

GEOLOGICAL AND GEOCHEMICAL REPORT

- on the -

COAL PROPERTY  
VERNON MINING DIVISION,  
BRITISH COLUMBIA



- for -

UNION OIL COMPANY OF CANADA,  
335 - 8th. Avenue S. W.,  
Calgary, Alberta.  
T2P 2K6.

COVERING: Coal #1 (20 units), Coal #2 (20 units),  
Coal #3 ( 4 units).

WORK PERFORMED: June 13 - November 4, 1978.

LOCATION: (1). 50°06'N, 118°42'W.  
(2). NTS Map 82L/2E.  
(3). 26 km. SE of Lumby, B. C.

Prepared By:

Kerr, Dawson & Associates Ltd.,  
Suite #1-219 Victoria Street,  
KAMLOOPS, B. C.

J. M. Dawson, P. Eng.  
November 4, 1978.

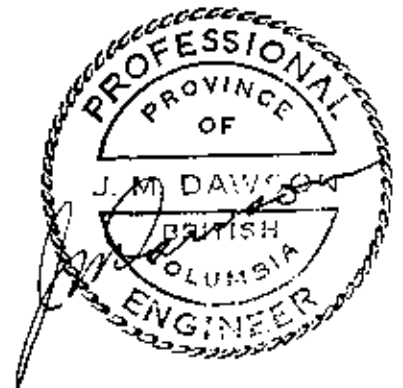
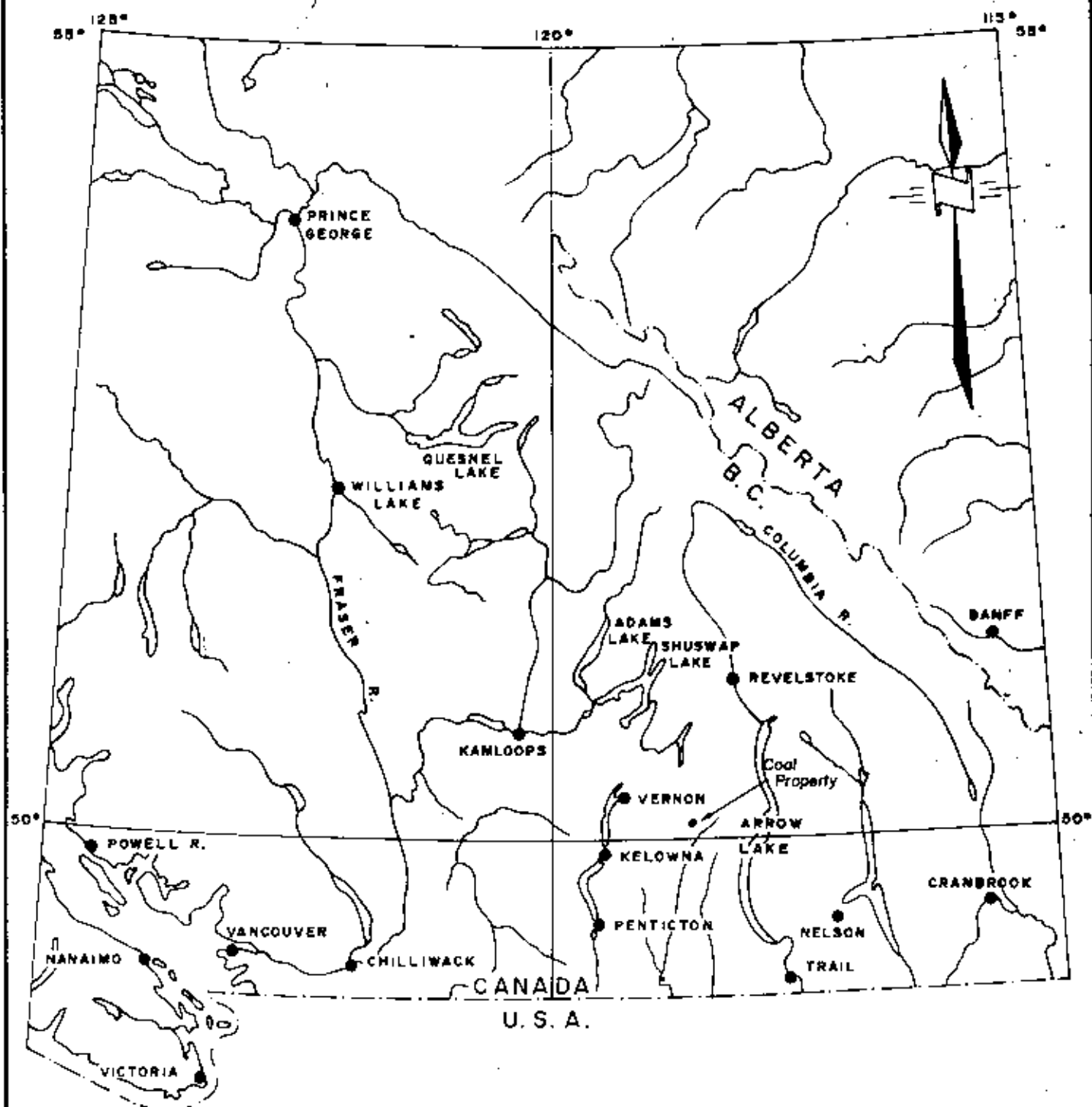


