

NAME 07 - Geol Report

MINISTRY OF ENERGY, MINES AND
PETROLEUM RESOURCES
VICTORIA, BRITISH COLUMBIA

SUBJECT 82ESE 119 GRANADA

SUB 07
FILE No. 07

TEXAS G-70

001287

PROPERTY FILE

LIVGARD CONSULTANTS LTD.

1331 MARINE BUILDING

VANCOUVER 1, B.C.

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REPORT

ON THE

WAY CLAIMS #1 - #20

and

THE GRANADA CROWN GRANT

for

December 3rd, 1971.

E. Livgard, B.Sc., P. Eng.

Vancouver, B.C.

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MAPS: Location and General Geology Map (following Page 5)
Claim Map (following Page 5)

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Certificate

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INTRODUCTION:

The writer examined the WAY claims, and the Granada Crown Grant on November 19th, 1971, at the request of the Prospector, Mr. J. J. Oberbillig.

This Report is based on that examination, and on information obtained from the sources listed in the References. The geological-geochemical Report on the G-To Claims of Texas Gulf Sulphur Company gives little information on the WAY Claims directly, but has been very helpful in evaluating the potential of the Claims.

SUMMARY:

The writer visited the WAY Claims and the Granada Crown Grant on November 19th, 1971. The claim group consists of 20 staked claims and one Crown Grant in a contiguous group located four miles west of Midway, British Columbia, less than one mile north of Highway 3. The property covers open grazing land, and is traversed by Ingram Creek. The area has been one of the major copper producing areas in British Columbia, and extensive exploration has taken place. Work, consisting of geochemical and geophysical surveying, geological mapping and diamond drilling has been carried out on properties to the south and the east of the WAY Claims.

The claims cover rocks of the Anarchist group and later intrusive rocks. Copper mineralization occurs with skarn in calcareous beds in the Anarchist group closely associated with intrusive rocks. The intrusive rocks have been extensively mineralized with pyrite and may also be considered a possible host rock for copper mineralization. An exploration program consisting of geological mapping, geochemical and magnetic surveying, and cat trenching, costing a total of \$32,000.00, is recommended, to examine the possibility of finding economic mineralization of these types.

RECOMMENDATIONS:

An aerial photo-study should be carried out over the claims and surrounding area. This should be followed by geological mapping on the ground, a geochemical soil survey with samples analysed for copper, and a magnetic survey to aid in the mapping and possibly locate mineralized skarn which may show higher magnetic intensity than the surrounding rocks.

The geological mapping should be carried out in considerable detail.

The grid system lines should run east-west 400' apart, with stations spaced 100' apart. The soil survey should obtain soil samples at each station.

Bulldozer trenching should be carried out to expose mineralization, particularly on the Granada Crown Grant, and in the area of mineralized intrusive rocks on the west bank of Ingram Creek on Way Claim #19.

A geological consultant's report should be obtained following the above, to outline further work if the results are favourable.

PROPERTY:

