

007572

FRANCES RIVER SYNDICATE

Summary Report On

PROSPECTING AREAS

**Watson Lake and Coal River
Sheets, Y.T.**

Submitted to

Frances River Syndicate

Comprised of

**Canex Aerial Exploration Ltd.
Newcomex Canadian Exploration Ltd.
Kerr-Addison Gold Mines Ltd.
Anglo-Noronian Ltd.**

November 24, 1962

**Dr. A.E. Aho
Syndicate Manager**

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- Photo No. 1 View east over major E-W lineament
- Photo No. 2 Helicopter on limonite seepage at Mt. Armas

GENERAL E-W LINEAMENT ZONE

The Syndicate was organized on the premise that a major ESE zone of lineaments, suggestive of tear faulting and change in regional trends similar to the Osburn fault trend in Idaho and the Walker line faults in southwest Arizona, extended through the Watson Lake and Coal River areas and that similarly, major mineral deposits may be associated with this favourable type of regional structure.

Walker Line of
W. Nevada W
NASH.

The 1962 season's work so far has vindicated this premise both in the new lead-zinc-silver discoveries, in the changes in trends and rock types and in indicated anomalous structures along this general east-west zone. Geologic reconnaissance by helicopter has been most useful and has defined three general areas in which more intensive prospecting, geology and geochemistry should be done. All reconnaissance details are on file at 303-355 Burrard Street, but the general description of the three areas, Oscar Lake, Quartz Lake and Beaver River, is given below.

OSCAR LAKE (See also Field Report No. 4)

The southern part of the Oscar Lake-Mt. Murray area has been flown over with Super Cub reconnaissance and two weeks were spent by Turja and Wolfe in prospecting from Stewart Lake to Oscar Lake.

Carbonatized serpentine was found along the northern extent of the Tom Lake serpentine-gabbro-gneiss belt at Oscar Creek.

From Tom Lake a serpentine belt projects north through Oscar Creek toward Oscar Lake which lies in a belt of sedimentary rocks between a mica-rich granitic body on peak 5047 to the east and a large granitic intrusive belt which appears to form the high ridges above timberline northwest of the lake and north to Mt. Murray and beyond. At about 5000 feet elevation at the granitic contact on the center spur northwest of Oscar Lake Turja and Wolfe found a zone of vesuvianite skarn with massive pyrrhotite with minor copper in one place and scattered spots of galena in another. The pyrrhotite did not contain any copper, tungsten or nickel; the minor galena showed 3.9 oz/ton silver to 1.9% lead.

Contact.

West of Frances River this general area is bounded by chert and shale similar to that on the west side of the Hunder-Ritco lead-zinc area, therefore the western part of this general area may be favourable for similar deposits even though it lies on the other side of the major E-W lineament.

In summary, the Oscar Lake-Mt. Murray area should be subjected to closer prospecting, geologic mapping, and geochemistry for the following reasons.

1. It lies north along regional strike from the new lead-zinc-silver discoveries.
2. Signs of mineralization have been found .
3. Presence of varied granitic rocks and ultrabasics, and of anomalous structure due to disturbance by the granitic rocks make it geologically favourable.
4. The area, traversed by the Canada Tungsten road 4 miles north of Mt. Murray, is almost as accessible as the Mt. Randere discovery area.

QUARTZ LAKE (See also Field Report No. 4)

The Quartz Lake vicinity and areas to the northeast were covered by helicopter reconnaissance and are described further in the enclosed report by Gordon Davis.

From the Asarco lead-zinc-silver deposit at Quartz Lake (reported to contain $1\frac{1}{2}$ million tons 15% combined and 5 oz/ton silver with additional possibilities) there is a divergence of formational trends, a granitic stock 8 miles NE of Quartz Lake, a northeast metamorphic belt extending beyond this, then another break in trend of the ranges. North of the area between the Coal and West Coal rivers, rusty skarn zones occur at a major granitic contact.

Prospecting, some geologic mapping, and geochemistry are definitely warranted northeast of Quartz Lake because of (1) the sharp changes in trends, (2) the granitic and metamorphic belt, (3) discontinuities in the trend, and (4) occurrence of the Asarco deposit on the southwest end of this zone, and of skarn to the north. The work should be concentrated northeast to about latitude $60^{\circ}55'N$, taking in the discontinuous part of the range.

An effort should be made to obtain Asarco's geologic map of the Quartz Lake vicinity.

contact.

Look!

