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# GEOLOGICAL REPORT

on the

# PEREGRINE and FALCON A MINERAL CLAIMS

Omineca Mining Division
British Columbia

for

MULTINATIONAL RESOURCES INC.

by

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Victoria, B.C. May 6, 1985

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SUMMARY

Multinational Resources Inc. owns the Peregrine and Falcon A mineral claims which area situated in the Toodoggone River area of north-central British Columbia.

The mineral claims are 300 km north of Smithers and are accessible by fixed-wing aircraft and helicopter.

The Toodoggone River area is a significant epithermal precious metals district. Proven deposits include the formerly producing Baker gold-silver mine and the Lawyers property which has a reported reserve of 1 million tonnes grading 7.27 grams/tonne gold and 254 grams/tonne silver. The Lawyers and several other significant gold-silver prospects in the area are hosted by early Jurassic Toodoggone volcanic rocks.

The Peregrine and Falcon A mineral claims cover areas underlain by early Jurassic volcanic rocks which are intruded by granitic rocks of similar age. A regional northwest striking fault zone passes through the Peregrine claim.Geochemical sampling of adjacent claims to the south has indicated a number of zones with anomalous gold and silver values which apparently extend into the Peregrine claim. Significant gold values occur in several zones on the JD property which adjoins the subject claims on the west.

A two-phase exploratory program is recommended to evaluate the Peregrine and Falcon A mineral claims. Phase I, to include geochemical sampling and analysis, geological mapping and prospecting, is estimated to cost $50,000. A second phase, contingent on results of Phase I work, and recommended to include follow-up sampling, has estimated costs of $60,000.

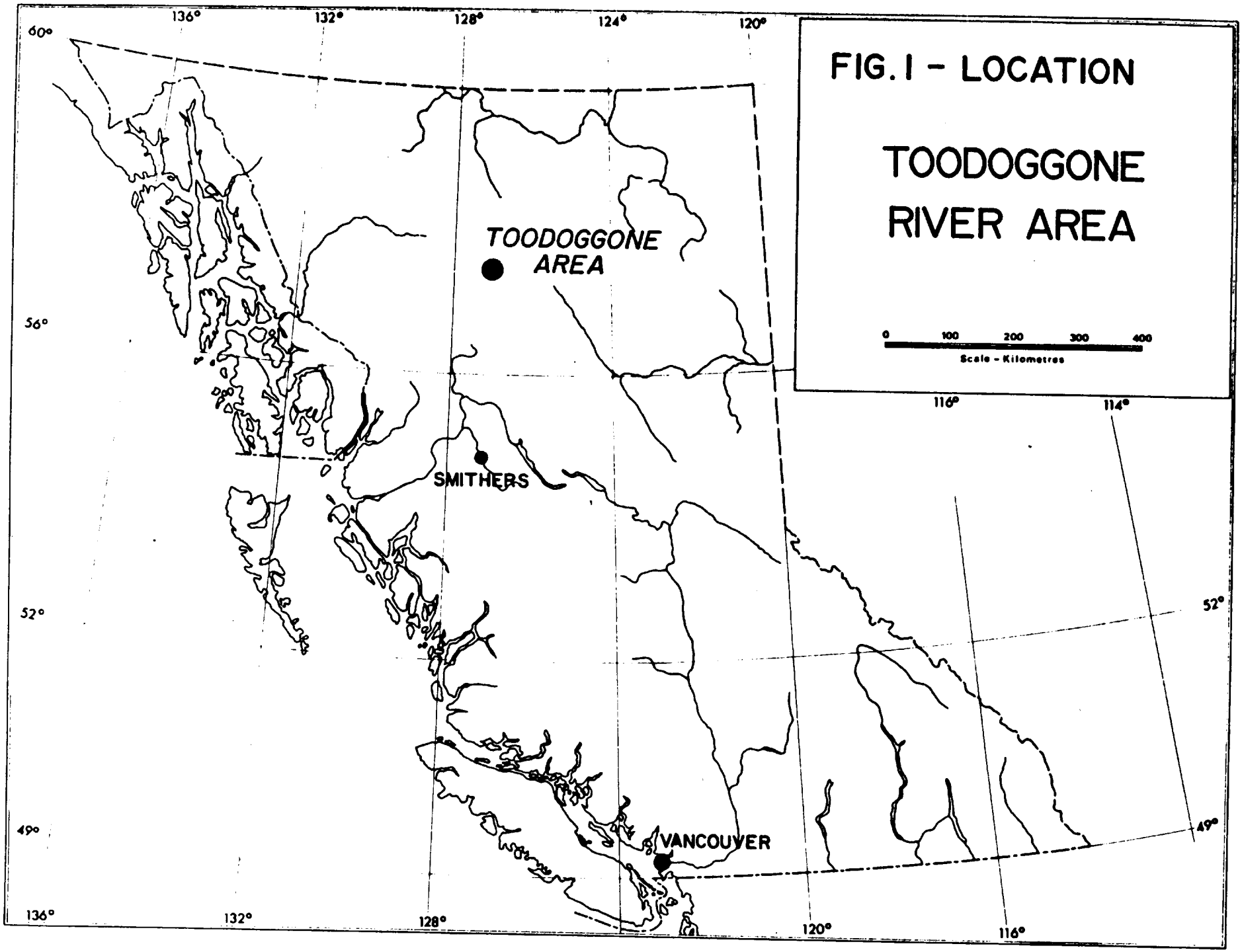
FIG. I - LOCATION
TOODOGGONE RIVER AREA
TOODOGGONE AREA
SMITHERS
VANCOUVER
0 100 200 300 400
Scale - Kilometres
60°
56°
52°
49°
136°
132°
128°
124°
120°
116°
114°

