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TR-DUNLEVY PROJECT. 73(1)A

OPEN FILE

DUNLEVY PROJECT

REPORT OF EXPLORATION ACTIVITIES

1973 FIELD SEASON

UTAH MINES LTD.,

COAL EXPLORATION DEPARTMENT

412-510 WEST HASTINGS STREET

VANCOUVER, BRITISH COLUMBIA

V6B 1L9

SUBMITTED TO: E.S. RUGG, MANAGER

BY: D.S. FULLERTON, DISTRICT GEOLOGIST
D.N. le NOBEL, P. ENG., GEOLOGIST

DATE: December 15, 1973

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REPORT OF EXPLORATION ACTIVITIES

DUNLEVY PROJECT

1973

ABSTRACT

During May of 1973, Utah Mines Ltd., a wholly owned subsidiary of Utah International Inc., conducted a coal exploration program in the Dunlevy Creek area of northeastern British Columbia. The area covered in this initial exploration phase consisted of forty-four coal licences, Nos. 1648 to 1650, inclusive, and Nos. 1679 to 1719, inclusive, totalling approximately 27,360 acres.

The Dunlevy Creek project commenced on 15th May, 1973, upon the arrival of drilling equipment (Canadian Longyear,, drilling contractor) to Dunlevy Landing via truck from the contractor's warehouse. Equipment was mobilized to the drillsite by D-6 "Cat". Personnel for the project were accommodated in the nearby town of Hudson Hope. Access to the drillsite from the main road was facilitated by 4-wheel drive pickup and muskeg tractor.

Drilling operations commenced on 20th May, 1973, and were completed on 25th May, 1973. One H₂ (2½") core hole was drilled in the area to a total depth of 808 feet. The core-hole intercepted Lower Cretaceous Gething Formation over its entire length. These sediments of fluvial-deltaic origin, consist of alternating sequences of fine grained sandstones, siltstones, mudstones and thin coal seams. Forty-one thin coal seams, ranging from 0.1 to 2.5 feet, were intercepted.

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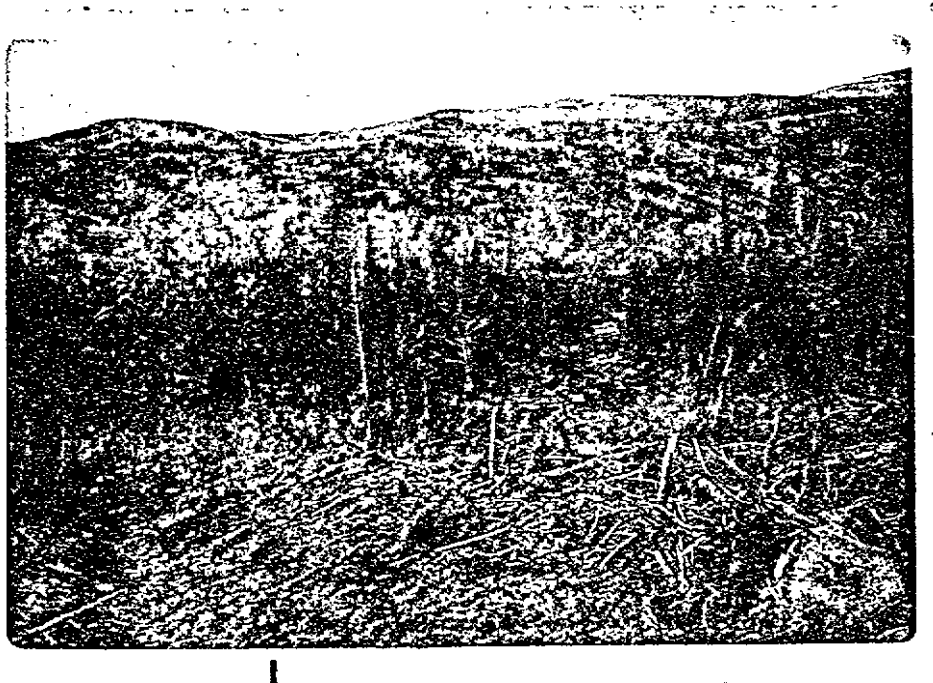


PHOTO 1: View of the Dunlevy Block looking west from D.D.H. D-73-1. A geophysical line on which D-73-1 is located can be seen extending to the west.

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A **tentative correlation** of the stratigraphic section (Fig. 4) **can be** made with **core drilling** results from the East Mount Gething project across **Williston** Reservoir to the south. This correlation indicates the **Dunlevy core** hole **spudded into** the Gething Formation within 200 to 250 **feet** of the base of the overlying **Moosebar** Shale Formation and penetrated 800 feet of the upper- , most coal-bearing Gething Formation.

INTRODUCTION

This report **reviews** the initial exploration program conducted by Utah Mines Ltd., a wholly owned subsidiary of Utah International Inc., in the Peace River area of northeastern British Columbia. The area covered in this exploration study consisted of 44 coal **licences**, Nos. 1648 to 1650, inclusive and Nos. 1679 to 1719, inclusive.