GUSTY LAKES - BEAVER RIVER AREA (See also Field Reports Nos. 4 and 5)

Helicopter reconnaissance of the headwaters of Beaver River (Gusty Lakes - Toobally Lakes area) has shown this area to consist of an assemblage of limestones, quartzites, extensive volcanics, and shales or slates, intruded in at least one locality by diorite, and folded into a regionally anomalous structure. Seventeen claims, AR 1-13, and RA 1-4 have been staked to cover four limonite seepages on Mt. Armas (peak 3314) in case these locally unique occurrences, after closer geochemical investigation, prove to be related to mineral deposits of importance. Preliminary prospecting of two sections at Mt. Armas and west of Gusty Lakes, revealed only the limonite seepages and some NE faulting.

The general area of the Beaver River headwaters definitely warrants close geologic mapping, geochemistry, and intensive prospecting next year for the following reasons.

1. It is apparently the easternmost disturbed, intruded, and mineralized area in the Syndicate's proposed area of operations. It lies along the westward projection of an east-west structural disturbance with related uplift on the LaBiche sheet to the east; suggesting underlying discontinuity or buttressing effects and consequent favourable tear-faulting and uplift in the basement rocks.

2. Anomalous E-W and N-E structural trends with varied rock types and one or more intrusives occur at the headwaters of Beaver River.

3. Rumoured copper mineralization and 350-ounce silver float reported by Hugo Brodell are attributed to this area.

4. Several limonite seepages occur in the area and the quartzites, volcanics, and diorite are suggestive of similar rocks just north of the Mayo silver district.

The quartzites, in particular, appear to be similar to Keno Hill quartzites which have recently been dated as Upper Paleozoic or Early Mesozoic by the Geological Survey of Canada. Thus the reported 350-ounce silver float in this area of anomalous structure and similar genetic geologic environment may prove significant in view of concepts of association of certain types of mineralization with specific rock types.

In spite of rather extensive overburden in places,

mine

the writer feels that this area may be the most promising of the three.

CONCLUSIONS

The three selected areas should all be covered next season while the Syndicate retains an advantage.

RECOMMENDATIONS

1. For the 1963 season a total of 19 men should be placed in the field as follows:

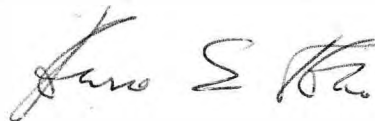
Prospector)	Oscar Lake
Prospector/Geologist)	
Prospector)	Quartz Lake
Prospector/Geologist)	
Prospector)	
Prospector)	
Geologist)	Beaver River
Assistant in geochemistry)	
Geologist in charge		
Assistant		

2. An expeditor, shared jointly with the drilling programme, should be stationed in Watson Lake to permit more actual field work for the geologist in charge where needed.

3. A helicopter should be used part time at convenient intervals for transportation and supply into areas without lakes, and also for limited additional geologic reconnaissance.