## INTRODUCTION

Multinational Resources Inc. owns the Peregrine and Falcon A mineral claims, comprising 38 units and situated in the Toodoggone River area of north-central British Columbia.

This report, prepared at the request of Multinational Resources Inc., is based principally on published and unpublished maps and reports pertaining to the general Toodoggone area. These are listed in the References section at the end of this report.

The writer has not visited the mineral claims, but has a good knowledge of the area based on numerons property examinations and supervision of several exploration programs over the past 14 years.

## LOCATION AND ACCESS

The Peregrine and Falcon A mineral claims are situated 300 km north of Smithers in the Toodoggone River area of north-central British Columbia (Figure 1). The geographic centre of the claims is at latitude 54°27' North and longitude 127°06' West in NTS map-area 94E/6E.

Access into the Toodoggone River area is by fixed wing aircraft to a 1600 metre long gravel airstrip on the Sturdee River (Figure 2). The claims are a 35 km helicopter flight north of the airstrip.

A road currently links Baker mine and the Lawyers

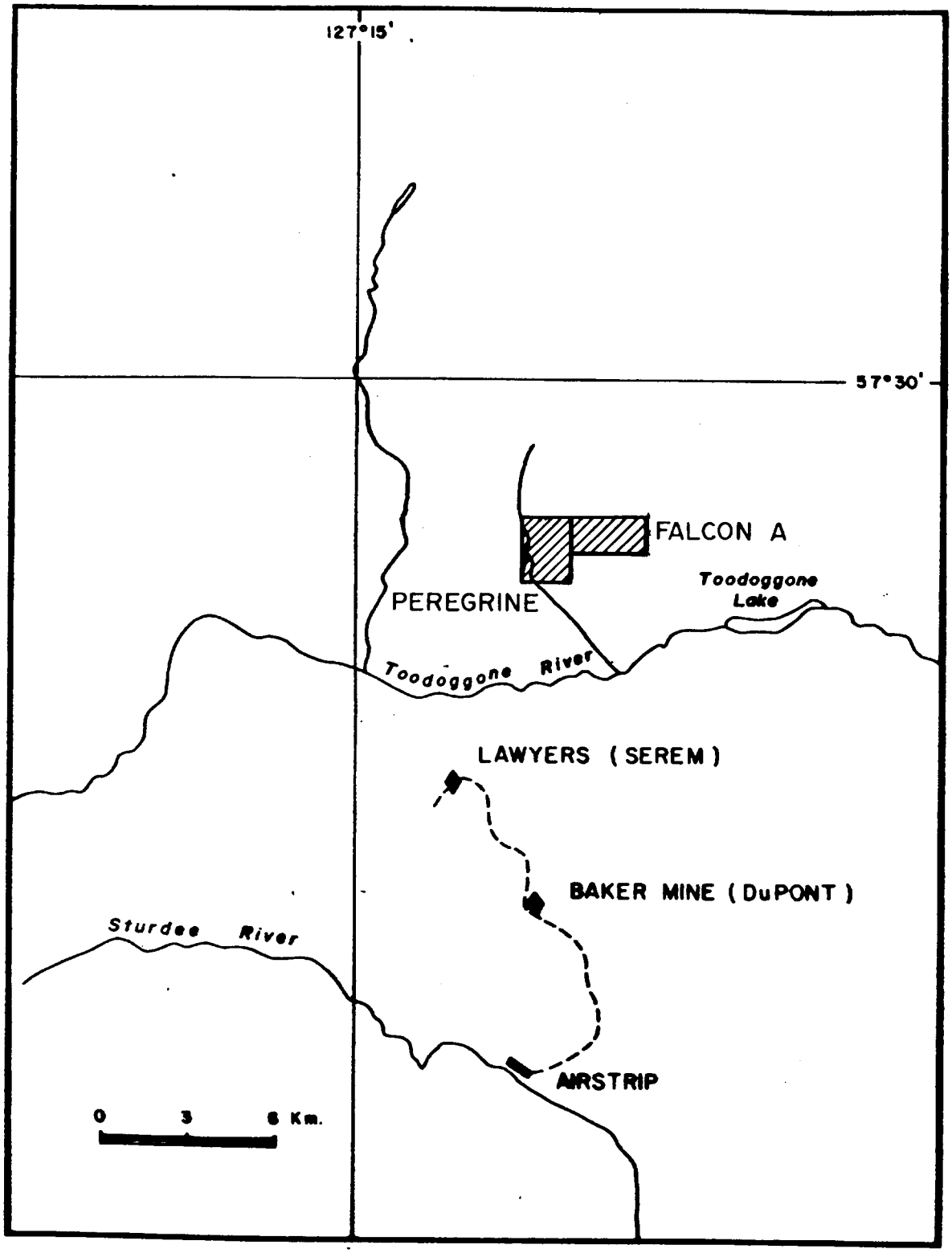


**FIGURE 2 – LOCATION** – PEREGRINE AND FALCON A MINERAL CLAIMS

property with the Sturdee airstrip (Figure 2). An application has been made to the Provincial Government for assistance in extending the Omineca Mining Road into the area from its present terminus 70 km to the southwest. A positive decision in this regard would have a major impact on current logistics by affording conventional access to Prince George and points south.

## MINERAL PROPERTY

The Peregrine and Falcon A modified grid claims comprise 38 units in the northern part of the Omineca Mining Division (Figures 2 and 3).

The claims are believed to have been located in accordance with procedures as specified by the Mineral Act Regulations for the Province of British Columbia. The claims were located recently, subject to winter conditions.

The writer has reviewed data provided by locators of the claims and claim records on file with the Mineral Titles office, Victoria.

Details of the claims are as follows:

| Name of Claim | Units | Record Number | Expiry Date |
|---|---|---|---|
| Peregrine | 20 | 6930 | March 25,1986 |
| Falcon A | 18 | 6934 | " " |