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UNION OIL COMPANY OF CANADA

LOCATION MAP

COAL CLAIMS

VERNON MINING DIVISION, B.C.

Date: August, 1978.

Scale: 1" = 64 Miles

Own by: W. G.

Dwg no. 174 B-1

## INTRODUCTION

The Coal property was staked to cover a favourable geological environment thought to be similar to others which host typical Okanagan-type, "basal" uranium deposits.

The present programme was conducted to evaluate the potential of the property for hosting such deposits.

A two-man team spent 8 days on the property conducting geological, geochemical, and radiometric surveys.

Data collected were interpreted and are presented on a series of maps accompanying this report.

SUMMARY AND CONCLUSIONS

- (1). The Coal property consists of 3 contiguous metric claims totalling 44 units. It is located in moderate to steep terrain in southern British Columbia and although logging roads lead to within ten miles of the property, present access is by helicopter.
- (2). The property was staked because of a favorable geological environment. Airborne radiometric anomalies and the suspected presence of Miocene channel gravels beneath the basalt cap rock led to the present programme of geological mapping, prospecting and geochemistry.
- (3). The claims are underlain by a thick basalt sequence overlying granitic basement which is only exposed at the western margin of the property. Several outcrops of interflow volcanoclastic sediments were located but there is no evidence of paleochannel gravels below the basalt cover.

- (4). Uranium content in water is relatively low; the highest values being in creeks draining the granitic basement west of Ferry Creek.
- (5). The source of the airborne radiometric anomalies was determined to be local "hot" granitic basement.
- (6). Because of sparse water sampling north of the interpreted basement-basalt contact in the northwest part of the property and presence of a soil sample running 14 PPM U, consideration should be given to conducting several soil sampling traverses across the area of the interpreted contact.

PROPERTY

The property consists of three metric claims  
as follows:

<u>Claim Name</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Expiry Date</u>
Coal #1	224	03685	February 10, 1979
Coal #2	225	03686	February 10, 1979
Coal #3	436	43606	May 29, 1979

The registered owner of these claims is Union  
Oil Company of Canada.

SUGAR  
LAKE



COMBY

CHERRYVILLE

Vernon  
26 km

Ferry Creek

Monashee  
Δ Mtn.

COAL  
CLAIMS

KETTLE RIVER

UNION OIL COMPANY OF CANADA	
INDEX MAP COAL CLAIMS	
VERNON MINING DIVISION, B.C.	
TECH. WORK BY: KERR, DAWSON & ASSOC.	SCALE 1:250,000
DATE: AUGUST, 1978	DWG NO. 174 B-2



LOCATION AND ACCESS

The property is located in southern British Columbia about 45 km. east-southeast of the city of Vernon. The approximate geographic center of the claim block is at 50°06' north latitude and 118°42' west longitude.

The property is presently accessible only by helicopter from Vernon, although active logging roads are presently within a few miles of the northern and eastern perimeters (Ferry Creek and Coalgoat Creek).