4. A total of \$60,000 should be allotted to this programme. A detailed estimate will be submitted separately.

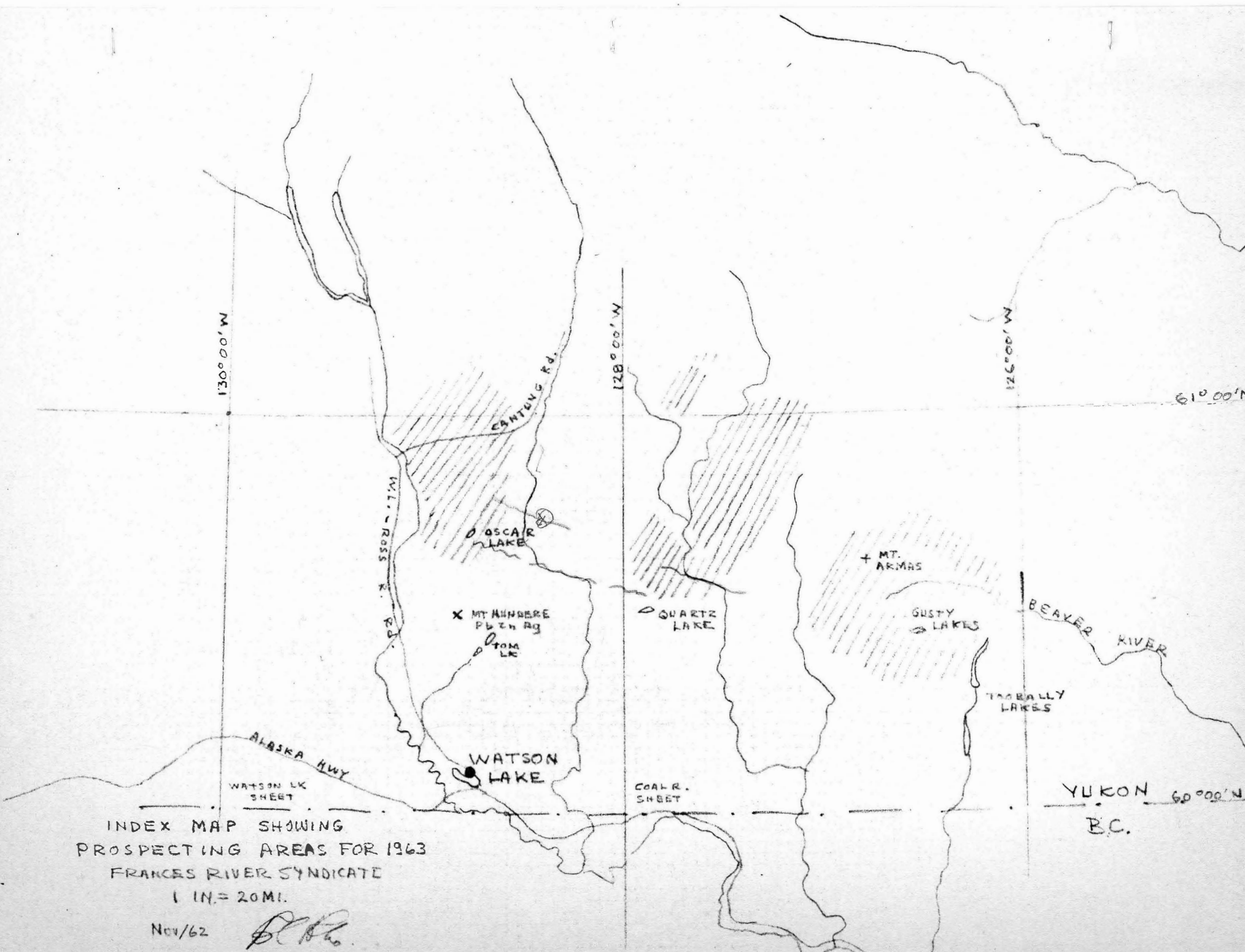
Respectfully submitted,



Dr. A.E. Aho,
Syndicate Manager.

**Start of trenches on North lead-zinc-silver showing
with view of E-W lineament (valley in background).**

Helicopter on limonite seepage area on Mt. Armas



INDEX MAP SHOWING
 PROSPECTING AREAS FOR 1963
 FRANCES RIVER SYNDICATE
 1 IN. = 20 MI.

Nov/62 *DLR*

REPORT
ON
HELICOPTER RECONNAISSANCE

FRANCES RIVER SYNDICATE

August - September 1962

QUARTZ LAKE

Introduction

During the period August 8 to August 12 sixteen hours were spent doing reconnaissance with helicopter out of a base at Quartz Lake. The purpose of this work was to obtain a rough geological map of the surrounding area and determine areas to be prospected and mapped on the ground. The area covered was approximately 1500 square miles.

Geology

Sedimentary and low grade metamorphic rocks are dominant over most of the area. To the northwest between the Hyland and Green Rivers the higher areas are mostly intrusive rock of quartz diorite or granodiorite composition. This area and one further north on the Flat River Sheet were the only extensive intrusive areas encountered. A smaller body of quartz diorite is found 8 miles northeast of Quartz Lake on both sides of the Coal River.

The highest grade metamorphic rocks occur across the eastern spurs of ridge 5483 16 miles northeast of Quartz Lake. These are garnet and staurolite schists with interbedded marble, quartzite and meta-conglomerate. Most of the rest of this ridge appears to be quartzite.

Quartzite, greywacke and quartzite are the main ridge-forming formations. This is particularly true south, north and northeast of Quartz Lake. The rocks in the lower areas and particularly in the Hyland, Coal and Green River valleys are limestone and shale. The area between the Coal and Rock Rivers southeast of Quartz Lake is underlain mostly by limestone with lesser amounts of quartz sediment. Outcrop is very scarce in this area.

The north and north-northeast trend of the ridges reflect the strike of the strata. Local changes in structural trend and divergence of strike around intrusives is not uncommon.

Areas Recommended for Further Prospecting and Mapping

Three criteria emerge when defining areas for prospecting and more detailed geological mapping based on aerial reconnaissance. 1) Anomalous changes in structural trend. 2) Favourable rock types or combination of rock types such as granite-limestone contacts or higher grade metamorphic rocks. 3) Rust zones.

The area northeast of Quartz Lake near the Coal River and further north-northeast presents an interesting combination of intrusive rock, a higher grade of metamorphism than is common over the region and a sharp change in formational trend. This area should be prospected and mapped on the ground in addition to extending aerial reconnaissance mapping to the northeast.

Reconnaissance coverage should be extended to the north in the area between the Hyland and West Coal Rivers particularly along the eastern contact of the intrusive rock.

