

OPEN FILE

TK - PINE CREEK 69(1)A

COAL LICENCES N^o. 528-534
G.W. CHAPMAN

C.W. BALL

(copy 1)
FEB 17th 1970

GEOLOGICAL BRANCH
ASSESSMENT REPORT

00 230

TK-PINE CREEK 69 (1) A.
(COPY 1)

CANEX AERIAL EXPLORATION LTD.

DIVISION OF CANADIAN EXPLORATION LIMITED

700 BARRARD BUILDING

VANCOUVER 5, B. C. CANADA

March 10, 1970

Our File: 11-2-82

(15)

Mr. R. H. McCrimmon
Chief Gold Commissioner
Department of Mines & Petroleum
Resources

Parliament Buildings
Victoria
B. C.

OPEN FILE

Dear Mr. McCrimmon:

Re: Coal Licences 528 - 534
Pine Creek Coal Ltd. (N.P.L.)

Thank you for your letter dated February 27, 1970 regarding the subject licences.

This letter will confirm that we wish the Reports filed with you on February 20, 1970 to be held confidential.

We appreciate your service, and remain,

Yours sincerely
CANEX AERIAL EXPLORATION LTD.

C. E. Egley

C. E. Egley
Secretary's Department

CEE/cm

MAR 11 '70 AM



DEPT. OF MINES
AND PETROLEUM RESOURCES

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RETURNED TO	DATE	INITIAL
D.M.		
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D.C.G.C.		
D.C.C.		
ACCTS.		
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CANEX AERIAL EXPLORATION LTD.

PRELIMINARY GEOLOGICAL REPORT

SUB-SURFACE EXPLORATION - Oct. 28-Nov. 18, 1969

COAL LICENCES NO. 528-534 G.W. CHAPMAN

LAT. $54^{\circ} 40'$ N, LONG. $127^{\circ} 10'$ W

TELKWA RIVER, B.C.

February 17, 1970

Clive W. Ball, P.Eng.

Telkwa, 54-127-NE

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6. GAMMA RAY LOGS
(Century Geophysical Corporation, Calgary, Alta.)
7. ASSAY CERTIFICATES
(Warnock Hersey International, Vancouver, B.C.)

SUMMARY AND CONCLUSIONS

Preliminary testing by rotary drilling indicates the presence of a number of coal seams over a large area. Nine of the fourteen test wells completed by Canex Aerial found coal seams of varying quality. The ash is quite high and the calorific value is generally low. The coking qualities are very much in doubt and at present should be considered as poor. The only inherent advantage is the relatively low sulphur content.

Notwithstanding close supervision maintained by the Company, results to date are somewhat inconclusive. Any future testing must incorporate diamond drilling with a full range of Electro logs including Self-Potential, Resistivity and Radio-Metric surveys of the holes. Further suggestions are offered under the heading Proposals for Future Work and Exploration.

At this stage it is concluded the quality of the coal indicated by rotary test well samples leaves much to be desired. Continuity of the coal seams has been destroyed by a series of geological events involving non-sequence, sudden facies changes and normal faulting and folding.

Low cost strip mining is not considered applicable on account of the cappings of acid volcanic rocks which are hard and blocky.

I INTRODUCTION

Following upon signing of an Option Agreement with the owner of the property, Canex Aerial Exploration Ltd. carried out surface

exploration of the area covered by the seven coal licences which were issued to Mr. Gordon Chapman on December 3, 1968.

The work consisted primarily of a drill program using a truck-mounted Fahling rotary drill, cutting a 4 3/4 inch hole and having a depth rating of 1,000 feet.

Close supervision was maintained by always having two experienced Company representatives at the well head and as a result all drill cuttings were examined in the field. The well locations were fixed by chain and compass survey.

Canex Aerial conducted the drilling between October 28 and November 18, 1969.

II LOCATION AND ACCESS

The ground comprising Gordon Chapman's coal licences lies in the fork formed by Pine Creek and the Telkwa River. It is situated on the southwest flank of a prominent knoll of acid volcanics and lies six miles west of the town of Telkwa. Maximum relief is of the order of 600 feet with a high point of 3,400 feet above sea level. A gravel road runs through the heart of the property. Mr. Gordon Chapman holds grazing rights and the property is well clad with virgin forest composed primarily of spruce and hemlock.

III PROPERTY AND OWNERSHIP

In 1969, Denco Development Limited optioned the seven coal

leases on freehold grazing lots owned by Mr. Gordon Chapman of Telkwa. An Option Agreement between Denco Development and Canex Aerial Exploration Ltd. was drawn up and signed on September 17, 1969.

IV HISTORY

Interest in the area was sparked by discovery of a coal outcrop on Lot 244. In 1954, Mr. Gordon Chapman sank a shaft close to the outcrop. It was reported that he bottomed at 53 feet after penetrating two 4-foot seams and three 6-foot seams of coal.

Between 1964 and 1968, Mr. Chapman put down three shallow diamond drill holes on account of Celgar Limited Pulp & Paper, Prince Rupert. This drilling was not successful owing largely to inexperienced drilling techniques.

In June 1969, Denco Development decided to test the coal exposure near the old 53-foot shaft on Lot 244. They cut two bulldozer trenches and uncovered some promising-looking coal seams. It was primarily on the indications of these exposures that Canex Aerial decided to option the ground in September of 1969.

V GENERAL GEOLOGY

The Telkwa coal measures consist of a thin-bedded sedimentary series consisting of mudstones, sandstones and coal seams. The sequence as a whole is part of the Bowser Group of Late Jurassic to Lower Cretaceous age. The main basin covers an area of over 30 square

miles. The thickness of the coal measures is not known but at least five seams have been located and the coal-bearing sediments are believed to be at least 300 feet thick.

Most of the beds dip northwards and generally at angles less than 20 degrees. It is not unusual to encounter a series of sharp rolls which affect the coal seams. Further complications are caused by faulting which displaces the coal. This explains the somewhat erratic manner of distribution of the coal.

The coal measures are capped by flows composed of acid volcanic rocks.

VI PETROLOGY

Samples of coal collected from the surface bulldozer trenches on Lot No. 244 have been studied under the hand lens. The following description applies to each sample:

Good quality hard black coal consisting of predominant durain with thin bands of clarain, generally less than 1/16 inch. A very minor amount of coaly shale was detected but for the most part the samples are remarkably free of bone coal and carbonaceous shale.