A presentation of geological data is reviewed resulting from Utah's 1973 exploration investigation on the potential of metallurgical coal resources on a part of a large **synclinal** area underlain by the coal-bearing **Gething** Formation. The exploration program had the following objectives:

- (1) To gain, by diamond core drilling, a further understanding of the coal-bearing Gething Formation in the Peace **River** area.
- (2) To obtain unweathered coal samples suitable for laboratory and washability studies.
- (3) To **determine** the agglomerating properties of the coal.
- (4) To **define** the economic potential for future coal mine development.

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PROPERTY

The **Dunlevy** property consists of a total of forty-four **coal** licences, Nos. 1648 to 1650, inclusive and Nos. 1679 to 1719, inclusive, as shown on Figure 1. These licences **were acquired** through negotiated **agreement** in late 1970.

Details as to the ownership and interests concerning the licences are not **contained** in **this** report. Utah Mines Ltd. is the owner of **the** licences at this time and has all available information concerning working agreements.

LOCATION AND ACCESS

The **Dunlevy** area lies adjacent to the **Williston Reservoir** in northeastern British Columbia, approximately 80 miles due west of Ft. St. John and approximately 480 miles due **north** of Vancouver. An all-weather paved road extends from both **Dawson** Creek and Ft. St. John to within six miles of the southeast corner of the coal **licenced** property. The paved road changes to a good gravel road which extends into the southern licences of the property. Access to the central area of the **block** can be gained by muskeg tractor or **4-wheel** drive pickup via previously existing geophysical exploration roads and seismic lines.

1973 FIELD SEASON

LOGISTICS

Drill equipment was mobilized to **Dunlevy** Landing (a docking-area on **Williston** Reservoir, approximately ten miles west of W.A.C. **Bennett** Dam) by truck **and** then to the **drillsite** by D-6 "**Cat**". **Drill** operations commenced on 20th May, **1973** and were completed on 25th May. 1973.



PHOTO 2: View looking east up the geophysical line to the D.D.H. D-73-1 location. **Drillsite** indicated by **arrow**.

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During **operations**, personnel were accommodated at the nearby town of Hudson Hope. Transportation from the **main** road to the **drillsite** was facilitated by muskeg tractor and 4-wheel drive pickup along previously existing roads and seismic lines.. Upon completion of the project, all debris was buried and access routes re-seeded under a voluntary reclamation program set up by Utah Mines Ltd.

One exploratory diamond drill core hole was completed on **coal licence** No. 1688. Two **test** holes were originally scheduled for **this** block. The **inaccessibility** to the second drillsite on the west side of **Dunlevy** Creek and lack of **significant** coal seams in the initial drill hole, prompted a drill move into the Carbon Creek area.

GEOLOGY

The **geology** of the Peace River Canyon area is **not** described in detail in this report. Numerous excellent descriptions of the **various rock** formations are **contained** in the referred literature. However, a few comments with regard to both the general stratigraphy and structure follow.

STRATIGRAPHY

The exposed bedrock in and near the Peace River Canyon consists mostly of Lower **Cretaceous** Formations. Studies by noted scientists **have** shown the difficulty of stratigraphic relationships for these sediments by the numerous alternative nomenclature systems proposed. Some of these systems are illustrated on Table 1. The nomenclature **of** Stott, **1971**, has been used in **this** report.

LOWER CRETACEOUS
FORMATIONAL NOMENCLATURE

Table 1

PEACE RIVER CANYON AREA

STOTT 1971 (This Report)	COMMOTION FM.	BOULDER CRK. MB. HULCROSS MB. GATES MB.	BEACH & SPIVAK 1944	MATHIEWS 1947	HUGHES 1964	McLEARN 1923	FORT ST. JOHN GROUP	GATES FM.	MOOSEBAR FM.	GETHING MB.	LOWER MB.			
												MOCSEBAR FM.	MOOSEBAR FM.	MOOSEBAR FM.
BULLHEAD GROUP	COMMOTION FM.	GATES FM.	MOOSEBAR FM.	MOOSEBAR FM.	MOOSEBAR FM.	GETHING FM.	BRENOT FM.	MONACH FM.	BEATTIE PEAKS FM.	MONTEITH FM.	BULLHEAD MOUNTAIN FORMATION			
												BULLHEAD GROUP	GATES FM.	MOOSEBAR FM.
MINNES GP.	MONACH FM.	BEATTIE PEAKS FM.	MONTEITH FM.											

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Cadomin Formation

The Cadomin Formation is the oldest formation occurring in the **Dunlevy** area. The Cadomin Formation consists mainly of a succession of massive, crossbedded, coarse-grained, grey to brown weathering, **conglomeratic sandstones** and fine conglomeratic beds. Interbedded **with** these conglomeratic units are thin beds of buff-weathering, soft, fine-grained sandstone, dark carbonaceous shales, and thin **coaly** seams. Some beds consist entirely of conglomerate with **sub-**rounded pebbles of dark **chert**, white quartz, and quartzite strongly cemented in a matrix of coarse to medium-grained sandstone.

Coarse sandstones of Cadomin Formation grade laterally into interbedded coal, sandstone, and shale of the Gething Formation. The two formations are, therefore, in part lateral equivalents, although in general the Cadomin underlies **the** Gething.