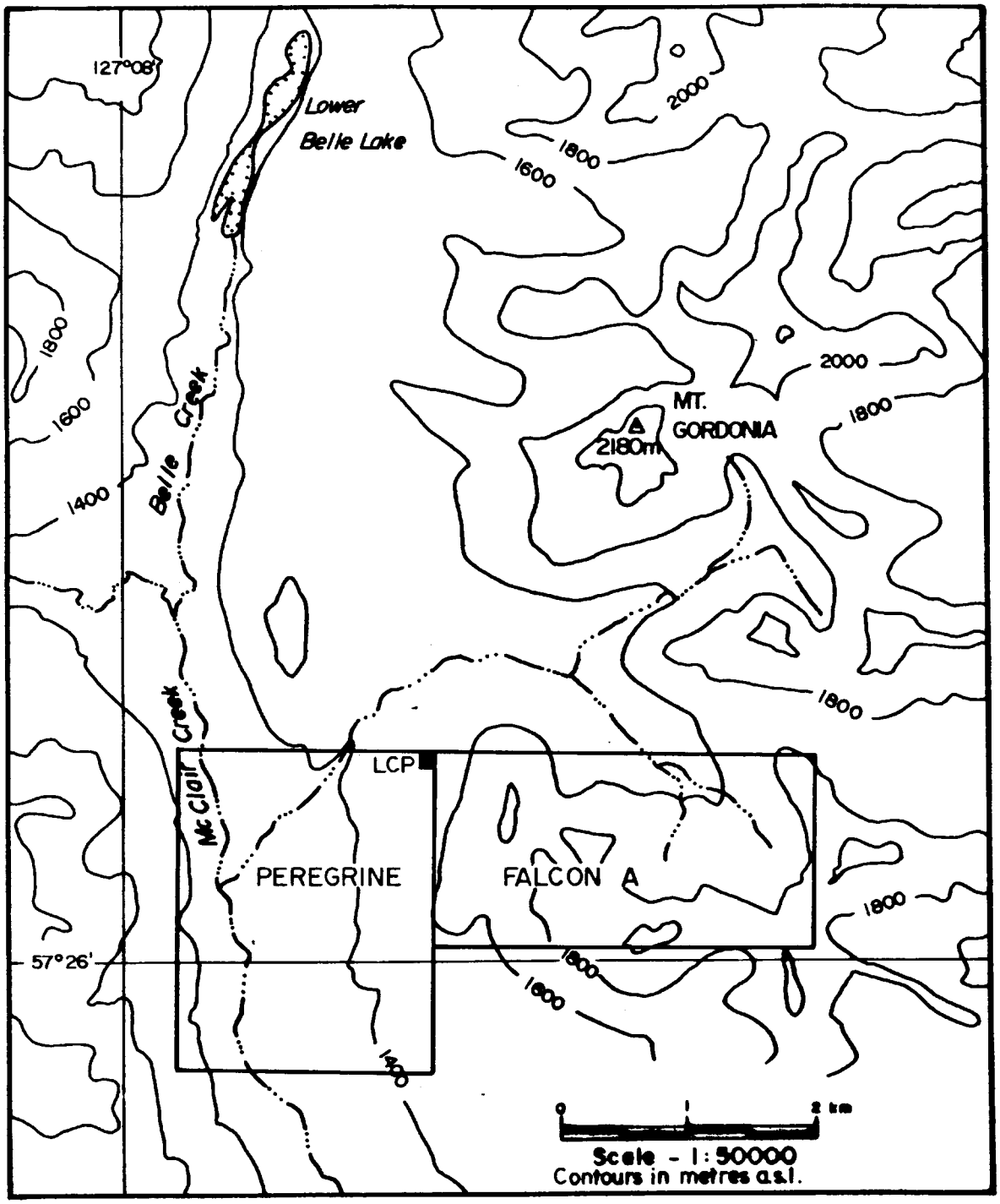


FIGURE 3 - PEREGRINE AND FALCON A MINERAL CLAIMS

PHYSICAL FEATURES

The Toodoggone River area is on the east side of the Spatsizi Plateau, an open gently rolling upland surface dissected by wide valleys. The Toodoggone area proper features more rugged relief, broken by broad, alluvium-filled valleys. Steep-walled cirques are common on north-facing slopes while southerly slopes are generally more gentle and rounded.

The Peregrine claim mainly covers the open McClair Creek valley (Figure 3), and elevations within the claim range from 1280 metres along McClair Creek to 1600 metres along the east boundary. McClair Creek occupies a 30 to 60 metre deep canyon in places and is flanked on the east by gravel benches and relatively moderate slopes. Topography rises abruptly to the west.