VII COAL SEAMS INTERSECTED IN ROTARY DRILLING

Century Geophysical Corporation of Calgary completed the drilling of fourteen rotary holes between October 28 and November 18, 1969. An attempt was made to run Gamma Ray log, using a Model 24008

portable probe. Five of the holes were logged with this instrument, but no definitions could be obtained. Century Geophysical made an attempt to calibrate the Gamma Ray recorder in the field but this was not successful. It is understood that the sandstones and shales have a low background count and the Pine Creek coal itself yields low counts.

Based on the driller's reports and close field examination of the cuttings, good indications of coal have been found in nine of the fourteen rotary test holes. The results are summarized in Table I as shown in Appendix. Additional details are shown in the field logs and rotary drill hole test profiles.

VIII ASSAYS

Wherever possible some of the better seams were sampled for assay. Proximate analyses are shown in Table II in Appendix. The samples were taken by B. Patsch, F.G. Hewett and C.W. Ball.

On the basis of these assays the coal should be classed as High Volatile B Bituminous.

IX ECONOMIC CONSIDERATIONS

The coal seams intersected in the recent drilling program lack continuity and the quality leaves much to be desired. However, in order to properly gauge the quality of the coal it would be necessary to conduct diamond drilling and underground development testing. The amount of cover, including the acid volcanic capping, tends to put a

damper on any thoughts for low-cost strip mining. The individual seams have suffered small-scale faulting and folding which brings in an element of structural irregularity. Such disturbances are not unusual in any basin of deposition but in the case of the leases under consideration they adversely affect the tonnage potential.

X PROPOSALS FOR FUTURE WORK AND EXPLORATION

Substantiation of the results of rotary drilling must be made by a combination of diamond drilling and shaft sinking. In this manner it will be possible to outline the degree of lateral extent of the coal seams. Likewise, it will be necessary to take bulk samples to determine the quality of the coal.

At the present stage of exploration testing it would appear that the coal seams lack continuity and the amount of overburden is too great to allow of economic strip mining. Future testing may show that the coal deposits have merit.

Any future testing by diamond drilling and rotary drilling should include Self-Potential and Resistivity logging to check the coal seams.

Further investigation should include the plotting of structural contours of the coal seams with superimposed surface contours. Distinction should also be made between the volcanic caps and coal measures and glacial drift. Air photos should be used in conjunction

with the 1:50,000 contour map showing surface elevations.

February 17, 1970

Clive W. Ball
Clive W. Ball, P.Eng.
Chief Geologist
Canadian Exploration Limited

PINE CREEK COAL

TABLE I

SUMMARY OF ROTARY TEST WELLS

Hole No.	From (feet)	To	Thickness (feet)	Total Depth (feet)	Elevation	Remarks
					Top of Coal Seam (feet) Above Sea Level	
P-5	59	- 70	11		2,896	Coal Assayed
	75	- 83	8		2,880	Coal Assayed
	90	-100	10		2,865	Coal
	130	-142	12	180	2,825	Shale prominent
6				200		Minor coal seams 134-135
7	25	- 26	1	165		Minor coal seams 145-150
8				200		Clay
9				145		Sandstone
10	30	- 33	3	165	2,907	Coal
13	45	- 85	40		1,945	Minor coal seams and "gas"
	105	-135	30		1,885	Minor coal seams and "gas"
	135	-260	125	300	1,855	Minor coal seams
15	80	- 90	10	290	2,690	Coal bright (Assayed)
16				295		Sandstone
17	14	-255	241.0			Minor specks of coal
	280.5	-282.0	1.5	295	2,505	Coal
18	130	-131	1.0			Coal
	179	-185	6.0			Coal Assayed
	250	-256	6.0			Coal Assayed
	293	-296	3.0	300		Coal
19	30	-165	135.0	165		Minor coal specks
20	52	- 56	4.0			Coal
	56	- 82.5	26.5			Minor coal
	82.5	- 85.0	2.5			Coal
	216	-217	1.0	220		Coal
21	30	- 34.5	4.5			Coal
	34.5	- 95.0	60.5			Minor coal seams
	95	- 96	1.0			Coal and shale
	96	-119	23.0			Minor coal
	119	-120	1.0			Coal and shale
	157	-160	3.0			Coal
	160	-222	62.0			Minor coal
222	-225	3.0			Coal and gas	

CANEX AERIAL EXPLORATION LTD.TABLE IISAMPLES

	Surface Sample Bulldozer Cut Near 53' Shaft	Rotary Test Well P-5 59-70'	Rotary Test Well P-5 75-83'	Rotary Test Well P-15 80-90'	Rotary Test Well P-18 179-185'	Rotary Test Well P-18 250-256'
Total Moisture, as received	13.22	5.92	6.76	23.16	18.03	16.15
Surface Moisture, " "	7.83	5.05	5.70	21.83	17.14	15.39
Inherent Moisture, Air Dry	5.85	0.92	1.12	1.70	1.07	0.90
Ash, " "	19.35	66.75	67.44	43.10	38.95	70.90
Volatile Matter, " "	24.77	15.35	14.72	21.50	21.83	15.05
Fixed Carbon, " "	50.03	16.98	16.70	33.70	38.15	13.15
B.T.U.'s per lb. " "	9,581	3,568	3,543	8,358	8,733	2,844
Sulphur (S) " "	0.78	0.52	0.80	0.78	0.56	0.74
Free Swelling Index " "	None	0	0	1	1 to 1½	Nil
Specific Gravity " "	1.25	-	-	-	-	-

Assays by Warnock Hersey International Limited, Vancouver, B.C.

CANEX AERIAL EXPLORATION LTD.

COAL LICENCES NO. 528-534

ITEMIZED STATEMENT OF COSTS - OCT. 28-NOV. 18, 1969

Assaying		\$	642.50	
Rotary Drilling contracted by Century Geophysical Corporation of Calgary			11,783.93	
Building access roads for moving drill rig			536.25	
Salaries and Wages:				
F.G. Hewitt	Oct. 28-Nov. 18/69	\$611.80		
A. Welch	Nov. 6-18/69	418.60		
L. Geiger	Nov. 3-11/69	513.75		
W.S. Pentland	Nov. 4-8/69	146.05		
C.W. Ball	Nov. 18-19/69	<u>327.29</u>	2,017.49	
Legal Services			<u>527.75</u>	
	Total		<u>\$15,507.92</u>	

Vancouver, B.C.
February 17, 1970

Clive W. Ball, P.Eng.

TK-PINE CREEK 69 (4) A.

OPEN FILE
COAL LICENSES Nos 528-534
G.W. CHAPMAN
ANALYSIS REPORT.

