

735

REPORT ON THE

GEOLOGY

OF

TORWEST RESOURCES LIMITED

MARE GROUP

NICOLA MINING DIVISION

BRITISH COLUMBIA

Toronto, Ontario

September 21, 1965

A. C. A. HOWE & ASSOCIATES LTD.

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#1 [LOCATION MAP
GEOLOGICAL MAP

SUMMARY

No zones of economic significance have been located on the Marb claims.

A wide zone of diorite breccia containing minor zones of mineralization occurs where the Guichon intrusive rocks contact the andesites and intermediate tuffs of the Nicola series.

The presence of limy members, sometimes favorable for the development of zones of economic significance is indirectly indicated by the presence of pyroxene-rich diorites in the south portion of the southwestern claim group. Since the evidence for the presence of limy members in the Nicola series is inconclusive, and since the programs completed have failed to locate zones of economic significance, no further exploration is warranted at this time.

The property should be maintained in good standing since the important Craigmont orebody occurs nearby.

PROPERTY

The property consists of 52 unpatented mining claims in two groups: The northeastern group of 40 contiguous claims are called:

Marb 1 - 31 inclusive
Marb 34 - 37 inclusive
Marb 39
Marb 59 - 62 inclusive

The southwestern group of 12 contiguous claims are called:

Marb 1 fraction
Marb 43
Marb 51 - 52 inclusive
Marb 67 - 72 inclusive
Apache 1 - 2 inclusive

The claims are recorded at the Mining Recorders Office in Merritt, B.C.

LOCATION

The Marb Group is located in the Nicola and Kamloops Mining Divisions of British Columbia about 12 miles northwest of the town of Merrit.

Co-ordinates of Property

The co-ordinates are approximately 50° 6' N. and 121° 00' W.

ACCESS

The claims can be reached by road from Merritt, B.C. A paved road 8 miles northwest from Merritt reaches the Craigmont Mine Site. A steep gravel road continues 4 miles west to the property.

TOPOGRAPHY

The claims are situated on the eastern flank of Promontory Mountain at elevations ranging from 4,500 to 5,000 feet. This Mountain is part of the surrounding upland region of the Interior Plateau and is well forested.

Outcrop is very scarce on the property most of it being masked by extensive sand and gravel deposits.

HISTORY AND PREVIOUS WORK DONE

Shortly after the discovery of the Craigmont orebody in 1957, Northwestern Explorations Limited and Rio-Canadian acquired large groups to the west of the Craigmont property. In 1958, Northwestern completed geological mapping, geochemical and magnetometer surveys and a partial induced polarization survey. The claims were subsequently allowed to lapse and the ground was acquired by Torwest Resources Ltd. in 1958.

Torwest Resources Ltd. completed geological reconnaissance mapping and partial ground magnetometer and induced polarization surveys. Anomalous areas located by these surveys were tested by diamond drilling.

A total of 19 holes aggregating more than 8,000 feet were drilled and several small copper-bearing zones were located.

GEOLOGY OF THE AREA

Ref. The geology of the area is described in GSC Memoir 249 by W. E. Cockfield.

The claim group overlies the contact of the Jurassic Guichon batholith with the Upper Triassic Nicola series.

The Guichon intrusive is mainly dioritic near its periphery but becomes progressively more acidic towards its centre. Dr. D. M. Carr of the British Columbia Department of Mines has spent several years studying the area and concludes that the intrusive was emplaced dynamically, resulting in the deformation and alteration of the Nicola rocks in contact.

The Nicola series consists of intermediate volcanics, tuffs, and agglomerates with occasional limy sediments and limy tuffaceous horizons.

The overlying Cretaceous Kingsvale Group obscures

parts of the intrusive contact between the Craigmont Mine and the property.

Economic mineralization associated with the Guichon batholith occurs in two ways: First, as deuteric sulphide mineralization in small shears produced in the diorite near the contact during late stages of the intrusion; second, as sulphide bodies developed by hydrothermal or deuteric solutions in intruded limy members of the Nicola series. The Craigmont orebody is of the latter type. The ore zones occur both in the impure limestone which impinges on the contact, and in the developed jointing system in the intrusive near the contact.

GEOLOGY OF THE PROPERTY

The northeastern part of the claim group overlies quartz diorite of the Guichon batholith. The diorite is medium grained and composed essentially of 60 per cent oligoclase and orthoclase with biotite and hornblende. Quartz comprises up to 10 per cent of the rock. A three directional jointing system and faint gneissosity characterize the quartz diorite in the north and northeast portions of the property.

