripple marks, tracks.
2 a.a.
2 a.a.
2 a.a.
2 a.a.
2 a.a.
2 a.a.

900'

5 Siltst, m gy, ss stringers, calc ripple marks
4 a.a.
3 Siltst, m gy, ss stringers, calc ripple marks
3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.
3 a.a.

1000'

3 a.a.
2 a.a. ; Sh, m gy, slt, calc, ss stringers
1 Sh, a.a.
covered
0? Siltst, dk gy, calc, pyr, ammonite, pelecypod.
0? a.a.
0? a.a.
0? a.a.
1? a.a. siltst, m gy, ss stringer, calc, pyr ripple marks
1 Siltst, m gy, ss stringer, calc, pyr, ripple marks

1100'

1 a.a.
1 a.a.
1 a.a.
1 a.a.
1 a.a.
1 a.a.
1? a.a.
2 Siltst, m gy, ss, calc, pyr, ammonites.
2 a.a.
2 a.a.

1200'

2 a.a.
2 a.a.
2 a.a.
2 a.a.
2? a.a. partly covered.
1? Partly covered. siltst, m gy, ss stringer, calc, pyr
2 Siltst, m gy, ss stringer, calc, pyr.
2 a.a.
2 a.a.
2 a.a.

1300'

2 a.a.
2 a.a.
1 a.a. siltst, dk gy, calc, ss stringer.
1? Siltst, dk gy, calc, ss stringer.
1? a.a.
1? a.a.
1? a.a.
1? a.a.
1? a.a.
1? a.a.

1400'

1? a.a.
1? a.a.
1? a.a.
1? a.a.
1? a.a.
1? a.a.
1? a.a.
END OF SECTION.

1500'

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-37

Well Name	MILE375 (TR)	Producing Fm.	Interval
Location	58°39' N 124°14' W	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	SUMMITT NAHANNI - TOAD RIVER SURVEY	Casing	
Commenced	JULY 26th. 1968	Sample Quality	GOOD
Completed	JUYL 26th. 1968	Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Mesozoic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ss. m/gy, v-fine gr. calc. with some shl. dk/gy interbed. at base
									Ss. med/grey
									Ss. lt/gy, med. grn calc. silic, some dk/gy-blk shl.
50									Shl. blk. and Ss m/gy, fine gr. interbed.
									Ss. m/gy, v-fine gr. sl. calc. brn shl. interbed.
									covered.
									Ss. m/gy, v-fine gr. calc, dk/gy shl. interbed.
100									
50									Ss. m/gy, v-crs. calc.
									Ss. m/gy, f-med. gr, calc, blk. shl. interbed.
189									silt, m/gy, calc.

Canadian Pacific

OIL AND GAS LIMITED

1-68-36

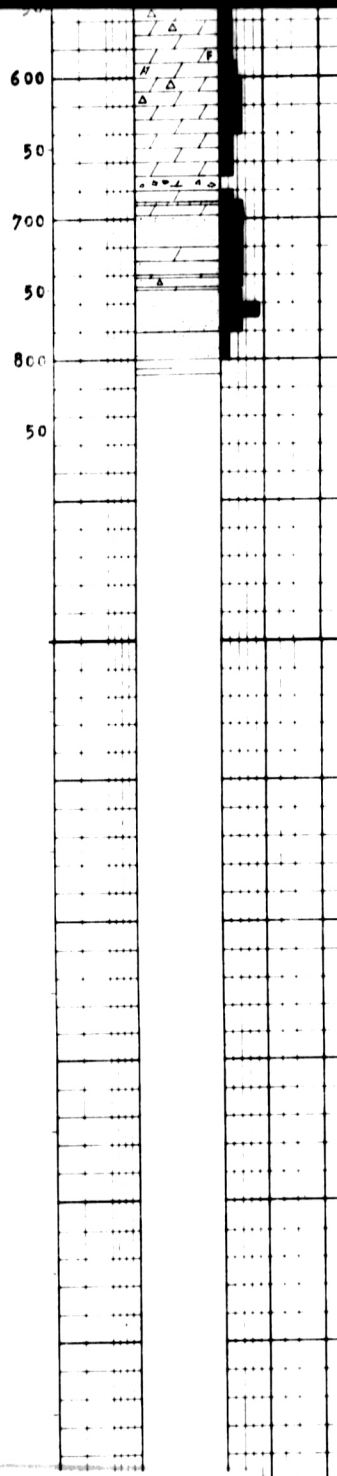
Well Name	SUMMIT LAKE SUM #1	Producing Fm.	Interval
Location	Lat. 58°42', Long. 124°43'	Elevation K.B.	Ground
Province	British Columbia	Total Depth	Oldest Fm.
Area	Summit Lake	Casing	
Commenced	Field Party, Summer, 1968	Sample Quality	Outcrop
Completed		Geologist	D. E. Campau, G. Puca
Status		Date	

INFORMATION SUMMARY

Devonian, Silurian, Cambrian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING DIAG SIZE	SORTING DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
SUM #1 0									Dol., gy., m. bedd., sandy.
									Dol., lt. brn., sandy.
									Dol., gy., v. sandy.
									Shl., brn. thn. bdd.
50									Ss., yel.-brn., shly.
									Ss., yel.-brn., calc.
									lt. brn. gy.
100									
50									Ss, lt/brn-gy, shly.
									Ss, lt/gy-brn
									Covered
									Dol. m/gy, med. bedded, sandy.
200									
									Dol., pk.-gy., calc. vn.
50									Dol., m.gy., thn.bdd.
									Dol., m.gy.
300									
50									Ss., lt. brn., dolic.
									Dol., m.-drk.gy., v. sl. sandy, foss.
									Dol., m. gy.-brn., min. frac., calc. vn.
400									
									Dol., m.gy., sm. c. vn.
									Dol., m.gy., m. bdd.
									Dol., m.gy., foss.
50									
									Dol., m-dk/gy, foss.
500									
									Ss., brn.-gy., m. bdd.
									Dol., m.gy., v. sandy.
									Dol., m. gy.-brn.
50									
									Dol., m.brn.-gy., cht., foss.
600									Dol., m.-drk.gy., sandy, cht.
50									Dol., drk.gy., calc. vn.

1 of



Dol., m.brn.-gy., sht., foss.

Dol., m.-drk.gy., sandy, cht.

Dol., drk.gy., calc., vn.

Brec., drk.gy., dolic.
Dol., drk.brn.-gy.
Dol., drk.gy.
Ss., gy.-wh., m. bdd.

Dol., m. gy.
Ss., lt.brn.-gy.
Dol., drk.gy.-m.gy.
Ss., gy.-ylsh. brn.

Silt, brn.-yel.

Shl., brnsh.

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-35

Well Name	110 CREEK 110 CR	Producing Fm.	Interval
Location	Lat. 58°40' 30" Long. 124°46'	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	SUMMIT	Casing	
Commenced	FIELD PARTY SUMMER 1968	Sample Quality	OUTCROP
Completed		Geologist	D. CAMPAU, G. PUCA
Status		Date	

INFORMATION SUMMARY

Mississippian/Devonian/Silurian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - GRAIN SIZE	SORTING - GRAIN SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
110 CR									Sh blk th bdd sl fiss sl silty
50									
100									
50									
200									Sh blk v th bdd fiss fw cont sl scale
									Sh blk v th bdd fiss abnt cont scale
50									Ls gy/brn tt hd min free foss
									Ls gy-dk/brn tt hd
									Ls dk/gy-dk/brn free fill w/scale
300									
50									Ls gy-brn indst foss mat
									Ls dk/gy-gy/brn tr of foss
400									
50									Ls lt/gy-brn th bdd indst algae mat
									Ls dk/gy-brn
500									Ls brn-dk/brn shy
50									Ls dk/brn min free shy
									Ls dk/gy-lt/brn ptly shy ptly scale vn
600									
50									Ls dk/gy-brn shy min free
									Ls gy-brn min free ptly scale vn ptly shy
700									
									Ls gy/brn min free shy

1 of

600

50

Ls dk/gy-brn shy min frag
Ls gy-brn min frag ptly scale vn ptly shy

700

Ls m/brn min frag shy
Ls dk/gy-brn min frag ptly scale vn

50

800

Ls dk/gy min frag foss
Covered

50

Covered
Ls dk/brn min frag
Ls m/brn min frag hd tt
Ls m/brn-gy min frag

900

Ls m/brn min frag
Ls m/brn-dk/brn min frag

50

1000

Ls gy-dk/ brn min frag

Ls gy min frag

50

Ls gy min frag, scale vn

1100

Ls gy-m/gy/brn, scale vn min frag

50

1200

Ls m/gy, scale vn min frag

Dol gy min frag
Ls gy dol min frag
Ls gy-dk/gy dol
Ls m/gy dol min frag
Ls gy-m/gy ptly scale vn min frag

50

1300

Brec, lt/brn-gy, dol

50

1400

50

Ls m/gy-brn min frag

1500

Ls lt/brn min frag foss
Ls gy-brn dol

50

Dol dk/gy-brn, scale min frag

1600

Ls gy-brn dol

Dol gy-brn v scale, min frag
Ls gy v dol min frag
Dol gy-brn, scale, min frag

50

Ls gy dol min frag
Dol gy-brn, v scale, min frag

1700

Ls gy-brn v dol
Covered
Ls gy v dol min frag
Dawkins
Ls lt/gy-brn dol

50

Dol lt/gy-gy, scale

Ls m/gy

1800

Dol gy-brn min frag
Ls gy dol
Dol m/gy, bl scale
Ls m/gy-brn dol

50

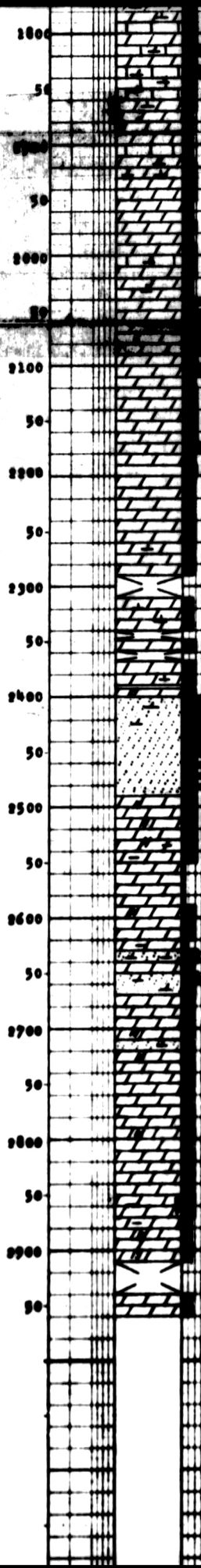
Dol m/gy, scale min frag
Dol m/gy-gy

Ls gy min frag
Dol m/gy, scale
Dol m/gy, v scale
Dol m/gy min frag
Dol lt-m/gy min frag
Dol lt-m/gy

50

Dol lt/brn-gy
Dol lt/gy min frag, sacc

2 01



Dol lt/gy-gy, calc
Ls m/gy
Dol gy-brn min free
Ls gy sil
Dol m/gy sl calc
Ls m/gy-brn dol

Dol lt/gy, calc min free
Dol lt/gy-gy

Ls gy min free
Dol m/gy, calc
Dol m/gy, gy calc
Dol m/gy, min free
Dol lt-m/gy min free
Dol lt-m/gy

Dol lt/brn-gy
Dol lt/gy min free
Dol lt/gy min free, clean
Ls gy v dol min free
Dol brn, sl calc, calc cmnt
Dol gy, calc min free
Dol lt-m/gy ptly calc vn

2100 Dol lt/brn, calc vn min free
Dol gy-brn, calc vn min free

50

Dol gy-m/gy
2200 Dol brn, calc vn
Dol m/brn-gy min free ptly calc

50

2300 Covered
Dol gy-m/gy, calc, min free

50 Covered
Dol gy, sl calc
Covered
Dol lt/brn-gy, calc min free
Covered
2400 Dol lt/brn sdy min free
Ss lt/gy ptly dol

50 Ss lt/gy-wh

2500 Dol lt/gy sdy

50 Dol lt/gy arg
Dol lt-m/gy

2600 Dol m/gy sdy
Dol gy-lt/brn

Ss gy-brn v dol
50 Dol m/gy
Ss gy-m/gy dol
Dol brn-dk/gy sl sdy

2700 Ss m/gy dol

50

2800

50 Dol gy-brn sl sh fossi
Dol gy-brn-dk/gy ptly sh ptly sdy

2900

50 Dol dk/gy-brn

3 of 3

Canadian Pacific

OIL AND GAS LIMITED

1-68-34

Well Name	YEDHE CREEK YCA #1	Producing Fm.	Interval
Location	Lat. 58°51'45", Long. 124°58'	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	Toad River Ledge	Casing	
Commenced	Field Party, Summer, 1968	Sample Quality	Outcrop
Completed		Geologist	D. E. Campau, C. Puga
Status		Date	

INFORMATION SUMMARY

Devonian, Silurian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
YCA #1									Ss., wh. gy.-brnsh, calc. vn.
									Shl., brn.-gy, vf. sl. sandy.
									Dol., lt.gy., m. bdd.
50									Lst., gy., dolic.
									Dol., m. brn., m. bdd.
100									
50									Covered.
									Covered.
									Dol., brn.-gy.
200									Dol., gy.
									Dol., m. gy., calc. vn.
									Dol., lt. gy.-brn.
									Covered.
50									Dol., brn.-gy., m. bdd.
									Dol., gy., m. bdd.
300									Covered.
									Dol., brn.-gy.
									Dol., m. gy., m. bdd.
									Covered.
50									Dol., gy.-m. brn.
400									Dol., drk.gy-brn., m. bdd., fess.
50									
500									
50									

Canadian Pacific

OIL AND GAS LIMITED

1-68-34

Well Name	YEDHE CREEK YCA #1	Producing Fm.	Interval
Location	Lat. 58°51'45", Long. 124°58'	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	Toad River Ledge	Casing	
Commenced	Field Party, Summer, 1968	Sample Quality	Outcrop
Completed		Geologist	D. E. Campau, G. Puea
Status		Date	

INFORMATION SUMMARY

Devonian,Silurian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL, GRAIN FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
YCA #1 0									Ss., wh. gy.-brnsh, sele. vn.
									Shl., brn.-gy, v. sl. sandy.
									Dol., lt.gy., m.bdd.
50									Lst., gy., dolic.
									Dol., m. brn., m. bdd.
100									
50									Covered.
									Covered.
									Dol., brn.-gy.
200									Dol., gy.
									Dol., m. gy., sele. vn.
									Dol., lt. gy.-brn.
									Covered.
									Dol., brn.-gy., m. bdd.
50									
									Dol., gy., m. bdd.
									Covered.
300									Dol., brn.-gy.
									Dol., m. gy., m. bdd.
									Covered.
									Dol., gy.-m. brn.
50									
400									Dol., drk.gy-brn., m. bdd., fess.
50									
500									
50									

Canadian Pacific

OIL AND GAS LIMITED

1-68-33

Well Name	DICKSON CREEK (DTC)	Producing Fm.	Interval
Location	58°47' 30" N 125°14' W	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing	
Commenced	AUGUST 10th, 1968	Sample Quality	GOOD
Completed	AUGUST 10th, 1968	Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

SCALE 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES: DEC. 1969

Triassic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL, GRAIN FRAGMENT SIZE	ROUNDING DIAG SIZE	SORTING DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ss m/gy vfgr silty, calc, interb w/30% shl dk/gy, silty, calc
50									Silt dk/gy sndy, calc veins, interb w/30% shl d/gy silty sl calc
100									
50									
200									
50									Silt dk/gy sndy, calc veins, poorly exposed
300									Silt dk/gy calc tr pelec cast sandy
50									Silt dk/gy, calc, silic nod, interb w/30% shl silty calc silic nodules
400									
50									Shl dk/gy v silty, calc cnd silic nod, calc veins w/thin interb silt m/gy sndy
500									
50									

1 of

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - GRAIN SIZE	SORTING - GRAIN SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ss m/gy vfgr slty, calc, interb w/30% shl dk/gy, slty, calc
50									Silt dk/gy sndy, calc veins, interb w/30% shl d/gy slty sl calc
100									
50									
200									
50									Silt dk/gy sndy, calc veins, poorly exposed
									Silt dk/gy calc tr pelec cast sandy
300									
50									Silt dk/gy, calc, silic nod, interb w/30% shl silty calc silic nodules
400									
									Shl dk/gy v slty, calc and silic nod, calc veins w/thin interb silt m/gy sndy
50									
500									
50									
									Shl dk/gy slty calc w/thin interb silt sndy tr pyr
600									
50									
700									Shl dk/gy slty, calc, veins w/thin interb slt m/gy sndy tr pyr
50									
773									

2 of 2

1-68-32

Canadian Pacific

OIL AND GAS LIMITED

Well Name	RAM CREEK	Producing Fm.	Interval
Location	58° 51' 45 N 124° 58' W	Elevation K.B.	Ground
Province	BC	Total Depth	1950' Oldest Fm.
Area	Toad River	Casing	
Commenced	1968	Sample Quality	Good to Fair
Completed		Geologist	Cas Bos
Status	Surface Section	Date	

INFORMATION SUMMARY

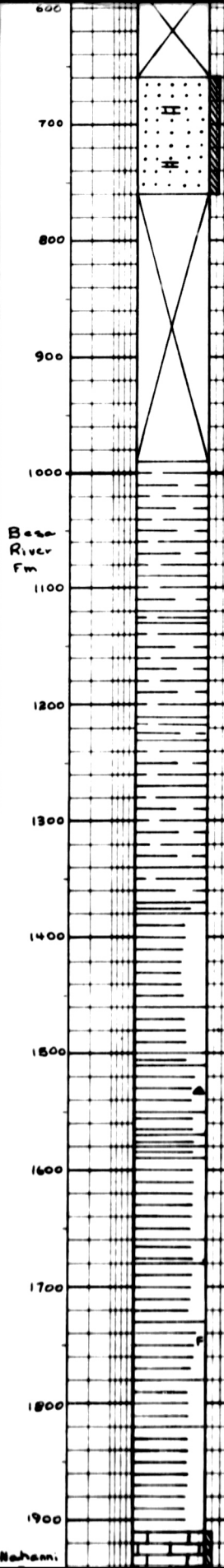
Lithosection prepared by J Klassen from field notes

Mississippian

SCALE: 1" = 100'

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING DMG SIZE	SORTING DMG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
Kindle Fm									Gy brn ss intbd / sltst intbd / sh, thn bdd, sil cmt
									Covered intv.
									Gy brn ss intbd / sltst intbd / dk gy sh, thn to m bdd, sil cmt, Fe stain.
100									Lt gy ss intbd / dk brn gy ss intbd / sh and sltst, m bdd
									Lt gy, m bdd
									Vcal sh
									Dk gy, sil, sh
									Blk sh.
200									Dk gy, sil sh
									Dk gy, sil sh
									Blk sil sh
300									Blk sh / bdd cht, sl silty @ base
400									Dk gy, sil cmt, thn to c bdd
									Covered intv.
									Gy, Brac, burrows, m to c bdd, calc cmt
500									Covered intv.
									Dk gy, sil cmt, sl calc m bdd
									M gy sh / mud cracks
									M gy sh / mud cracks
									Dk gy sh underlain by g. ls / Brac, Gast
									M gy sh
									M gy ls
600									Covered intv.