PHYSIOGRAPHY AND VEGETATION

The claims cover a portion of the Okanagan Highland plateau between the drainages of Ferry, Heckman and Coalgoat Creeks. Topography is essentially flat in the center of the claims becoming moderate to steep along the western edge, in the valley of Ferry Creek. Moderate to steep terrain is also encountered in the upper reaches of Coalgoat Creek, in the extreme southeast portion of the claim block.

Elevations vary from more than 5,600 feet A.S.L. on the plateau to about 4,500 feet A.S.L. in the valley of Ferry Creek.

The property is heavily tree covered with mature spruce, fir, and pine. Extensive areas of windfall make traversing difficult on the plateau.

### HISTORY

There is no record of any exploration on the subject claims prior to 1977. The property was acquired because of a favorable geological environment and similarities to other uranium prospects in the Okanagan region.

In 1977 airborne radiometric and magnetic surveys were conducted over the property.

The present programme was carried out in June, 1978, to evaluate the potential of the property for hosting, "basal-type" uranium deposits.

GEOLOGY

The property is underlain by a series of basalt flows and minor intercalated sediments which rest unconformably upon granitic basement rock.

The basalts consist of a thick (as much as 300 meters +) sequence of flows which vary from about 5 meters to more than 15 meters in individual thickness. These flows commonly exhibit columnar jointing and sometimes are separated by red oxidized regoliths or variable thickness of volcanoclastic sediments or pyroclastics.

The basalt varies from dense, blue grey fine grained varieties with occasional small stubby phenocrysts of pyroxene to a more common, ropy-looking variety which has large subhedral to euhedral olivine phenocrysts as much as 3 cm. long.

The intercalated fragmental rocks can vary from obvious pyroclastics containing scoriaceous basalt fragments in a dense, less altered groundmass to well bedded, waterlain volcanic wackes which alternate fine and coarse beds like a turbidite sequence.

Coarse conglomerate composed entirely of basaltic material with boulders up to 70 cm. in diameter is noted on a prominent knoll along the northern edge of the claim block.

At the headwaters of Coalgoat Creek near the top of a 250 - 300 meter section of basalt flows, there is a horizon of coarse volcanoclastic sediments. It consists primarily of fine and coarse (up to 20 cm.) rounded fragments of basalt but about 5 - 10% of the fragments are granitic. The provenance of this horizon is considered to be a source highland where a few remnants of granitic basement protruded through a dominantly basaltic terrain.

The granitic basement rock is exposed near the western margin of the property. It consists primarily of a medium grained granodiorite which is slightly foliated in places. Several outcrops of a slightly porphyritic variety were observed. Dikes of aplitic and pegmatitic material are not uncommon.

In several places, specifically along the faults shown on figure 174B-3, the intrusive is sheared, chloritized and contains disseminated pyrite. Where

the pyrite has been oxidized, a white to yellow brown altered and bleached rock is now present. In one such area in the most easterly exposure of the intrusive, a one meter wide quartz vein carries traces of fine grained molybdenite.

No evidence of paleochannel gravels were seen although the actual contact area (within a few meters) could only be examined over a relatively small area near the southwest corner of the property. Nevertheless, no boulders of channel conglomerate were noted in Ferry Creek. The basalt cover has been down-dropped at least 200 meters northeast of a prominent northwesterly-trending normal fault and obscures the nature of the basement-basalt interface in the northwest corner of the claims.

GEOCHEMISTRY

A total of 49 water samples were collected from the Coal property. These samples were stored in 250 ml. plastic bottles and analysed by Bondar-Clegg and Company of Vancouver by fluorimetry.

Nine of these samples were collected after a full day of intermittent rain showers so they could be diluted with respect to the remaining samples. These samples are indicated by an X near their plotted location on figure 174B-4.

Mean and standard deviation were calculated for this population assuming a value of 0.025 PPB for values reported as  $< 0.05$  MMB. The data were then classified into the following categories:

0	- 0.06 PPB	- Negative
0.06	- 0.16 PPB	- Possibly anomalous
0.16	- 0.26 PPB	- Probably anomalous
>	0.26 PPB	- Definitely anomalous

The bulk of the water values are very low in uranium content, though most of them were collected from areas now known to be underlain by basalt. However, a number of streams and springs draining from under the

basalt cover (at the west and southwest edges of the property) were sampled and no obviously anomalous values were encountered.