Gething Formation

The Gething Formation directly overlies the **Cadomin** Formation. In general, the Gething Formation consists of interbedded mudstones, coals, siltstones, and sandstones. (See lithologic log in Pocket 1). **The** sandstones **are** usually in thin **units** and the frequent repetitions of these units are a characteristic feature of the Gething Formation. The thickness of the Gething Formation in the Peace River Canyon is believed to be approximately 1,600 feet to 1,800 feet. A detailed description of the Gething Formation **of the Peace** River Canyon area has been published by Stott, 1969. It **is** the coal beds of the Gething Formation that are the objective of the coal **exploration activities** being carried out in

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the Peace River area. These coal beds vary in thickness from a few inches up to to fifteen feet with isolated occurrences being reported of greater thicknesses.

Moosebar Formation

The **Moosebar** Formation directly overlies the **Gething** Formation. The **Moosebar** Formation has been removed by erosion from the **Dunlevy** area.

The formation consists of a monotonous sequence of dark grey to black friable shale. In places, thin layers of **clayed** ironstone occur and a few thin sandstone lenses are present in the upper part of the formation. The formation has been measured at 1,336 feet by Beach and Spivak, 1944, on Track Creek,

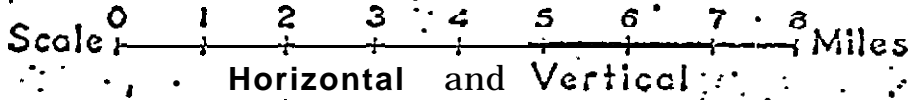
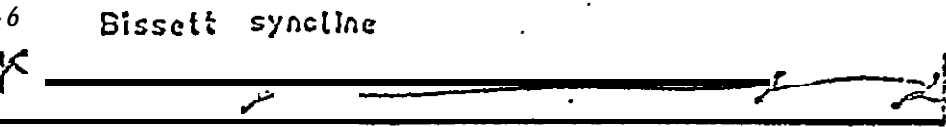
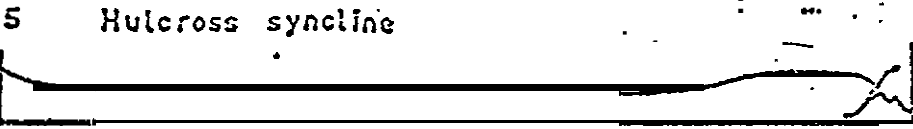
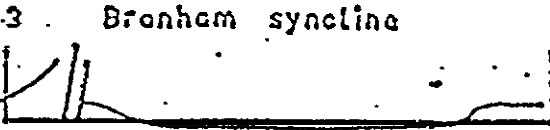
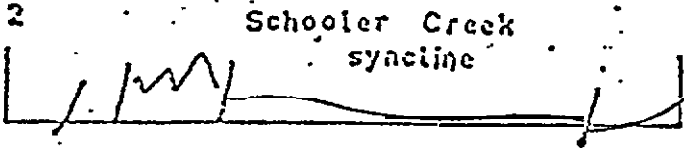
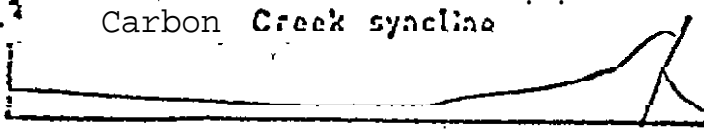
STRUCTURE

The **Dunlevy** coal **licences** lie within the foothills structural belt of the Rocky Mountains. The structural belt extends from the *United States* border. to the Yukon along the east side of the Rocky Mountains. It is characterized by a series of **anticlines**, synclines and west-dipping thrust faults. The intensity of deformation varies **from** one area to another and the Peace River area is characterized by a particular structural style, This structural pattern has been well illustrated by Hughes, 1967, (Fig. 2) with detailed **discussions** by Irish, 1969, and Fitzgerald, 1968. Essentially, the Peace River area consists of a large relatively broad **syncline** between sharply faulted anticlines. (See. **Fig. 4**).

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WSW

ENE



Structural Styles, Peace River Area (Hughes 1967)

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Figure 4 indicates a prominent **syncline** with an axis following **Dunlevy** Creek. The axis of the **syncline** approximately bisects the **Dunlevy** Block. Published information indicates it **is roughly** symmetrical with gentle **dipping** flanks. Along the east and west borders of the block, the **Cadomin** Formation is **exposed** and beyond this lie anticlines **disected** by west dipping thrusts.

RESULTS OF EXPLORATION - 1973'

GENERAL DISCUSSION

The presence of coal in the Peace River area was first recognized by Alexander MacKenzie in 1793. This coal was referred to in several reports by the Geological Survey of Canada, and the British Columbia Department of Mines between 1793 and 1922.

A discussion of the old **Packwood** Mine on the southeast corner of the property is **contained** in a report by **McLearn** and Irish (1944) of the Geological Survey of Canada.

Two exploration **programs**, as well, had been carried out in 1971 and 1972 on the nearby Carbon Creek block, 15 miles to the southwest; and a program in 1972 had been **conducted** on the East Mount Gething block five miles south, across Williston Reservoir. Numerous coal seams were recognized from both **these projects** in lithologic units and structural settings similar to the **Dunlevy** block (published information).

The main objective of the 1973 **Dunlevy coal** exploration project was to gain, by

diamond core drilling, an understanding of the coal-bearing Lower Cretaceous Gething Formation and define the **economic** potential for future coal miner: development.