1 of



Mgy ss / sil cmt, mnr intbd ls / Brac, Gast, m bdd

Covered intv, prob sh.

Blk sh

Blk fis sh

Blk fis sh / mnr ironstone bnds
Blk fis sh wthrd red brn.

Blk, soft fis sh
Blk fis sh, harder than sh above, lmn and calc filled frac

Blk fis sh, becomes more plty near base.

Blk plty sh

Dk gy sh wthrs red brn, thn bdd
Dk gy to blk fis sh

Dk gy plty sh wthrs brn

Dk gy plty sh, mnr sil filled frac, pos calsp brec
Dk gy to blk sil sh, thk lam.

Dk gy sh / mnr sil
Dk gy to blk fis sh.
Dk gy sil sh
Dk gy to blk fis sh

Dk gy to blk plty sh
Dk gy to blk fis sh

Dk gy to blk sh / fm

Dk gy to blk sil sh wthrs brn gy

Dk gy brn sh

Lt gy

2 of 2

1-68-31

Canadian Pacific

OIL AND GAS LIMITED

Well Name	YASH CREEK	Producing Fm.		Interval	
Location	58°42' N 125°34' 30" W	Elevation K.B.		Ground	
Province	BRITISH COLUMBIA	Total Depth		Oldest Fm.	
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing			
Commenced	AUGUST 9th. 1968	Sample Quality	GOOD		
Completed	AUGUST 9th. 1968	Geologist	J.W.J. HARDY		
Status	OUTCROP SECTION	Date			

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Paleozoic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING DEG SIZE	SORTING DEG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Sh lt/gy interb w/30% silic silt 3% m/gy sh1
									Silt m/gy silic interb w/10% sh1 lt/gy 90% sh1 m/gy
									Silt m/gy interb w/sh1 dk/gy poorly exposed
									Sh1 dk/gy interb w/30% m/gy silt
50									Silt m/gy tr pyr interb w/silic silt lt/gy
									Covered
100									
50									
200									
50									Sh1 dk/gy
									Covered
300									Sh1 dk/gy/blk tr pyr
50									
400									
50									Covered
500									
50									

1 of

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DRAG SIZE	SORTING - DRAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Shl lt/gy interb w/35% silts silt lt m/gy shl
									Silt m/gy silts interb w/10% shl lt/gy 70% shl m/gy
									Silt m/gy interb w/shl dk/gy poorly exposed
									Shl dk/gy interb w/30% m/gy silt
50									Silt m/gy tr pyr interb w/silts silt lt/gy
									Covered
100									
50									
200									
50									Shl dk/gy Covered
300									Shl dk/gy/blk tr pyr
50									
400									
									Covered
50									
500									
50									
600									
50									
700									
50									Shl dk/gy/blk tr pyr
800									
50									Covered
882									Lst m/gy r-fxln strom tr frag bras

2 of 2

1-68-30

Canadian Pacific

OIL AND GAS LIMITED

Well Name	MILE 426 (WWH)	**Producing Fm.**	**Interval**
Location	58°26' 30" N 123°54' W	**Elevation K.B.**	**Ground**
Province	BRITISH COLUMBIA	**Total Depth**	**Oldest Fm.**
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	**Casing**	
Commenced	AUGUST 1st. 1968	**Sample Quality**	GOOD
Completed	AUGUST 13th. 1968	**Geologist**	J.W.J. HARDY
Status	OUTCROP SECTION	**Date**	

INFORMATION SUMMARY

SCALE: 1"=100' FEET

LITHOSECTION PREPARED B. V. PANLI FROM FIELD NOTES, DEC. 1969

Triassic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING DEG. SIZE	SORTING DEG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ss m/gy vfgr calc, silty interb w/20% silt m/gy sndy calc, 10% shl m/gy v silty
50									Ss m/gy vfgr silty,calc
									Shl m/gy v silty, silt-silt m/gy sndy, calc, sil nod
100									Ss m/gy vfgr silty, calc, silica nod interb w/15% shl m/gy silty, calc, 1 pin
									Silt m/gy sndy calc, silic nod interb w/40% shl
50									Ss m/gy vfgr silty calc, sil nodts interb w/ 10% silt m/gy sndy calc, 10% shl m/gy silty calc
									Ss m/gy f-vfgr silty calc, tr bolem
									Ss m/gy vfgr silty calc, interb w/silt m/gy calc, sil nod as strata 5 1 m/gy silty calc, silic nod
200									Ss m/gy vfgr silty,calc
									Ss m/gy vfgr silty, calc, interb w/25% shl silty, calc
50									Silt m/gy calc, shl m/gy silty, calc w/calc nod fess
									Shl m/gy v silty calc, interb w/30% ss m/gy vfgr
300									Shl m/gy silty, calc w/calc veins interb w/20% silt
									Silt m/gy v sndy, calc, tr fess silic nod
50									Shl dk/gy v silty, calc, interb w/10% silt m/gy sndy calc, silic nod partly pyritic
400									
50									Silt m/gy sndy, calc, silic nod
									Shl dk/gy v silty, calc, interb w/40% silt dk/gy, calc, silic nod 10% sndy silt m/gy calc,
500									
50									Interb silt m/gy sndy, calc, silic nod silt dk/gy, calc, shl dk/gy v silty, calc
									Silt dk/gy calc, silic nod interb w/shl dk/gy v silty
600									Interb silt m/gy sndy, calc, tr silic nod silt dk/gy calc, tr silic nod shl dk/gy v silty, calc
50									S.e.a.

1 of

Interb silt m/gy sndy, crlc, silic nod silt dk/gy, calc, shl dk/gy v slty, crlc

Silt dk/gy calc, silic nod interb w/shl dk/gy v slty

Interb silt m/gy sndy, calc, tr silic nod-silt dk/gy, crlc, tr silic nod shl dk/gy v slty, calc

S.a.a.

Shl dk/gy v slty, crlc, interb w/40% crlc, silt

Silt m/gy calc, tr silic nod interb w/20% shl dk/gy v slty, crlc, 10% silt m/gy sndy, calc

Silt m/gy sndy, crlc

Interb silt m/gy, crlc-shl dk/gy v slty, crlc

Silt m-dk/gy, crlc, pyrite sndy in bands

Silt m/gy, crlc, interb w/30% silty shl, crlc dk/gy

Shl dk/gy slty, calc, interb w/30% silt dk/gy, crlc

Silt m-dk/gy sndy, crlc, tr pel crste, v slty, calc

Silt m/gy sndy, calc, tr pel casts interb w/30% shl

Ss m/gy vfgr v slty, calc, pel cast-30% silt m/gy sndy, calc

Mudst dk/gy, calc, tr pyr tr pelec

Silt m/gy sndy, crlc, tr silic nod tr pelec

Silt m/gy crlc, silic nod sndy w/10% slt. shl dk/gy calc

S.a.a. more shl

Silt m-dk/gy, calc, tr silic nod

Interb shl dk/gy slty, crlc, calc veins silt m-dk/gy calc, tr silic nod, crlc veins

Interb sndy silt m/gy, calc, and calc silt dk/gy

One band of Fe-stone nod

Silt m/gy sndy, crlc, silic nod

Silt m/gy, calc, silic nod 20% silt dk/gy, crlc, calc veins tr pyr nod

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-29

Well Name	TOAD RIVER BRIDGE TRB LAT 58°48' LONG 125°36'30"	**Producing Fm.**	**Interval**
Location	WEST OF TOAD RIVER LODGE	**Elevation K.B.**	**Ground**
Province	B.C.	**Total Depth**	2660 FT. **Oldest Fm.** NONDA
Area	TOAD RIVER	**Casing**	
Commenced	FIELD SEASON 1968	**Sample Quality**	OUTCROP
Completed		**Geologist**	CAS BOS
Status	OUTCROP	**Date**	22ND OCT. 1970.

INFORMATION SUMMARY

LITH LOG OF FIELD NOTE

Devonian, Silurian, Cambrian/Precambrian

Total Footage 2660'

LITH LOG PREPARED BY K. CHIANG.

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	GRAINS - BASE SIZE	CEMENTS - BASE SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
						D	9	0	Dol. lt gy. calc.
						D	9	0	a.a.
						D	9	0	a.a.
		V				D	C	0	Dol. lt gy.
						D	C	0	a.a.
						D	C	0	Dol. lt gy - dk gy. bmx. sac. cephalopod, stem.
						D	9	0	Dol, lt gy,
						D	9	0	a.a.
						D	9	0	a.a.
100'						D	9	0	a.a.
						D	C	0	Dol. lt gy to gy.
						D	C	0	a.a.
						D	C	0	Dol. lt gy, fractured material.
						D	C	0	a.a.
						D	C	0	a.a.
						D	C	0	a.a. ; Dol. m gy.
						D	C	0	Dol, lt gy
						D	C	0	a.a.
						D	C	0	a.a.
200'						D	C	0	a.a.
						D	C	0	Dol, lt gy.
						D	C	0	Bioc dol
						D	C	0	a.a.
						D	C	0	a.a.
						D	C	0	Dol. intraformation broc.
						D	C	0	a.a.
						D	C	0	Dol. algal banding prominent.
						D	C	0	a.a.
300'						D	8	0	Dol. thn lam beds, sil, x-bd.
						D	8	0	a.a.
						D	8	0	a.a.
						D	8	0	a.a.
						D	8	0	a.a.
						D	8	0	a.a. Probably base of Arnica.
						D	7	1	Dol. a.a. transition
								C	SS, lt brn - gy ? x-bd
								C	a.a.
								C	a.a. friable.
400'								C	a.a. calc. in filling vugs x-bd
						D	8	7	SS. lt brn to gy, dol, calc
						D	6	4	Dol. lt gy to wh, ss.
									no field description.
500'						D	C	0	Dol. gyce.
						D	5	5	Dol, lt gy, to wh,
						D	C	0	Dol. lt gy to gy
		V				D	C	0	Dol, a.a. laminated. vug
		V				D	C	0	a.a. less vuggy
						D	9	0	Dol, lt gy. sil ?
						D	8	0	a.a.
						D	C	0	Dol. lt gy.
						D	C	0	Dol. lt gy
						D	C	0	a.a.
600'						D	C	0	Dol. gy
						D	8	0	Dol, lt gy, sil, arg.
						D	8	0	a.a.
						D	8	0	a.a.
						D	8	0	Dol. lt gy. arg. thn bdd.
						D	7	0	Dol, lt gy. arg. Dol. lt gy - gy. arg. sil.
						D	8	0	Dol. lt gy to gy. sug. algal.
						D	9	0	a.a.
						D	9	0	Dol. lt gy. arg
						D	C	0	Dol. thinly bdd
700'						D	C	0	Dol. lt gy to brn
						D	8	0	Dol. a.a. arg
						D	8	0	Dol. thn bdd. arg
						D	9	0	a.a. laminated.
						D	8	0	a.a.
						D	9	0	a.a.
						D	9	0	Dol. intbd with arg. dol.
						D	9	0	a.a. (only 2' exposed.)
						D	9	0	a.a.
						D	9	0	a.a.

1 of

Depth	Lith	Description
	DPI 0	a.a.
	DPI 0	Dol. lt gy. arg. thn bdd.
	DPI 0	Dol. lt gy. arg. Dol. lt gy - gy. arg. slt.
	DPI 0	Dol. lt gy. hard. arg. algal.
	DPI 0?	a.a.
	DPI 0	Dol. lt gy. arg.
	DC 0	Dol. thinly bdd
700'	DC 0	Dol. lt gy to brn
	DPI 0	Dol. a.a. arg.
	DPI 0	Dol. thn bdd. arg.
	DPI 0	aa. laminated.
	DPI 0	a.a.
	DPI 0	a.a.
	DPI 0	Dol. intbd with arg. dol.
	DPI 0	a.a. (only 2' exposed.)
	DPI 0	a.a.
	DPI 0	a.a.
800'	DPI 0	a.a.
	DPI 0	Dol. gy to dk gy. arg.
	DPI 0	a.a.
	DPI 0	a.a.
	DPI 0	a.a.
	DPI 0	a.a.
	DPI 0	a.a.
	DPI 0	a.a.
900'	DPI 0	a.a.
	DC 0	Dol. gy to dk gy.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.
	DC 0	Dol. dk gy
	DC 0	Dol. a.a. fine lamination.
	DC 0	Dol. gy - dk gy.
1000'	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
f	DC 0	a.a. dol vn
f	DC 0	a.a. dol vn
	DC 0	Dol. gy to pale gy wh
	DC 0	a.a.
	DC 0	Dol. gy - dk gy.
1100'	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC C?	Brec. & cgl dol
	DC 0	Dol. lt gy. covered interval.
	DC 0	Dol. lt m gy
	DC 0	a.a.
1200'	DC 0	a.a.
	DC 0	Dol. gy. dk gy.
	DC 0	a.a.
f	DC 0	a.a.
	DPI 0	a.a. with calc material
f	DPI 0	Dol. lt gy. with dol or calc. fossiliferous
f	DPI 0	a.a.
f	DPI 0	a.a.
f	DPI 0	a.a.
1300'	DC 0	Dol. gy.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
1400'	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a. medium to thick bdd
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
1500'		a.a.
		no field description.
	DGI 4?	Dol. 4' dolomitic SS.
	DC 0	Dol. gy.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
1600'	DC 0	a.a. Probably base of [illegible] mash.
	DPI 0	Dol. lt gy - m gy. vug filled with calc & Dol.
	DPI 0	a.a.
	DC 0	Dol. dk gy. SS.
	DC 4	a.a.
	DC 4?	a.a. strom.
	DG 4	Dol. dk gy. SS
	DC 4	Dol. dk gy. strom. cac.
	DC 4	Dol. dk gy. foc
1700'	DGI 7	Dol. aa.; Dol. gy to dk gy. SS
	DI 7	SS. gy.
	DC 1	Dol. blk. foc.
	DC 1	a.a.
	DC 4	a.a. strom.
	DC 4?	a.a.; Dol. ss. slt
	DC 4?	Dol. ss. SS. dol.
	DPI 4?	Dol. blk. SS.
	DI 4?	SS. gy. dol.
	DPI 4	Dol. gy.
1800'	DI 4	Dol. dk gy. aren?
	DI 4?	SS. blk. dol.
	DI 4?	Dol. ss. friable. fossiliferous
	DI 4?	a.a.
	DI 4?	a.a.; Dol. gy. vug
	DC 0	Dol. gy to dk gy.
	DC 0?	a.a. foc
	DC 1	Dol. gy to dk gy. arn. vuggy.
	DC 1	a.a.
	DC 1	a.a.
1900'	DC 1	a.a.
	DC 1?	Dol. foc. vuggy
	DC 1?	Dol. dk gy. vuggy. foc
	DC 1?	a.a.
	DC 0	Dol. dk gy. - gy.
	DC 0	a.a.
	DC 0	Dol. gy. vuggy in part.
	DC 0	a.a.
	DC 0	a.a.
	DC 0	a.a.
2000'	DC 0	a.a.
	DC 1	Dol. dk gy. foc.
	DC 1	a.a.
	DC 1	a.a.
	DC 1	a.a.
	DC 1?	Dol. gy - dk gy. foc. vuggy.
	DC 1?	a.a.