The only two definitely anomalous uranium values in water are located west of Ferry Creek in small creeks draining from basement granitic rocks.

Five rock samples were analysed by fluorimetry for uranium. Porphyritic basalt and some volcanoclastic sediments reported 1 PPM uranium. A sample of pinkish buff granodiorite near a molybdenite-bearing quartz vein also contained only 1 PPM uranium. A sample of interflow breccia where 5 - 10% of the material was granitic fragments reported 2 PPM uranium. A sample of highly fractured and chloritized granodiorite where the highest radiometric readings were obtained analysed 3 PPM uranium.

A soil sample taken in an overburden - covered area near the north property boundary, where radiometric readings suddenly jumped to 3 times background, returned a value of 14 PPM uranium by fluorimetry. The significance of this value is unknown since it appears to be in an area underlain by basalt or basaltic interflow sediments and



no anomalous values are detected from water samples taken in the same general area.

RADIOMETRICS

A McPhar TV-1 discriminating scintillometer was used to monitor radioactivity constantly while the property was mapped and prospected. In addition readings on the three channels (Total count, U + Th and Th only) in counts per minute were taken at most outcrops.

Readings in basalt terrain and areas of interflow volcanoclastics are low averaging about 1,200, 100, 25 C.P.M. respectively. Average background in the granitic basement is about 3 times higher than the basaltic cover averaging about 4,500, 300, 65 C.P.M. respectively. Appreciably higher radiometric readings were obtained in two areas of altered granodiorite near the southwest corner of the claim block (see figure 174B-3). A sample from the outcrop with the highest radiometric values (8,000 550, 160 C.P.M. respectively) reported 3 PPM uranium by fluorometric analysis.

### EXPLORATION POTENTIAL

No evidence of channel gravels between the granitic basement and the basalt cap rock was noted on the subject property. The airborne radiometric anomalies detected by Daughtry et al in 1977 occur over granitic basement rocks showing anomalously high radiometric readings in some outcrops.

No definitely anomalous values were detected in waters draining the area east of Ferry Creek though most of these samples were from streams and springs entirely in basalt.

Because no water samples were obtained from waters draining from under the basalt cap in the northwest part of the property and because a value of 14 PPM uranium was obtained from a soil sample taken there, anomalous uranium might occur in a channel or regolith under the basalt in this area.

Such an occurrence is rated as a low probability but should be checked by means of a few soil traverses across the interpreted basalt-basement contact area.

Respectfully Submitted By:

KERR, DAWSON & ASSOCIATES LTD.,



*James M. Dawson*  
James M. Dawson, P. Eng.,  
GEOLOGIST

November 4th., 1978,

KAMLOOPS, B. C.

APPENDIX A

PERSONNEL

PERSONNEL

J. M. Dawson, P. Eng.	Geologist	June 18 - 25, 1978 July 18 August 8 (1/2 day) August 9 (1/2 day) November 2,3,	- 12 days
Ralph Marini	Prospector	June 18 - 25, 1978	- 8 days

APPENDIX B

STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES

(1). Labour:

J. M. Dawson, P. Eng., 12 days @ \$175.00/day . . . . .	\$2,100.00	
R. Marini 8 days @ \$95.00/day . . . . .	<u>760.00</u>	\$2,860.00

(2). Expenses and Disbursements:

(a). Helicopter Charter. . . . .	\$ 736.00	
(b). Instrument Rental: 1 McPhar TV-1 8 days @ \$10.00/day . . . . .	80.00	
(c). Geochemical Analysis . . . . .	183.25	
(d). Drafting . . . . . 10 hrs. @ \$15.00/hour	150.00	
(e). Truck Rental: 9 days @ \$20.00/day \$180.00 660 miles @ 20¢/mile <u>132.00</u>	312.00	
(f). Food . . . . .	156.35	
(g). Camp Equipment Rental: 8 days @ \$20.00/day . . . . .	160.00	
(h). Miscellaneous equipment purchase . . . . .	32.20	
(i). Telephone, Freight, Maps, Xerox, Blue Prints, Secretarial, etc. . . . .	<u>114.20</u>	<u>1,924.00</u>
TOTAL HEREIN . . . . .		<u>\$4,784.00</u>