C.W. BALL

(copy 1)
FEB 17th 1970

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WARNOCK HERSEY
INTERNATIONAL LIMITED

TK-PINE CREEK 69(4)A

PROFESSIONAL SERVICES DIVISION

125 East 4th Ave., Vancouver 10, B. C. Phone 876-4111 — Telex 04-50353

REPORT OF: Chemical Analysis
AT: Vancouver Laboratory
PROJECT: Coal Samples
REPORTED TO: Canex Aerial Exploration Ltd.,
700 Burrard Building
Vancouver, B.C.

FILE NO: 460-Q-9727

DATE: December 18, 1969

REPORT NO:

ORDER NO:

OPEN FILE

We have tested three samples of Coal submitted by you on November 28, 1969 and report as hereunder:

SAMPLE IDENTIFICATION

Sample No. 2360, 2363 and 2370

<u>RESULTS</u>	<u>P-18</u> <u>179'-185'</u> <u>Sample 2360</u>	<u>P-18</u> <u>250'-256'</u> <u>Sample 2363</u>	<u>COAL EXPOSURE ON</u> <u>WEST BOUNDARY OF LSKS</u> <u>Sample 2370</u>
Total Moisture, (as received)	18.03 %	16.15 %	12.02 %
Surface Moisture (as received)	17.14 %	15.39 %	10.50 %
Inherent Moisture (air dry)	1.07 %	0.90 %	1.70 %
Ash (Air Dry)	38.95 %	70.90 %	85.40 %
Volatile Matter (air dry)	21.83 %	15.05 %	10.34 %
Fixed Carbon (air dry)	38.15 %	13.15 %	2.56 %
B.T.U.'s/lb. (air dry)	8,733	2,844	Nil*
Sulphur (air dry)	0.56 %	0.74 %	0.16 %
Free Swelling Index	1 - 1/2	Nil	Nil

GEOLOGICAL BRANCH ASSESSMENT *NB - Due to the ash content of this sample, complete combustion of this sample did not occur and readings could not be taken with sufficient degree of accuracy.

WARNOCK HERSEY

G. Cochrane
G. Cochrane
SUPERVISOR, GENERAL LABORATORY

00 230



WARNOCK HERSEY
INTERNATIONAL LIMITED

PROFESSIONAL SERVICES DIVISION

125 East 4th Ave., Vancouver 10, B. C. Phone 876-4111 — Telex 04 50353

Telkwa Coal

REPORT OF: **Chemical Analysis**

FILE NO: **C.3-C.2-69-7956**

AT: **Vancouver Laboratory**

DATE: **August 29, 1969**

PROJECT: **Coal**

REPORT NO:

REPORTED TO: **Canex Aerial Exploration Ltd.,
700 Burrard Building
Vancouver, B.C.**

ORDER NO:

We have tested one sample of Coal submitted by you on August 18, 1969 and report as hereunder:

SAMPLE IDENTIFICATION

Sample No. 6879

*Sample collected by C.W. Ball Aug 18/69
Location: From 2' wide coal seam
Bulldozer trench, Lot 244, Denco
Revelopment Coal Permit, Telkwa R.
B.C.*

RESULTS

Total Moisture, as received	-	13.22 %
Surface Moisture, as received	-	7.83 %
Inherent Moisture, air dried	-	5.85 %
Ash, air dried	-	19.35 %
Volatile Matter, air dried	-	24.77 %
Fixed Carbon, air dried	-	50.03 %
B.T.U.'s/pound, air dried	-	9,581
Sulphur, air dried	-	0.78 %
Free Swelling Index, air dried	-	None
Specific Gravity @ 29°C	-	1.25

WARNOCK HERSEY

J. Schierbeck

J. Schierbeck,
MANAGER, CHEMICAL DIVISION



WARNOCK HERSEY
INTERNATIONAL LIMITED

PROFESSIONAL SERVICES DIVISION

125 East 4th Ave., Vancouver 10, B. C. Phone 876-4111 — Telex 04-50353

File

V-114

PINE CREEK COAL

WR

DEK

REPORT OF **Chemical Analysis**
AT **Vancouver Laboratory**
PROJECT **Coal**
REPORTED TO: **Canex Aerial Exploration Ltd.**
700 Burrard Building
Vancouver, B.C.

FILE NO **460-Q-9282**
DATE **November 5, 1969**
REPORT NO.
ORDER NO.

ATTENTION: Mr. Clive Ball

We have tested two samples of Coal submitted by you on October 31 and report as hereunder:

SAMPLE IDENTIFICATION

Sample No. 2351 and 2352

*Samples submitted by
B. Paton
Telkwa Coal.*

RESULTS

	<i>#2 - Sample 2351</i> Robertson PS 60-70	<i>#3 - Sample 2352</i> N. 111 PS 75-83
Total Moisture (as received)	5.92 %	6.76 %
Surface Moisture (as received)	5.05 %	5.70 %
Inherent Moisture (air dry)	0.92 %	1.12 %
Ash (air dry)	66.75 %	67.46 %
Volatile Matter (air dry)	15.35 %	14.72 %
Fixed Carbon (air dry)	16.98 %	16.70 %
B.T.U.'s/lb. (air dry)	3,568	3,543
Sulphur (S) (air dry)	0.52 %	0.80 %
Free Swelling Index	0	0

WARNOCK HERSEY

J. Schierbeck
J. Schierbeck,
MANAGER, CHEMICAL DIVISION



WARNOCK HERSEY
INTERNATIONAL LIMITED

125 East 4th Ave., Vancouver 10, B. C. Phone 876-4111 — Telex 04 50353

*Del. 1/15/69 file
Del. W.P. C.W.B. V-114*
PROFESSIONAL SERVICES DIVISION

REPORT OF: **Chemical Analysis**
AT: **Vancouver Laboratory**
PROJECT: **Coal Samples**
REPORTED TO: **Canex Aerial Exploration Ltd.,
700 Burrard Building
Vancouver, B.C.**

FILE NO: **460-Q-9502**
DATE: **November 19, 1969**
REPORT NO:
ORDER NO:

V-114

We have tested one sample of Coal submitted by you on November 13 and report as hereunder:

SAMPLE IDENTIFICATION

The submitted sample was unidentified. (*# 235B*)

P-15 80-90

RESULTS

Total Moisture (as received)	-	23.16 %
Surface Moisture (as received)	-	21.83 %
Inherent Moisture (air dry)	-	1.70 %
Ash (air dry)	-	43.10 %
Volatile Matter (air dry)	-	21.50 %
Fixed Carbon (air dry)	-	33.70 %
B.T.U.'s/lb. (air dry)	-	8,358
Sulphur (S) (air dry)	-	0.78 %
Free Swelling Index	-	1