2 of

		DC 0		a.a.
		DC 0		Dol. dk gy. ss.
		DC 0		a.a.
		DC 0?		a.a. strom.
		DC 0		Dol. dk gy. ss.
		DC 0		Dol. dk gy. strom. cor.
		DC 0		Dol. dk gy. fos.
		DC 0?		Dol. aa ; Dol. gy to dk gy. ss
2700'		DC 1		SS. gy.
		DC 1		Dol. blk. fos.
		DC 1		a.a.
		DC 0		a.a. strom.
		DC 0?		a.a.; Dol. ss. slt
		DC 0?		Dol. ss ; SS. dol.
		DC 0?		Dol. blk. ss.
		DC 0?		SS. gy. dol.
		DC 1		Dol. gy.
		DC 1?		Dol. dk gy. aaa?
2800'		DC 1		SS. blk. dol.
		DC 1?		Dol. ss. friable. fossiliferous
		DC 1?		a.a.
		DC 1?		a.a. ; Dol. gy. vug
		DC 0		Dol. gy to dk gy.
		DC 0?		a.a. fos
		DC 1		Dol. gy to dk gy. aaa. vuggy.
		DC 1		a.a.
		DC 1		a.a.
2900'		DC 0		a.a.
		DC 0?		Dol. fos. vuggy
		DC 1?		Dol. dk gy. vuggy. fos
		DC 1?		a.a.
		DC 0		Dol. dk gy. - gy
		DC 0		a.a.
		DC 0		Dol. gy. vuggy in part.
		DC 0		a.a.
		DC 0		a.a.
		DC 0		a.a.
		DC 0		a.a.
3000'		DC 1		Dol. dk gy. fos.
		DC 1		a.a.
		DC 1		a.a.
		DC 1		a.a.
		DC 1		a.a.
		DC 1?		Dol. gy - dk gy. fos. vuggy.
		DC 1?		a.a.
		DC 1?		a.a.
		DC 1		Dol. gy. fos.
		DC 1		aa ; Dol. gy to dk gy. strom
3100'		DC 1		Dol. dk gy. Dol. gy. vuggy
		DC 1		Dol. gy to dk gy. fos.
		DC 1		a.a.
		DC 1		Dol. dk gy - gy. vuggy. fos.
		DC 0		Dol. gy - dk gy
		DC 0		Dol. dk gy.
		DC 0		Dol.
		DC 0		Dol. fos.
		DC 0		Dol. blk dk gy. cor. strom.
		DC 0		Dol. gy. dk gy.
3200'		DC 0		Dol. a.a.
				no field description.
		DC 0		Dol. dk gy
		DC 0		a.a.
		DC 0		a.a.
		DC 0		a.a.
3300'		DC 0?		Dol. dk gy. cor. bra.
		DC 1?		Dol. cor.
		DC 1?		a.a. fos.
		DC 1?		Dol. dk gy. fos (cor?)
		DC 1?		a.a.
		DC 1		Dol. dk gy. cor. strom
		DC 1		a.a.
		DC 1		a.a.
		DC 1		a.a.
		DC 1		a.a.
3400'		DC 0		Dol. dk gy.
		DC 0		a.a.
		DC 0		a.a.
		DC 0		a.a. lower 5' not appse
		DC 0		Dol. gy.
		DC 0		Dol. dk gy.
		DC 0		a.a.
		DC 0		a.a.
		DC 0		Dol. dk gy. fos
		DC 0		a.a.
3500'		DC 1		Dol. gy. dkgy. brec. cor. strom.
		DC 1?		Dol. dk gy. bra.
		DC 1?		a.a. Probably base of Nanda.
		C		SS. gy mottled.
		C		a.a.
		C		a.a.
		C		a.a.
		C		a.a.
		S 1	9	SS. wh. sil.
3600'		S 1	9	a.a.
		S 1	9	a.a.
		S 1	9	a.a.
		S 1	9	a.a.
		S 1	9	a.a.
		S 1	9	a.a. END OF SECTION.
				Pla-E.
3700'				

3 ~~4~~ 3

Canadian Pacific

OIL AND GAS LIMITED

1-68-28

Well Name	TOAD RIVER LODGE, DFS, Nahanni	Producing Fm.	Interval
Location	58° 51' N' 125° 46' W. Mile 424-425 Alaska Highway	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm. Nahanni
Area	TOAD RIVER	Casing	
Commenced		Sample Quality	
Completed		Geologist	Cas Bos
Status	OUTCROP	Date	1968

INFORMATION SUMMARY

Devonian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ls, gy, thn bdd, Gast, Broc m-bdd
									thn-bdd
100									dk-gy m-bdd Amph, Cor
200									m-bdd thk-bdd
									dk-gy, thk-bdd
300									lt-gy
400									dk-gy, v thk-bdd
500									Covered from 500 to 700
600									
700									Ls, lt-gy, thk-bdd

10

INFORMATION SUMMARY

Devonian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - GRAIN SIZE	SORTING - GRAIN SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ls, gy, thn bdd, Gast, Broc m-bdd
									thn-bdd
100									dk-gy m-bdd Amph, Cor
200									m-bdd thk-bdd
									dk-gy, thk-bdd
300									lt-gy
400									dk-gy, v thk-bdd
500									Covered from 500 to 700
600									
700									Ls, lt-gy, thk-bdd
									dk-gy
	v								lt-gy, thk-bdd vrg fl wsy-ca
800									lt-dk gy, thk-bdd
									lt-gy
									dk-gy, m-bdd
900									
1000									

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-27

Well Name	TOAD RIVER (AAR)	Producing Fm.		Interval	
Location	58°53' 30" N 125°19'30" W	Elevation K.B.		Ground	
Province		Total Depth		Oldest Fm.	
Area	SUMMIT: MAHANNI - TOAD RIVER SURVEY	Casing			
Commenced	AUGUST 1st. 1968	Sample Quality	GOOD		
Completed	AUGUST 1st. 1968	Geologist	J.W.J. HARDY		
Status	OUTCROP SECTION	Date			

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Mississippian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Shl med/gy.
50									
									Mst lt/gy, silic, tr pyr w/interb lt/gy chert.
									Shl, m/gy, silic in one band in the middle.
100									Mst m/gy, silic, tr pyr, interb, m/gy shl blk cht.
									Cht, dk/gy, w/qtz veins, interb w/25% mst m/gy silic
50									
									Mst m/gy silic, tr pyr, ironstn concr. interb w/10% shl, m-brn/gy, tr pyr.
200									Mst m/gy silic tr pyr interb w/ 5% lt/gy chert.
									Mst m/lt/gy, sl silic tr pyr sl/ argil.
									Mst m/gy pyr ironstn nodules interb w. 30% m/gy shl.
									Mst m/gy, v. silty, pyr. ironst. nod. grad. to gy sil
50									Mst dk/gy tr. pyr. interb w/30% m/gy silt ironst nod
									Silt gy, tr. ironst nod. interb w/v. silty dk/gy mst.
									Shl m/gy, interb w/m/gy silt, tr. ironst. nod.
300									
									Silt m/gy
50									Shl m/brn-gy
354									

Canadian Pacific

OIL AND GAS LIMITED

1-68-26

Well Name	NONDA CREEK, B.S.	Producing Fm.	Interval
Location	LAT. 58°61'3" N. LONG 125° 34' W.	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm. NAHANNI
Area	TOAD RIVER	Casing	
Commenced	19TH JULY 1968	Sample Quality	OUTCROP
Completed		Geologist	Boss.
Status	OUTCROP	Date	30TH OCT. 1970.

INFORMATION SUMMARY

Devonian

LITH LOG PREPARED BY K. CHIANG BASED ON FIELD NOTE
SCALE 1" = 100'

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL, GRAIN FRAGMENT SIZE	ROUNDING - GRAIN SIZE	SORTING - GRAIN SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
BESA RIVER FM.								0	Sh. dk gy.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
100'								1	a.a. with wtg sr.
								0	Sh. dk gy
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
								0	a.a.
200'								0	a.a.
								0	a.a.
								0	a.a.
								0	Sh. dk gy - blk
250'						N	0		Ls. gy
						N	0		a.a.
									Composite section.
0				CK		S N	0		Ls. dk gy. cht (1%)
				CK		S N	0		Ls. dk gy. dk gy to blk cht. (1%)
				CK		S N	0		a.a.
				CK		S N	0		a.a.
				CK		S N	0		a.a.
						N	0		Ls. dk gy.
				CK		N	0		a.a.
				CK		S N	0		Ls. dk gy. with blk cht.
				CK		N	0		Ls. dk gy.
100'				CK		N	0		a.a.
				CK		N	0		a.a. ?
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		Ls. dk gy. arg
				CK		N	0		Ls. dk gy.
				CK		N	0		a.a.
				CK		N	0		a.a. with bituminous band.
				CK		N	0		Ls. dk gy.
200'				CK		S N	0		a.a. some cht.
				CK		N	0		Ls. dk gy.
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.
300'				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a. ?
				CK		N	0		a.a.
				CK		N	0		a.a.
				CK		N	0		a.a.

1 of

NAHANI Fm.

	N	0	Ls. dk gy.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
300'	N	0	a.a.
	N	0	a.a.
	N	0	a.a. ?
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
400'	N	0	a.a.
	N	0	a.a. upper 5' covered.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
500'	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	S	1	0 a.a. silicous
	N	0	Ls. dk gy.
	N	0	a.a.
	S	1	0 a.a. sil.
	N	0	Ls. dk gy
	N	0	a.a.
	N	0	a.a.
600'	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a. (badly exposed.)
	N	0	a.a. bituminous
	N	0	Ls. dk gy
	N	0	a.a.
	N	0	a.a.
700'	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	a.a.
	N	0	Ls. dk gy bituminous.
	N	0	a.a.
	N	0	Ls. dk gy.
	SN	0	a.a. with sht, upper 5' covered.
800'	N	0	Ls. dk gy
	N	0	Ls. lt gy - dk gy.
	N	0	Ls. gy.
	N	0	a.a.
	N	0	Ls. dk gy to gy.
	N	0	Ls. gy.
	N	0	Ls. lt gy - dk gy.
	N	0	Ls. dk gy - gy.
	N	0	Ls. gy.
900'	N	0	a.a.
	N	0	Ls. lt-dk gy.
	N	0	Ls. dk gy.
	N	0	Ls. lt gy - gy.
	D	0	Dol. lt gy, calc.
	D	5	0 Dol. lt gy. Ls. gy
	N	0	Ls. gy to dk gy
	N	0	a.a.
	N	0	a.a.
1000'	D	4	1 Ls. dk gy. brg. Dol. lt gy
	N	0	Ls. dk gy - gy
	D	3	0 Ls. gy - dk gy; Dol. lt gy.
	D	1	0 Ls. dk gy; Dol. dk gy
	D	4	0 Ls. dk gy. Dol. lt gy
	D	1	0 Dol. lt gy - gy.
	N	0	Ls. dk gy.
	N	0	a.a.
	D	9	0 Ls. lt gy - gy. lower 4' dolomitic
	D	8	0 Dol. Ls.
	N	0	Ls. gy.
1100'	D	2	0 Dol dk gy. Ls. gy.
	D	3	0 Ls. lt gy. Dol.
	D	7	0 Dol. lt gy; Ls. dk gy.
	N	0	Ls. gy
	N	0	a.a.
	N	0	Ls. gy - dk gy
	N	0	Ls. dk gy -
	N	0	Ls. gy
	D	5	0 Ls. gy; Dol. lt gy.
	N	0	Ls. dk gy - gy
1200'	N	0	Ls. lt gy.
	N	0	Ls. dk gy - lt gy
	D	3	0 Ls. gy; Dol. lt gy.
	D	7	0 Dol. lt gy; Ls. gy.
	N	0	Ls. gy.
	D	6	0 Dol. lt gy

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-25

Well Name	LODGE (JWJ)	Producing Fm.	Interval
Location	58°50' 30" N 125°20' 30" W	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing	
Commenced	JULY 19th, 1968	Sample Quality	GOOD
Completed	JULY 24th, 1968	Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Triassic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING CHAS SIZE	SORTING CHAS SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Silt m/gy, calc, scatt pelec frag
									Shl m/gy, calc, w/thin interb calc, silt m/gy
50									Silt m/gy, calc, scatt pelec frag
									Silt m/gy, calc, scatt pelec frag, interb w/dk lent. bands of chert
									Silt m/gy, calc, scatt pelec frag
100									Silt m/gy, calc, scatt pelec frag, interb w/dk nod bands of chert
									Covered
									Silt m/gy, calc, tr pelec frag
50									Covered
									Silt m/gy, calc, pelec frag tr crin frag
									Silt m/gy, calc, rare scatt pelec frag, interb w/thin dk bands of chert
200									Silt m/gy, calc, tr pelec frag upper 2' lat m/gy miexl ab crin frag ab pelec frag
									Silt m/gy, calc, interb w/thin dk bands of chert
									Scatt pelec frags
50									
									Shl m/gy silty, calc
									Silt m/gy, calc, interb w/cht in nod bands (5-10%)
300									
									Shl m/gy silty, calc, interb w/lent nod of cht
50									Silt m/gy, calc, silic (?) blk cht in nod
									Scatt rare calc veins
400									Covered
									Silt m/gy, calc, silic(?) cht in lent nod
									Covered
50									Silt m/gy, calc, v ab small lent nod of cht
									Silt m/dk/gy, calc, silic
500									Silt m/gy, calc, scatt pelec frags, v ab br cht (15-20%) in lent bands, cht blk at top 10'
50									
									Silt m/gy, calc, w/some dk cht in lent bands
600									Silt m-dk/gy, calc, tr pelec frag
									Silt m-dk/gy, calc, ab dk cht in thin lent bands
50									
									Silt m/gy miexl silty
									Silt dk/gy, calc, w/lent dk cht bands
700									Silt dk/gy, calc, scatt pelec frag
						F			Ss m/gy v-miexl v silty v calc
									Silt dk/gy sndy, calc
50									Ss m/gy v-miexl v silty, calc, tr pelec scat tr calc /veins
						F			One bed 2' of silt dk/gy sndy in middle

1 of

Silt m/gy, calc, w/some dk cht in lent bands

600 Silt m-dk/gy, calc, tr pelec frag

Silt m-dk/gy, calc, rb dk cht in thin lent bands

50

Silt m/gy micxl silty

Silt dk/gy, calc, w/lent dk cht bands

Silt dk/gy, calc, scatt pelec frag

700

P Ss m/gy v-micxl v slty v calc

Silt dk/gy sndy, calc /veins

50 Ss m/gy v-micxl v slty, calc, tr pelec cast tr calc

P One bed 2' of silt dk/gy sndy in middle

Silt dk/gy, calc, v sndy at lwr 10' tr calc veins

800 Ss dk/gy vfgr slty, calc, tr pelec casts

Silt m/gy v sndy, calc

Ss dk/gy v-micxl v slty, calc at top 10' thin sndy lst bands

50

Silt dk/gy, calc

Shl dk/gy, calc, slty cht nod

Shl dk/gy v slty, calc

900 Silt dk/gy, calc

P Ss dk/gy v slty, calc /calc

Silt dk/gy, calc, w/70' interb silt dk/gy, calc

Silt m/gy, calc, w/70' interb ss dk/gy v slty,

Shl dk/gy slty, calc, rb foss casts

50 Silt m/gy, calc

Shl dk/gy v slty, calc

Silt m-dk/gy, calc, sndy scatt tr foss cast scatt calc veins

1000

50

Shl dk/gy slty, calc

Silt m/gy, calc, tr ammon casts

1100 Silt m/gy, calc, interb w/shl lt-dk/gy slty, calc

Silt m-brn/gy, calc, rare dk cht pebbles in middle

50

1200 Silt m-dk/gy, calc, tr foss casts at top

M Ss m/gy v calc, w/m/gy silt interb

Covered

50 Shl dk/gy, calc and silt m-dk gy v calc

Covered

1300 Silt m/gy v calc, w/one bed of 2' of silty lst

Covered

50 Silt dk/gy v calc

Shl dk/gy slty, calc

Silt m-brn/gy v calc

1400 Shl dk/gy, calc

Silt dk-brn/gy, calc

Shl dk/gy slty, calc

Silt dk/gy, calc

Silt dk/gy slty, calc

50 Shl dk/gy slty, calc

Tr brac ammon casts

Ss m/gy v-micxl v calc

Shl dk/gy slty, calc brac casts

1500 Ss dk/gy v-micxl calc

Silt dk/brn-gy, calc, tr ammon brac at base

Shl dk/gy v slty, calc, tr brac casts

Silt m/gy v calc, tr brac casts

Shl dk/gy, calc, slty tr ammon

50 Silt dk/gy, calc, tr calc veins

Shl dk/gy v slty, calc, tr calc veins

Silt dk/gy, calc, tr foss casts

Shl dk/gy slty, calc

Silt dk/gy, calc

1600 Shl dk/gy slty, calc, thin interbs of ss and mdst in first 10'

Shl dk/gy, calc, slty v slty at top 10'

50 Silt m/brn-gy, calc

Shl dk/gy slty, calc, thin limy strng in lwr 10'

Small calc silty concretions

1700 Silt dk/gy argill v calc, tr pyr

Shl dk/gy slty, calc

Silt m-dk/gy argill v calc, tr ammon tr brac

Shl dk/gy, calc, slty tr pyr tr ammon

50 Silt m/gy v calc, tr calc veins /at top

Shl dk/gy, calc

Silt dk/gy, calc, argill 1' bed lst m/gy micxl slty

Shl dk/gy v slty, calc, calc veins

Ss m/gy v-micxl v slty tr pyr xls

Silt v calc, tr pyr xls tr nod lst

1800 Shl dk/gy, calc

Silt dk/gy, calc veins

1826

2 of 2

1-68-24

Canadian Pacific

OIL AND GAS LIMITED

Well Name	SOUTHEAST MUNCHO LAKE SEML	Producing Fm.	Interval
Location	Lat. 58°56' 30" Long. 125°46'	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	MUNCHO LAKE	Casing	
Commenced	FIELD PARTY SUMMER 1968	Sample Quality	OUTCROP
Completed		Geologist	D.E. CAMPAU, C. PUCA
Status		Date	