APPENDIX C

REFERENCES

#### REFERENCES

- Jones, A. G. (1959): - Vernon Map - Area, British Columbia;  
GSC Memoir 296.
- Daughtry, K. L. & Nielson,  
P.P. (1978): - Report on Airborne Radiometric and  
Magnetic Surveys on Coal Claims,  
Vernon Mining Division.
- Trenholme, L.S. (1978): - Hydraulic Lake Uranium Deposit;  
paper presented at CIMM annual meeting,  
April, 1978, Vancouver, B. C.
- Inazumi, S and Yokuyama, A.  
(1973): - Diamond Drilling Report on the Donan  
Claims, Greenwood Mining Division,  
for Power Reactor and Nuclear Fuel  
Corp., Japan.

APPENDIX D

WRITER'S CERTIFICATE

**JAMES M. DAWSON, P. ENG.**  
**GEOLOGIST**

SUITE 1 - 219 VICTORIA STREET  
KAMLOOPS, B.C.

PHONE (604) 374-6427

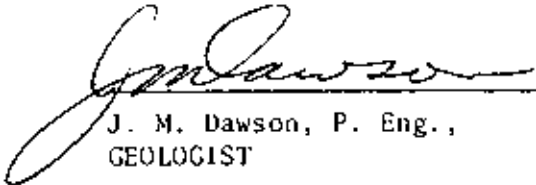
CERTIFICATE

I, JAMES M. DAWSON, OF KAMLOOPS, BRITISH COLUMBIA, DO HEREBY  
CERTIFY THAT:

- (1). I am a geologist residing at 380 Powers Road, Kamloops, British Columbia, and employed by Kerr, Dawson and Associates Ltd. of Suite #1, 219 Victoria Street, Kamloops, B. C.
- (2). I am a graduate of the Memorial University of Newfoundland, - B. Sc. (1960), M. Sc. (1963), a fellow of the Geological Association of Canada and a member of the Association of Professional Engineers of British Columbia. I have practised my profession for 15 years.
- (3). I am the author of this report which describes the results of an exploration programme carried out under my direction on the Coal claims, Vernon Mining Division, British Columbia.