RESULTS

One **HQ (2½")** core hole was drilled in the area to a total depth of 808 feet. The core hole intersected Lower Cretaceous Gething Formation over its entire length. These sediments of **fluvial-deltaic** origin consist of alternating sequences of fine grain sandstones, siltstones, mudstones and thin coal seams.

CORE HOLE - D-73-1
COAL LICENCE - C.L. 1688
LOCATION - 1700 FWL X 1300 FNL of C.L. 1688
ELEVATION - 3,095 feet
TOTAL DEPTH - 808 feet

<u>COAL SEAM DEPTH</u>	<u>THICKNESS</u>
129.0	1.0 .
153.3	1.0 .
336.7	1.3
481.2	1.0.
574.5	1.5.
603.5	1.5 .
609.6	2.5
638.0	1.0
703.7	2.0
7 5 1 . 4	1.1

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A tentative correlation with East Mount Gething data indicates the **Dunlevy** core hole spudded into Gething Formation approximately 200 to 250 feet below the base of the **overlying Moosebar** Shale Formation. (See Fig. 3).

COAL

Forty-one coal seams ranging from 0.1 to 2.5 feet were intercepted. Ten seams were 1.0 feet or greater. No samples were submitted for assays due to poor recovery.

COSTS

The following statement covers expenditures by **Utah** Mines Ltd. for coal exploration (through 31st October, 1973) in the **Dunlevy licence** area of the Peace River District.

<u>ITEM</u>	<u>TOTAL COST</u>
(1) DRILLING - 808 feet	\$ 8,873.30
(2) HEAVY EQUIPMENT OPERATION	627.00
(3) LABOUR	1,875.00
Salaries for Geologists	
(4) EXPENSE ACCOUNTS	561.25
Travel to and from Exploration Area	
(5) VEHICLE RENTALS	1,192.00
(6) SUPPLIES	192.25
(7) RECLAMATION	45.00
	<hr/>
	\$13,365.80

3

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Beach, H.H., and Spivak, J., 1944, Dunlevy-Portage Mountain map area, British Columbia, G.S.C Paper 44-19.

Fitzgerald, **E.L.**, 1968, **Structure of** British Columbia Foothills, Canada, **AAPG** Bull. V. 52-4.

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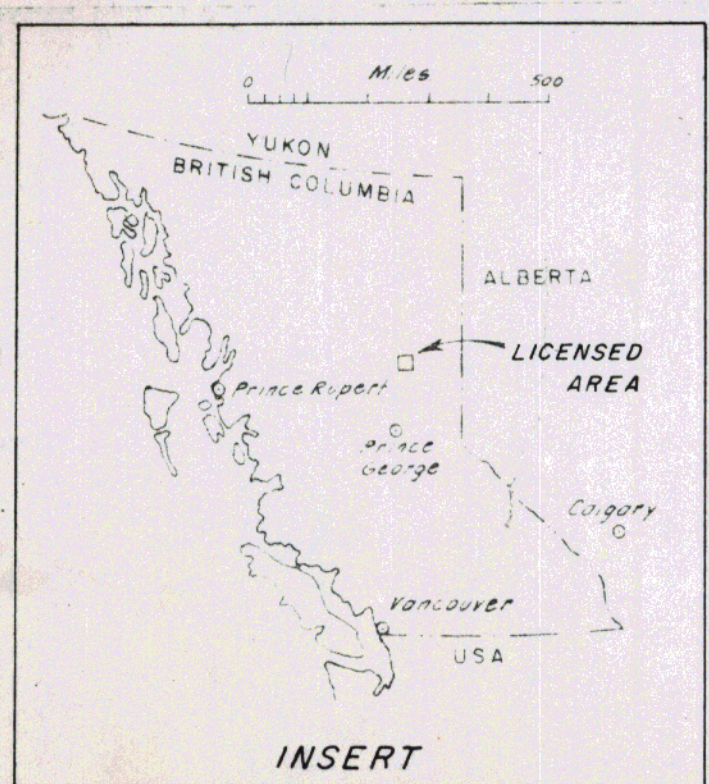
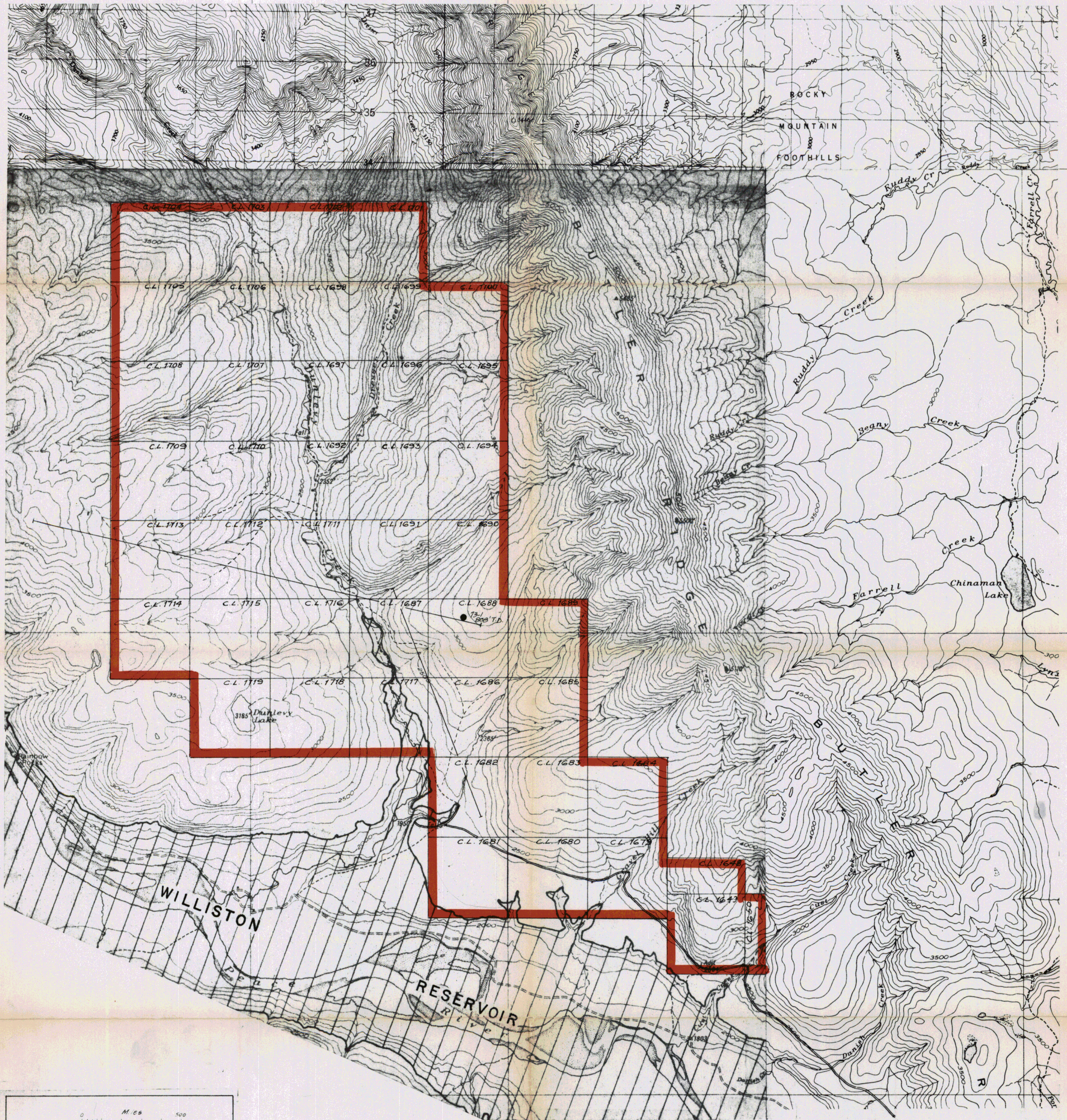
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Stott, D.F., 1969, The Gething Formation of The Peace River Canyon, British **Columbia**, Geological Survey of Canada, Paper 68-28.

