

3109

COMBINED GEOLOGICAL & GEOCHEMICAL REPORT

on

VAL 1-6 Mineral Claims
(Record #'s 13777H-13782H incl.)

Located

38 miles NW of Cranbrook in southeastern B.C.

(N49° 57.2', W116° 14.8') 82 F / 16 E & W

Work done Aug. 16-20, 1970

on behalf of

Arrow Inter-America Corp.
304 - 535 Thurlow Street,
Vancouver 5, B.C.

Report by: N. J. Dircks

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3109 MAP

TABLE OF CONTENTS

1. Location & Accessibility
2. Property & Ownership
3. History
4. Physical Features
5. General Geology
6. Mineralization
7. Development
8. Mining & Milling Methods
9. Conclusions
10. Declaration of Work & Costs
11. Statement of Qualification

LIST OF ILLUSTRATIONS

- #1 1. Index Map
- 2 2. General Geology Map
- 3 3. Geological & Geochemical Results on VAL 1-6 Claim Group.

VAL PROPERTY

1. LOCATION & ACCESSIBILITY - See Map #1 attached.

The property is situated 38 miles northwest of Cranbrook in southeastern B.C. (N49° 57.2', W116° 14.8' - N.T.S. 82F16). It lies at an elevation of 7500 ft. plus at the headwaters of Skookumchuck Creek, in a cirque basin on the south side of Rusty Ridge.

Normal access is by helicopter from Cranbrook. Alternatively, a road up Skookumchuck Creek valley comes to within 10 miles and 3000 ft. vertically of the property; a trail continues from this road and passes up the valley some 2 miles and 2500 ft. lower than the property. Condition of the road is believed only fair with several washouts; a bulldozer would be required to make a pass up the road to make it accessible.

2. PROPERTY & OWNERSHIP

The property was comprised of the following 6 claims:

<u>Claim Name</u>	<u>Record No.</u>	<u>Recording Date</u>	<u>Expiry Date</u>
VAL 1-6	13777H - 13782H incl.	July 3, 1969	July 3, 1971

In late 1970 the following 24 claims were added to bring the present number of claims to 30:

VAL 7-30	16459 - 16480 incl.	Oct. 13, 1970	Oct. 13, 1971
----------	---------------------	---------------	---------------

The registered owner of all claims is:

Arrow Inter-America Corporation,
304 - 535 Thurlow Street,
Vancouver 5, B.C.

3. HISTORY

Several spectacular samples of cassiterite and scheelite in quartz have been reported from the area and have caused some interest to be shown in the area by prospectors. Then too, its proximity to Cominco's Kimberly operation 18 miles to the southeast places it in an interesting geological environment.

Prior to 1960, some quartz veins on Rusty Ridge were staked as the Pimaco group but the claims were allowed to lapse. In July 1960, Lee Cannutt staked the C.A.S. #1 which corresponded to the Pimaco #1; these claims also were allowed to lapse.

In June 1965, Don Faulkner, as agent for T.J. McQuillan, staked the Sko group to cover these showings and the surrounding area. In 1966 McQuillan optioned the property to Newconax, which company staked additional claims, the Chuck group, to a total of 36 claims. Newconax examined the quartz vein occurrences and sampled the streams for tin. The option was dropped in late 1966 and McQuillan allowed the claims to lapse in mid 1967 as expiry dates came due.

Since 1966, Mr. Taylor, a consultant geological engineer, had been making a study of tin occurrences in B.C. and began conducting a geochemical exploration program in areas of interest. One such area was upper Skookumchuck Creek. He made a preliminary examination of the ground in 1966 and subsequently staked the VAL group in 1969, after the previous claims had lapsed. Arrow Inter-America Corp. optioned the property in late 1970 and had an additional 24 claims staked in the area.

4. PHYSICAL FEATURES

The property is located in rugged glaciated terrain of considerable relief. U-shaped valleys at 4000-4500 ft. elevation rise to knife edge ridges at 8500-9000 ft. Generally favorable weather prevails during the short snow-free summers from late June to late September. The remainder of the year can be cold and very windy with heavy snow fall at the summits.

A good year-round water supply for possible milling purposes is available from Skookumchuck Creek 2 miles south of the property. Water for drilling could be obtained from Elcore Lake, a small cirque basin within the property.

Extensive areas south of the property have been burned off but the remainder of the area has good stands of evergreen which rise to timber-line at about 7600 ft.