INFORMATION SUMMARY

Devonian,Silurian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING DMG SIZE	SORTING DMG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Dol lt/brn-gy m bdd sl sdy
									slt lt/brn-gy, scale vn
									Dol lt/brn-brn m bdd
50									Covered
									Dol m brn
									Dol lt/brn m bdd
100									Covered
									Dol lt-m/brn sdy pt shy
									Dol lt-m/brn m bdd
50									Dol lt-m/brn pt shy
									Dol m-lt/brn sl sdy
									Dol lt/brn v sl sdy
									Dol lt/brn
200									Dol lt/brn sl sdy
									Dol lt-m/brn, scale vn
									Covered
50									Dol m-lt/brn
									Sh brn-gy v dol
									Dol m/brn-gy, scale vn v sl shy
300									Dol gy-dk/gy, scale vn sdy
									Dol dk/gy sl sdy, scale vn
50									Dol m-dk/gy
400									Dol m/gy-dk/brn m bdd
50									Dol m-dk/gy foss
									Dol dk/gy m bdd
500									Dol m-dk/gy
50									

1 of

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Dol lt/brn-gy m bdd sl sdy
									slt lt/brn-gy, scale vn
									Dol lt/brn-brn m bdd
50									Covered
									Dol m brn
									Dol lt/brn m bdd
100									Covered
									Dol lt-m/brn sdy pt shy
									Dol lt-m/brn m bdd
50									Dol lt-m/brn pt shy
									Dol m-lt/brn sl sdy
									Dol lt/brn v sl sdy
									Dol lt/brn
200									
									Dol lt/brn sl sdy
									Dol lt-m/brn, crle vn
									Covered
50									Dol m-lt/brn
									Sh brn-gy v dol
300									Dol m/brn-gy, scale vn v sl shy
									Dol gy-dk/gy, scale vn sdy
									Dol dk/gy sl sdy, scale vn
50									
									Dol m-dk/gy
400									
									Dol m/gy-dk/brn m bdd
50									
									Dol m-dk/gy foss
									Dol dk/gy m bdd
500									Dol m-dk/gy
50									
600									
									Dol m/gy-brn foss
									Dol m/gy, crle vn
50									Dol m/gy m bdd foss
									Dol m/brn-gy
									Dol m-dk/gy foss
700									
50									Dol m/gy-brn m bdd foss
800									Dol lt-m/gy m bdd
50									

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-23

Well Name	E M L. Mile 460-3, MUNCHO LAKE LAT. 58°58' 30" N.	Producing Fm.	Interval
Location	94 K 34 / A 11590 - 84 LONG. 125° 46' W.	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth 315	Oldest Fm.
Area	TOAD RIVER	Casing	
Commenced		Sample Quality	
Completed		Geologist Boss & Siddiqui	
Status	Surface Section	Date	

INFORMATION SUMMARY

Lithosection prepared from field notes by J. Klassen

Devonian, Silurian

SCALE: 1" = 100'

DEPTH	FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL, GRAIN, FRAGMENT SIZE	ROUNDING, SORTING, PERCENT OF FRAMEWORK	DESCRIPTION
								Qtzc ss, purp brn wthrs purp orng, thk to mas bdd, hard,
								Qtzc ss, purp brn wthrs purp gy, mas bdd, hard
								Qtzc ss, purp brn wthrs purp orng, thk bdd, hard.
100								Qtzc ss, purp brn wthrs yel brn, thk bdd, hard.
								Qtzc ss, purp brn wthrs purp brn, thk bdd, hard.
	Nonda Fm.							Qtzc ss, purp brn wthrs yel brn, thk bdd, hard.
200								Covered intv.
								Qtzc ss, purp brn wthrs purp brn, thk bdd, hard
								Qtzc ss, purp brn wthrs yel brn, m. to thk bdd, hard, glau near top.
								Qtzc ss, purp brn to purp wthrs yel brn, int bd / purp clyst below.
300								Clyst, purp.
315								Ss, purp brn, hard.
400								

1-68-22

Canadian Pacific

OIL AND GAS LIMITED

Well Name	Northeast Nunoho Lake, Broken Leg Creek	Producing Fm.	Interval
Location	Mil. 46½' Alaska Hwy NEML #1 Lat. 59° 07' 30" Long. 123° 36'	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	Nunoho Lake	Casing	
Commenced	Field Party summer 1968	Sample Quality	Out crop
Completed		Geologist	D.E. Campau, G. Puca
Status		Date	

INFORMATION SUMMARY

Devonian, Silurian, Cambrian/Precambrian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL, GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
NEML #1									Dolomite, m-drk. gy. , m. bdd.
									Dolomite; m. gy. min. free;
									Dolomite; m. gy. min. free;
50									
									Dolomite, m. grey- m. brn.
									Dolomite, drk. gy. shly., min. free.
100									Dolomite; m. brown, m. gy., sili. vn.
									Dolomite, m. gy., min. free.
									Dolomite; m. drk. brown, calc. recus vn.
50									Dolomite; m. gy. shly., min. free.
									Dolomite, m. gy. min. free.
200									Dolomite, m. brn-gy. calcareous, vn.
									Dolomite, m. brown, min. free. med.bdd.
50									
									Dolomite, m. gy., thk. bdd.
300									
									Dolomite, m. brn. - drk. gy., thk. bdd.
50									
									Dolomite; m. gy-brown, thk. bdd.
									Dolomite; drk. gy., thk. bdd., chert., foss.
									Dol. m-dk/gy, thk. bedded, foss.
400									
									Dolomite, light-dark gy. thk. bdd.
50									Dolomite; drk. gy., min. free. thk. bdd.
									Dolomite; drk. gy., min. bdd., vn.
									Dolomite; drk. gy., m. brn., min. free. vn. Foss.
500									Dol. m-dk. gy. m. gy. chert. foss. thk. bdd.
									Dolomite; m. gy. m. bdd., foss.
									Dolomite; m. gy. m. bdd., foss.
									Dolomite; m. gy.-drk. gy. foss. m. bdd.
50									
									Dolomite, m. gy. m. bdd.
600									
									Dolomite, dark gy., m. bdd.
50									
									Dolomite; dark grey;
									Dolomite; dark grey, m. bdd.
700									

1 of

Dolomite, m. brn. - drk. gy., thk. bdd.

50

Dolomite; m. gy-brown, thk. bdd.
Dolomite; drk. gy., thk. bdd., short., foss.

Dol. m-dk/gy, thk. bedded, foss.

400

Dolomite, light-dark gy. thk. bdd.

50

Dolomite; drk. gy., min. free., thk. bdd.
Dolomite; drk. gy., min. bdd., vn.

Dolomite; drk. gy.-m. brn., min. free. vn. Foss.
Dol. m-dk. gy.-m. gy.
Dolomite; m. gy. short. foss. thk. bdd.
Dolomite; m. gy. m. bdd., foss.
Dolomite; m. gy. m. bdd., foss.
Dolomite, m. gy.-drk. gy. foss. m. bdd.

500

50

Dolomite, m. gy. m. bdd.

600

Dolomite, dark gy., m. bdd.

50

Dolomite; dark grey.
Dolomite, dark grey, m. bdd.

700

Dolomite, drk. gy.

50

800

Dolomite, m-dark gy med brown, m. bdd.

50

Dolomite, dark, grey.

900

50

Dolomite, m. gy. m. bdd.
Dolomite, dark gray foss.
Dolomite; m. gray foss.
Dolomite, dark, grey.

1000

Dolomite, dark grey, foss. m. bdd.

50

Dolomite, m. grey, calcareous vn.

1100

Limestone; m. grey, min. free, calcareous vn.
Limestone, dark grey calcareous vn.

50

Limestone, dark grey

Meta, green.
Shale, green.
Meta. green.

1200

50

Shale, green.
Meta, green.

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-21

Well Name	TOAD RIVER (JCU)	Producing Fm.	Interval
Location	59°07' N 124°42' W	Elevation K.B.	Ground
Province		Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing	
Commenced	AUGUST 2nd. 1968	Sample Quality	GOOD
Completed	AUGUST 24th. 1968	Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC 1969

Triassic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Shl dk/gy tr plants ironstone nodules Silt m/gy interb w/ss m/gy v
50									Ss m/gy v-mgr silty calc tr brac frag
									Silt m/gy argil calc brac Ss m/gy v-fgr silty calc tr brac frag calc veins Silt m/gy calc tr brac frag up 3' d/gy shl silt intb
100									Ss m/gy vfgr silty, calc, calc veins, interb w/silt m/gy sandy calc.
50									
200									Silt m/gy calc Silt m/gy sndy calc w/v thin shl intercalations
50									Silt m-dk/gy calc ss in strngs tr ammon pelec casts Interb 10' silty shl calc
300									
50									Silt m-d/gy calc tr pyr in upper part, shl dk/gy calc.
400									Silt m/gy calc sandy tr ammon,pelec Covered Silt m/gy sandy calc Ss m/gy vfgr silty calc tr amm. tr brac 3" blk shl Shl dk/gy poorly exposed
50									Ss m/gy vfgr silty calc sh nod of silic, silt Outcrop inaccessible Silt m/gy calc brac frag snd w/ss strng calc veins nodules of silic silt
500									Silt d/gy w/ss strng m/gy vfgr ss, calc, tr pyr
50									Ss m/gy silty calc vfgr Silt dk/gy shlc tr muscov

1 of

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Shl dk/gy tr plants ironstone modules Silt m/gy interb w/ss m/gy v
50									Ss m/gy v-mgr silty calc tr brac frag
									Silt m/gy argil calc brac Ss m/gy v-fgr silty calc tr brac frag calc veins
100									Silt m/gy calc tr brac frag up 3' m/gy shl silt intb
									Ss m/gy vfgr silty, calc, calc veins interb w/silt m/gy sandy calc.
50									
200									Silt m/gy calc Silt m/gy sndy calc w/v thin shl intercalations
50									
									Silt m-dk/gy calc ss in strngs tr ammon pelec casts interb 10' silty shl calc
300									
50									Silt m-dk/gy calc tr pyr in upper part, shl dk/gy calc.
400									Silt m/gy calc sandy tr ammon, pelec Gypsum Silt m/gy sandy calc Ss m/gy vfgr silty calc tr ammo tr brac 3" blk shl Shl dk/gy poorly exposed
50									Ss m/gy vfgr silty calc sh nod of silic, silt
									Outcrop inaccessible Silt m/gy calc brac frag snd w/ss strng calc veins modules of silic silt
500									Silt d/gy w/ss strng m/gy vfgr ss, calc, tr pyr
50									Ss m/gy silty calc vfgr Silt dk/gy calc tr musscv
600									Silt dk/gy calc tr pyr ss vfgr, in stringers At bottom thin bed of fossil silt
50									Silt m/dk/gy calc tr pyr some ss vfgr in stringers
700									Silt dk/gy sndy ss in strng tr pyr ss vfgr in strng Silt dk/gy calc vfgr ss in stringers tr pyr ss tr mica tr
50									Silt dk/gy calc tr pelec frag tr pyr sh vfgr ss in stringers
791									

2 of 2

OUT CROP

Canadian Pacific

OIL AND GAS LIMITED

1-68-20

Well Name	K T K TOAD RIVER	Producing Fm.	Interval
Location	LAT 59° 06' 30" LONG 124° 42' 30"	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm. TOAD
Area	TOAD RIVER	Casing	
Commenced	Aug 23 1968	Sample Quality	
Completed	Aug 23 1968	Geologist	J. W. J Hardy; F Crawford
Status	OUT CROP	Date	

INFORMATION SUMMARY

Dip on good bedding plane = flank of gentle S plunging anticline

Photo: 94 N 3 A-11543-23 F

Triassic/Cretaceous

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
100									
									sh dk gy, Fe-st mod 10%, pll fos 2%
K / EC									B/K contact covered
0									ss mod gy, silty 10% calc 30% Grea 2 to 15% a-3 c-3 c-3

Canadian Pacific

OIL AND GAS LIMITED

1-68-19

Well Name	THREE SQUAW MOUTAIN (TB)	Producing Fm.	Interval
Location	59°07' N 125°46' W	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing	
Commenced	JULY 24th. 1968	Sample Quality	GOOD
Completed	AUGUST 3rd. 1968	Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Triassic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - GRAIN SIZE	SORTING - GRAIN SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Lst m/gy miexl v ab foss frags crin ammon blk cht
								3	Lst m/gy miexl v ab foss frags tr ammon nod cht
									Lst m/gy miexl poorly exposed
									Lst dk/gy miexl argill foss frags poorly exposed
50						M		1	Covered
									/oder
100						M			Lst m/gy fxln pelec concentrated in bands, sulphur
						M		2	Lst m/gy f ab pelec w/thin interb m/brn/gy, calc.
									Covered
						M		2	Lst m/gy f ab pelec, calc veins
50						M			Lst m/gy f-vxln dolomitized
						M			Lst m/gy f pelec
						M			Lst m/gy m-fxln tr pelec
						M			Lst m/gy m-fxln tr cht nod
						M			Lst m/gy medium to dk m/gy, calc veins not
						M			pelec tr pelec tr frags,
200									Lst m/gy miexl pelec 20% thin bedded blk cht
						M			
									Silt m/gy silic, calc
									Silt m/gy, calc, silic tr cht nod
50						M			Lst m/gy miexl silic cht nod
						M			Lst m/gy f-miexl silic tr cht nod
						M			Lst m/gy miexl silic cht nod
						M			Lst m/gy m-miexl cht nod pelec
									Mudst dk/gy, calc tr pyr tr pelec
300									/e-fxln
						M		7	Lst m/gy f-vxln pelec interb w/20% frag lst m/gy
									Silt m/gy, calc, tr pelec some cht nod dec. towards the bottom
50									
						M		3	Lst m/gy f ab pelec cht nod
400							P		Ss m/gy vfgr, calc, tr pelec
									Covered
50							P		Ss m/gy v, calc, tr pelec frags current bedding
500									Silt m/gy, calc, tr pelec frags
									~~Silt m/gy, calc, very poorly exposed~~
50									Silt m/gy, calc, tr pelec frags
600									Silt m/gy, calc, tr pelec frags
									Silt m/gy, calc, sndy silic tr pelec tr cht nod poor ripple marks
50 659									

Canadian Pacific

OIL AND GAS LIMITED

1-68-17

Well Name	TOAD RIVER (TLP)	Producing Fm.	Interval
Location	59°12' N 124°41' 30" W	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing	
Commenced	AUGUST 22nd. 1968	Sample Quality	GOOD
Completed	AUGUST 26th. 1968	Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Devonian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - GRAIN SIZE	SORTING - GRAIN SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Silt m/gy v sandy calc tr ammon casts tr muscov grs Interb w/10% ss lt/gy vfgr calc, tr pel tr pyr
50									
100									Silt m/gy v sndy calc tr ammon casts tr muscov grs Interb w/5% ss lt/gy calc, vfgr tr pyr
50									Shl dk/gy slty calc w/silt strng interb w/5% ss
200									
50									
300									Silt m-d/gy argill calc interb w/30% shl d/gy slty
50									
400									Silt m/gy sl calc sndy strng interb w/5% shl
50									Silt m/gy calc, ironst nod, tr mica tr ammon sndy strng
500									Shl dk/gy slty fiss platy w/20% silt m/gy calc strng Silt m/gy sl calc rare sandy strng w/20% shl dk/gy
50									Silt m/gy sl calc tr ammon cast w/ab sndy strng
									Silt m/gy calc tr muse gr, ab sndy strng interb w/SHL 15% m-dk/gy silty calc muscov
600									
628									

Canadian Pacific

OIL AND GAS LIMITED

1-68-16

Well Name	SCN SENTINEL	Producing Fm.	Interval
Location	94N2 / A11631 LAT 59° 04' 15" N. LONG. 126° 36' W. 206	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth 1430	Oldest Fm.
Area	TOAD RIVER	Casing	
Commenced	Aug/68	Sample Quality Good	
Completed		Geologist Bos & Siddiqui	
Status	Surface Section	Date	

INFORMATION SUMMARY

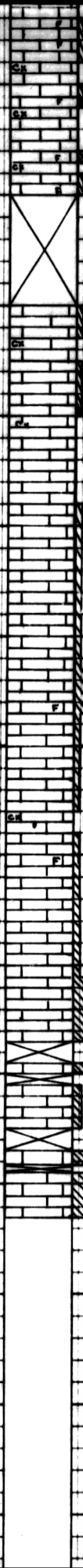
Lithosection prepared from field notes by J. Klassen

Devonian

Scale: 1" = 100'

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
				F					Dk gy ls, mnr blk cht nod, Cor, calc infilled vugs and vns, petroliferous odor, m to thk bdd, wthrs lt gy, calc along jts, thn bdd, rubbly ls at 100'
100									
				F					Dk gy, wthrs lt gy, mnr blk cht, pos Brac, thk bdd. Dk gy, wthrs lt gy, mnr blk cht, thn bdd. Dk gy, Gast, Cor, Crin, Strom, mnr blk cht, thk bdd. Dk gy, mnr blk cht near top, m to thk bdd.
200									
									Dk gy, wthrs dk gy, thk bdd.
300				Cx					Lt gy, wthrs lt gy, thn to m bdd, mnr blk cht @ base.
				F					Dk gy, wthrs lt gy, Strom, Cor, m to thk bdd
				F					Dk gy, wthrs lt gy, Strom, Cor, Brac
				Cx					Dk gy, wthrs lt gy, thk bdd, calc vns.
400				F					Dk gy, wthrs lt gy, thk bdd, Strom and Cor near base
				Cx					Lt gy, wthrs lt gy, m to thk bdd
				F					Lt gy, wthrs lt gy, Gast, Cor, Strom, thk bdd. Lt gy, wthrs lt gy, thk bdd, calc along jts.
				Cx					M gy wthrs lt gy, Strom and Cor near base, thk bdd.
500				S					Covered int'v.
600									M gy wthrs lt gy, Cor, Strom near top, m to thk bdd, calc infill Brac.
				Cx					Lt gy wthrs lt gy, thk bdd.
									Lt to m gy, wthrs lt gy, thk bdd.