Rust zones and a magnetite bearing skarn that was checked on the ground make the intrusion limestone contact between the Coal and West Coal Rivers an area worthy of further investigation. Helicopter reconnaissance coverage should be extended in this area and ground prospecting seriously considered.

Rust is widespread in both limestone and quartz sediments. All rust zones checked on the ground were apparently due to finely disseminated pyrite. An area of darker brown rust and possible intrusive dykes was found 14 miles southeast of Quartz Lake. This was not checked on the ground because of the absence of a nearby landing spot but the area warrants further investigation.

GUSTY LAKES

Introduction

Between September 1 and September 3 ten hours of helicopter reconnaissance were flown in the Gusty Lakes area of the Coal River Sheet. Approximately 600 square miles were mapped.

Geology

Sedimentary rocks, mostly well bedded limestone are the most common rocks in the area. Quartzite makes up the higher area to the northwest around peak 5314 and also outcrops on ridges to the east and south of Gusty Lakes. The quartzite is

more highly metamorphosed than that found in the Quartz Lake area. Black shale and slate outcrop in the lower areas north of Toobally Lakes and on Spruce Creek.

Large areas of basaltic and andesitic lavas overlie the sedimentary rocks to the north, east and south of Gusty Lakes.

The only intrusive rock was found in an area of little relief and sparse outcrops 3 miles northeast of Gusty Lakes. It is a dioritic intrusion of unestimable size because of the general lack of outcrop.

To the west of Gusty Lakes formational trends are mostly northwest. To the east of Gusty Lakes strikes are north with anomalous easterly strikes occurring along the Beaver River 8 miles north of Toobally Lakes.

Areas Recommended For Further Prospecting and Mapping

Seventeen mineral claims were staked by the Syndicate on limonite seeps just north and northwest of peak 5314. This area should be mapped and prospected in greater detail than was possible this past season. The value of geochemical sampling on both detailed and reconnaissance scale should be determined.

A similar rust zone was located on the steep west slope of a south tributary of the Beaver River north of Toobally Lakes. This as well as other rust zones on the Beaver River 8 miles north of Gusty Lakes should be checked on the ground.

The areas to the north, east and southeast of Gusty Lakes composed of volcanic, sedimentary and intrusive rock should be prospected and mapped.

Respectfully submitted,

R. E. Gordon Davis

R. E. Gordon Davis.

APPENDIX I

DESCRIPTION OF ROCK TYPES

QUARTZ LAKE

Limestone

In this area there are two distinct types of limestone. One is a light grey, white weathering, coarsely jointed crystalline limestone usually found as a ridge forming member. The other type is that found along the river valleys. It is well bedded and interbedded with shale. The weathered surface is usually white or rusty, the fresh surface black or dark grey with irregular rusty patches.

Quartz Sediments

Most of this unit is granular quartzite or meta-quartz-greywacke. The fresh rock is usually light grey or brownish and may be slightly rusty. Grain size is variable. Narrow bands of brown siltstone and shale are common. In outcrop this rock is massive and light brown or grey weathering. Siltstone and shale horizons are useful in revealing the attitude of the formations.

Shale

This is black or dark grey silty shale, well bedded and usually associated with black limestone in lower areas. Usually black or dark grey in outcrop.

Schist

The schist in the area varies from chlorite to staurolite in grade. It is well foliated in outcrops that are normally well rounded, light to medium grey in colour. Associated with crystalline limestone and quartzite.

Intrusive Rock

Usually coarse grained quartz diorite or granodiorite. A very massive rock, coarsely jointed normally occurring in higher areas.

GUSTY LAKES

Limestone

Most of the limestone is well bedded, fine grained and light grey in colour. It may be siliceous and buff coloured. In

outcrop it is light to medium grey. Interbedded shale is rare. It is found in both high and low areas.

Quartz Sediments

This rock is massive, often showing no distinct granularity. The colour varies from dark grey to pale pink on fresh surfaces. The weathered surface is usually medium to light grey or brownish. Bedding is only apparent where finer grained elastic sediments are interbedded with the quartzite.

Shale and Slate

Varies from white weathering dark grey shale to dark weathering, rusty black slate. Usually found in lower areas.

Intrusive Rocks

A dark grey dioritic rock, fine to medium grained composed of over 40% mafic minerals. In outcrop it is dark grey and coarsely jointed, found in an area of little relief.

Volcanic Rocks

A variety of flows of basaltic and andesitic composition. They are often amygdaloidal, less commonly porphyritic. The colour is usually dark grey or black with greenish or purplish tints common. In outcrop these rocks are black to dark grey and coarsely jointed. Bedding is sometimes identified.