5. GENERAL GEOLOGY - See Map #2 attached.

The property is located nearly in the geometric center of the Purcell Mountains. This mountain range is a physiographic expression of a Precambrian Proterozoic sedimentary assemblage which has been folded into a NNW trending geanticline; the structure is 200 miles long by an average 40 miles wide. Progressively younger formations are found toward the margins of the structure. Six Jurassic/Cretaceous granitic batholiths and numerous smaller bodies have intruded the geanticline.

The property is on the west flank of the structure within the lower Aldridge formation -- one of the lowermost units of the assemblage. Numerous diorite sills of Mesozoic or earlier age have intruded the sediments in this general vicinity. One of the granitic batholiths mentioned previously lies within 1 mile of the property. It is a zoned granitic intrusive which varies from biotite granodiorite at the rim to more alkaline quartz monzonite at the center. In outline, it is roughly elliptical with the long axis of its 9 x 14 mile dimensions lying in an E-W direction.

Mineral deposits in the area include the Sullivan mine at Kimberly, where 10,000 t.p.d. of 9% combined Pb-Zn is mined from an argillite host rock of the Aldridge formation. Numerous other occurrences of Pb, Zn, Ag, Cu and Sn are found in the general area in a variety of settings. Vein type deposits, in many cases in close proximity to plutons, are most common followed by fault fissure deposits and stratiform occurrences.

6. MINERALIZATION - See Map #3 attached.

As revealed to date, scheelite and cassiterite have 3 known modes of occurrence on the property:

1. cassiterite and scheelite in white quartz veins
2. scheelite as selvages on narrow quartz filled fractures in the Moyie diorite sills
3. scheelite in rusty quartz rubble along a valley bottom which may represent quartz filled fault zone.

At the present time, the third mode appears to have the best potential of developing into an economically interesting deposit. However, the three different associations are evidence of extensive mineralization in the area.

Cassiterite and scheelite in quartz veins which outcrop along the ridge tops attracted the attention of earlier activity. Individual grab samples over good widths have given high metal values. The northerly striking veins have widths of 10 ft., 8 ft., and 4 ft.; continuity may be the critical factor of these occurrences. The veins can be examined with great difficulty along the knife edged Rusty Ridge but do not appear to continue along dip down the cirque wall.

The second mode of occurrence (i.e. scheelite in fractures in the sill) could be the most important tonnage-wise if a suitable loci of fracture intersections can be located. Samples containing scheelite were found with an ultra-violet lamp to be localized in the basal section up the diorite sill which forms a capping on West Ridge within claims VAL 4 and 6. Typically, narrow fractures to 1" wide in the diorite sill are quartz filled and contain narrow discontinuous selvages of scheelite at the boundary. As a confirmation of the presence of tungsten, a selected grab sample assayed 2.06% WO₃. Volumetrically, the number of such samples observed was very small as compared with the volume of the sill.

The possible quartz filled fault zone on Claims VAL 1 and 2 is particularly interesting. This zone is traceable as a lineament on aerial photographs as a creek depression on the side of a ridge, then along the floor of an elongate cirque valley, and through a small lake-filled depression for a length of about 3000 ft. The possible extension of this lineament to the north was not evident and to the south heavy talus would obscure its presence. A train of rusty quartz boulders, which vary in size up to 2 or 3 tons, is present along the floor of the cirque; minor amounts of similar material occur near the lakes and in the depression on the side of the ridge.

A sample, comprised of chips from old quartz boulders and rubble observed for a 450 ft. distance at the lower end of the cirque basin, yielded 1.28% WO₃. A sample of similar material over the next 300 ft. gave 0.33% WO₃. An estimated 50 tons of rusty quartz rubble occurs scattered along this zone. The depression on the side of the ridge yielded only scattered chunks of rusty quartz which assayed a low .03 WO₃.

Geochemical soil sampling in the area gave encouraging results. A background value for tin and tungsten was not established but would likely be in order of several parts per million for the sillstones and argillaceous quartzites of the Lower Aldridge formation. In the survey, erratic but high values for both tin and tungsten were encountered.

Composite soil samples were taken on traverses across slopes. At close intervals along a traverse 3-4 oz. of surface soil was taken to arrive at up to a 15 lb. composite sample. This was then panned to about a 5 oz. heavy residue. (concentration factor approximately 50:1 or less) Samples were checked with an ultra violet mineralight for the presence of scheelite before shipment to Coast Eldridge for spectrographic analysis.