The south and southwestern portions of the property

are underlain mainly by andesites and intermediate tuffs of the Nicola series.

The dioritic zones of the intrusive near the contact apparently are due to the incorporation of the volcanics of the Nicola series. Rare pyroxene-rich zones, mainly coarser grained, are probably the result of the assimilation of limy members of the Nicola series. Primary foliation in the diorite results in gneissosity parallel to intrusive contact, but some secondary gneissosity not related to the strike of the contact has been developed during the later stages of the intrusion. Envelopment of andesitic members of the Nicola series near the contact usually resulted in a wide zone of diorite breccia containing slightly altered, angular blocks of volcanics. Apophyses of diorite and larger remnants of re-orientated volcanics also outcrop in the breccia zone.

The softer and more limy members of the Nicola series do not outcrop on the property. This may be due to the lower weathering and/or the masking of these members by the extensive overburden. The presence of some limy members may be indicated by the rare pyroxene-rich, coarser grained diorite.

Sulphide mineralization in the breccia zone is restricted to two types: First, to disseminated pyrite and pyrrhotite in the slightly altered volcanic fragments; and second, to

the deuteric pyrite, pyrrhotite and chalcopyrite mineralization in small shears developed during the later stages of intrusion. Several of these small copper-bearing zones have been located by the geophysical surveys and during the drilling program completed.

The deuteric or hydrothermal mineralization of the softer more limy members where they impinged upon the contact can result in copper-bearing zones such as the Craigmont ore-body. These more favourable beds do not outcrop on the property but extensive overburden masks most of the contact zones. The presence of occasional pyroxene-rich, coarse grained diorite indicates that limy members may exist south of the contact on the southwestern group of claims.

CONCLUSIONS AND RECOMMENDATIONS

A wide zone of diorite breccia is produced when rocks of the Guichon intrusive contact the andesites and intermediate tuffs of the Nicola series. Minor zones of mineralization have been located within this breccia but no zone of economic significance has been found.

Limy members of the Nicola series, where they impinge on the intrusive contact, can be favourable to the

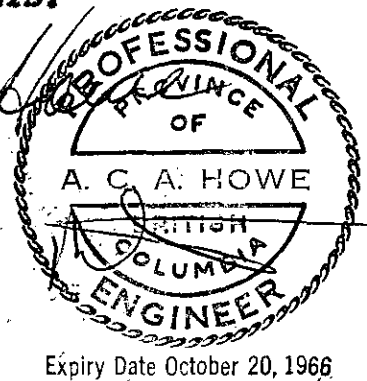
development of zones of economic mineralization. However, no limy horizons outcrop on the property. Pyroxene-rich diorites which occasionally outcrop along the south portion of the southwestern claim group indirectly indicate the presence of limy members which are covered by the extensive overburden of the area. Since the evidence for the presence of limy members is inconclusive, and since the programs completed have failed to locate zones of economic significance, no further exploration on the property is warranted at this time.

Work done should be filed for assessment purposes and the property kept in good standing because of its proximity to the Craigmont orebody.

Respectfully submitted,
A. C. A. HOWE & ASSOCIATES LTD.


A. C. A. Howe, P.Eng.


J. C. Rowntree, B.Sc.



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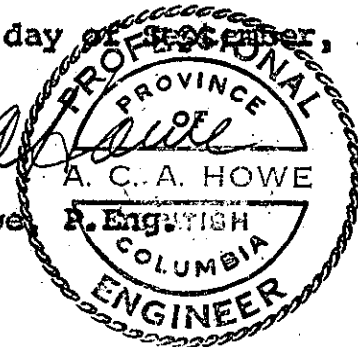
CERTIFICATE

I, A. C. A. Howe, of the City of Toronto, in the County of York, Province of Ontario, hereby certify that:

1. I am a Mining Engineer with offices at 826 - 159 Bay Street, Toronto, Ontario.
2. I am a graduate of London University, England, B.Sc. in 1949.
3. I am a member of the Association of Professional Engineers of Ontario, and I have made application for membership of the Association of Professional Engineers of British Columbia.
4. I have no interest, direct or indirect, in either the property or securities of Torwest Resources Limited, nor do I expect to receive any such interest.
5. This report is based upon the results of a geological survey of the property made by J. C. Rowntree, B.Sc. during the period from August 12 - September 1st inclusive and on a report made by him to me. J. C. Rowntree is employed by A. C. A. Howe & Associates Ltd. from the office at 540 Burrard Street, Vancouver, and his work is well known to me.