The Falcon A claim covers more rugged topography including steep north-facing cirques in the central part of the claim. Elevations exceed 2000 metres along the claim south boundary.

The area adjacent to McClair Creek is open tundra with locally dense buck brush and willows. Alpine spruce, fir and balsam fringe the base of slopes extending to about 1600 metres elevation, above which is typically open alpine country.

Bedrock is well exposed along McClair Creek, tributary drainages and on steeper slopes. Abundant felsenmeer on

slopes is believed to be close to bedrock.

Much of the claims area is snow free between June and October.

## HISTORY

The Toodoggone area was investigated for placer gold in the 1920's and 1930's. A public company, Two Brothers Valley Gold Mines Ltd., undertook considerable test work including drilling in 1934. Most of this work was directed to extensive gravel deposits principally near the junction of McClair Creek and Toodoggone River a few kilometres south of the present claims.

Lead-zinc mineralization near the north end of Thutade Lake and south of Baker mine was also investigated in the 1930's.

Gold-silver mineralization was discovered on the Chappelle (Baker mine) property by Kennco Explorations (Western) Ltd. in 1969. DuPont of Canada Exploration Ltd. acquired the property in 1974 and began production at a milling rate of 90 tonnes per day in 1980.

Numerous other gold-silver discoveries were made in the area in the 1970's and 1980's, including the Lawyers deposit which was discovered by Kennco in 1973 and optioned to SEREM Ltd. in 1979. Work on this property to date has included considerable trenching, drilling and underground development and a feasibility study is currently

underway.

The Toodoggone area has been the scene of intense exploration activity during the past four years with numerous companies exploring over 3,000 mineral claim units. Exploration and development expenditures to date are estimated to be in the order of $33 million.

Placer claims were located along a section of McClair Creek within the present Peregrine claim in the 1930's as part of the Two Brothers Valley Gold Mines Ltd. holdings. As noted previously, most work was done near the junction of McClair Creek and Toodoggone River and little is known of results in this area. Placer leases were located in the same area several years ago, but these have since lapsed.

Amax held claims south of the present Peregrine and Falcon A claims in 1973 (Allen,1973) and conducted preliminary geological and geochemioal surveys. These claims were relocated as the Belle 1 and 2 claims by Golden Rule Resources Ltd. in 1980 and adjoin the Peregrine claim on the south. Texasgulf (Kidd Creek Mines Ltd.) extended the Energex holdings in 1980 to cover part of the present Peregrine claim and reconnaissance geology and geochemistry was carried out adjacent to McClair Creek.

## REGIONAL GEOLOGICAL SETTING AND MINERAL DEPOSITS

The Toodoggone River area is situated near the eastern

margin of the Intermontane tectonic belt. Oldest rocks in the area are late Paleozoic limestones in the vicinity of Baker mine where they are in fault contact with late Triassic Takla Group volcanic rocks.

A distinctive lithologic volcanic sequence of early Jurassic age, called Toodoggone volcanics, is a subaerial pyroclastic assemblage of predominantly andesitic composition (Pantleleyev,1983). These unconformably overlie, or are in fault contact with older rocks, principally Takla Group volcanic rocks and undivided Hazelton Group feldspar porphyry flows and fragmental rocks.

Toodoggone volcanic rocks are contained in a 100 by 25 kilometre northwest-trending belt extending from Thutade Lake in the south to Stikine River in the north.

Several major stratigraphic subdivisions of Toodoggone volcanics have been identified (Panteleyev,1982,Diakow, 1983). These and older layered rocks of the Takla and Hazelton Groups are cut by Omineca granitic rocks of similar early Jurassic age near the eastern margin of the volcanic belt, and by subvolcanic intrusions related to Toodoggone volcanics.

Clastic sedimentary rocks of the Cretaceous-Tertiary Sustut Group overlie older rocks near the Stikine River and form the southwestern exposed margin of the Toodoggone volcanic belt.

Regional fault systems trend northwesterly and northerly

throughout the Toodoggone area.