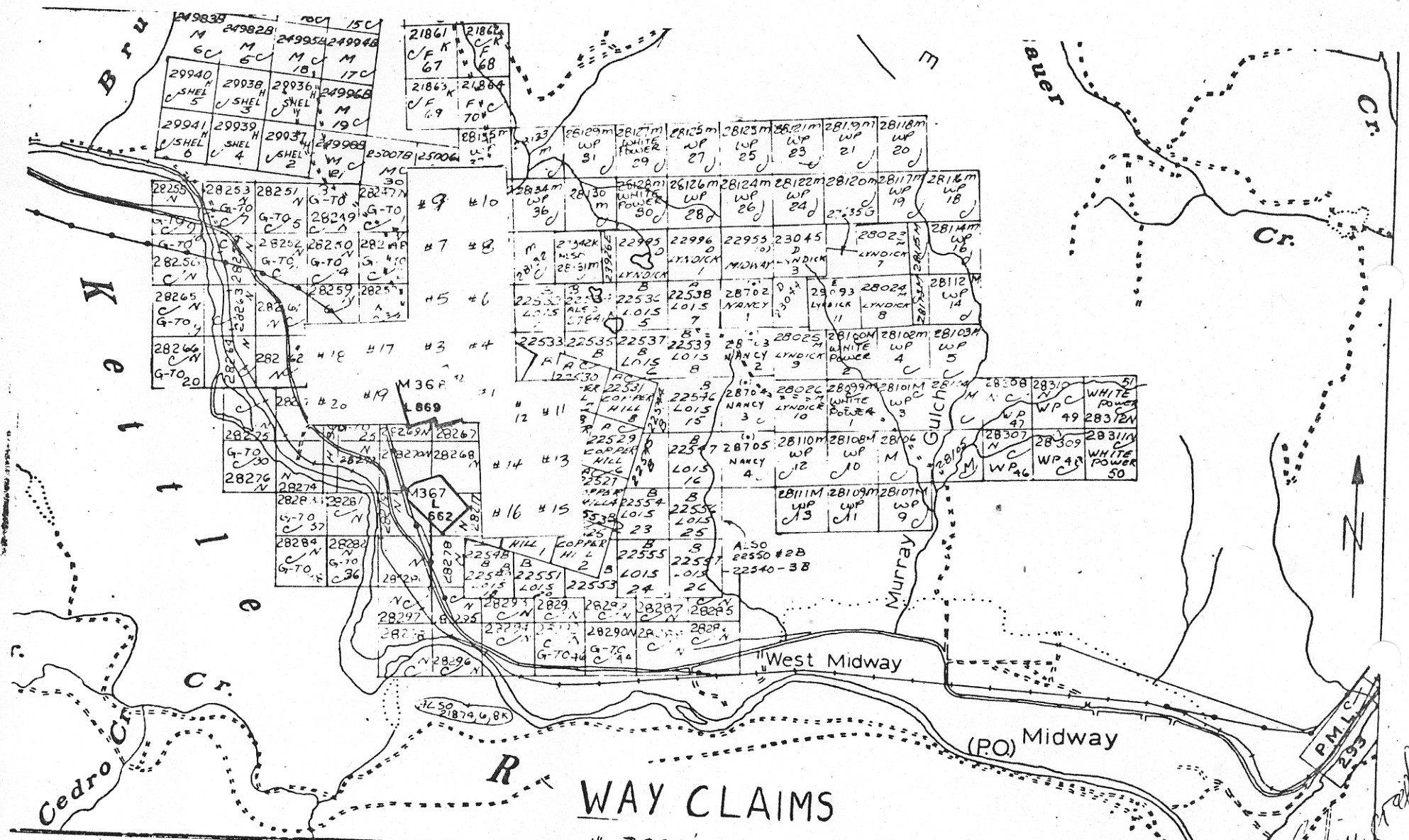
The property consists of 21 claims in a contiguous block. The claims are named WAY #1 - #20, Tag Nos. 297833-M to 297852-M, and Crown Grant Granada Lot No. 869. The claims were staked by J. J. Oberbillig, and are in his name. The Crown Grant is open for lease, and has been applied for by Mr. J. J. Oberbillig. Claim Posts for WAY #1, 2, 3, 4, 5, 6, 7, 8 were examined by the writer and appear to have been staked according to regulations. Posts on the Crown grant were not found, but the claim could be positioned fairly closely from topography.

WAY claims #11 - #16 inclusive lie between claims named G-To in the name of Texas Gulf Sulphur Co. to the west and claims named Lois to the east in the name of Granby Mining Co. Claim Post #1 of G-To #21, 22 was located by the writer, and there appears to be some overstaking by WAY Claims #11 - #16. A claim survey would be necessary to determine the proper claim relationship.

The writer was unable to locate the Lois claims, and these may possibly be located further east than plotted on the Mining Recorder's Map.

LOCATION:

The property lies four miles west of Midway, British Columbia, in the Greenwood Mining Division, at a latitude of 49°02' North and longitude 118°52' West. The property is about 290 miles east of Vancouver, British Columbia.



WAY CLAIMS

1" = 3000'
 DEC 1971 E LINGARD

International Boundary

118°45'

45



MAP 6-1957
KETTLE RIVER
 EAST HALF
 SIMILKAMEEN, KOOTENAY
 AND OSOYOOS DISTRICTS
 BRITISH COLUMBIA

Scale: One Inch to Four Miles = $\frac{1}{253,440}$
 Miles



LEGEND

TERTIARY
 MIOCENE(?)

11 Basalt, olivine basalt

PALEOCENE OR EOCENE

PHOENIX VOLCANIC GROUP

10 Andesite, trachyte, minor basalt, locally, interbedded tuff, shale, and/or siltstone

9 KETTLE RIVER FORMATION: rhyolite and dacite tuff; locally, conglomerate, sandstone, and shale, minor rhyolite flows and intrusive porphyritic rhyolite

PALEOCENE(?)