1 of



400

Dk gy, wthrs lt gy, Strom, Cor, m to thk bdd

Dk gy; wthrs lt gy, Strom, Cor, Brac

Dk gy, wthrs lt gy, thk bdd, calc vns.

Dk gy, wthrs lt gy, thk bdd, Strom and Cor near base

Lt gy, wthrs lt gy, m to thk bdd

Lt gy, wthrs lt gy, Gast, Cor, Strom, thk bdd.

Lt gy, wthrs lt gy, thk bdd, calc along jts.

M gy wthrs lt gy, Strom and Cor near base, thk bdd.

500

Covered intv.

600

M gy wthrs lt gy, Cor, Strom near top, m to thk bdd, calc infill frac.

Lt gy wthrs lt gy, thk bdd.

Lt to m gy, wthrs lt gy, thk bdd.

700

Lt gy, wthrs lt gy, thk bdd

Lt gy, wthrs lt gy, thk bdd to m bdd.

800

900

Lt to m gy wthrs lt gy, m bdd, Strom near base

M gy wthrs lt gy, m bdd

1000

Lt gy wthrs lt gy, calc vns, thk bdd.

M gy wthrs lt gy, calc vns, mnr sh strg, thk bdd

1100

Lt gy wthrs lt gy, Cor @ top, thk bdd

Lt gy wthrs lt gy, Cor @ top, thk bdd.

M gy wthrs lt gy, cup Cor near top, thk bdd

1200

Lt gy wthrs lt gy, mnr sand near top, thk bdd, calc vns.

Lt gy wthrs lt gy, thk bdd, vugs & frac infilled/calc.

Covered intv.

1300

M gy wthrs lt gy, calc vns, m. bdd, highly frac.

Covered intv.

Lt gy wthrs lt gy, thk bdd, mnr sand @ top, highly frac @ top and base/calc infill in vugs and vns

Covered intv.

Lt gy wthrs lt gy, m bdd, vugs and vns/calc infill

Covered intv.

1400

Dk gy wthrs lt gy, m bdd

Lt gy wthrs lt gy, thk bdd, abnt frac. vugs and frac/calc infill, mnr sand at top.

1430

1500

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

Well Name	SULPHUR CREEK (BBC)	Producing Fm.		Interval	
Location	59°15' 45" N 125°32' W	Elevation K.B.		Ground	
Province	BRITISH COLUMBIA	Total Depth		Oldest Fm.	
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing			
Commenced	AUGUST 5th. 1968	Sample Quality	GOOD		
Completed	AUGUST 16th. 1968	Geologist	J.W.J. HARDY		
Status	OUTCROP SECTION	Date			

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Triassic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - SORT. SIZE	SORTING - SORT. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Silt m/gy v sl calc
									Shl m/gy tr calc veins, interb w/10% silt m/gy
50									Silt m/gy interb w/30% shl m/gy
									Shl m/gy interb w/40% silt m/gy ripple marks
									Shl m/gy tr silic mod, interb w/silt lt/m-gy 5%
100									
									Shl m/gy soft bleeky w/5% silt lt-m/gy tr muse
50									
200									Shl m/gy v thinly interb w/20% silt lt/gy tr muse ripple marks
									Shl m/gy thinly interb w/ 40% silt m-dk/gy
50									Shl m/gy w/interb 5% slty shl m/gy tr muse Occasional lt/gy ripple marked silt bands
300									Interb shl m/gy silt lt/gy tr muse Shl lt/gy v thinly int silt lt/gy ripple mark tr muse
									Shl m/gy w/interb 15% silt lt/gy ripple mks tr pyr
50									Shl m/gy w/interb 10% silt lt/gy ripple qtz calc vn lt silt lt/gy w/qtz calc veins tr pyr ripple mks
									Shl m/gy w/interb 2% silt lt/gy calc tr pyr 13% shl m/gy v sty
400									
									Shl m/gy tr calc veins tr silt interb
50									
500									
525									

Canadian Pacific

OIL AND GAS LIMITED

1-68-14

Well Name	SCT - SCTR2 - SCTR9 SCATTER CREEK.	Producing Fm.	Interval
Location	LAT 59°34'30" LONG 124°51'	Elevation K.B.	Ground
Province	B.C.	Total Depth	Oldest Fm.
Area	TOAD RIVER	Casing	
Commenced	AUG. 30TH 1968	Sample Quality	OUTCROP
Completed		Geologist	J. HARDY.
Status	OUTCROP	Date	

INFORMATION SUMMARY

Triassic/Cretaceous

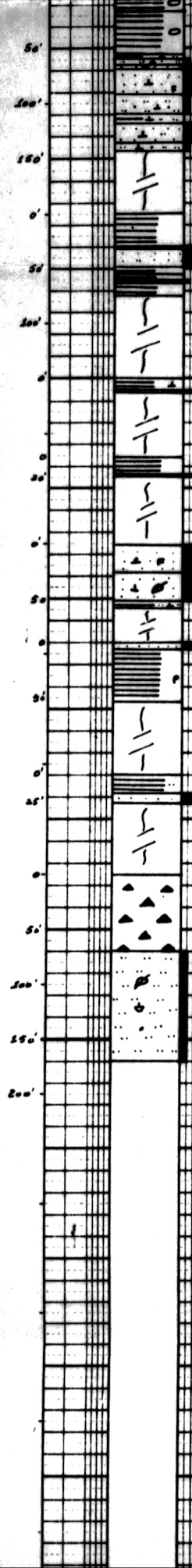
Spot Check sections (not a composite section) incomplete

Total Footage. 550'

LOG PREPARED BY K. CHIANG

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - BASE SIZE	SORTING - BASE SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									SCT Aug. 30, 1968.
0'						N	0		Sh. dk gy. Fm-nf (2' thick).
						N	0		a.a.
						N	0		a.a.
						N	0		a.a.
50'						N	0		a.a. (probably base of Cret.
						N	0		a.a.
						?	P	1	Sh, m gy, slt calc; Sltst, m gy, ss, calc, muscovite; SS, m gy, calc, fnf, muscovite.
						?	?	7	SS, m gy, slt, calc, muscovite, pos;
						?	?	7	a.a.
100'						?	?	8	Sltst, m gy, ss, calc, muscovite.
						?	?	8	a.a.
						N	0		Sh, m gy, slt, calc, muscovite.
						?	P	?	SS, m gy, slt, calc, muscovite.
						?	P	?	a.a.
150'						N	0?		Sltst, m gy, ss, calc, muscovite.
									SCTR2
0'						N	0		Sh, gn-gy.
						N	0		a.a.
						?	P	1	a.a; Ss, gn-gy, slt
						?	P	1	SS, m gn-gy, fnf, mica.
50'						?	P	5	a.a.
						N	0		Sh, m gn-gy;
						N	0		sltst, m gy; Sh, m gy-gn.
						N	0		a.a.
100'									
0'									SCTR3
						N	2		Sh, m gy, calc; SS, m gy, calc, slt, grooves & load casts.
									SCTR4
0						N	0		Sh, gn-gn, calc;
50'						N	1?		a.a; SS, gy, slt.
									SCTR5
0'						?	?	8	SS, m gy, calc, coin, bone.
						?	?	8	a.a.
						?	?	8	a.a.
						?	P	5?	SS, m gy, calc, plant fos;
50						?	P	5?	a.a.
						N	0		Sh, m-dk gy, slt, calc.
									SCTR6
0						N	5		SS, m gy; Sh, gn-gy, pyr.
						N	0		Sh, gn-gy, pyr.
						N	0		a.a.
						N	0		a.a.
50'						N	0		a.a.

1 of



N 0 Sh. m gy.
N 0 a.a.
N 0 a.a.
N 0 a.a. (probably base of Qal.)
N 0 a.a.
? P ? Sh, m gy, sd, calc; Sltst m gy, sd, calc, musc; SS, m gy, calc, slt, musc.
? ? ? SS, m gy, slt, calc, musc, pos;
? ? ? a.a.
? ? ? Sltst, m gy, sd, calc, musc.
? ? ? a.a.
N 0 Sh, m gy, slt, calc, musc.
? P ? SS, m gy, slt, calc, musc.
? P ? a.a.
N 0 Sltst, m gy, ss, calc, musc.

SCTR 2

N 0 Sh, gn-gy.
N 0 a.a.
? P ? a.a.; SS, gn-gy, slt
? P ? SS, m gn-gy, slt, mica.
? P ? a.a.
N 0 Sh, m gn-gy;
N 0 sltst, m gy; sh, m gy-gn
N 0 a.a.

SCTR 3

N 2 Sh, m gy, calc; SS, m gy, calc, slt, grooves & load casts.

SCTR 4

N 0 Sh, gy-gn, calc;
N ? a.a.; SS, gy, slt.

SCTR 5

? ? ? SS, m gy, calc, cross, bmc.
? ? ? a.a.
? ? ? a.a.
? P ? SS, m gy, calc, plant pos;
? P ? a.a.
N 0 Sh, m-dk gy, slt, calc.

SCTR 6

N ? SS, m gy; sh, gn-gy, pyr.
N 0 sh, gn-gy, pyr.
N 0 a.a.
N 0 a.a.
N 0 a.a.

SCTR 8

N 0 Sh, dk gy-gn, slt, calc.
N 0 a.a.
? ? C SS, gy, calc.

SCTR 9

NC 0 Cht, dk gy-blk, bio weathered.
NC 0 a.a.
NC 0 a.a.
NC 0 a.a.
NC 0 a.a.
NC 0 a.a.
N ? ? Sltst, m gy, plant pos, bmc, ss, calc.
N ? ? a.a.
N ? ? a.a.
N ? ? a.a.
N ? ? a.a.
N ? ? a.a.
N ? ? a.a.
N ? ? a.a.

2 of 2

OUTCROP

Canadian Pacific

OIL AND GAS LIMITED

1-68-13

Well Name	K C M CARIBOU	Producing Fm.	Interval
Location	LAT 51°43'N. LONG 126°17'W.	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	CARIBOU RANGE	Casing	
Commenced	Aug 16 1968	Sample Quality	
Completed		Geologist	BOS & SIDDIQUI
Status	OUTCROP	Date	

INFORMATION SUMMARY

PHOTO: 11249/127/N19-1A
BESA RIVER TO NAHANNI

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN / FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION	Environment
									ss med bd, lt brn, wthrd gy, med bd, hd, grain	
									vn of Fe	
									lt brn, wthrd brn-gy, p exposure	
100									strike 105 Dip 27	
						r.			ss brn, wthrd brn-gy, thn-med bd, porous cod. tide	
						r.			ss, lt brn, wthrd brn-gy, med bd	
200										
300								0	ss bk	
									Covered	
400									Covered	
500									Covered	
600									Covered	
700										

1 of

600

Covered

700

Covered

Sh dk gy, wthrd blk, dip 10°
Lenticular conc 3"x1/2" x 6"

800

Conc calc
Fe coating

Conc lenticular, Fe coating 1' long
Dk gy, thn lam calc sh, pt yel-bro
Dk gy, Fis

900

Dk gy wthrd yel, Fis

Fe-st

1000

Dk gy Fe-st yel-brn
Dk gy Fis
3" bd Fe-st yel-brn
" Fe-st yel-brn

Fe-st

1100

Sh, dk gy, Fis

conc yel-brn

Conc 6" to 1' diam

1200

Sh dk gy, Fis, conc yel-gy

intbd Fe-st conc

Dk gy lam, Bree, Tent

1300

Dk gy hd

Covered

1400

Covered

Dk gy, lam, Fe-st conc

1500

Sh dk gy, scat Fe-st conc

1600

Sh dk gy, thn bd
Sh blk, gy, lam, Fis

Blk sil
Blk silty

1700

Blk silty hd

Blk, conc, wthrd yel-brn

Bd crumpled

1800

D

Bree - Dicomf cont
Nehanni Is

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-12

Well Name	CARIBOU RANGE (CR 1-9) (CRA-9)	Producing Fm.	Interval
Location	Lat. 59°45' Long. 125°34'	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	LIARD RIVER CROSSING AREA	Casing	
Commenced	FIELD PARTY SUMMER 1968	Sample Quality	OUTCROP
Completed		Geologist	D.E. CAMPAU, G. PUCA
Status		Date	

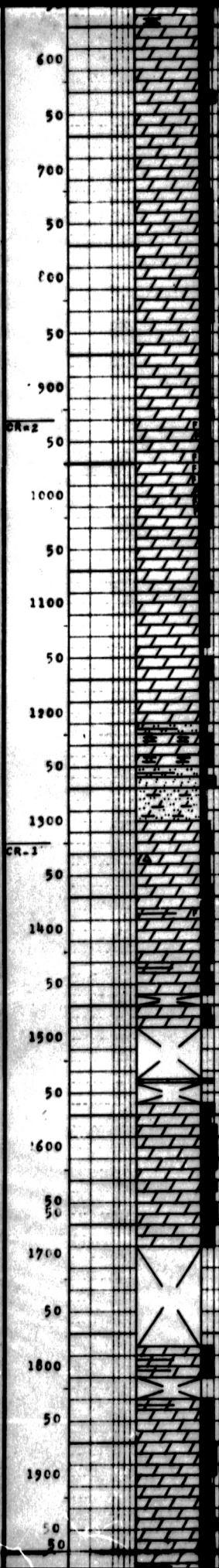
INFORMATION SUMMARY

FOUR OUTCROP SECTIONS ARE IN A COMPOSITE SECTION
ON THIS LOG. C.R.3. MEASURED FROM TOP OF DOWN TO 900'
C.R.9, MEASURED FROM TOP OF DOWN TO 860'
C.R.1, MEASURED FROM TOP OF DOWN TO 970'

Devonian, Silurian, Precambrian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - BIAS SIZE	SORTING - BIAS SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
CR#3 0									Ls dk/brn nrg crsty calc vn min frac
									Ls dk/gy tr br foss min frac
CR-3 0									Ls dk/gy min frac, calc vn foss
									Ls m/gy foss
									Ls dk/gy-brn cht
50									Ls dk/brn pt foss
100									
50									
200									Ls m-dk/brn
50									Ls m/brn-gy pt calc vn
300									Ls m/gy-brn foss Dol lt-m/gy, v calc Ls m/brn foss Ls m/gy
50									Dol lt-m/gy calc
400									
50									Dol m-dk/gy Dol lt-m/gy sdy Dol m-dk/gy
500									Dol lt-m/gy foss Ls dk/gy dol Dol m/gy
50									Dol m-dk/gy pt calc vn foss
600									Dol lt-dk/gy
50									Dol lt-m/brn Dol lt/gy-brn

1 of



Dol m-dk/gy pt dolc vn foss

600 Dol lt-dk/gy

50 Dol lt-m/brn
Dol lt/gy-brn

700

Dol lt/brn-gy

50 Dol lt/gy-brn

800

Dol lt-dk/gy

50 Dol dk/gy

Dol lt/brn-m/gy

900 Dol lt/brn
Dol lt/brn-m/gy
Dol m/gy
CR-2 Dol m/brn foss

50 Dol gy-m/brn foss

Dol brn-m/brn foss
Dol m-dk/brn foss

1000

Dol lt-m/brn

50 Dol m-lt/gy

Dol lt/gy

1100 Dol lt/brn

Dol lt/gy-brn

50 Dol lt/gy m bdd
Dol lt-m/brn m bdd

1200

Slt lt/brn-gy shy
Dol m/gy v slty
Dol m/brn

50 Slt lt/brn-gy shy
Ss m/gy
Slt m/brn-gy v dol

1300

Dol m/brn m bdd
Dol m/gy m bdd
CR-1 Dol dk/gy thn bdd

50 Dol lt/brn-m/gy

Dol brn-gy

Dol m/brn-gy shy foss (?)