Sample locations and results obtained are shown on Map #3 as A, B, C, D, and E and were as follows:

	<u>Comments</u>	<u>Sn</u>	<u>W</u>
Sample A	below west ridge across avalance slope	40 ppm	500 ppm
B	below west ridge across avalance slope	60 ppm	800 ppm
C	east side of elongate cirque valley	25 ppm	100 ppm
D	west side of elongate cirque valley	35 ppm	250 ppm
E	on west side of lakes in cirque basin	250 ppm	80 ppm
F	halfway down talus slope below Moyle diorite sill	450 ppm	100 ppm
G	from head of cirque canyon below vertical face	40 ppm	N.D.
H	halfway down talus slope below Moyle diorite sill	30 ppm	300 ppm
I	from below location of quartz-cassiterite float	1000 ppm	1300 ppm

7. DEVELOPMENT

No trenching, diamond drilling, or underground work has been done on the property. The greatest deterrent to further work on the property has probably been its location, combined with lack of obvious structures to test.

8. MINING & MILLING METHODS

The property at present is a grass roots venture without ore reserves. The most promising zone appears to be the fault fissure which has the potential to develop into a zone with good width and length and economically interesting grade. All access would be by adit since steep terrain would allow short cross-cuts to the zone.

Milling facilities would likely have to be located in the valley on Skookumchuck Creek because of a more favorable climate and adequate water supply.

No camp facilities would be required at the property, since established settlements exist at Skookumchuck and Wasa, 30 and 40 miles respectively, downstream on the Kootenay River. Road, rail, and power presently exist in these villages.

9. CONCLUSIONS

Prospecting, geological mapping and geochemical sampling have succeeded in localizing and identifying 3 types of occurrence of tin-tungsten mineralization on the VAL property. They are:

- a) cassiterite and scheelite in white quartz veins
- b) scheelite as selvages on narrow quartz-filled fractures in the Moyie diorite sills
- c) scheelite in rusty quartz rubble along a valley bottom which may represent a quartz-filled fault zone.

The last would appear to have the best possibility of being developed into a deposit with economically interesting potential. The significance of the first two types of occurrence would seem to be their indication that mineralization is widespread in the area. The possibility of scheelite occurring as skarn in the sediments immediately adjacent to the intrusive has not as yet been evaluated.

Further work is warranted to test the dimensions and grade of the zones outlined.

10. DECLARATION OF WORK & COSTS

a)	Work was performed on the VAL 1-6 claims during the interval of Aug. 17-20, 1970.	
b)	Rates of fees paid:	
	1 geologist @ \$60/day for 4 days	\$240.00
	1 prospector helper @ \$25/day for 3 days	75.00
c)	Other indirect costs:	
	helicopter - 2 trips - Cranbrook to property	317.50
	supplies and food	30.00
	assaying	30.00
	Total Expenditure	<u>\$692.50</u>

11. STATEMENT OF QUALIFICATION

- a) I am not currently a member of the Professional Engineering Association of B.C.
- b) In accordance with Chapter 244 of the Mineral Act of B.C., I am professionally qualified to sign this report for assessment work purposes never having signed geological, geophysical or geochemical reports for this purpose in the past.
- c) A list of my professional qualifications follows:
 1. obtained a B.Sc. degree in Geological Engineering from the University of Saskatchewan in 1962.
My professional work experience includes:
 2. May 1962 - Apr. 1964: B.A. Oil Co. Ltd. - oil and gas exploration geologist in Canada.
 3. May 1964 - Dec. 1964: Conwest Exploration - exploration geologist in Canada.
 4. Jan. 1965 - May 1966 - Giant Mascot M.L. - underground mine geologist w/minor exploration work - in Canada.
 5. June 1966 - May 1968: W.R. Grace & Co. Ltd. - underground mine geologist w/minor exploration work - in Bolivia.

6. June 1968 - present: Arrow Inter-America Corp. - exploration geologist - in Canada, Mexico, U.S. & Bolivia.

Respectfully submitted,

N. J. Dircks

June 30, 1971

N. J. Dircks.

Declared before me at the *City*
of *Vancouver*, in the
Province of British Columbia, this *2*
day of *July* 1971, A.D.