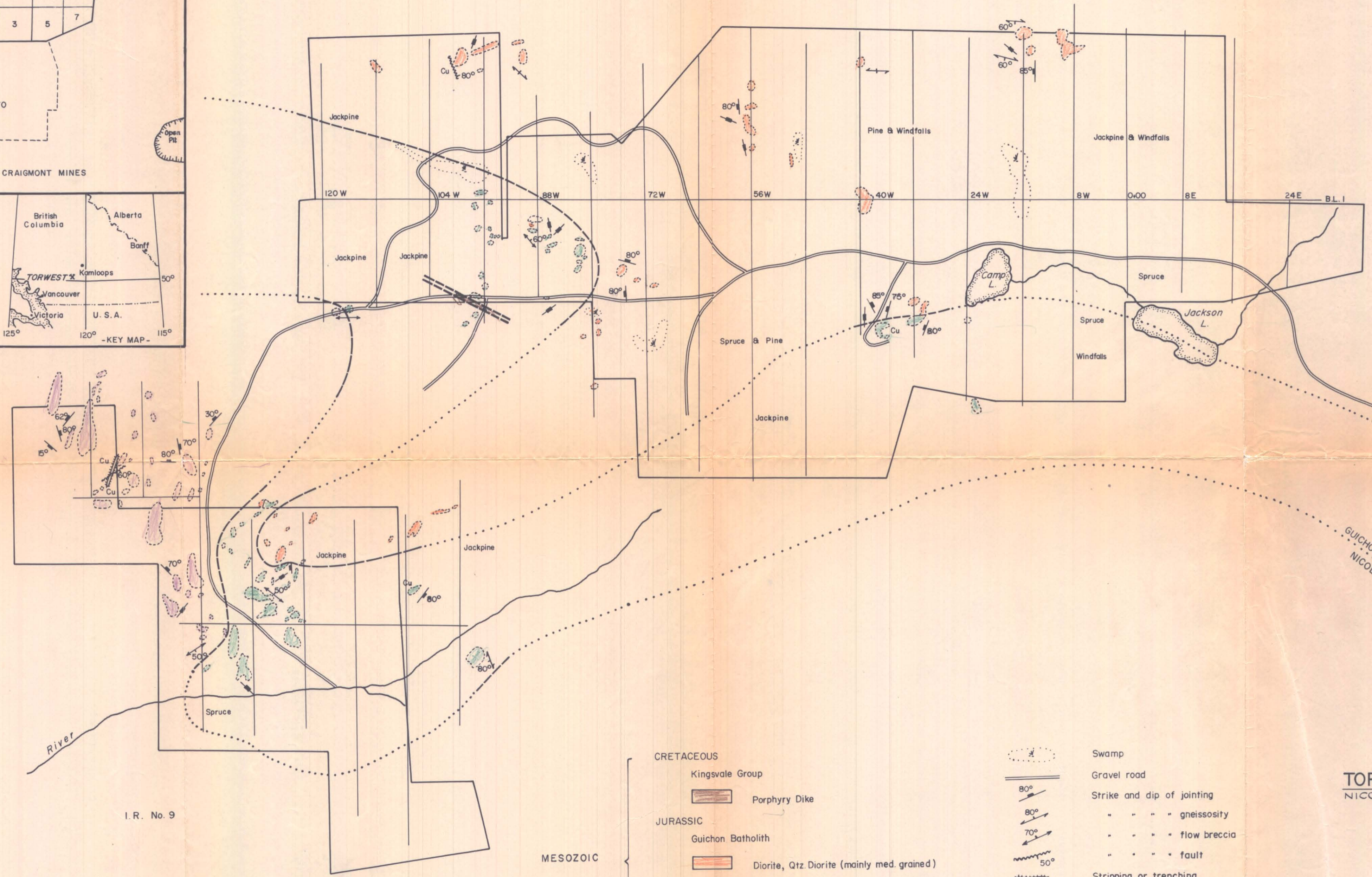
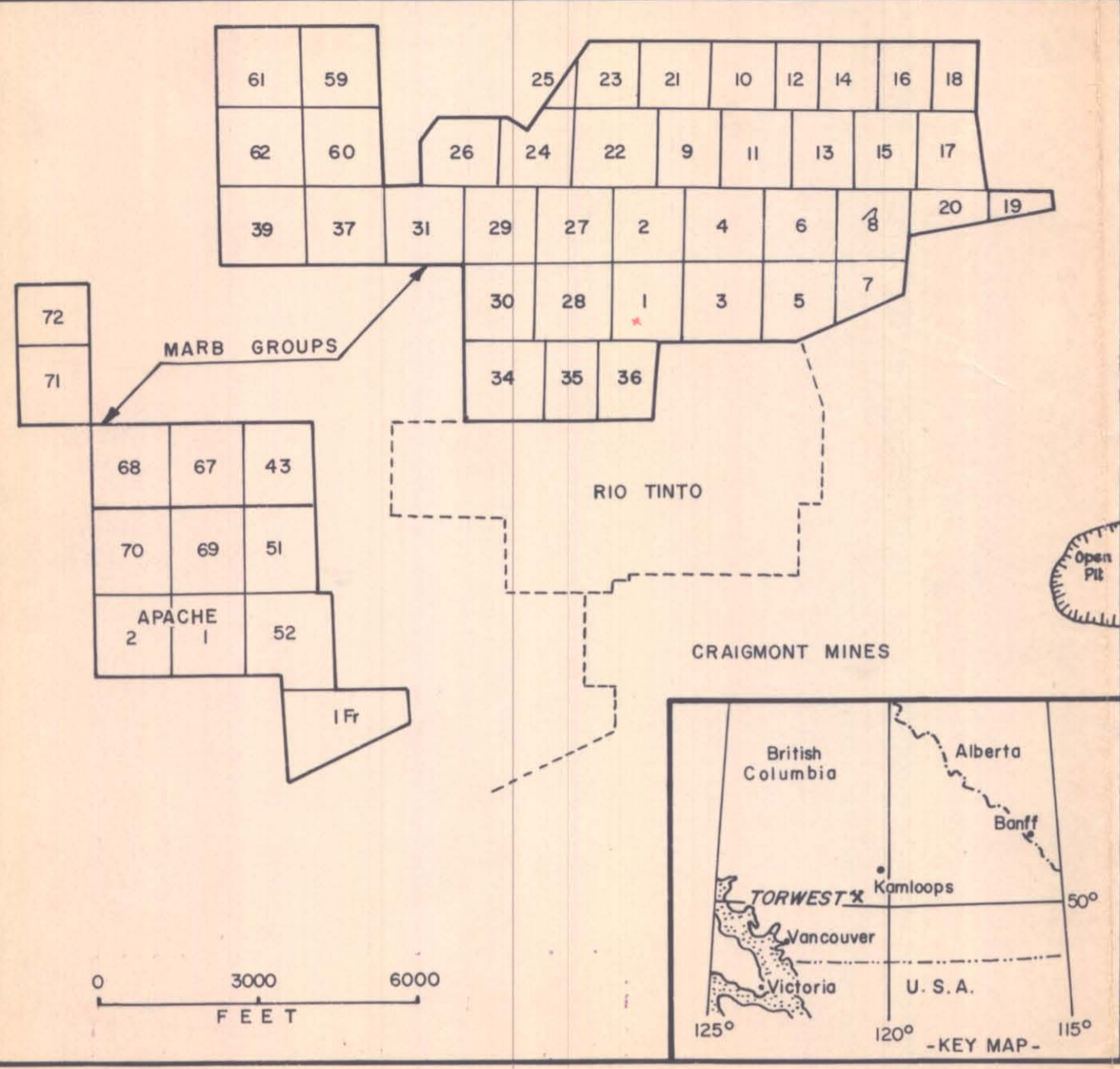
DATED At Toronto, Ontario, this 21st day of September, 1965.