8 CORYELL INTRUSIONS: syenite, monzonite, shonkinite and granite

CRETACEOUS(?)

LOWER CRETACEOUS(?)

7 VALHALLA INTRUSIONS: granite, porphyritic granite

6 NELSON INTRUSIONS: granodiorite, porphyritic granite; diorite, monzonite, quartz monzonite

5 Ultrabasic intrusions, serpentinite

JURASSIC

ROSSLAND GROUP

4 Andesite, latite; agglomerate and flow breccia; minor greywacke

PERMIAN(?)

ANARCHIST GROUP

3 Greenstone, greywacke, limestone, paragneiss

PENNSYLVANIAN AND/OR PERMIAN

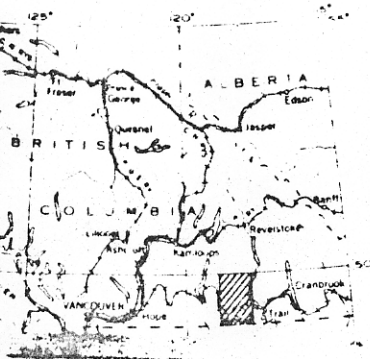
2 MOUNT ROBERTS FORMATION: greywacke, greenstone, limestone; paragneiss

PROTEROZOIC(?)

MONASHEE AND GRAND FORKS GROUPS

1 Paragneiss, minor crystalline limestone and pegmatite

Handwritten signature: C. Crawford



ACCESS:

Highway 3 lies less than one mile south of the claims, and a dirt farm road crosses the property. The C.P.R. Kettle Railway lies alongside the highway. A high tension hydro-power line crosses the property.

TOPOGRAPHY:

The property covers southwest facing slopes of the Kettle River Valley, and part of a flat plateau north of the valley. The claims are traversed by Ingram Creek, which has cut a steep-sided valley down to about 150 feet below the surrounding topography. The creek valley sides give a good exposure of the rock types. Most of the claim ground is open grazing land with scattered Ponderosa Pine. Part of the claim ground toward the north consists of formerly cultivated land. The maximum relief on the property is about 800 feet.

CLIMATE:

The climate is typical of the southern interior dry belt, and the summers are warm and dry. Snow may cover the ground from late November to about early April.

HISTORY:

The Greenwood area has in the past been one of the major copper producing areas of British Columbia, and very intensive exploration has taken place over many decades.

Several pits and rock cuts have been excavated on copper mineralization located on the Granada Crown Grant. Work has been done in the area in the past by Utah Construction Ltd. on claims named Bornite. These claims subsequently lapsed, and the ground was partly re-staked by Texas Gulf sulphur Company as the G-To claims. The G-To claims lie immediately south of the WAY claims, and the WAY claims may cover some ground previously covered by some G-To claims now lapsed. The work carried out by Utah Construction on the ground to the south consisted of geophysical surveys and six diamond drill holes. Weak, scattered copper mineralization in calc-silicate skarn was reportedly intersected in the holes. The locations of the holes are not known to the writer, other than one or two possible locations on or near Texas Crown Grant 1500' South of the WAY claims noted on a geology map submitted as assessment work by Texas Gulf Sulphur Company.

Texas Gulf Sulphur Company carried out geological mapping and geochemical surveying south of the WAY claims and also covering one half of WAY claims #19 and #20. The geochemical survey outlined anomalous soil values in copper over an area of about 2000' x 600'. The anomaly lies 500 feet due south of the Granada Crown Grant. The sample lines were 800 feet apart in the anomaly area. As only one sample on one line indicates the termination of the anomaly toward the Granada Crown Grant, the evidence cannot be considered conclusive. The soil samples from what is now the WAY claims #19 and #20 did not give anomalous values in copper.

The ground to the east has been explored by Granby Mines, and copper mineralization has been diamond drilled. The results are not known to the writer.

REGIONAL GEOLOGY:

The G.S.C. geological mapping of the area shows the claim ground to be underlain largely by the Permian Anarchist group of greenstone, greywacke, limestone and paragneiss. To the northeast a small area of Cenozoic Kettle River formation consisting of volcanic rocks and sandstone, conglomerate and shale, has been mapped. These rocks are entirely surrounded by Cenozoic rocks of the Phoenix volcanic group. The mapping by Texas Gulf Sulphur company on the ground to the south and west but still within the Anarchist formation as mapped by G.S.C. shows intrusive rocks, monzonite probably of the Paleocene Coryell intrusions and diorite probably of the Lower Cretaceous Nelson intrusions. The copper mines of the Greenwood area about 8-10 miles northeast of the claims are all found in the Anarchist formation, closely associated with Nelson intrusives. The geological surroundings of the WAY claims are therefore considered to be favourable for copper deposition.

