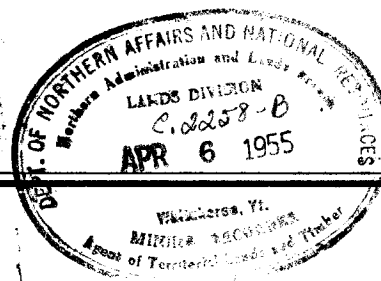


CONFIDENTIAL

REPORT OF WORK ON TECK CLAIMS,
DUKE RIVER, KLUANE LAKE AREA,
BY TECK EXPLORATION CO LTD.
DURING 1954.



1 Apr. 1955.

INDEX

INTRODUCTION.....	PAGE 1.
LOCATION AND ACCESSABILITY.....	" 1.
TOPOGRAPHY.....	" 1.
GEOLOGY - General.....	" 2.
- Local.....	" 3.
MAGNETOMETER SURVEY.....	" 4.
ELECTROMAGNETIC SURVEY.....	" 4.
DETAILS OF REPRESENTATION WORK.....	" 6.
MAP OF ELECTROMAGNETIC SURVEY.....	In folder at rear.
MAP OF GEOLOGY AND MAGNETOMETER SURVEY.....	" " " "

REPORT OF WORK ON "TECK" CLAIMS,
DUKE RIVER, KLUANE LAKE AREA,
BY TECK EXPLORATION COMPANY LIMITED,
DURING 1954.

INTRODUCTION:

During the early spring of 1954, Teck Exploration Company staked 48 claims on the Duke River, 4 miles south of the Alaska Highway, to cover an area of peridotite, indicated on preliminary map "Kluane Lake (West Half) 1954 by J.E.Muller.

From the latter part of June until the end of September 1954, surface exploration was carried out on these claims, consisting of line cutting, electromagnetic survey, mapping of outcrops, and a limited amount of magnetometer surveying. This work was carried out by, and under the supervision of A.James Walker, while Dr. M.H.Frohberg was the Consulting Geologist.

LOCATION AND ACCESSABILITY:

These 48 claims are known as the "TECK" group and are of record numbers 68536 to 68583 inclusive. They are located about 4 miles south of the Alaska highway, on the Duke River, or about 7 miles south-west of Burwash Landing. The group may be reached by a foot trail from the Alaska highway, commencing near the Duke River bridge, along the east side of the river. Twelve claims are located on the east side of the river, while the remaining thirty-six claims are west of the river. As the waters of the Duke are too swift to ford on foot, (even on horseback at times), it was necessary to construct a cable crossing for travelling back and forth.

TOPOGRAPHY:

The Duke River traverses the group (see maps) from south to north. There are some wide flats through which the river is constantly changing course, while near both the north and south of the group the water is confined by rock canyons which rise from 25 to 75 feet above the water.

The ground rises steeply on both sides of the river for the first 200 feet in elevation, and then has only a gentle rise going away from the river. Elevations taken with an aneroid indicate the river to be about 3,000 feet above sea level at the north end of the group and 3,300 feet near the south part of the group. The east boundary has an elevation of about 3,600 feet, while the west boundary rises to 4,000 feet.

The depth of side streams, and no visible outcrops, indicate the overburden to be very deep on this property. As much as 200 feet is expected in some sections and would probably average 75 to 100 feet overall.

Very little outcrop was found, except along the river and the two side streams near the north boundary. Most of the ground was swampy, covered with "nigger heads" which made very difficult walking.

There are some good stands of spruce along the river. There are some odd patches of spruce away from the river, but is mainly willows, young poplars, and stunted spruce.

GEOLOGY:

General:

The geology of the area, as noted on map 53-20 by J.E.Muller, shows that the Teek group is located in an area of Permian sediments and volcanics, intruded by diorites and peridotites masses. The group lies to the south of the Shakwak Valley, which is the notable topographic feature of the area, and along which fault movement has taken place, as indicated by the change in formations to the north of the valley, which are the older Precambrian rocks of the Yukon group. The Duke Depression, which trends north-west, parallel to the Shakwak Valley, lies to the south of the group.

The peridotite masses are considered the favourable intrusives for nickel-copper mineralisation of the area.

Local:

Mapping of outcrops by the exploration party disclosed an amazing width of peridotite. The peridotite outcrops along the Duke River, from near the north boundary of the Teek Group for about 2 miles upstream to the south. No peridotite was found away from the Duke River however, because of the lack of outcrops. The accompanying map shows some remnants of sediments in the mass of the peridotite. Some narrow widths of younger diorite were also noted in the outcrops along the river.

Along the north part of the group were mainly steeply dipping sediments of argillite, quartzite, and greywacke, with some diorite intruding the sediments. Only diorite was noted in the outcrops in the south-west portion of the property.

On the north contact of peridotite on the Duke River, a carbonate zone 80 feet wide, containing some light pyrite, was found. A sample assayed trace for gold and silver.

An asbestos occurrence was found on Ptarmigan Creek, near the Duke River. Several narrow stringers up to $\frac{1}{4}$ " in width were found across 3 feet in the peridotite. Some trenching revealed other stringers scattered across a width of 30 feet.