Several styles of economic mineralization have been identified (Schroeter,1981) of which the most important are epithermal precious and base metal deposits hosted principally by lower and middle units of Toodoggone volcanics. Gold-silver mineralization occurs in fissure veins, quartz stockworks, breccia zones and silicified zones in which ore minerals are fine-grained argentite, electrum, native gold and silver and lesser chalcopyrite, galena and sphalerite. Alteration mineral assemblages are typical of epithermal deposits with internal silicification, clay minerals and locally alunite, grading outward to sericite and clay minerals, chlorite, epidote and pyrite.

Examples include Baker mine, a fissure vein system developed in Takla Group volcanic rocks, but spatially related to dykes believed to be associated with Toodoggone volcanic rocks. Pre-mining indicated reserves were 90,000 tonnes grading 30 grams/tonne gold and 600 grams/tonne silver. Recovered grades during the three year mine life were about half the indicated grades due to initial mill recovery problems and greater than expected dilution during mining.

The Lawyers deposit has gold-silver mineralization in banded chalcedony-quartz stockwork veins and breccia zones developed in Toodoggone volcanic rocks. Three potential

ore zones have been defined to date and recently announced reserves (Schroeter,1985) are 1 million tonnes grading 7.27 grams/tonne gold and 254 grams/tonne silver. Numerous other epithermal gold-silver deposits in the area are hosted by lower and middle units of the Toodoggone sequence. These include the Sha, Saunders, Graves, Moosehorn, Mets, Metsantan, Al, JD and Goden Lion prospects. It is interesting to note that most of the known deposits and occurrences are adjacent to two northwesterly striking regional fault structures; the Sha-Baker-Lawyers-Alberts Hump structure and the Saunders-McClair fault system which passes through the Peregrine claim.

Significant gold values associated with base metal mineralization have been encountered in several zones on Energex Minerals Ltd.'s JD property which adjoins the Peregrine claim on the west.

Soil, rock and stream sediment geochemistry have proven to be useful tools in the search for epithermal precious metals deposits in the area. Gold and silver give diagnostic signatures, but analyses for copper, lead and zinc are also helpful.

## PROPERTY GEOLOGY

The Peregrine and Falcon A mineral claims are underlain principally by early Jurassic Toodoggone and/or Hazelton Group volcanic rocks which are intruded by Omineca grano-

diorite and quartz monzonite. The Saunders-McClair regional fault system extends along McClair Creek in the west part of the Peregrine claim (Gabrielse et al,1976).

The position of the contact between the volcanic and granitic rocks is imprecisely known. Immediately south, on the Belle 1 and 2 claims, intensely sheared volcanic rocks in McClair Creek canyon are described as being cut by syenite dykes (Fox,1982).

Previous work by Kidd Creek Mines Ltd. (Sutherland,1981) in the area of the present Peregrine claim refers to volcanic rocks on the west side of McClair Creek as being in fault contact with a multiphase granitic complex on the east. The northern contact of the intrusive is believed to trend easterly through the southern part of the Falcon A claim.

Toodoggone and/or Hazelton Group volcanic rocks in the general area of the claims are variously described (Sutherland,1981,Fox,1982) as being a west-northwest striking, gently south dipping sequence of green crystal and lapilli tuffs and coarser pyroclastic rocks, intruded by rhyolite dykes west of McClair Creek.

Intensely fractured and sheared granitic rocks in McClair Creek are iron-stained due to the presence of locally abundant quartz-sericite pyrite in fractures. No precious or base metal values have been reported from these zones (Sutherland,1981).

Stream sediment samples from drainages on the slope west of McClair Creek, and along the western boundary of the Peregrine claim yielded weak silver values in the 1-2 ppm range and moderate to strongly anomalous gold values ranging from 40 to several hundred ppb (Sutherland, 1981). These probably reflect known mineralization on the adjacent Energex JD property.