WARNOCK HERSEY
G. Cochrane
G. Cochrane,
SUPERVISOR, GENERAL LABORATORY

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CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District Teikwa River Property Pine Creek Coal Section No. V-114 Hole No. P-5

H. M. WHIMSTER, COMMERCIAL PRINTING

Started <u>Oct 28/69</u>	Bearing <u>-</u>	Dips <u>- 90°</u>	Lat.	Elevation <u>2955</u>	Location <u>North boundary of 244</u>
Completed <u>Oct 28/69</u>	Length <u>180'</u>	Surface Hole <u>✓</u>	Dep.	Level <u>-</u>	Logged by <u>F.G. Hewitt</u>
Standpipe	Casing	Underground Hole	Remarks <u>Rotary</u>		

FOOTAGE		Core Re- covered	Description	Sample No.	Footage	Width Core	Assay			Average Values
From	To									
0	4.7		Overburden							
4.7	5.5		Coal, bituminous material, shale							
5.5	14.0		Gravel, mud, overburden?							
14.0	15.0		Coal, poor quality, shaley							
15.0	23.0		Shale, bituminous material, mnr coal							
23.0	59.0		Shale, light coloured, no coal.							
59.0	70.0		Coal, fairly small lumps, wet. (2)	2351	11.0				values received	
70.0	75.0		Bituminous material, shale, etc.							
75.0	83.0		Coal, poorer quality (3)	2352	8.0				values received.	
83.0	90.0		Shale, light colour.							
90.0	100.0		Coal, little bigger chips (4)	2353	10.0					
100.0	120.0		Shale, light colour, mnr bit. layers							
120.0	130.0		Sandstone, brown colour, fine-grained.							
130.0	142.0		Coal, poor quality (5)	2354	12.0					
142.0	165.0		Shale, bituminous mat. & mnr coal seams							
165.0	180.0		Sandstone, brown coloured, harder drilling							
			End of Hole @ 180'						61	

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 ROTARY
 CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District Tekwa River Property PINE CREEK COAL Section No. V-114 Hole No. P-6

M. WHIMSTER, COMMERCIAL PRINTING

Started <u>Oct 28/69</u>	Bearing <u>-</u>	Dips <u>- 90°</u>	Lat.	Elevation <u>3033</u>	Location <u>Lot 244</u>
Completed <u>Oct 28/69</u>	Length <u>200'</u>	Surface Hole <input checked="" type="checkbox"/>	Dep.	Level <u>-</u>	Logged by <u>F. G. Hewitt</u>
Standpipe	Casing	Underground Hole	Remarks <u>Rotary Fahling Truck Mounted Rig Hole Ø 4 3/4</u>		

FOOTAGE		Core Re- covered	Description	Sample No.	Footage	Width Core	Assay			Average Values
From	To									
0	10		Overburden.							
10	125		Shale, light coloured, soapy looking							
125	134		Shale, red coloured, harder.							
134	135		Shale, red coloured, mnr coal seams							
135	165		Shale, light grey colour.							
165	180		Shale, darker coloured.							
180	200		Shale, light coloured							
			End of Hole @ 200'							

230c

ROTARY
CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District Telkwa River Property Pine Creek Coal Section No. V-114 Hole No. P-7

M. WHIMSTER, COMMERCIAL PRINTING

Started <u>Oct 29/69</u>	Bearing <u>-</u>	Dips <u>- 90°</u>	Lat.	Elevation <u>3025</u>	Location <u>Lot 244</u>
Completed <u>Oct 29/69</u>	Length <u>165'</u>	Surface Hole <input checked="" type="checkbox"/>	Dep.	Level <u>-</u>	Logged by <u>F. G. Hewitt</u>
Standpipe	Casing	Underground Hole	Remarks <u>Rotary Tabling Trucks Mounted Rig Hole Size 4 1/2"</u>		

FOOTAGE		Core Re- covered	Description	Sample No.	Footage	Width Core	Assay			Average Values
From	To									
0	18		Overburden							
18	25		Shale, light-coloured							
25	26		Coal, poor quality	2357	25-26	1.0				
26	30		Shale, light-coloured							
30	45		Shale, dark-coloured, "gritty"							
45	60		Siltstone, light-grey colour, mnr coal specs							
60	80		Sandstone, light-grey colour, mnr shale							
80	84		Gravel & mud, consolidated.							
84	105		Shale, dark colour, mnr coal seams							
105	120		Sandstone, soft, grey-coloured.							
120	145		Shale, light colour, "muddy"							
145	150		Shale, dark colour, mnr coal							
150	165		Shale, dark colour, mnr. sandstone							
			End of Hole @ 165'							

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ROTARY 230e

CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District TaiKwa River Property Pine CREEK COAL Section No. V-114 Hole No. P-9

H. M. WHINSTER, COMMERCIAL PRINTING

Started <u>Oct 31/69</u>	Bearing <u>-</u>	Dips <u>- 90°</u>	Lat.	Elevation <u>2887</u>	Location <u>Lot 243</u>
Completed <u>Oct 31/69</u>	Length <u>145'</u>	Surface Hole <input checked="" type="checkbox"/>	Dep.	Level <u>-</u>	Logged by <u>F. G. Hewett</u>
Standpipe	Casing	Underground Hole	Remarks <u>Rotary Fahling Truck Mounted Rig Hole Size 4 3/4</u>		

FOOTAGE		Core Re-covered	Description	Sample No.	Footage	Width Core	Assay			Average Values
From	To									
0	20		Overburden, clay.							
20	30		Gravel bed, small pebbles.							
30	45		Shale, dark coloured, harder.							
45	60		Sandstone, light-grey, "							
60	75		Sandstone, light-green, very hard							
75	145		Sandstone, grey-colour, " "							
			End of Hole @ 145'.							