1400

Dol m/brn, scale vn
Dol m-dk/gy shy

50 Dol m/gy-brn

Covered
Dol m/brn-gy sl shy
Dol m/brn thn bdd

1500 Covered

50 Covered

Dol lt-m/brn thn bdd
Dol m/brn
Dol lt-m-dk/gy

1600

50
50

1700 Covered. Probably sh

50

Dol m/gy pt shy

1800 Covered

Dol rd-brn v shy
Dol m-lt/gy

50

1900

Dol m/gy v sl shy
Dol lt-m/gy thn bdd

50
50

Dol m/gy shy

2 of

50

Dol m-lt/gy

1900

Dol m/gy v sl shy
Dol lt-m/gy thn bdd

50

50

Dol m/gy shy

2000

Dol m/gy thn bdd foss

50

Dol m-dk/brn coral

2100

Dol m/gy coral strom
Dol dk/brn
Dol m/gy foss

50

Dol dk/brn coral strom

Dol dk/brn-blk coral

2200

Dol dk/brn-blk strom coral

50

Dol m/brn min frag, calc vn
Dol lt-m/brn coral

2300

Section not measured and sampled to Cambrian; Pre - Cambrian? incomplete

50

2400

3 of 3

Canadian Pacific

OIL AND GAS LIMITED

1-68-11

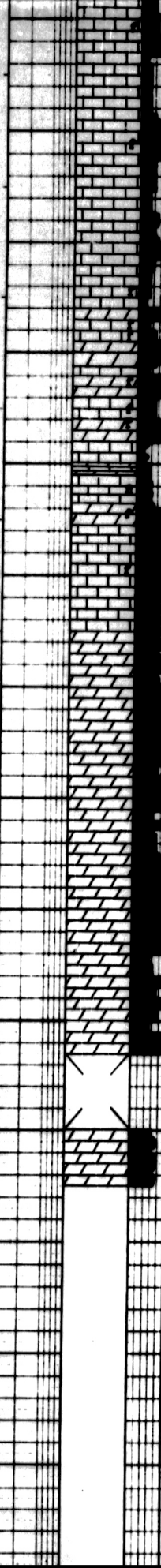
Well Name	SECTION NAHANNI BUTTE N.B.#1	Producing Fm.	Interval
Location	Lat. 61°04' 30" Long. 123°19'	Elevation K.B.	Ground
Province	NORTHWEST TERRITORIES	Total Depth	Oldest Fm.
Area	NAHANNI	Casing	
Commenced	FIELD PARTY SUMMER 1968	Sample Quality	OUTCROP
Completed		Geologist	D. CAMPAU & G. PUCA
Status		Date	

INFORMATION SUMMARY

Devonian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
N.B.#1									Lst gy-dk/gy-brn, calc veins min frac
									Lst brn min frac, calc veins foss
50									Lst gy-brn min frac, calc veins shly tr of foss
100									Lst gy-brn foss
150									Lst brn-gy, calc veins
200									Lst gy-dkgy/brn, calc veins tr of foss
250									Lst brn-gy, calc veins
									Lst dk/gy-brn, calc veins
300									Lst brn-gy, calc vei s tr of foss
350									Dol m/gy min frac, calc veins
									Lst gy-brn foss
									Lst m/gy foss
400									Dol gy-brn min frac, calc veins sl shly
									Lst brn shly
									Dol gy shly foss
450									Lst m/gy-brn sl shly foss min frac
									Dol dk/gy-brn min frac foss
									Lst dk/gy-brn min frac, calc veins sl shly
500									Dol lt/brn interb w/lst brn
									Lst dk/gy, calc veins min frac foss
550									Dol lt-dk/gy min frac ptly shly foss
									Lst gy-dk/gy min frac, calc veins tr of foss
600									
650									Dol lt/gy-brn min frac

1 of



100 Lst gy-brn foss

150 Lst brn-gy, calc veins

200 Lst gy-dkgy/brn, calc veins tr of foss

250 Lst brn-gy, calc veins

Lst dk/gy-brn, calc veins

300

Lst brn-gy, calc veins tr of foss

350

Dol m/gy min frac, calc veins

Lst gy-brn foss

Lst m/gy foss

400 Dol gy-brn min frac, calc veins sl shly

Lst brn shly

Dol gy shly foss

450 Lst m/gy-brn sl shly foss min frac

Dol dk/gy-brn min frac foss

500 Lst dk/gy-brn min frac, calc veins sl shly

Dol lt/brn interb w/lst brn

Lst dk/gy, calc veins min frac foss

550 Dol lt-dk/gy min frac ptly shly foss

Lst gy-dk/gy min frac, calc veins tr of foss

600

650 Dol lt/gy-brn min frac

700 Dol dk/gy min frac

750 Dol gy-dk/gy min frac dol veins

800 Dol lt/gy min frac

850 Dol dk/gy min frac

Dol lt/gy sil

900

950 Dol lt-m/gy min frac

Dol dk/gy ptly shly

1000 Dol m/gy min frac dol veins

1050 Covered

1100 Dol m/gy min frac dol veins

1150

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-10

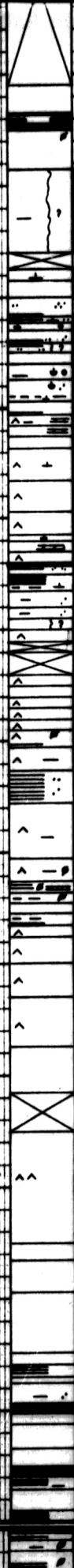
Well Name	JACKFISH GAP (J01)	Producing Fm.	Interval
Location	61° 05'N. 123° 57'W.	Elevation K.B.	Ground
Province	N.W.T.	Total Depth	Oldest Fm.
Area	NAHANNI	Casing	
Commenced		Sample Quality	OUTCROP
Completed		Geologist	C. BOS
Status	OUTCROP	Date	SUMMER 1968

INFORMATION SUMMARY

Mississippian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
0									Ls lt/gy vf-mxl vf sd g foss bry cor brac crin
									Ss lt/gy brn w/ls strg 70% gy sh
									Ss gy/brn tr sil ferr shy crin ossicles
50									Ss lt/gy/brn shy 20% gy sh
									Ss lt/gy/brn sil ls strg
									Sh gy
									Ss lt/gy m g 40% inthd gy sh
100									Ss wh f g sil
									Ss lt/brn f-m g sil
									Ss wh vf-f g sil ripple marks
									Ss lt/brn f-m sil
									Ss lt/gy/brn f g sh sil ls strg
									Ss lt/brn/gy m g sil
150									Ls lt/gy/brn fxl sdy
									Dol lt/gy/brn sil crin
200									
									Dol lt/gy/brn sil 40%
									Dol lt gy sil 30%
									Ass
250									Ss lt/brn vf g dd
									Ss dk/gy vf g shy asls
									Dol lt/gy/brn sdy silty
									Dol asas
									Ss lt/gy vf g shy sil
300									Ss lt/brn m g sil
									Ss lt/gy-wh f g sil
									Ss asas
									Ss asas
									Sh brn sdy
350									Ss lt/brn f-m g
									Ss lt/gy vf g sil
									Ss rd-brn vf-m g sil
400									Ss lt/gy/brn f g sil inthd w/sh lt/brn sil. Seisl50 /50
									Ss lt/brn vf g shy 30% silty 20
									No sample description
450									
500									
550									
600									Ss

1 of



550

600 Ss

650 Sil
Ss

Ss lt/brn/wh m-f g shy. Poorly exposed

700

750 No exposure
Ss gy/brn m g calc

Ss wh m g

800 Dol gy/brn crypt slty sdy 15% blk sh
Sh gy calc slty
Ls gy/brn mxl w/brac crin
Ss lt/brn f g w/20% intbd lt/gy sh

850 Sh slt poorly exposed
Ls lt/gy vf-mxl
Ls gy/brn vf-mxl arg brac crin
Ls gy mxl sdy brac intbd w/10% calc ss

900 Ss 40% lt/gy/brn vf g, slt 30% lt/gy/brn, sh 30% lt/gy /brn
Ss gy/brn vf-f g calc sil w/40% lt strg
Ss lt/brn m g w/40% intbd gy sdy dol
Ss lt/brn m g
Ss lt/gy f g sil calc

950 Ss lt/brn-lt/gy m g sil

1000 Ss wh w/rd fe stains f g sil
Ss brac
Ss wh vf g w/50% dol and sdy dol intbd
Ss lt/gy/brn vf-m sil
Coal 20% sh 60% sly 20%
Sh lt/gy/brn w/40% lt/gy/brn ss vf g calc arg tr mic

1050 Slt wh sdy arg
Slt lt/gy sdy arg
Ss lt/brn f g poor exposure
Ss gy/brn f g sil ripple marks

1100 Covered interval

Ss lt/brn/gy m g sil
Ss lt/brn/gy m g
Slt lt/gy wh
Ss lt/gy/brn vf-m g sil
Ss lt/gy f g sil
Ss lt/gy f g sil sealy 20% dk/gy sh

1150 Ss lt/brn vf-m g sil arg

1200 Sh gy/brn slt sdy

1250 Ss lt/brn-lt/gy vf-m g sil arg ripple marks current /bdd

1300 Ss a.a. Plant remains
Sh dk/gy sdy w/20% coaly planty ss strg
Ss brn/gy arg planty
Ss brn f g
Ss lt/gy-lt/brn f g arg w/10% dk/gy sh

1350 Ss lt/gy-wh f g sil
Ss a.a.

1400 Ss lt/gy-wh brn stn m g sil

1450 Ss wh f-m g sil, ripple marks, current bdd

1500 Ss lt/gy-brn vf-m g

Covered interval

1550 Ss lt/gy-wh m-f g sil

1600

1650 Ss lt/gy-wh vf-m g
Ss lt/gy-brn

1700 pW Ss lt/gy f-m g tr lim

1750 Ss gy f-m g
Sh dk/gy
Ss wh/gy g
Slt lt-dk/gy sdy arg
Sh a.a. dk/gy planty followed by 7' coal

1800 Ss rd brn/gy f-m g tr lim
Ss a.a.

1850 Ss lt/brn/gy vf g
Coal planty
Slt dk/gy arg intbd w/50% dk/gy sh
Slt lt/gy intbd w/lt/gy-brn ss m g

1900 Sh brn/gy
Ss dk/gy w/40% lt/gy vf g ss
Ss w/brn slt-dk f lft planty
Ss lt/brn f g intbd w/50% dk/gy sh planty

2 of

Ss lt/gy-brn

1700 Ss lt/gy f-m g tr lim

1750 Ss gy f-m g
Sh dk/gy
Ss wh vf g
Slt lt-dk/gy sdy arg
Sh 2' dk/gy planty followed by 7' coal
Ss rd brn/gy f-m g tr lim
Ss Ss.

1850 Ss lt/brn/gy vf g
Coal planty
Slt dk/gy arg intbd w/50% dk/gy sh
Slt lt/gy intbd w/lt/gy-brn ss m g

1900 Sh brn/gy
Ss dk/gy w/10% lt/gy vf g ss
Ss lt/brn vf-m g trg planty
Ss lt/brn f g intbd w/50% dk/gy sh planty
Sh dk/gy intbd w/30% dk/brn-blk sht

1950 Ss gy/brn vf g arg intbd w/30% slt sdy arg 30% dk/gy /sh
Sh dk/gy
Ss brn f g intbd w/slt dk/gy arg
Ss lt/gy vf g sil slty w/10% coal
Ss intbd w/25% coal
Ss lt/gy vf g w/10% coal
Slt gy/brn sdy arg sil intbd w/50% blk sh

2050 Ss gy/brn vf g arg slty sil w/25% dk/gy sh intbd coal
Ss brn vf-f g sil arg intbd w/25% slt sdy arg
Slt dk/gy arg scaly plant
Ss lt/gy vf-m g arg sil
Ss lt/brn vf-f g sil

2100 Ss dk/brn f g arg fe-st

Ss lt/brn/gy vf g intbd w/10% sh
Ss lt/gy/brn vf g plant arg intbd w/20% dk/gy-blk /scaly sh

2150 Sh dk/gy-blk scaly plant
Ss lt/gy/brn vf g

2200 Sh dk/gy sdy w/10% intbd ss strg

2250 Ss lt/gy/wh vf g sil intbd w/10% dk/gy sh plant

Covered interval
Slt gy sdy scaly arg plant

2300 Ss lt/brn-brn vf g sil arg slty
Ss lt/brn vf g arg slty scaly plant iron stain

2350 Ss lt/gy-wh f g sil arg

Ss lt/gy vf g intbd w/sh 30% slty scaly plant 30% /slt arg sdy

2400 Sh dk/gy-blk scaly plant
Ss lt/gy-wh arg plant

2450 Slt dk/gy-brn scaly sdy
Sh dk/gy scaly
Slt lt/gy sdy arg w/40% intbd sh & ss strg

Ss lt/gy-wh f g sil

2500 Ss dk/brn vf g slty arg w/10% intbd dk/gy sh
Ss lt/gy vf g sil

2550 Coal
Slt dk/gy-gy planty w/10% intbd
Ss lt/gy/brn vf-f g

Ss lt/gy vf g arg sil scaly plant

2600 Ss dk/brn arg slty iron stain
Ss lt/gy arg slty plant
Sh dk/gy-blk

2650 Ls gy 50% fau in arpxl com arg ori brac bry ooph

2700 Ls dk/gy fau 80%

2750 Ls gy foss intbd w/35% dk/gy-blk sh, 30% dk/gy chic /sh

2800 End of section

3 of 3

Canadian Pacific

OIL AND GAS LIMITED

1-68-9(b)

Well Name	CLAUSEN CREEK (CC) 2	Producing Fm.	Interval
Location	61°8' N 124°22' W	Elevation K.B.	Ground
Province		Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-ROAD RIVER SURVEY	Casing	
Commenced	JUNE 23rd. 1968	Sample Quality	GOOD
Completed		Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANDI FROM FIELD NOTES, DEC. 1969

Mississippian - Devonian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - GRAIN SIZE / SORTING - GRAIN SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
								Lst m-dk/gy thin interb w/blk sht
								Lst gy argill fissile bras pyr
								Covered
50								Lst m/gy micrx veins w/pyr ly m/brn/gy crin lst
								Covered
100								
50								
200								Lst m/gy m crin brach interb dk calc shl veins
								Shl blk calc slty w/thin interb lst dk/gy v arg cri
50								Covered
300								
50								
400								Shl dk/brn soft ferrug
50								Shl dk/brn v sl calc mod fiss soft
								Shl dk/gy/brn sl mic fiss scatt ferrug
500								
50								Shl dk/gy-brn sl fiss sl mic nod in bands isolat
								Covered
600								Shl dk/gy-dk/brn slty fiss sl mic towards the top one band of nodules
50								Covered
700								

1 of

Sh: dk/gy-blk silty lvs of nod
towards the top one band of nodules

50

Covered

700

50

800

50

900

Dk/gy shl silty in bands
Covered - three isolated exposures of shl dk/gy-blk

50

1000

Covered

50

Shl dk/gy-blk interb w/fest bands few feet nod

1100

Sh. dk/gy-blk soft fiss few feet nod
Covered

50

Shl dk/gy-blk fest nod sl calc
Shl dk/gy-blk as feet nod in bands at top
At base thin layer of arg lst dk/gy-blk kh srin
Mst dk/gy calc pyr interb w/slts sm on brac
Shl dk/gy calc fiss

1200

Covered
Shl dk/gy calc fiss beef bands in the middle

50

Shl dk/gy calc slty up?'gy calc ferrug sltst

Covered

/mst

1300

Shl dk/gy slty calc ceph brac sup gy lt/gy ferrug

~~Shl dk/gy slty, calc~~

Covered

50

~~Shl dk/gy-brn fiss interb silty calc mst lt/gn-gy~~

Shl dk/gy sestt fa rug nod rare beef bands

1400

Shl dk/gy v fiss top½' lt/brn-gy slty mst

~~Shl brn v fiss~~

Shl dk/gy-blk fiss beeige sl calc nod (acmar)

50

~~Shl dk/brn-blk fiss rare thin beef scams tr of sin~~

1500

Shl v dk/brn-blk w/thin discoid nod byritic sl calc

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-9

Well Name	CLAUSEN CREEK (CC)	Producing Fm.	Interval
Location	61°8' N 124°22' W	Elevation K.B.	Ground
Province		Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing	
Commenced	JUNE 12th. 1968	Sample Quality	GOOD
Completed	JUNE 18th. 1968	Geologist	S. SIDDIQUI
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

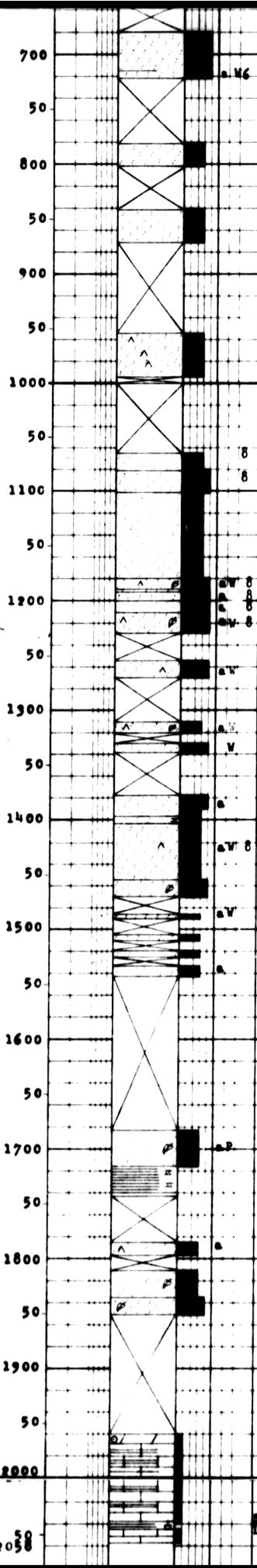
SCALE: 1" = 100 FEET

LITH SECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC.1969

Mississippian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING DRAG SIZE	SORTING DRAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ss m-crs g friable
									Ss m/gy fri lam thk bdd pale orange
									Ss m/gy fri pale orange
50									Covered
									Ss f-m g qtzic pale orange thn bdd
100									
									Ss pale orng m-crs g fri w/lam of ferr ss ½-4" thk
50									
200									Covered
									Ss brn m g fri thk bdd
									Lower part w/layers of ferr brn ss
50									
300									Mostly covered. Some shale exposed intbd w/ ss
50									
									Ss yel m g m bdd. Some intbd sh in the middle
400									
									Sh dk/gy carb v poor exposure
									Ss pale orng f-m g
50									Sh dk/gy slty poorly exposed
									Ss gy qtzic f-m g
500									Sh dk/gy slty some coal. Mostly covered v poor exp.
50									Ss brn f-m g w/dk/gy sh at the base
600									Covered 6635 some sh dk/brn slty w/carb streaks
50									Ss brn f g qtzic
									Covered