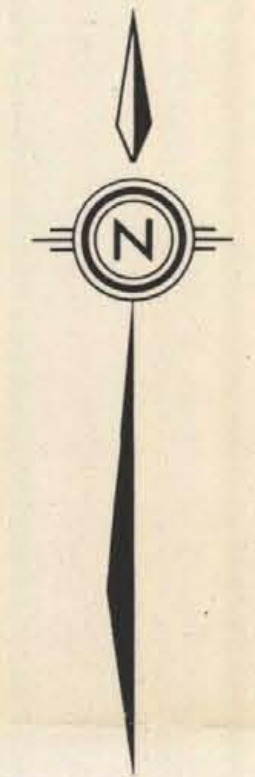


KERR, DAWSON & ASSOCIATES LTD.,

  
J. M. Dawson, P. Eng.,  
GEOLOGIST

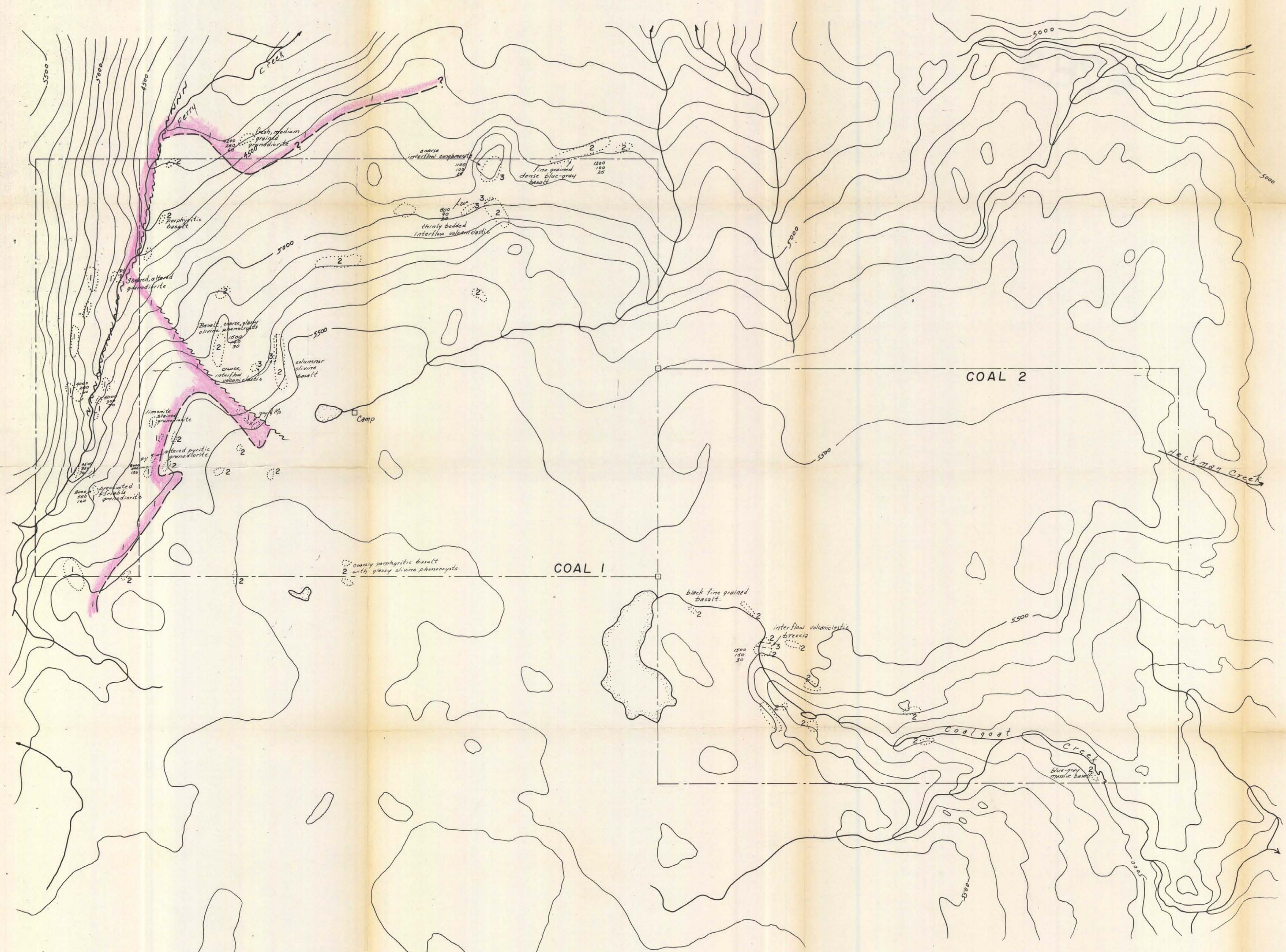
November 4th., 1978,  
KAMLOOPS, B. C.

MINERAL RESOURCES BRANCH  
**6983**



**LEGEND**

- 3 Fine to coarse interflow volcaniclastic sediments
- 2 Porphyritic to massive basalt.
- 1 Medium grained granodiorite, sheared & altered in places.
- Outcrop area
- Fault
- Geological contact
- Mineral occurrences; pyrite, molybdenite
- Site of radiometric readings : U+Th+K. in counts per minute (c.p.m.)  
 U+Th  
 Th



To accompany a report by J.M. Dawson, P.Eng.