Some magnetometer work was undertaken to trace the peridotite in the overburden areas and some estimate of the possible extension of the sedimentary remnants or inclusions in the peridotite mass, was possible.

All mapping was in reference to lines cut for the Electromagnetic survey.

MAGNETOMETER SURVEY:

A limited amount of magnetometer work was done to delimit the peridotite contacts. Time did not permit extension of the survey to the whole group.

As will be seen on the accompanying map, many sharp changes in short distances occurred in the magnetics over the peridotite. This is due to the varying amounts of associated magnetite.

One high magnetic horizon was traced to an outcrop on the west side of the Duke River. The outcrop contained enough magnetite to attract a small hand magnet.

The magnetite content of the peridotite may indicate the relative amount of alteration that has taken place. Magnetic contours indicate a trend of the peridotite to be N 45° W. Contours on the attached map have been lightly shaded.

Survey Details:

Crew - Operator	- A.J.Walker	- Toronto.
Assistant	- F.K.Mills	- Toronto.
"	- M.McCallion	- Whitehorse.
Consultant	- Dr. M.H.Frohberg	- Toronto.
Observations	- 450	
Miles of line	- 8 (approximately)	
Type of instrument	- Watts - Schmidt type.	
Sensitivity	- 29.85 gammas per scale division.	
Line out	- (Used same lines as E-M Survey.)	
Base stations	- At cabin on Squirrel Creek, and along base line.	

ELECTROMAGNETIC SURVEY:

This survey was the main part of the exploration program and was carried out with the hope of finding conductive zones, which in turn could be sulphide zones, associated with the favourable peridotite.

The principle of the method is that an electro-magnetic field is set up by passing a high voltage alternating current through a vertical coil. This field will induce a current in a subsurface conductor. The conductor having an alternating current, will then have its own alternating field (called the secondary field) which may be detected by the receiver, as the operator takes readings along a section line. Conductors may be sulphide bodies, graphite in

schists, or shear zones, or carbonaceous rocks. Sharp topographic changes as well as swamp can produce conductive effects.

A considerable amount of linecutting and chaining was done in preparation for the survey. Line cutting was done mostly on a contract basis by local labour, who performed in a satisfactory manner. Lines were cut every 400 feet.

The accompanying map entitled "Electromagnetic Survey" shows all the dip angles of the readings obtained on the receiver, and designates from which transmitter location the section line was read. All transmitter locations are also shown on the map. All base lines, section lines, claim lines, posts, and boundaries, and topographic features are shown on this map.

The results of the survey could be termed disappointing as only a few areas of low conductivity were found. This low conductivity could represent disseminated sulphides or carbonaceous sediments, or even be caused by the nature of the overburden.

Further testing by other geophysical methods may be warranted. Geochemical soil testing would not be practical, because of the very deep overburden.

E-M Survey details:

Crew - E-M Operator	- A.J.Walker	- Toronto, Ont.
Assistant	- F.K.Mills	- " "
Assistant	- Al Close	- Mayo, Yukon.
Linecutting & chaining	- A.J.Walker	- Toronto, Ont.
	- F.K.Mills	- " "
	- A. Close	- Mayo, Yukon.
	- M.McCallion	- Whitehorse, Yukon.
	- F.Chambers	- Burwash Landing, Yukon.
	- K.Johnston	- " " "
	- Bill Sams	- Aishikik, Yukon.
Drafting & Report	- A.J.Walker	- Toronto, Ont.
Consultant	- Dr. M.H.Frohberg.	- " "
Observations	- 2,927	
Miles of line surveyed	- 52.2	
Miles of line out	- 60.1	(including base lines)
Instrument used	- Sharpe SE-100.	
Fieldwork	- June 29th. to Sept. 30th. 1954.	

DETAILS OF REPRESENTATION WORK:

For the purpose of recording work the "Teck" claims have been divided into three groups as follows:-

Group 1 - Claims 68536 to 68551 (inclusive) - 16 claims.
" 2 - " 68552 to 68567 " - 16 "
" 3 - " 68568 to 68583 " - 16 "

The work performed covering all groups consisted of the following:-

Linecutting	- 60.1 miles.
Electromagnetic survey	- 52.2 "
Magnetic work	- 8.0 "
Geological mapping.	
Report, drafting, preparation for field work.	
A little stripping and trenching.	

Total costs for this exploration is divided as follows:-

Salaries, wages, consulting fees	- \$ 7,120.76
Transportation & lodgings (Yukon only)	- \$ 1,346.20
Supplies	- \$ 1,663.31
Assaying	- \$ 12.00
Workmen's Compensation	- \$ 164.26
Miscellaneous (Telephone, Telegrams, express, printing, stationery, etc....)	- \$ 256.61
TOTAL.	- \$ 10,563.14

As an equal amount of work was performed on all groups, this total is divided by 3, to give a total expenditure for each group of \$ 3,521.05.

A further \$ 971.43 was spent on transporting three technical men from Toronto to Whitehorse and return, and should the Department see fit to allow this item to be used, as these men were not available in the Yukon, then we would like it spread equally over the three groups.

No allowance is being charged for use of equipment or truck.

The personnel used are listed in this report under the headings of the various works performed.

AJW/HSB

A. James Walker
A. James Walker.

1 April, 1955.