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LEGEND

- WILL SITE 1973
- EXISTING ACCESS ROADS
- EXISTING SEISMIC SURVEY LINES CUT IN 1972 BY BEAVER GEOPHYSICAL CO.

FIGURE 1

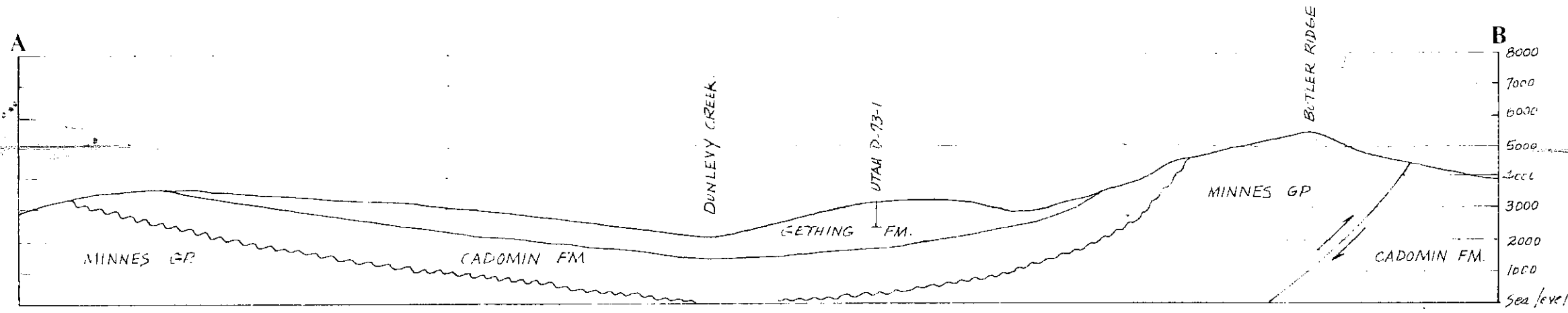
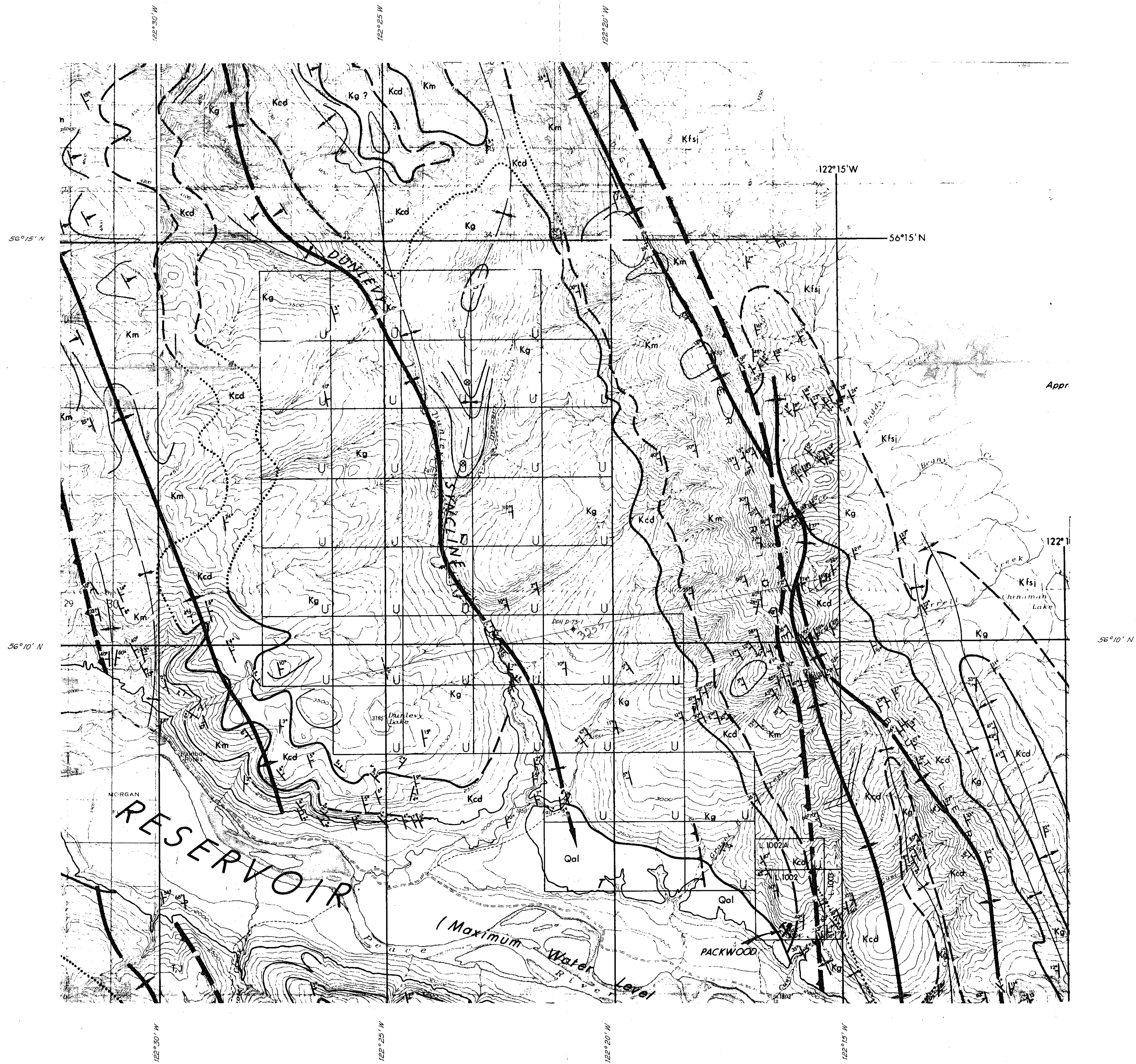
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 MINERAL EXPLORATION & DEVELOPMENT DEPARTMENT
 VANCOUVER BRITISH COLUMBIA
 PR-DUNLEVY PROJECT 73(2)A

COAL - BRITISH COLUMBIA
DUNLEVY BLOCK

Work by: D. N. LeN.	Date: NOV. 1973	NTS Ref: 94B/1
Drawn by:	Revised:	MAP of
SCALE 1:50,000		



- LEGEND**
- Formation Boundary
 - Anticline
 - Syncline
 - Thrust Fault
 - Strike & Dip - Published
 - Strike & Dip - Measured
 - Coal Mine (Abandoned)
 - Coal Occurrence Greater Than 5' Other Than Trojan Seam.
 - Drill Hole
 - Roads - Existing