**UNION OIL COMPANY OF CANADA**

**GEOLOGICAL PLAN**  
 COAL PROPERTY  
 VERNON MINING DIVISION, B.C.

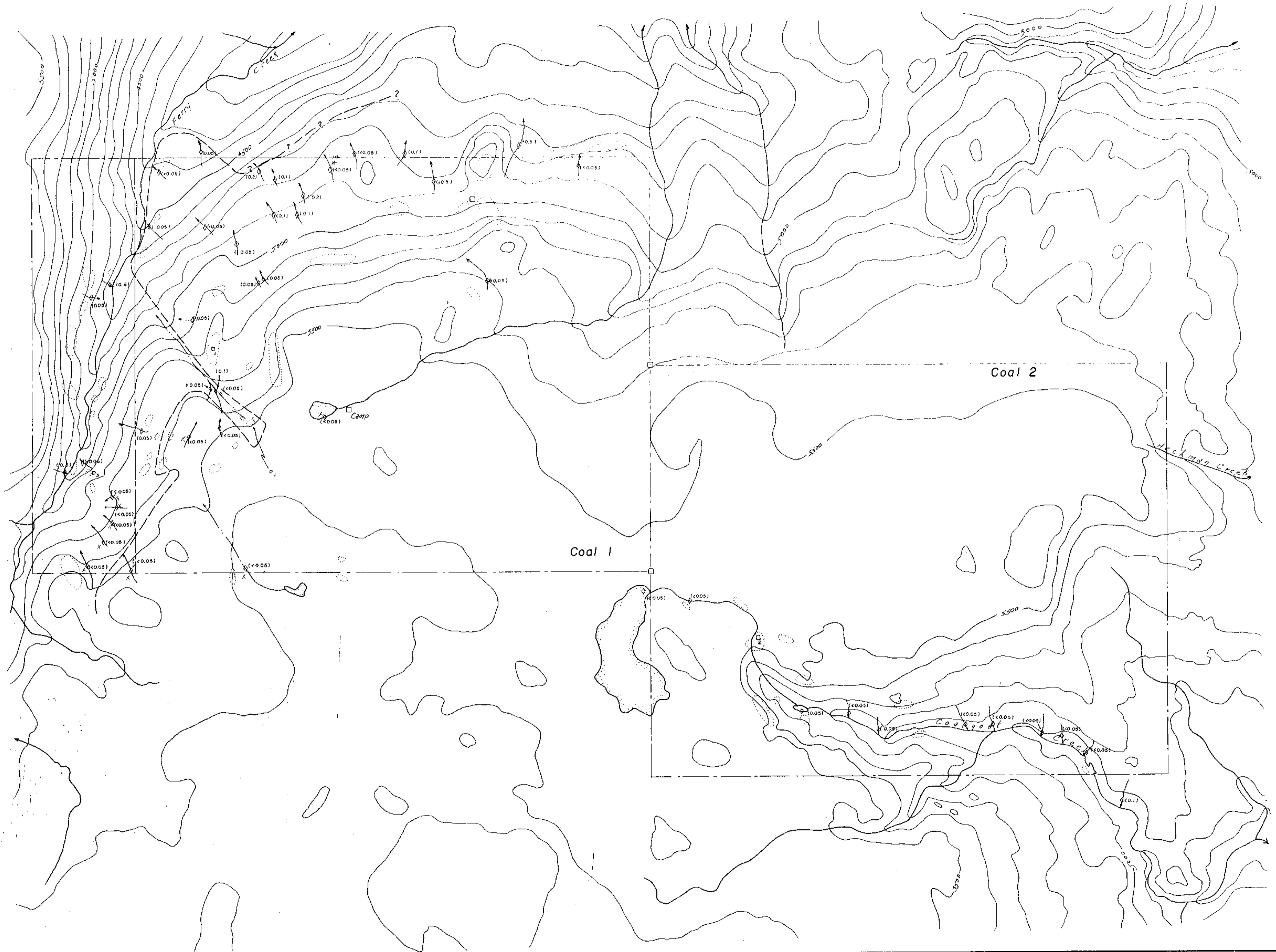
TECH. WORK BY: KERR, DAWSON & ASSOC. LTD.	SCALE: 1"=10,000
DRAWN BY: W.G.	DATE: AUG., 1978.
APPROVED BY: J.M.D. P.ENG.	DRAWING NO. 174 B-3

6983



**LEGEND**

- Location of water sample with values in parts per billion (ppb) uranium.
- Location of rock geochem sample with value in parts per million (ppm) uranium by fluorometric analysis.
- Contact between basalt and basement rock.
- Outcrop area
- Claim legal corner post



To accompany a report by J.M. Dawson, P.Eng.

**UNION OIL COMPANY OF CANADA**

**URANIUM VALUES IN WATER**

**COAL PROPERTY**

**VERNON MINING DIVISION, B.C.**

TECH. WORK BY: KERR, DAWSON & ASSOC. LTD.	SCALE: 1:10,000
DRAWN BY: W.G.	DATE: AUG., 1978.
APPROVED BY: J.M.D. P.ENG.	DRAWING NO. 174 B-4