Soil sampling of the Belle 1 and 2 claims (Fox,1982) immediately south of the Peregrine claim indicated northwest trending linear areas with anomalous gold and silver values of up to 750 ppb and 2.7 ppm respectively.These apparently extend onto the present claim. Spot high values in soils include 18.2 ppm silver and 685 ppb gold from an area adjacent to the southwest corner of the Peregrine claim. Rock samples from the same area (Fox,1982) returned values of up to 184 ppm silver and 6700 ppb gold. Three values in soils apparently within the southern part of the present claim were 230,290 and 395 ppb gold.

Airborne geophysics over the Belle 1 and 2 claims (Fox,1982) showed no VLF-EM response but did reflect northeast magnetic features reflecting faults and shear zones of similar trend noted in bedrock.

## CONCLUSIONS

The Peregrine and Falcon A mineral claims are situated in the Toodoggone River area which is noted for epithermal

gold-silver deposits and occurrences.

The Peregrine mineral claim is apparently underlain by early Jurassic volcanic rocks known to host precious metals mineralization elsewhere in the district. Previous limited work in the area of the present Peregrine claim has indicated the presence of anomalous gold and silver values in both soil and stream sediment samples. Intensely fractured and sheared granitic rocks in McClair Creek contain locally intense quartz-sericite-pyrite alteration.

The Falcon A mineral claim covers a contact area between volcanic rocks and Omineca granitic rocks. Similar contact areas in the Toodoggone area are characterized by elevated silver and base metal geochemical values in soils, stream sediments amd rock samples.

An exploratory program of the claims area is warranted on the basis of their geological setting and results of previous exploratory work on adjacent areas.

## RECOMMENDED PROGRAM

A first phase program of geochemical sampling, geological mapping and prospecting is recommended for the Peregrine and Falcon A mineral claims.

Soil and/or rock samples should be collected at 50 metre stations along 100 metre spaced east-west flagged compass lines on the Peregrine claim. Care should be taken to avoid organic material in lower swampy areas and the

gravel benches east of McClair Creek because of probable extensive thickness of overburden and possible contamination by weak concentrations of placer gold. Stream sediment samples should be collected from tributary drainages on the east side of McClair Creek. Soil, rock and stream sediment samples should be analyzed for gold, silver copper, lead and zinc.

More rugged topography on the Falcon A claim will necessitate collection of samples at 50 metre intervals along 100 metre spaced elevation contours where possible. Poor soil development in higher areas will predicate collection of talus fines samples and/or bedrock.

Geological mapping should provide a better understanding of the position and nature of the volcanic-intrusive contact. This area and apparent alteration-mineralization zones should be diligently prospected.

Contingent on favourable results being obtained from first phase work, phase two would include more detailed geochemical sampling and possibly hand trenching in selected areas.

High support costs are inherent in working in this relatively remote area. Accordingly, it would be advantageous to perform as much warranted follow-up work as possible during the first phase program.

COST ESTIMATE

PHASE I

| | |
|---|---|
| Geological mapping, prospecting | $4000.00 |
| Crew wages | $8000.00 |
| Camp and support costs | $6000.00 |
| Mobilization-demobilization | $5000.00 |
| Helicopter support | $5000.00 |
| Analytical costs | $11000.00 |
| Engineering, supervision | $3000.00 |
| Report preparation | $1500.00 |
| Contingencies | $6500.00 |
| Total | $50000.00 |

PHASE II

| | |
|---|---|
| Follow-up geochemical sampling, hand trenching | $60000.00 |

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CERTIFICATE

I, NICHOLAS C. CARTER, do hereby certify that:

1. I am a Consulting Geologist resident at 1410 Wende Road, Victoria, British Columbia.

2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962), and the University of British Columbia with Ph.D.(1974).

3. I am a registered Professional Engineer in the Association of Professional Engineers of British Columbia.

4. I have practised my profession in eastern and western Canada and in parts of the United States over the past 24 years.

5. This report is based on research of published and unpublished reports and maps and on my background knowledge of the Toodoggone River area.

6. I have no direct or indirect interest in the Peregrine and Falcon A Mineral Claims or in Multinational Resources Inc.

N.C. Carter, Ph.D. P.Eng.

Victoria, B.C.
May 6,1985