230 g

CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District Telikwa River Property PINE CREEK COAL Section No. V-114 Hole No. P-13

M. WHIMSTER, COMMERCIAL PRINTING

Started <u>Nov 7 / 69</u>	Bearing <u>-</u>	Dips <u>- 90°</u>	Lat.	Elevation <u>1990</u>	Location <u>Lot 410</u>
Completed <u>Nov 7 / 69</u>	Length <u>300</u>	Surface Hole <input checked="" type="checkbox"/>	Dep.	Level <u>-</u>	Logged by <u>F.G. Hewett</u>
Standpipe	Casing	Underground Hole	Remarks <u>Rotary</u>	<u>E Art Welch.</u>	

FOOTAGE		Core Re-covered	Description	Sample No.	Footage	Width Core	Assay				Average Values	
From	To											
0	10		Overburden, mud, gravel, boulders									
10	45		Sandstone, mixed white & grey colour medium grained.									
45	85		Shale, light grey to dark coloured. fine grained, mnr coal seams. Driller noted escaping gas.									
85	100		Sandstone, grey colour, medium grained									
100	105		Shale, light-grey colour.									
105	135		Shale and Sandstone intermixed Mnr coal seams, gas escaping.									
135	260		Shale, light-grey to dark Mnr ss. & coal seams									
260	300		Sandstone, fine grained, grey Mnr shale & conglomerate?									
			End of Hole @ 300'									

61

ROTARY 230 J

21

CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District Teikwa River Property PINE CREEK COAL Section No. V-114 Hole No. P-17

M. WHIMSTER, COMMERCIAL PRINTING

Started <u>Nov 11/67</u>	Bearing <u>-</u>	Dips <u>- 90°</u>	Lat.	Elevation <u>2785'</u>	Location <u>Lot 228</u>
Completed <u>Nov 11/69</u>	Length <u>295</u>	Surface Hole <input checked="" type="checkbox"/>	Dep.	Level <u>-</u>	Logged by <u>F. G. Hewitt</u>
Standpipe	Casing	Underground Hole	Remarks <u>Rotary</u>	<u>& Art Welch</u>	

FOOTAGE		Core Re-covered	Description	Sample No.	Footage	Width Core	Assay			Average Values
From	To									
0	14		Overburden, soil, clay, gravel							
14	255		Sandstone, fine grained, light grey, soft. Some black-grey shale Mnr specs of coal, mnr calcite							
255	295		Shale, dark coloured, mnr grey sandstone & calcite stringers. Coal from 280.5 - 282.0	2359	280.5-282	1.5'				
			End of Hole @ 295							

ROTARY 230 K
CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District Tekwa River Property Pine Creek Coal Section No. V-114 Hole No. P-18

M. WHIMSTER, COMMERCIAL PRINTING

Started <u>Nov 12 /69</u>	Bearing <u>-</u>	Dips <u>- 90°</u>	Lat.	Elevation <u>3079</u>	Location <u>Lot 229</u>
Completed <u>Nov 12 /69</u>	Length <u>300'</u>	Surface Hole <input checked="" type="checkbox"/>	Dep.	Level <u>-</u>	Logged by <u>F. G. Hewitt</u>
Standpipe	Casing	Underground Hole	Remarks <u>Rotary</u>	<u>& Art Welch.</u>	

FOOTAGE		Core Re- covered	Description	Sample No.	Footage	Width Core	Assay			Average Values
From	To									
0	14		Overburden, soil, gravel.							
14	130		Sandstone, soft, fine grained, mn black shale & very mn coal							
130	131		Coal, bright, better quality	2361	130-131	1.0'				
131	179		Sandstone, dark grey, fine grained Mn black shale, Coal from 152-152.5 and 170-170.5'							
179	185		Coal	2360	179-185	6.0				to coast ELDRIDGE
185	250		Shale, fine grained, grey to black, mn coal, very mn grey sandstone.							
250	256		Coal	2363	250-256	6.0				to coast ELDRIDGE
256	293		Shale, mostly dark coloured Mn grey sandstone.							
293	296		Coal	2362	293-296	3.0				
296	300		Shale, same as above.							
			End of Hole @ 300'							

230 m

CANADIAN EXPLORATION LIMITED --- DIAMOND DRILL LOG.

District Telikwa River Property PINE CREEK COAL Section No. V-114 Hole No. P-20

M. M. WHIMSTER, COMMERCIAL PRINTING

Started	<u>Nov 14/69</u>	Bearing	<u>-</u>	Dips	<u>- 90°</u>	Lat.		Elevation	<u>2770'</u>	Location	<u>Lot 228</u>
Completed	<u>Nov 14/69</u>	Length	<u>220'</u>	Surface Hole	<u>-</u>	Dep.		Level	<u>-</u>	Logged by	<u>F. G. Hewitt</u>
Standpipe		Casing		Underground Hole		Remarks	<u>Rotary</u>	<u>& Art Welch</u>			

FOOTAGE		Core Re- covered	Description	Sample No.	Footage	Width Core	Assay			Average Values
From	To									
0	32		Overburden, sand, gravel							
32	52		Shale, sandstone, soft, grey fine grained, intermixed							
52	56		Coal	2364	52-56	4.0'				
56	82.5		Sandstone, intermixed with dark shale + mnr coal. Soft, fine grained, grey.							
82.5	85		Coal	2365	82.5-85	2.5'				
85	216		Sandstone, soft, grey, fine grained mnr cherty bands, mnr siltstone							
216	217		Coal, mnr shale	2369	216-217	1.0'				
217	220		Sandstone, as above Mnr black shale.							
			End of Hole @ 220'.							

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CANADIAN EXPLORATION LIMITED --- ROTARY 230 n DIAMOND DRILL LOG.

District Telikwa River Property PINE CREEK COAL Section No. V-114 Hole No. P-21

M. M. WHIMSTER, COMMERCIAL PRINTING

Started	Nov 18 /69	Bearing	-	Dips	- 90°	Lat.		Elevation	2925'	Location	Lot 229
Completed	Nov 18 /69	Length	295'	Surface Hole	✓	Dep.		Level	-	Logged by	F. G. Hewett
Standpipe		Casing		Underground Hole		Remarks	Rotary Feeding Truck Mounted at Welch.				