1 of



Covered
Ss lt/brn f-m g qtzic w/rare plant impressions and /carb streaks (last 10' some sh intbd
700 aW6
Covered
50
Ss lt/brn f g qtzic w/str of coal. Upper 1' sh /orn lam
800
Covered
50
Ss lt/brn v-f g qtzic
900
Covered. Probably sh interval
50
Ss lt/brn v-f g qtzic
1000
Covered
50
8 Ss pale orng f g qtzic
8 Ss lt/brn f-m g qtzic
1100
Ss pale orng -lt/brn v-f g qtzic jointed
50
aW 8 Ss lt/brn f-m g thk bdd sil com lim scat carb plant
8 Ss dk/brn v f-m/ lim/ grs carb material tr lim
1200 a 8 Ss lt/brn m-g sil com lim
aW 8 Ss wht f-m g sil com lim carb plants
tr burrows few few in, argdk/gy carb mic ss
Covered
50 Ss wh f-m g sil com tr lim lew 2' arg ss v carb mic
aW tr worms tubes?
Covered
1300
aW Ss wh f g sil com sl lim carbs
Covered. Probably blk silty sh
W Ss lt/brn f-m g carb lim
50
Covered
a Ss wh f-m g lim carb plants
1400
~~Ss brn lim v-f g w/carb intcl silty~~
aW 8 Ss wh f g sil com sl lim tr carbs tr worms burrows
50
Ss m-f g lim carbs material
Covered
aW Ss wh f g sil com scat lim carbs specks
1500
Covered
Ss wh f g carb sl fri
Covered
a Ss lt/gy f g lim sil com carb deer towards the top
50
Covered
1600
50
aP Ss lt/gy f g v carb at the base w/thn sh intcl
1700 tr shale
Sh dk/gy blk silty carbs mic w/thn silty stringers
50
/the top
a Ss m/brn f g sil lim com v sl mic. Less lim towards
1800
Covered
Ss lt/gy-wh f g sl mic v carb w/thn intb carb sh10%
50 Ss wh f-m g lim v carb sh plants
Covered
1900
50
Dol m/gy microxln sl calc crin dk sh at the top
Ls m/gy microxln brec bry crin rare coral intb w/thn
2000 /dk/gy carb silty sh
Sh dk/gy carb slsilty intbd w/ls m/gy brec bry
50 Ls m/gy microxln sl arg tr bry brec intbd w/thn dk/gy
2050 /blk carb sh

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-7

Well Name	TWISTED MOUNTAIN	Producing Fm.	Interval
Location	61°11' N 123°38' W	Elevation K.B.	Ground
Province	BRITISH COLUMBIA	Total Depth	Oldest Fm.
Area	NAHANNI	Casing	
Commenced	SUMMER 1968	Sample Quality	FAIR to GOOD
Completed		Geologist	C. BOS
Status	OUTCROP	Date	

INFORMATION SUMMARY

SCALE: 1"=100 FEET

COMPILED FROM OUTCROP NOTES BY J.W.J. HARDY, DEC. 1969

Mississippian

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN / FRAGMENT SIZE	ROUNDING · DIAG SIZE	SORTING · DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
0						aW			Ss lt/brn f-med gr argill /shl
						aW			Ss lt/brn fgr argill sil followed by 6' ss blk eerly
						aW			Ss lt/brn vf-fgr argill sil interb w/25% lt/gy-brn /argill silt 25% argill coal
50						aW			Ss brn f-med gr argill /silt 25% argill coal
						aW			Ss lt/brn-gy v-fgr argill silic w/25% lt/gy-brn coal
									Ss lt/brn vfgr argill silic w/20% coal
100						aW			Ss lt/brn vfgr w/10% eerly shl
									Silt lt/gy w/35% blk eerly shl
									/ss fgr
50									Shl dk/gy interb w/20% gy/brn silt argill 20% lt/brn
									Lst dk/gy oiexl bigel w/bryz brac spines crin cst
200									Shl dk/gy brac sp bryz w/35% lst bigel crin cst
									Shl dk/gy 70%-30% dk/gy foss Lst
50									
									Lst gy vfgr foss 40% w/60% interb dk gy shl
									Lst dk/gy vfgr foss interb w/20% gy shl 10% blk sht
300									
									Lst shl and sht a.a.
50									Lst shl and sht a.a.
									Lst gy/brn sndy interb w/30% blk sht 35% dk/gy shl
									Lst a.a. interb w/25% shl 15% blk sht a.a. /sht nod
400									Lst gy ers xl arg crin bry brach inbd w/50% scle sh
									Lst gy/brn vf-ers xl w/cor brach cri bry inbd w/20% /gy shl
									Shl dk/gy scale bry
50									/gy scle shl
									Lst gy vf-ers xl, bry brach cri cor inbd w/40% gy c
									Lst dk/gy vfxl, crg inbd w/25% dk/gy shl /shl
									Lst dk/gy vf-fxl bry cor cri brach w/10% inbd dk/gy
500									Lst dk/gy vfxl w/60% sh & blk sht
									Lst gy f-ers xl foss w/40% Ls gy marx crg 30% lt/gy /sh
									Ss gy/brn vf-fgr crg, scle
50									Sh dk/gy/brn w/10% gy/brn ss 10% gy/brn slt inbd
									Section poorly exposed
600									
									Covered interval

1 of

500

Lst gy f-crs xl foss w/40% Ls gy aerx crg 30% lt/gy /sh

Ss gy/brn vf-fgr crg, calc

Sh dk/gy/brn w/10% g. /brn ss 10% g. /brn slt inbd

50

Section poorly exposed

600

Covered interval

50

/inbd gy sh

Lst lt/gy-brn f-crs xl grst brach cor cri w/10%

700

Shale

/inbd

Lst brn/gy vf-crs xl foss 50% crg w/40% gy calc sh

50

Shl poorly exposed

Ls crg

Ls gy vfxl arg foss w/6% sh g. calc

800

Ls gy vf-crs xlc foss w/ 25% g. calc sh cri cor

Sh gy, calc

50

Sh gy-brn/gy, calc inbd w/40% dk/gy Ls cri brach

Ls dk/gy vfxl v arg w/10% dk/gy calc sh

900

Ls vf-fxl dk/gy cri brach cor inbd w/20% gy calc sh

Ls vfxl dk gy foss inbd w/25% dk/gy calc sh 5% blk /cht

50

Sh dk/gy, calc. Maybe limy sh

/sh 5% blk cht

1000

Ls dk gy vf-fxl cri brach cor inbd w 15% dk/gy calc

Ls dk/gy vfxl v crg br ch cri

50

Ls vfxlc gy-dk/gy crg brach

Ls dk/gy/brn vfxl w/brach bry cri cor

Sh poorly exposed

1100

Ls dk/gy /brn crg w/50% sh dk/gy /brn, calc

Sh dk/gy, calc w/Fe-st gone

50

Sh gy/brn inbd w/Ls dk/gy vfxl.

1200

Ls dk/gy vfxl inbd w/50% dk/gy calc sh

Sh dk/gy, calc

Ls dk/gy vfxlc arg brach

50

Sh dk/gy, calc

1300

Ls dk/gy vfxlc crg inbd w/40% dk/gy shy calc

Sh dk/gy, calc w/silty sh

50

Sh dk/gy, calc brach w/10% dk.gy/brn slt

1400

Ls dk/gy vf-fxlc brach cri

VP Ss gy/brn vfgr arg sil w/10% gy sh

50

Sh rd/brn inbd w/20% rd/brn crg slt 20% brn arg slt /vfgr ss

1500

Ss gy/brn vf-fgr

50

Ss lt/gy/brn vfgr arg sil inbd w/10% rd/gy sh

Poor exposure shy w/inbd slt and thin ss

1600

50

Sh dk/gy/brn silty arg

Ss lt/gy/brn vfgr, calc shy sil w/10% gy sh

1700

Ls gy vf-fxl arg brach

Ls dk/gy vf-fxlc brach cri w/25% calc sh

Ls gy vf-fxlc arg brach

Sh dk/gy/brn, calc /sh

Ls gy vf-fxl arg

50

Ls vf-crs xlc brach cri bry cor inbd w/30% gy calc

Ls gy f-crs xlc arg brach cri

Ls gy vf-crg xlc brach inbd w/20% dk/gy/brn sh

Sh dk/gy inbd w/20% gy Ls brach cri sh

Ls gy fxl w/20% clst gy sh

1800

Sh dk/gy, calc

50

2 of

Canadian Pacific

OIL AND GAS LIMITED

1-68-6

Well Name	First Canyon of South Nahanni	Producing Fm.	Interval
Location	Nahanni LAT 61°17' LONG 124°13'	Elevation K.B.	Ground
Province	N.W.T.	Total Depth	Oldest Fm.
Area	NAHANNI	Casing	
Commenced		Sample Quality	
Completed		Geologist	S. Siddiqui
Status	OUTCROP	Date	June 1968

INFORMATION SUMMARY

Nahanni - Arnica

Lith Log by K Denike

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Ls, lt-gy, wthrs lt-brn, vug + frac w calc
				F		F	3	9	30% frac w calc
				F		F	3	3	dk-gy, wthrs lt-brn, fos-frag, pisa Amph Cor
				F		F			bcm lt-gy
				F		F	2		lt-gy, wthrs lt-brn, vug w calc
				F		F	4		w. fos, bcas dk gy, vug fl w calc
				F		F	3		dk-gy, massive bdd, wthrs lt-gy
100				F		F	3		bcma lt-gy
		V							m-gy, wthrs lt-brn, vug w calc, Foram, Amph
						F	2		lt-gy, wthrs lt-gy, frac fl w calc
Nahanni				F		F	1		bcm m-dk gy, a.a., Cor Stram, Amph
		V		F					m-gy, wthrs lt-gy, vug w calc Cor, Stram, Amph
200						F	1		frac fl w calc
		V		F					
				F		F	2		nod dk-gy, v fos, strom Cor wthrs lt brn, mot frin, Amph, Cor
									Covered
				F					Ls, m-gy, wthrs lt-brn, vug fl w calc, Amph
300				F					bcm sl arg
									Covered
				F					Ls, m-gy wthrs lt-brn, vug fl w calc Cor
				F					
									Dol, m-gy, wthrs lt-brn, calc, frac fl w calc
									Ls, gy, wthrs lt-brn, arg, lam, calc vns, thk-bdd
Headless				F					sl dol
									Dol, lt-gy, wthrs lt-gy
400									wthrs lt-brn
									gy, wthrs brn-blk
									lt gy, wthrs lt-brn
									lt-gy, wthrs yel-brn, vn fl w dol
									gy, m-bdd, wthrs brn-gy, Amph
				F					vug fl w dol, sks
						F	2		
500									algae? lam
				F					Amph
				F		F	3		
				F		F	1		Amph, vug fl w dol
600									
									lt gy, wthrs yel brn

1 of

700
thk-bdd, dk wthrng, vug fl w dol
F2 dk gy, thk bdd, wthrs brn-gy
m-gy

dk-gy, wthrs dk-brn
F3 lt-gy, wthrs brn-gy
vug fl w dol

800

F5 gy, wthrs yel brn
F1 lt-gy, wthrs brn-gy, thk-bdd
F9

900

F3
F8
m-bdd
gy, wthrs brn-gy, thn-bdd, vn fl w dol, bem lam
m-bdd
lt-gy, wthrs brn-blk m-bdd, vug w dol, pk dol
m-gy, wthrs brn-gy, thk-bdd

F2

1000

gy
F2
F1 m-gy, wthrs brn-blk

F9
vug fl w dol
m-gy, wthrs lt-yel brn, dol fl vug

1100

F4
wthrs brn-blk
F4 lt-gy, thk bdd

Covered

1200

Dol, m-gy, wthrs lt-brn, vug fl w dol

wthrs brn-blk

1300

wthrs dk-gy
thk-bdd

Arnica

lt-gy, wthrs lt-gy, thk-bdd, lam below
m-gy, wthrs lt-brn

1400

F3 lt-gy, wthrs lt-brn, thn-bdd
F4 m-gy, wthrs dk-gy
F4 lt-brn, wthrs brn gy

lt-gy
Amph, thk-bdd, vn fl w dol
F9
dk-gy, wthrs blk, thk-bdd
F6

1500

F6 lt-gy, wthrs lt-gy
wthrs lt-brn, Amph, vn fl w dol
F6 m-gy, wthrs lt-brn.
Amph
Amph

F2
F5

1600

F9
F9 dk-gy, lam
thk-bdd vug fl w dol

F6

1700

vn fl w dol
wthrs brn gy
F6 hem in frac
F7 wthrs dk-brn
m-bdd

F6
lt-brn, wthrs brn-gy, thk-bdd

1800

F9 pk-brn, wthrs lt-brn, thk-bdd, malachite & azurite
F2 qtz vlt
F6
F6

F5 lt-brn, wthrs dk brn, thk bdd
F1 vn fl w dol
F5
tr malachite

1900

F9 malachite & azurite in frac
F9
F2 vug fl w dol

lt-gy, wthrs brn-gy, thk bdd, vug fl w dol

2000

F5 m-bdd, vn fl w dol

2 of 2

Canadian Pacific

OIL AND GAS LIMITED

1-68-5

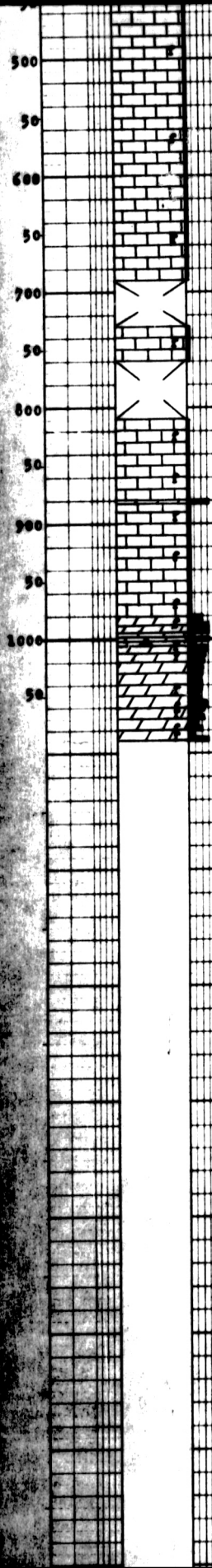
Well Name	SECTION DRY CREEK D.C.#1	Producing Fm.	Interval
Location	LAT. 61°15' LONG. 124°24'	Elevation K.B.	Ground
Province	NORTHWEST TERRITORIES	Total Depth	Oldest Fm.
Area	NAHANNI	Casing	
Commenced	FIELD PARTY SUMMER 1968	Sample Quality	OUTCROP
Completed		Geologist	D. CAMPAU + G.PUCA
Status		Date	

INFORMATION SUMMARY

Nahanni

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL, GRAIN, FRAGMENT SIZE	ROUNDING - DIAG SIZE	SORTING - DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
DC #1									Lst brn foss
									Lst m/brn calc vn foss frag
50									Lst m/brn calc vn shl strng
									Shl dk/gy-brn calc
100									Lst m-lt/gy-brn foss
									Lst lt/brn
50									Lst dk/brn calc vn pell foss
200									Lst dk/gy shl strng
50									Lst dk/brn min frac
300									Lst m/brn-m/gy min frac shly strng
									Lst m/brn-m/gy calc vn foss
50									Lst dk-gy/brn foss
400									
50									Lst m/brn min frac foss
									Lst dk/brn min frac foss
500									
50									Lst m/brn-m/gy min frac foss
600									
50									Lst dk/brn shly foss

1 of



500 Lst dk/brn min frac foss

50 Lst m/brn-m/gy min frac foss

600

50 Lst dk/brn shly foss

700

50 Lst dk/brn-gy foss

800 Lst dk/brn min frac foss

50 Lst m-dk/brn shaly

Dol wh mottl gy min frac

900 Lst m-brn/dk-brn shaly foss

50 Lst dk/brn min frac shaly foss

Dol wh mottled foss

1000 Lst dk/brn dolic

Dol dk/brn shaly foss

50 Dol m-gy/m-brn shaly foss

Dol m/brn foss frag

Dol m/brn shaly dol vn foss

2 of 2

1-68-4

Canadian Pacific

OIL AND GAS LIMITED

Well Name SUNBLOOD MOUNTAIN
Location 61°37" N 129°48" W
Province
Area NAHANNI FIELD PARTY 1968
Commenced SUMMER, 1968
Completed
Status OUTCROP

Producing Fm.
Elevation K.B.
Total Depth
Casing
Sample Quality GOOD
Geologist GAES BOS
Date SUMMER, 1968

Interval
Ground
Oldest Fm.