N. J. Dircks

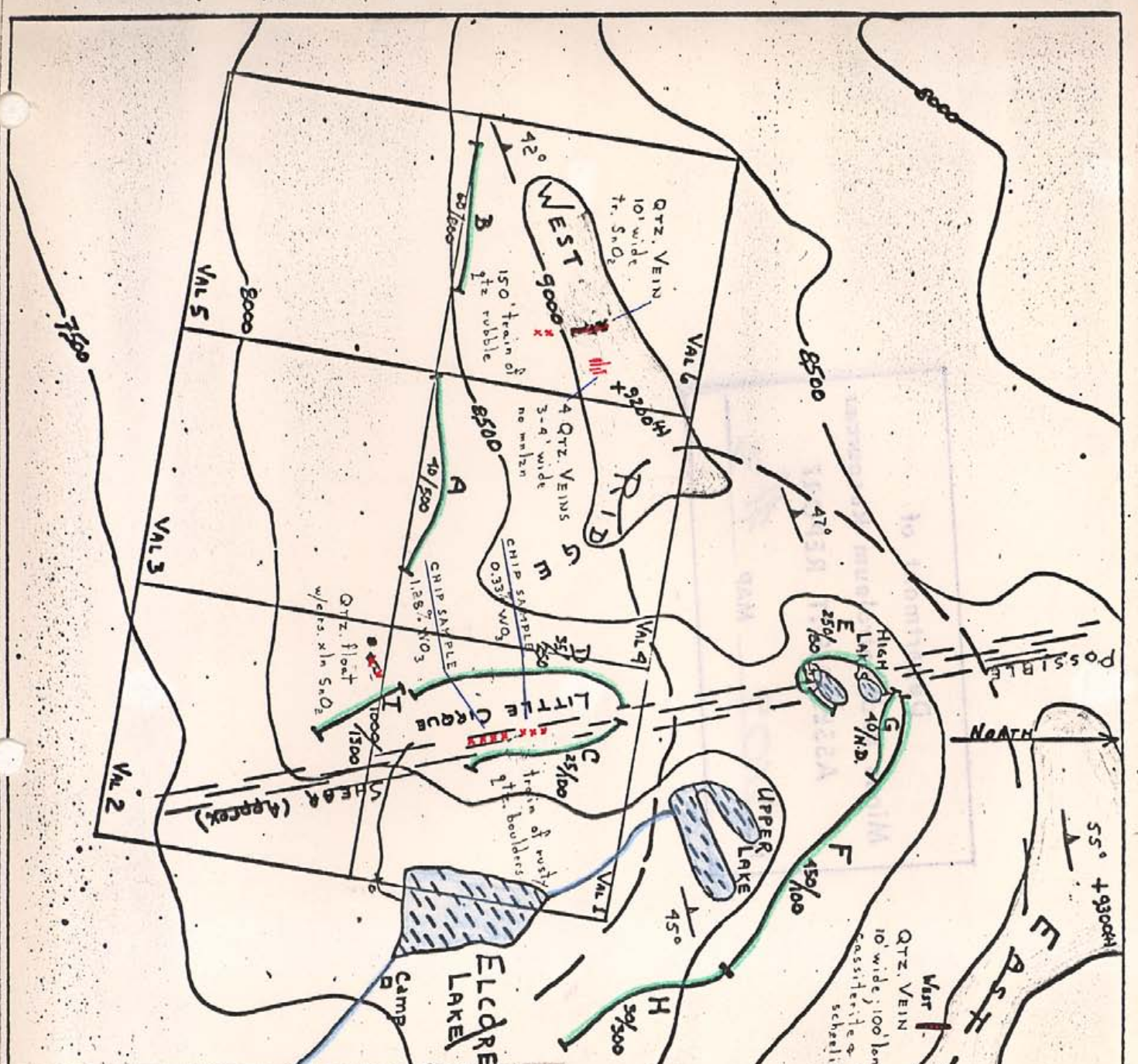
John Turner

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia

Sub-mining Recorder

3109

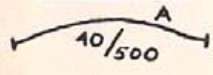
M-3



MAP # 3

**Geological & Geochemical Results
on
VAL 1-6 Claim Group**

LEGEND



composite soil sample traverse
Sn/W in p.p.m.



quartz w/ mineralization

DATE: 30 June 71

by W. J. Dineen

SCALE: 900' = 1"