FOOTAGE		Core Re- covered	Description	Sample No.	Footage	Width Core	Assay %	Average Values
From	To							
0	10		Overburden					
10	30		Sandstone, soft, fine-grained grey, some harder brown s.s.					
30	34.5		Coal, fairly pure, some shale.	2366	30-34.5	4.5		
34.5	95		Sandstone, fine grained, light grey Mnr coal seams & shales.					
95	96		Coal + shale, very poor					
96	119		Sandstone, grey, medium grained Mnr coal & dark shale					
119	120		Coal + shale - poor					
120	157		Shale, dark & light grey colour, Mnr sandstone & coal.					
157	160		Coal Seam	2367	157-160	3.0		
160	222		Shale, grey colour, fine grained, soft, mnr soft sandstone & coal					
222	225		Coal Seam, gas escaping from hole.	2368	222-225	3.0		
225	295		Sandstone, soft, fine grained, grey, Mnr calcite & dark shale					
			End of Hole @ 295					

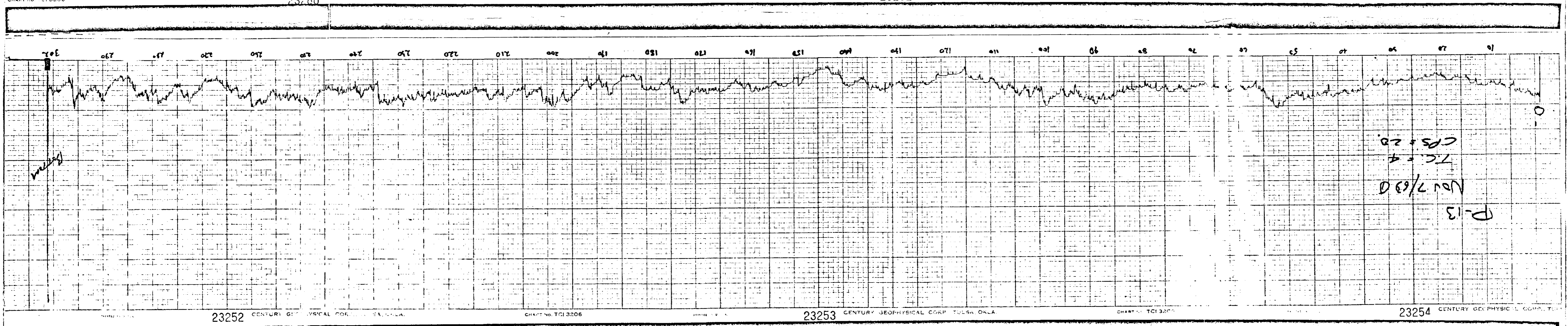
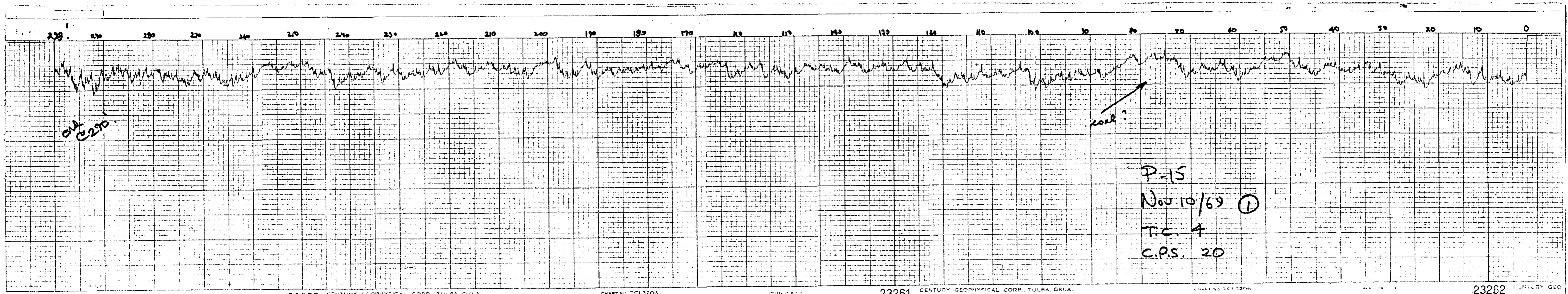
TK-PINE CREEK 69 (2) A.

COAL LICENCES Nos. 528-534
G.W. CHAPMAN PROPERTY
MAPS + LOGS

C.W. BALL

00 230

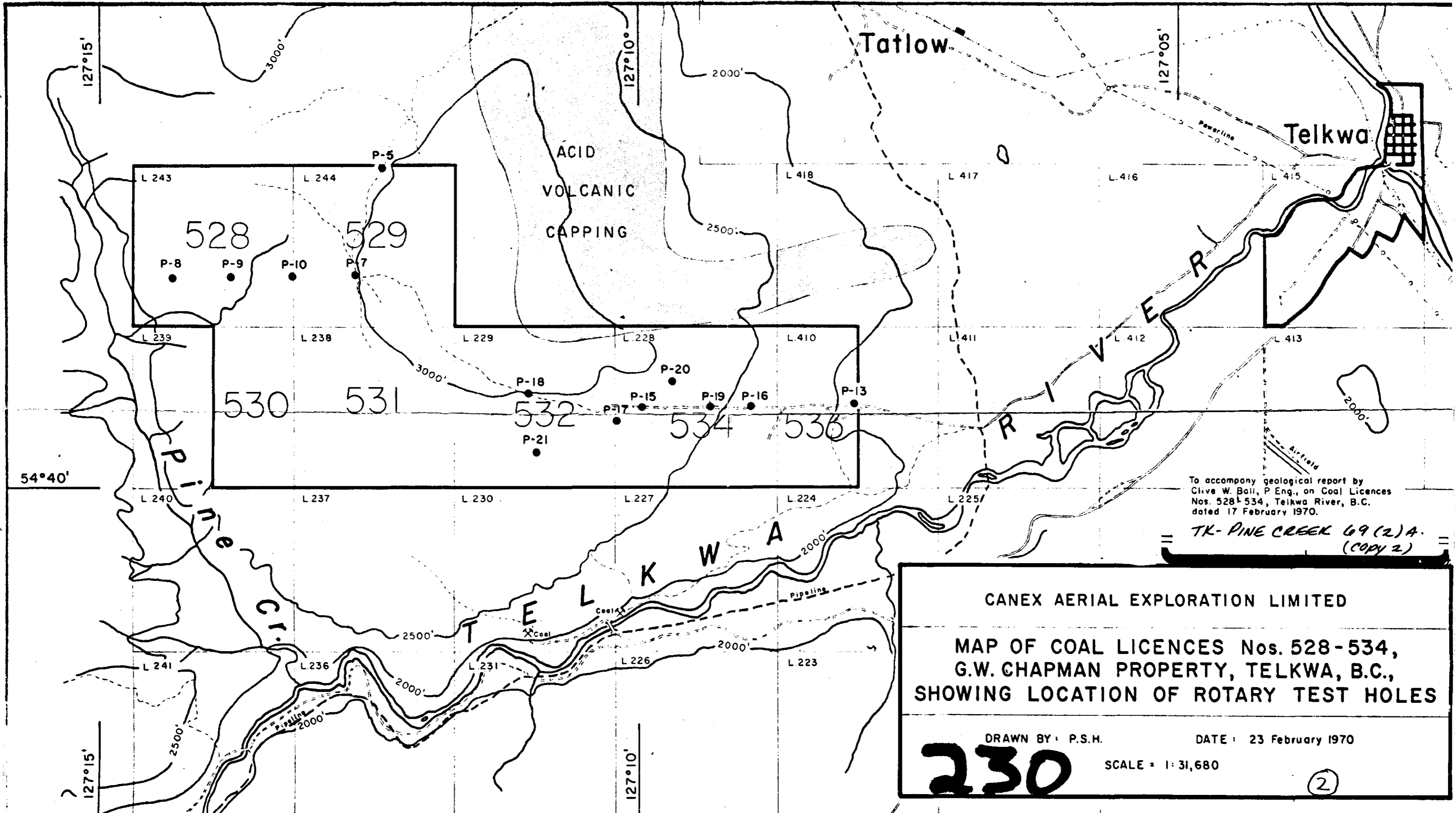
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FEB. 17th 1970