The writer's short examination of the ground indicates that the Anarchist group of rocks extends somewhat further north and west on the WAY claims than outlined on the G.S.C. map of the area.

CLAIM GEOLOGY:

The geology on the claims appears to be very complex, and as the writer spent a limited time on the property the most meaningful description of the geology will probably be to treat it as an extension of the very detailed geology mapped immediately to the south.

The area is an extremely complex mixture of Cenozoic, Mesozoic and Palaeozoic rocks consisting of andesite, biotite syenite, arkose, sandstone, hornblende monzonite porphyry, diorite, conglomerate, greywacke, siltstone, calcareous argillite, calc silicate skarn and marble listed at increasing age. The intrusive rocks occur in numerous irregular separate bodies throughout the area. The strike of the bedded rocks is mostly north westerly and the dip easterly at about 20 to 50°.

Concerning the mineralization, the following excerpt from Texas Gulf Sulphur geology report on the G-To claims laying south and west of the WAY claims will be of interest:

- "1. The detailed mapping has shown that copper mineralization is controlled by both stratigraphy and structure. The copper occurs in a suite of calc-silicate skarns, directly underlying a thick sequence of sharpstone conglomerates. This lithology is similar to that at the Phoenix Mine and there is every reason to believe it represents the same section of the Triassic stratigraphy. The strongest mineralization occurs on, or near, anticlinal fold crests, within the favourable rocks.
- 2. The presence of monzonite porphyry intrusions may exert some secondary control on the mineralization.
- 3. A strong geochemical anomaly, in copper, has been outlined in the general area of the Texas Crown Grant. The area is underlain by the favourable rocks and scattered subeconomic mineralization is exposed at surface."

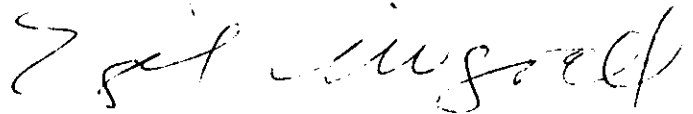
On checking the geology map it can be seen that well over half of the copper soil anomaly covers intrusive rocks of the hornblende monzonite porphyry, and this rock type the writer found to be extensively mineralized by disseminated pyrite both on the G-To claims and on the adjoining part of the WAY claims. The writer feels that the intrusive rocks may well act as host rock for porphyry type copper mineralization, and should be explored with this in view in addition to exploration for skarn type mineralization in the calcareous members of the Anarchist group.

On the Granada Crown Grant and the WAY claims the writer noted heavily fractured conglomerate and silicified (?) siltstone exposed on the east slope of the Ingram Creek valley. In the creek bottom were noted heavily oxidized rocks probably belonging to the Anarchist group. These rocks show occasional malachite copper staining on fracture surfaces. To the west down Ingram Creek on WAY #19 and #20 claims a considerable area (1000' x 1500' ?) consists of heavily altered monzonite with disseminated pyrite. The rock has been strongly fractured and fracture surfaces covered with iron oxide so that on breaking it becomes difficult to obtain a fresh break surface. Further east and north up Ingram Creek Tertiary andesite, syenite and basalt are found in scree slopes. The "flat lands" west of Ingram Creek are largely grass covered and little rock is exposed. The east side of the creek had considerable outcrop of conglomerate and diorite. On the south facing slopes on the Granada Crown Grant isolated outcrops of rocks of the Anarchist group show chalcopyrite in skarn together with malachite staining. The exposed mineralization may run up to 1% copper over 2 or 3 feet and is not of economic size or grade.

CONCLUSIONS:

The WAY claims, together with the Granada Crown Grant, being located largely on favourable Anarchist group rocks, intrusive monzonite and diorite rocks and their contact zones, do in the writer's opinion warrant an exploration program with two objectives: one: to extend and locate calcareous beds in the Anarchist group which have been contact metamorphosed and impregnated with chalcopyrite mineralization, two: to locate intrusive rocks which may carry porphyry type copper mineralization.

Respectfully submitted.



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