INFORMATION SUMMARY

SCALE: 1"=100 FEET

LITHOLOGIC LOG COMPILED FROM OUTCROP NOTES NOV. 1969 BY J.W.J. HARDY

FORMATION: ORDOVICIAN SUNBLOOD

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING - DIAG. SIZE	SORTING - DIAG. SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
0									Ls dk/gy crpxl var foss
100									Ls dk/gy crpxl plty arg Ls dk/gy crpxl var foss
200									Ls dk/gy plty crpxl arg Ls dk/gy crpxl blce bry brae crin gast cst
									Ls gy-dk/gy crpxl
									Ls blk crpxl brae cst
300									Ls gy-dk/gy crpxl
									Dol thk lam
									Dol dk/gy f-crsxl bry
400									Dol crsxl Lst dk/gy crsxl plty
									Ls crs s dol gri Ls dk/gy crsxl foss Ls dk/gy plty Ls dk/gy crsxl foss
500									Ls dk/gy crsxl brae Dol Ls dk/gy crsxl foss
									Ls dk/gy crsxl foss Dol brn fxl
600									Dol brn/gy-lt/gy f-crsxl

1 of

Del drk/gy-lt/gy [illegible]

Ls dk/gy orpxl foss 10% w/oor
Ls dk/gy orpxl-fxl foss 10%

700

Ls dk/gy orpxl 10% foss oos
Ls dk/gy orpxl-fxl foss 10%

Del dk/gy orpxl-orsxl

800

Ls dk/gy orpxl

Ls dk/gy orpxl 30% brac
Ls dk/gy orpxl

900

Ls dk/gy orpxl trilo
Ls dk/gy orpxl
Ls dk/gy orpxl

1000

1100

Ls dk/gy orpxl brac

Ls dk/gy orpxl
Ls dk/gy orpxl trilo
Ls dk/gy orpxl
Ls dk/gy orpxl w/30% fau brac gast ori bry

1200

Ls dk/gy orpxl w/brac ori
Ls dk/gy ori
Ls dk/gy orpxl w/25% blce beds fau brac strom gast /asph ori bry

1300

Poor exposure. Ls dk/gy orpxl brac

1400

Dol dk/gy orpxl
Ls dk/gy orpxl tr oot

1500

2 of

Del dk/gy orpxl

1600

Ls dk/gy orpxl orng weathering
Ls dk/gy orpxl

Ls dk/gy orpxl 60% bio

Ls dk/gy orpxl

1700

Trilobite

Ls dk/gy orpxl trilo gast. Part v finely banded

1800

Ls lt-dk/gy bio del crystals

Ls lt/gy orpxl
Ls dk/gy orpxl foss

1900

Ls orpxl foss
Del lt/gy silt

Del scls sdy w/ls strg

Dol lt/gy silt

Dol calc sdy w/ls strg

2000 Dol sdy

Ls lt/gy

Dol sdy

Ls white

2100 Ls dk/gy crpxl

2200 Ls dk/gy crpxl

2300

Ls dk/gy crpxl

Ls dk/gy crpxl cri

2400 Ls dk/gy crpxl

2500

Ls dk/gy crpxl

2600

3 of

Ls dk/gy bio brac cst

2700 Ls dk/gy crpxl

2800

Ls dk/gy bio

Ls dk/gy crpxl plty

2900 Ls dk/gy crpxl

3000

Ls dk/gy crpxl

3100

Ls dk/gy bio cst gcst

Ls kd/gy crpxl

Ls dk/gy crpxl w/bio strg cst

Ls dk/gy crpxl

3200 Ls dk/gy crpxl trilo gcst brac

3300

3400

Ls dk/gy mcr-x/vfxl

Ls dk/gy mcr-x/vfxl pel strom

Ls dk/gy mcr-x/vfxl pel

3500

3600

Ls dk/gy mcr-x/vfxl trilo ceph

Ls dk/gy mcr-x/vfxl

3700

3800

3900

Ls dk/gy mcr-x/vfxl abundant trilo

Ls dk/gy mcr-x/vfxl

4000

4100

Ls dk/gy mcr-x/vfxl

4200

Ls dk/gy mcr-x/vfxl scat brac gast ceph ost trilo
/abundant grst in low 30'

4300

Ls dk/gy mcr-m/vfxl scat brac gast ceph ost trilo

4400

Ls dk/gy mic-x/vfxl. Top few ft bio w/ost brac gast

4 of 4

4500

Poor exposure

Ls dk/gy mcr-x/vfxl

Poor exposure

4600

Ls dk/gy mcr-x/vfxl ost trilo. Garnetiferous veins
Ls dk/gy mic-x/srpxl ost trilo grst brac
Talus

Ls dk/gy mic-x/srpxl brac. Some intraformational /brec
Ls dk/gy mic-x/srpxl

Canadian Pacific

OIL AND GAS LIMITED

1-68-2

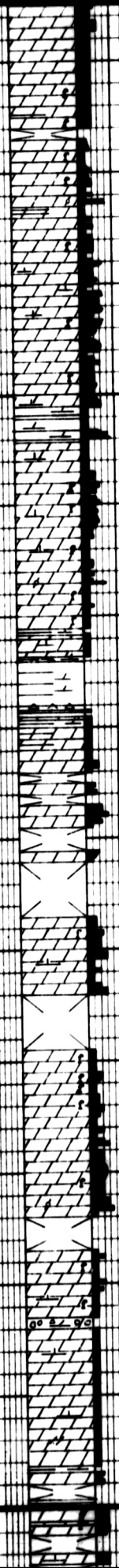
Well Name	SECTION LITTLE DOCTOR LAKE LDL #1, #2, #3, #4	**Producing Fm.**	**Interval**
Location	61°51'30" Lat. 123°18' Long.	**Elevation K.B.**	**Ground**
Province	NORTHWEST TERRITORIES	**Total Depth**	**Oldest Fm.**
Area	NAHANNI	**Casing**	
Commenced	FIELD PARTY SUMMER 1968	**Sample Quality**	OUTCROP
Completed		**Geologist**	D.CAMPAU, G.PUCA
Status	OUTCROP SECTION	**Date**	

INFORMATION SUMMARY

Devonian/Ordovician

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN FRAGMENT SIZE	ROUNDING · DIAG SIZE	SORTING · DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
									Lst m-brn/gy min frac
									Lst lt-brn/brn
50									Lst m-dk/brn pell
100									
130									Lst m-dk/brn pell
LDL #1 0									Lst lt-dk/brn min frac foss
Note-									
ace. no									
ert.									
oved S									
m									
									Lst m-dk/brn
100									Lst lt/brn pell
									Lst brn pell
50									Lst m-brn/gy
									Lst lt/brn foss
200									Dol lt-brn/wh
									Dol brn mottl wh min free
50									
300									Dol lt-brn/gy min free foss
									Covered
50									Dol m/gy-m/brn foss
400									Dol m/gy mottl wh foss
									Covered
50									Dol m-brn/m-gy
LDL #3									
500									
50									Dol lt-gy/brn min free
600									Dol dk/brn min free foss frag

1 of



50 Dol lt-gy/brn min free

600 Dol dk/brn min free foss frag

Covered

50 Dol m-gy/brn

Dol lt-dk/brn min free foss frag

700 Dol lt-dk/brn shaly

50 Dol dk/brn sl arg

800 Dol m/brn min free sl arg

Dol crm-lt/brn

50 Dol lt-dk/brn mottl wh

880 Silt lt-gy/grn min free dolic

LDL#4 note - ½ m ±50 offset

Se lt/brn min free dolic

Dol lt-m/brn

100 Dol gy/brn min free foss

Dol m-dk/gy

50 Dol lt brn min frac foss

Dol interb w/strk of min xl

200 Shl brn dolic

50 ~~Sil sht gy/brn~~

Silt lt-brn/gy shaly

300 Covered

50

400

50 Dol m/gy min frac foss

500 Dol gy/brn sl arg

50 Covered

Dol m-gy/brn sl arg sl silty

600 Dol m-dk/brn min frac

50 Dol lt/brn-brn sl silty

700 Dol lt-dk/brn pell

50 Covered

Dol m-dk/brn

800 Dol dk/brn min free

Brec lt/gy dolic

50 Dol dk/brn min free

900 Dol dk/brn-m/gy min free

Dol dk-m/brn min free sandy

50 Shl gy/brn dolic

Covered

8000 Dol m-dk/brn

Covered

Dol dk/brn min free

Covered

2 of

Dol m-dk/brn min frac

50

Dol lt/brn-brn sl silty

700

Dol lt-dk/brn pell

Covered

50

Dol m-dk/brn

800

Dol dk/brn min frac

Brec lt/gy dolic

Dol dk/brn min frac

50

900

Dol dk/brn-m/gy min frac

Dol dk-m/brn min frac sandy

50

Shl gy/brn dolic

Covered

1000

Dol m-dk/brn

Covered

Dol dk/brn min frac

Covered

50

Dol m/gy-brn hgly frac

1100

Ss lt/brn min frac sl dolic

Ss m/gy dolic

50

Ss m/gy-yel dolic

Dol m/gy-lt/brn min frac

1200

Ss lt/brn min frac dolic

Silt lt/brn min frac dolic

Cht gy dolic

50

Dol gy min frac pell

Brec m/gy dolic

1300

Dol pk-reddish min frac silty

50

Dol reddish min frac

1400

Silt pk-brn dolic

Dol m/gy-pk hgly frac

50

Dol reddish-lt/gy fess

1500

Silt gy/pk dolic

50

Ss pk dolic

Covered

1600

Silt lt/brn dolic

Dol red silty

Ss lt red dolic min frac

50

3 of 3

Canadian Pacific

OIL AND GAS LIMITED

Well Name	TUNDRA RIDGE (TR)	Producing Fm.	Interval
Location	61°52' N 124°54' W	Elevation K.B.	Ground
Province	N.W.T.	Total Depth	Oldest Fm.
Area	SUMMIT: NAHANNI-TOAD RIVER SURVEY	Casing	
Commenced	JUNE 25th, 1968	Sample Quality	GOOD
Completed	JULY 4th, 1968	Geologist	J.W.J. HARDY
Status	OUTCROP SECTION	Date	

INFORMATION SUMMARY

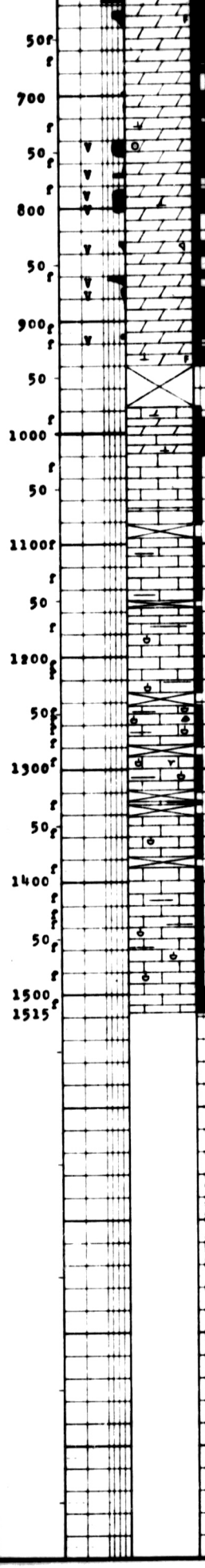
SCALE: 1"=100 FEET

LITHOSECTION PREPARED BY V. PANEI FROM FIELD NOTES, DEC. 1969

Lower Paleozoic

DEPTH FORMATION TOPS	SHOWS	POROSITY TYPES	POROSITY GRADES	LITHOLOGY	CRYSTAL GRAIN / FRAGMENT SIZE	ROUNDING DIAG SIZE / SORT MG DIAG SIZE	PERCENT OF FRAMEWORK	DESCRIPTION
						DC		Dol m/gy micxl lt/brn/gy towards the top
						DC		Dol lt/gy micxl
50		v				DC		Dol m/gy micxl ab qtz xls /coral
						DC		Dol m/gy micxl
						DC		Lst dk/gy mottled gy micxl ab bulbous strom bnac
						DC		Dol lt/gy micxl,scale at the base interb 3' of lst /m/gy micxl w/corals
100								Lst lt/gy micxl.
						DC		Dol lt/gy lt/brn-gy micxl
						DC		Dol lt/gy vfxln
50		v				DC		Dol lt-m/gy micxl-vfxln
						DC		Dol lt-m/gy micxl dk/gy v-fxln at upper 3'
						DC		Dol lt/brn/gy micxl ab b-g algae
						DC		Dol lt/gy micxl
		v				DC		Dol lt/gy m/gy micxl ab limon
						DC		Dol lt/gy micxl
200								Dol lt/gy micxl, scale at top w/3' ls' m/gy v
		v						Dol m/gy vfxln
						BS		Dol lt-m/gy micxl, scale at top
								Dol lt/gy-brn/gy micxl scale at upper 5'
		v						Lst lt-m/gy micxl-vxln w/interb 4' dol lt/gy micxl
50						DC		Dol lt/gy micxl m/gy, scale, at upper 4'
						DC		Dol lt/gy micxl v scale at bottom m/gy vfxln at top
						BZ		Lst m/gy micxl
								Dol lt/gy micxl, scale; interb w/40' lst dk/gy v-fxln
300		v				DI		Dol m/gy micxl-vfxln, scale, xls, scale
								Dol lt/gy micxl-vfxln tr xls,scale
		v				DC		4' dol m/gy vfxln, scale xls
						DC		Dol lt/gy micxl
						DC		Dol m/gy v at top 3' dol dk/gy fxln, scale veins xls
50f		v						Dol dk/gy vfxln
						DC		Dol lt/gy micxl-vfxln, scale xls in middle
								/w/finer dol lt-m/gy
400		v				DC		Dol dk/gy fxln, scale xls stroms foss frags interb
								/dk/g. lst in the middle
		v				DC		Dol lt/brn-gy m-vfxln, scale xls limon 2' of v-fxln
50						DC		Dol lt/gy micxl
								Dol m/gy v-fxln some interb dol lst
		v				DC		Dol lt/gy micxl-vfxln, scale xls
								Dol lt/gy micxl-vfxln, scale
500		v				DC		Dol lt/brn/gy micxl lim ab xln scale at bottom
						DC		Dol dk/gy m-fxln tr stroms at bottom Dol xls at top
50		v				DC		Dol lt/gy m-fxln ab stroms
		v						Dol lt/gy micxl-xln
		v				DB		
600		v				DC		Dol dk/gy fxln ab foss frags
						DC		Dol lt/gy vfxln
						DC		Dol m-dk/gy v-fxln foss frags at top
50f						DC		Dol lt/brn/gy vfxln ab limon at the base
						DC		Dol m/gy m-vfxln
						DC		Dol lt/brn /gy micxl
700						DC		Dol m/gy fxln
						DC		Dol lt/brn/gy m-vfxln ab limon
						DC		Dol m-dk/gy micxl tr corals, scale xls
50		v						Dol dk/gy fxln strm
						DC		Dol m/dk/gy m-vfxln some strom /corals
		v				DC		Dol lt/gy micxl dk/gy fxln at top 3' w/tr stroms

1 of



DC Dol lt/gy vfxln
DC Dol m-dk/gy v-fxln foss frags at top
DC Dol lt/brn/gy vfxln ab limon at the base
DC Dol m/gy m-vfxln
DC Dol lt/brn /gy micxl
DC Dol m/gy fxln
DC Dol lt/brn/gy m-vfxln ab limon
DC Dol m-dk/gy micxl tr corals, calc xls
Dol dk/gy fxln crin
DC Dol m/dk/gy m-vfxln some strom /corals
DC Dol lt/gy micxl dk/gy fxln at top 3' w/tr stroms
DC Dol m/gy v-fxln bitum, small
DC Dol dk/gy v-fxln ab calc xls bitum, small
DC Dol lt/gy micxl tr lim at bottom
DC Dol m/dk/gy m-fxln some corals, tabul stroms
DC Dol lt/gy micxl
DC Dol lt/brn/gy vfxln tr limon
DC Dol lt/gy micxl some calc xls
DC Dol m/gy v-fxln ab m-c dol xls
DC Dol lt/gy vfxln tr limon
DC Dol dk/gy m-fxln tr brac
DC Dol m/gy micxl
DC Dol dk/gy v-fxln foss frag, calc, xls m-c
Covered
Lst dk/gy micxl w/interb vfxln dol m/gy 50%
DC Dol lt/gy vfxln tr foss poorly exposed
Lst m/gy vfxln tr foss
DC Dol lt/gy vfxln ab limon diss tr tab strom calc xls
Lst dk/gy micxl tr limon diss tr brac v poorly expos
Lst lt/brn/gy micxl
DC dol dk/gy micxl argill
Lst m/gy micxl
Covered
Lst dk/gy micxl tr brac grst, calc veins
Lst dk/gy micxl argill some brac diss limon
Lst dk/gy ab calc veins micxl
Lst dk/brn/gy micxl argill
Covered
Lst dk/gy micxl argill ab calc veins brac diss limon
Lst dk/gy, calc veins some bracs /tr gast
Lst dk/gy argill, calc veins micxl ab brac at bottom
Covered
Lst dk/gy micxl argill brac ab calc veins /veins
Lst dk/gy micxl ab brac ab pelec nautil gast calc
Lst dk/gy micxl argill brac tr gast bry, calc veins
Lst dk/gy micxl ab brac ab calc veins ab lim /gast
Lst dk/gy micxl ab calc veins ab brac, bry tr pelec
Lst dk/gy micxl argill, calc veins ab brac tr bry /pelec gast
Covered
Lst dk/gy micxl ab calc veins argill tr brac pelec /fish gast
Lst dk/gy micxl ab calc veins brac tr gast.
Covered
Lst dk/gy micxl ab calc veins /grst nautil
Lst dk/gy micxl argill ab calc veins tr brac bryz
Lst dk/gy micxl v ab bracs in one bed ab calc veins
Lst dk/gy micxl sl argill bracs calc veins tr gast /argill at the top calc veins
Lst dk/gy v-micxl bracs tr bry tr pelec tr nautil
2' argill lst dk/gy micxl
Lst dk/gy micxl tr brac tr gast tr nautil
Lst dk/gy vfxln tr lim tr crin ab calc veins

2 of 2