TK - FINE CREEK 69 (2)A
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230

①



To accompany geological report by
 Clive W. Ball, P. Eng., on Coal Licences
 Nos. 528-534, Telkwa River, B.C.
 dated 17 February 1970.

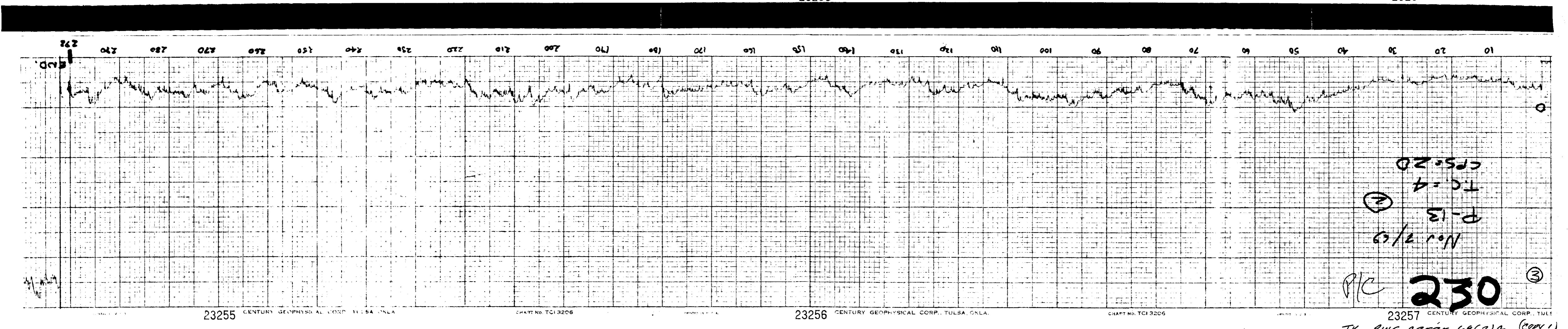
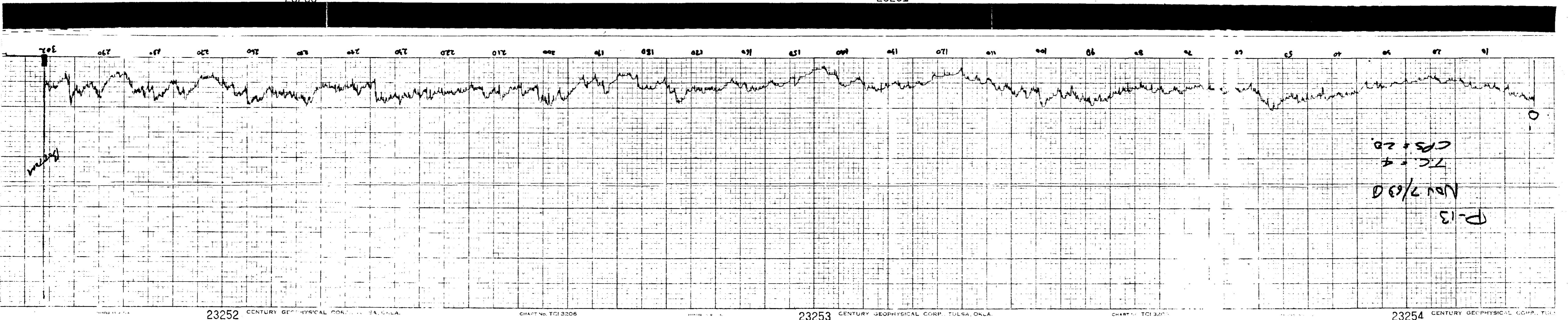
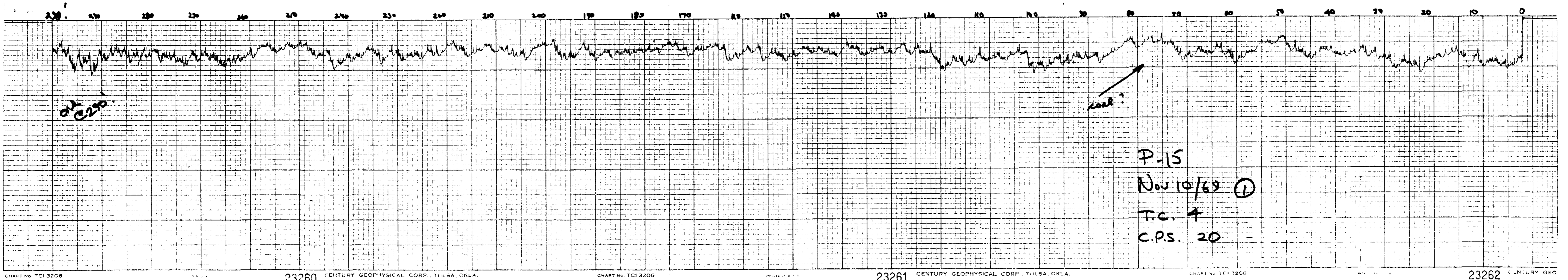
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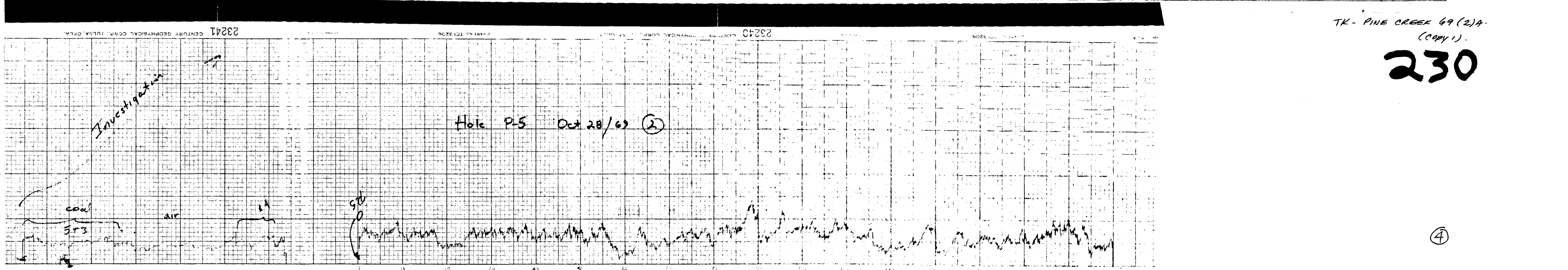
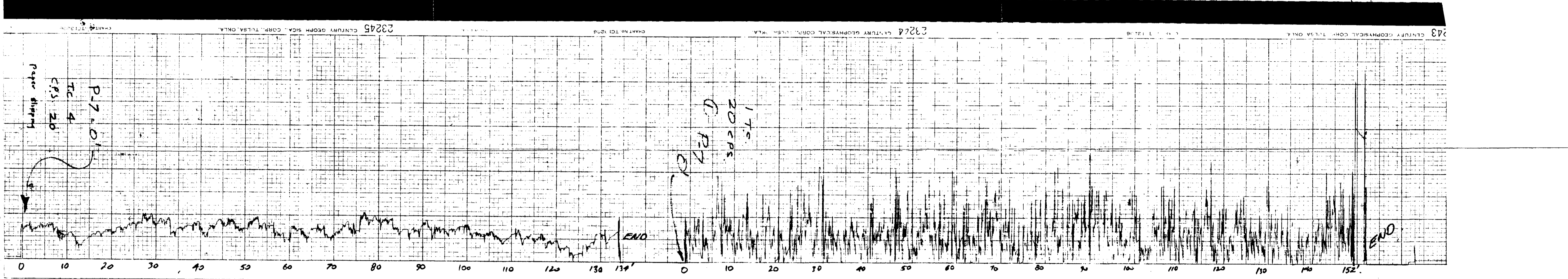
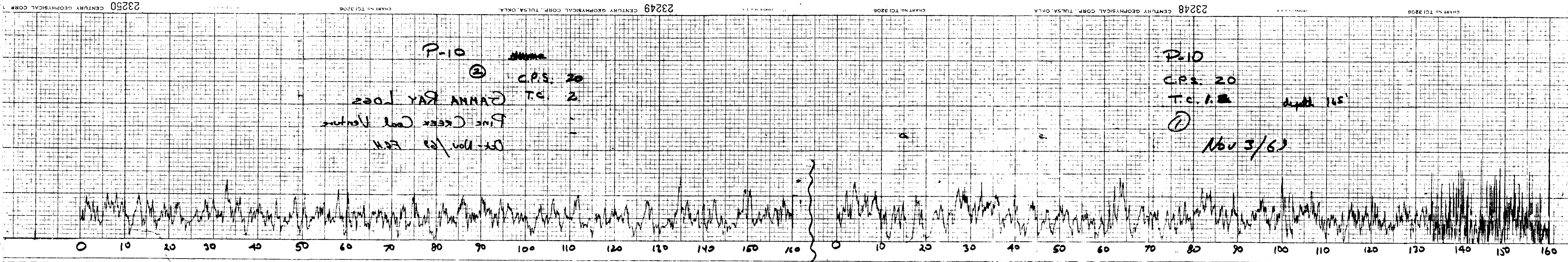
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**MAP OF COAL LICENCES Nos. 528-534,
 G.W. CHAPMAN PROPERTY, TELKWA, B.C.,
 SHOWING LOCATION OF ROTARY TEST HOLES**