3109

M-3

Approx. limit Newconex mapping



DEPARTMENT OF LANDS AND FORESTS
BRITISH COLUMBIA

HONOURABLE R. G. WILLISTON, MINISTER
E. W. BASSETT, DEPUTY MINISTER OF LANDS G. S. ANDREWS, DIRECTOR OF SURVEYS AND MAPPING

FIRST STATUS EDITION November 1st, 1961

SHEET 82 F/NE

NATIONAL TOPOGRAPHIC SYSTEM



310 VAL 1-6 Claim Group

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT #1
NO. 3109 MAP

To accompany geochemical and geological report by N.J. Dircks on the VAL Group, on Skookumchuck Creek, Fort Steele Mining Division.

For Source Edition, compiled and produced by Geographic Division, Survey and Mapping Branch, Dept. of Lands & Forests, Victoria, B.C., 1960-61.

RELIABILITY INFORMATION

Planimetry compiled from Provincial Government air survey meters mapping, 1951 & 1955. B.C. air photos, 1948 & 1952. Contours from Mines & Technical Surveys, Ottawa 1947 & 1957. Cultural survey revised from B.C. air photos 1958-59.

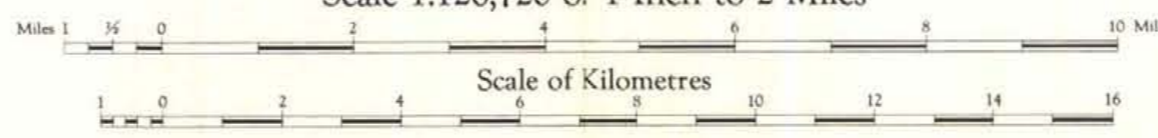
Copies of this map may be obtained from Geographic Div., Survey and Mapping Branch, Department of Lands & Forests, Victoria B.C.

REFERENCE

- Land altered or covered by application under the Land Act
- Surveyed Timber Lease, License, or Bark Indian Reserve
- Government Reserve
- Land District Boundary
- Town Form License
- Provincial Forest Boundary
- Park Boundary
- Municipality
- Forest Service Lookout
- Post Office
- School
- Church
- Hospital
- Building
- Cemetery
- Water Gauge
- Historic Monuments
- Provincial Park less than 10 Acres

KASLO
BRITISH COLUMBIA
KOOTENAY LAND DISTRICT

Scale 1:126,720 or 1 Inch to 2 Miles



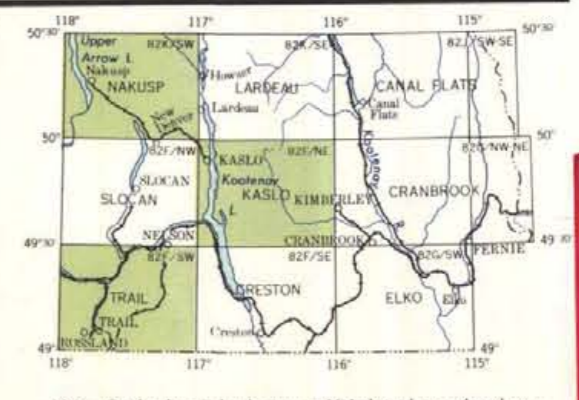
Magnetic Declination approximately 22° 01' East at center of map, 1961
Decreasing approximately 2° 37' annually

M. R. YOUNG, CHIEF GEOGRAPHER

REFERENCE

- Road, Hard Surface, All Weather
- Road, Loose Surface, All Weather
- Logging, Loose Surface, Dry Weather
- Trail
- Abandoned Railway
- Railway
- Telephone Line
- Electric Power Line
- Horizontal Control Station
- Control Station (100 feet)
- Elevation in feet above mean sea-level
- Intermittent Stream
- Swamp or Marsh
- Dam
- Water Tank
- Saw Mill
- Gravel Pit
- Spring
- Glacier
- Mine