U UTAH MINES LTD COAL LICENCES

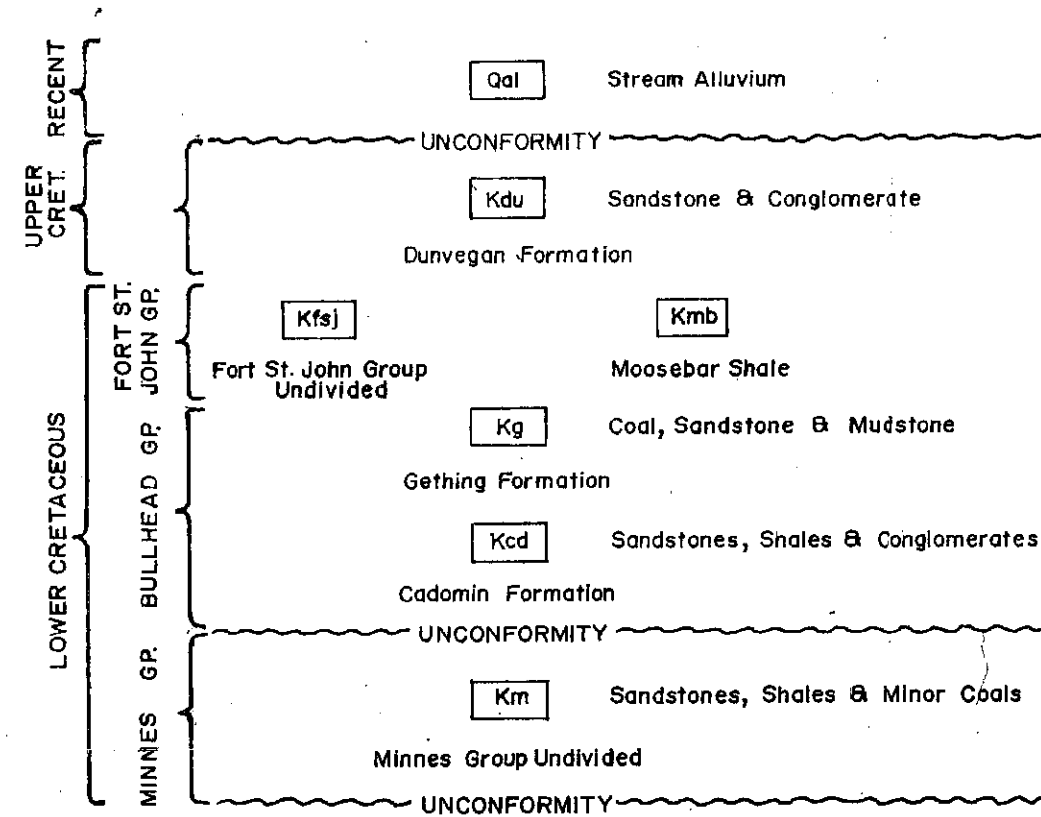


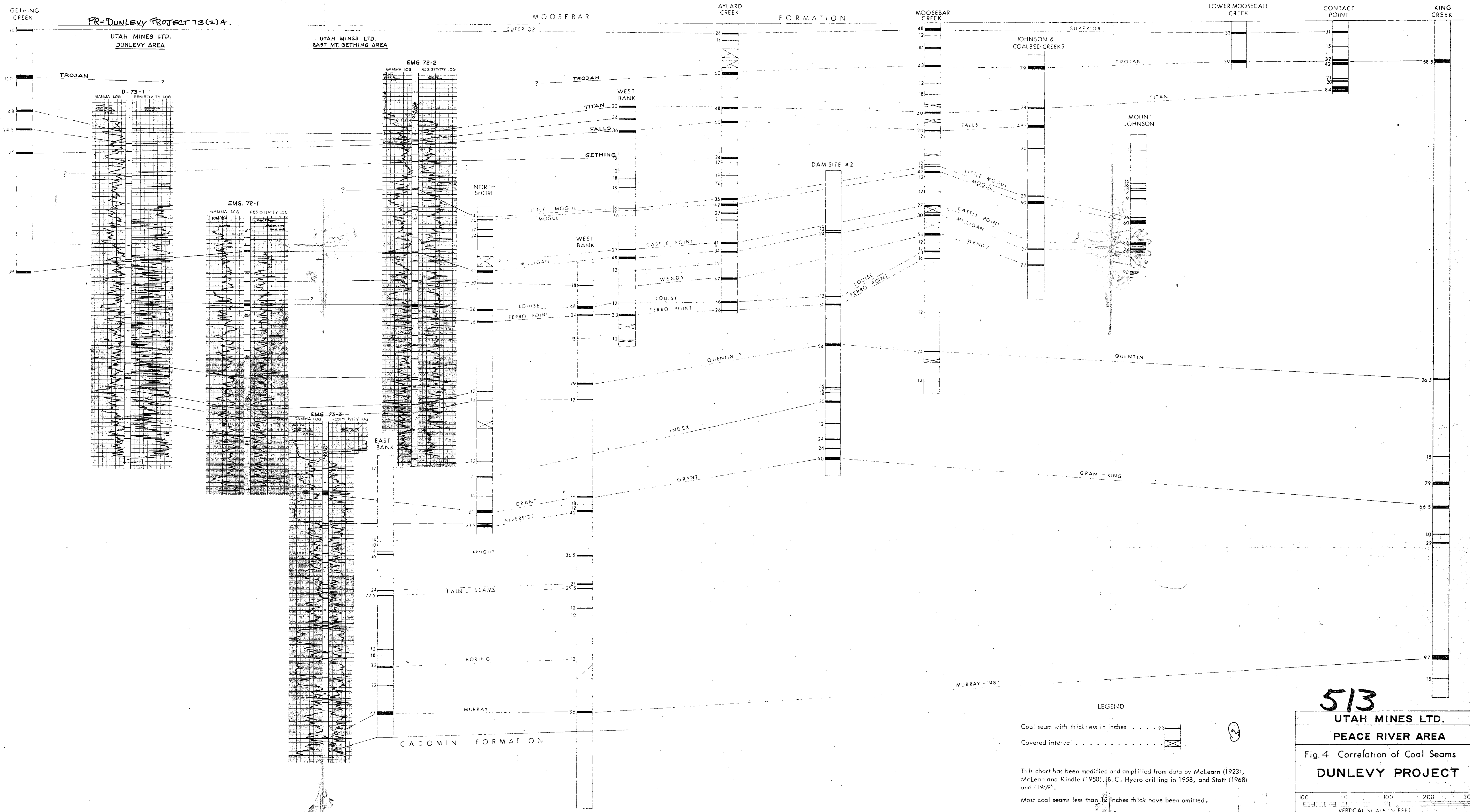
FIG 4 513

UTAH MINES LTD
 MINERAL EXPLORATION & DEVELOPMENT DEPT.
 412 - 510 WEST HASTINGS ST.
 VANCOUVER 2, BRITISH COLUMBIA

PEACE RIVER PROJECT 13(C)A
PEACE RIVER AREA

GEOLOGICAL MAP OF THE DUNLEVY BLOCK

September 1973
 SCALE: 1:50,000
 1/2 0 1 Mile



513

UTAH MINES LTD.
PEACE RIVER AREA

Fig. 4 Correlation of Coal Seams
DUNLEVY PROJECT

100 100 200 300
VERTICAL SCALE IN FEET

DEC. 1973

(Fig 3?)

Widco WELL LOG

513

COMPANY: UTAH MINES LTD.
 WELL: D-73-1
 LOCATION: DUNLEVY BLOCK

COORDINATES:
 N: 5
 ELEVATION: 3,095'
 D.F.:
 K.B.:
 G.I.: 3,095'

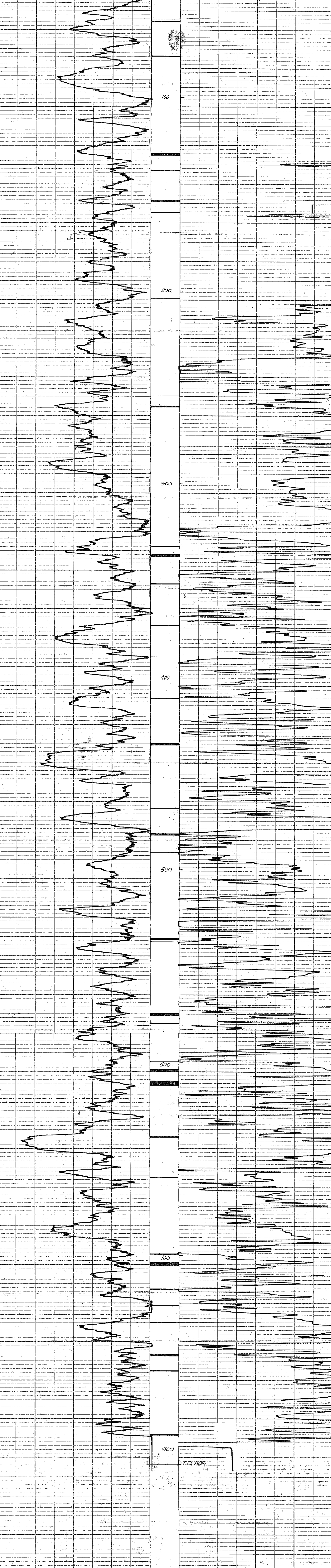
COUNTY: PLACE RIVER AREA STATE: BRITISH COLUMBIA

Date	Run No. 1	Run No. 2	MUD	Run No. 1	Run No. 2
25th May, 197					
First Reading			Nature		
Lost Reading			Density		
Footage Logged			Viscosity		
Bottom (Driller)			Resistivity		
Casing (From Log)			Res. @ BHT		
Casing (Driller)			pH		
Casing Size			Circ. Temp.		
Bit Size			B.H. Temp.		