DRAWN BY: P.S.H. DATE: 23 February 1970

230 SCALE = 1:31,680 ②

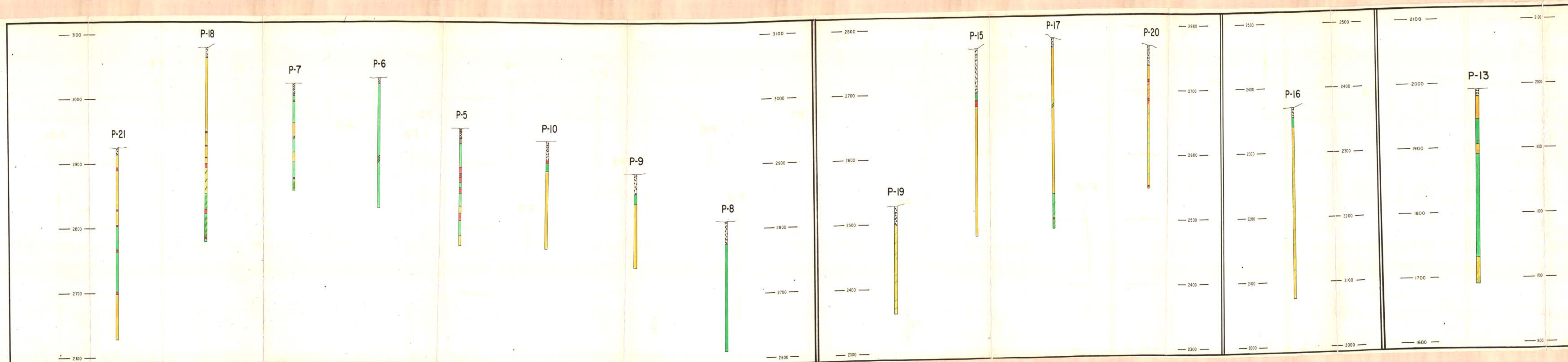




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④



-  OVERBURDEN (Sand, mud, clay, gravel)
-  SANDSTONE (usually fine-grained)
-  SHALE
-  SILTSTONE
-  COAL
-  CLAY
-  RED SANDSTONE
-  VOLCANICS

To accompany Geological Report
 by Clive W. Ball, P.Eng., on
 Coal Licences Nos. 528-534,
 Telkwa River, B.C. Dated
 17 February 1970.

230 TK-PINE CREEK 69(2)A
 (COPY 1)

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PROFILE OF ROTARY DRILL SECTIONS
 BASED ON FIELD EXAMINATION OF
 CUTTINGS BY F.G. HEWITT AND
 A. WELCH

DRAWN BY: P.S.H. DATE: 20 February 1970
 SCALE: 1" = 50' (Natural) 5