Universal Transverse Mercator Projection

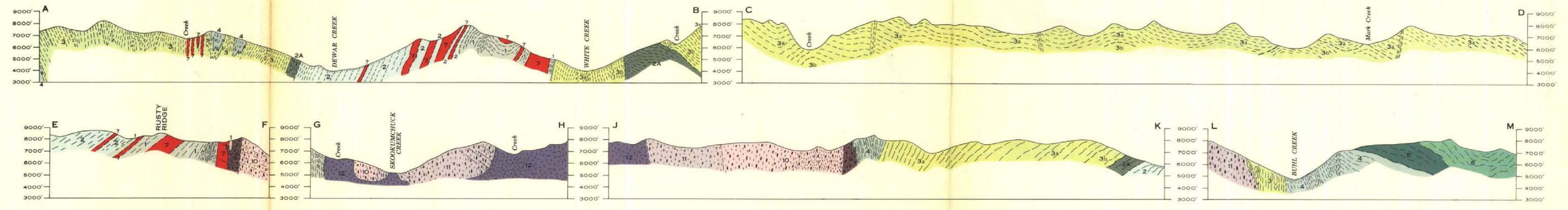


Note: On the above index maps published are shown colored green. Government Areas - Kaslo

3109 M-1

MAP #1
INDEX MAP OF
VAL CLAIM GROUP
KASLO, B.C.
SHEET 82 F/NE
FIRST STATUS EDITION

Date: 30 June
Signed: W. J. Dircks



GEOLOGICAL SERIES

Diagrammatic cross-sections along lines A-B, C-D, E-F, G-H, J-K and L-M

SHEET 82 ^F/₁₆

LEGEND

- MESOZOIC AND/OR CENOZOIC**
- 15, 16 WHITE CREEK BATHOLITH (9-12, 14-16)
15, Aplite
16, Pegmatite
 - 14 Medium-grained quartz monzonite
 - 12 Leuco-quartz monzonite
 - 11 Porphyritic (microcline) quartz monzonite
 - 10 Hornblende-biotite granodiorite
 - 9 Biotite granodiorite
 - 8 Serpentinized clinopyroxenite
 - 7 MOYIE INTRUSIONS
Meta-diorite and meta-quartz diorite
 - 13 FRY CREEK BATHOLITH
Leuco-quartz monzonite
- MESOZOIC OR EARLIER**
- PURCELL UPPER PURCELL**
- 6 DUTCH CREEK FORMATION: buff and reddish weathering, silty dolomite, calcareous quartzite, and argillite; some grey quartzite
- LOWER PURCELL**
- 5 SIYEH FORMATION: light and dark green, laminated argillite, purple, green and grey argillite, green argillaceous quartzite
 - 4 KITCHENER FORMATION: thin laminated, buff weathering, dolomitic and calcareous quartzite, siltstones, and argillite, creamy to buff dolomite and black limestone
 - 3 CRESTON FORMATION: green and grey weathering, green, grey, and purple argillaceous quartzites, meta-siltstones, and argillites, 3a, upper member; 3b, lower member; dark weathering, black to dark grey argillites, arenaceous argillites; recrystallized equivalents of siltstones
 - 2, 2A ALDRIDGE FORMATION (1,2)
Upper Division: 2, Light grey weathering, light to dark grey quartzite with minor partings of black argillite
2A, Rusty weathering, evenly laminated, black and grey argillites and arenaceous argillites
 - 1 Lower Division: rusty weathering, laminated, light coloured, very fine-grained quartzites and argillaceous quartzites



- Areas largely or entirely covered with drift:
- Bedding (inclined, vertical, overturned):
- Bedding (direction of dip known, upper side of bed unknown):
- Foliation (primary in granitic rocks, inclined, vertical):
- Lineation (primary in granitic rocks, inclined, vertical):
- Fault (defined, approximate, assumed):
- Anticlinal axis (defined, approximate):
- Synclinal axis (defined, approximate):
- Plunge of fold axis:
- Basic inclusions (in cross sections):
- Potash feldspar phenocrysts (in cross sections):

Geology by J. E. Reesor, 1950-1952

Cartography by the Geological Cartography Unit, 1957

Base map compiled and drawn by the Army Survey Establishment, R.C.E., Department of National Defence

Air photographs covering this map-area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa, Ontario

Approximate magnetic declination, 22° 11' East



3109

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3109 MAP #2

MAP #2
GENERAL GEOLOGY MAP

To accompany geochemical and geological report by N.J. Dircks on the VAL Group, on Skookumchuck Creek, Fort Steele Mining Division.

DATE: 30 June 1971
SIGNED: N. J. Dircks

MAP 105.3A
DEWAR CREEK
KOOTENAY DISTRICT
BRITISH COLUMBIA
Scale: One Inch to One Mile = 1/63,360
Miles

3109 M-2