A. C. A. Howe



Expiry Date October 20, 1966

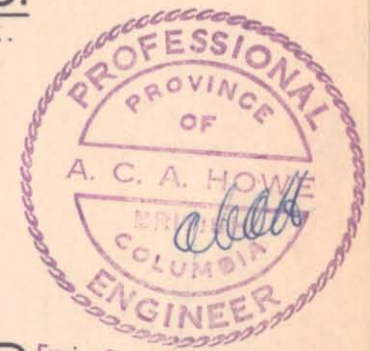
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Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **735** MAP #1

- | | | | |
|------------|--|--|------------------------------|
| CRETACEOUS | Kingsvale Group | | Swamp |
| | Porphyry Dike | | Gravel road |
| JURASSIC | Guichon Batholith | | Strike and dip of jointing |
| | Diorite, Qtz Diorite (mainly med. grained) | | " " " gneissosity |
| | Diorite Breccia (of Andesitic rocks) | | " " " flow breccia |
| MESOZOIC | | | " " " fault |
| TRIASSIC | Nicola Group | | Stripping or trenching |
| | Andesite, Basaltic Andesite (locally hornfelsed) | | Copper showing |
| | | | Outcrop boundary |
| | | | Geological contact, definite |
| | | | " " probable |
| | | | " " possible |

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NICOLA MINING DIVISION - B.C.
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