			Logged by	D.S. FULLERTON	
			Witnessed by	D.N. le NOBEL	

REMARKS: LOCATION: 1,700 feet from Westline
 1,300 feet from Northline of coal licence 1688

GAMMA RAY LOG
 SCALE = .010 MR/HR
 3°C - Sec. 5

RESISTIVITY LOG
 SCALE = 25 OHMS



FO 129

(3)

UTAH MINES LTD.
DRILL & CORE LOG

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PR-DUNLEVY PROJECT 73(2)A.

HOLE NO. D-73-1

HOLE NO. DDH/073-1

LOG BY: D.S. FULLERTON

ELEV 3095' ±

HOLE SIZE: HQ (2 1/2")

PROJECT DUNLEVY

DATE MAY 26, 1973

N _____

AIR

WATER

LEASE: C.L. 1680

E _____

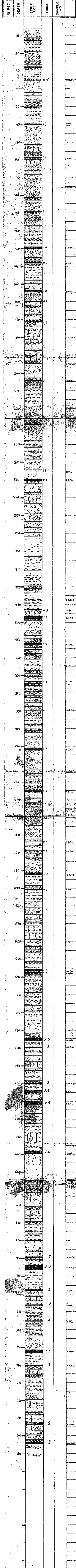
TD 208

PO _____

SEC. T. R.

LITHOLOGY

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LEGEND

- Conglomerate
- Med gr sandstone
- Vf - fine grain sandstone
- Silty sandstone
- Sandy siltstone
- Siltstone
- Muddy siltstone
- Silty mudstone
- Mudstone
- Carbonaceous mudstone
- Coal, coaly or carbonaceous debris
- Coaly streaks
- Coal

- Small cross-beds
- Large cross-beds
- Contorted bedding
- Pelecypods
- Burrows

COAL

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