1984 Assessment Report
Geochemical and Geophysical Survey

Claim: JOLLY 4
Commodity: Silver, Gold, Copper
Location: Johnstone Creek - Greenwood M.D.
7 km NW of Rock Creek
82E 3E 49° 09'N 119° 04'W
and Sookochoff Consultants Inc.
Author: 311-409 Granville Street
Vancouver, B.C., V6C 1T2
Owner and PARK RESOURCES INC.
18-200 Granville St.
Operator: Vancouver, B.C.
V6C 1S4
Work Dates: June 12, 1984 - July 19, 1984

Submittal Date: September 13, 1984.
GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,020
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1.</td>
</tr>
<tr>
<td>Property</td>
<td>1.</td>
</tr>
<tr>
<td>Location and Access</td>
<td>2.</td>
</tr>
<tr>
<td>Physiography and Climate</td>
<td>2.</td>
</tr>
<tr>
<td>Water and Power</td>
<td>2.</td>
</tr>
<tr>
<td>History</td>
<td>3.</td>
</tr>
<tr>
<td>Geology and Mineralization</td>
<td>3.</td>
</tr>
<tr>
<td>Geochem Procedure</td>
<td>5.</td>
</tr>
<tr>
<td>Magnetometer Survey Procedure</td>
<td>7.</td>
</tr>
<tr>
<td>Results of the 1984 Exploration Program</td>
<td>8.</td>
</tr>
<tr>
<td>Conclusions</td>
<td>9.</td>
</tr>
<tr>
<td>Recommendations</td>
<td>9.</td>
</tr>
<tr>
<td>Bibliography</td>
<td>10.</td>
</tr>
<tr>
<td>Certificate</td>
<td>12.</td>
</tr>
</tbody>
</table>

## Illustrations

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIGURE 1</td>
<td>Property Location Map</td>
<td>1:6,336,000</td>
</tr>
<tr>
<td>FIGURE 2</td>
<td>Geology &amp; Claim Map</td>
<td>1: 250,000</td>
</tr>
<tr>
<td>FIGURE 3</td>
<td>Index Map</td>
<td>1:  50,000</td>
</tr>
<tr>
<td>FIGURE 4</td>
<td>Magnetometer Survey</td>
<td>1:  5,000</td>
</tr>
<tr>
<td>FIGURE 5</td>
<td>VLF-EM Survey</td>
<td>1:  5,000</td>
</tr>
<tr>
<td>FIGURE 6</td>
<td>Lead Geochem Results</td>
<td>1:  5,000</td>
</tr>
<tr>
<td>FIGURE 7</td>
<td>Zinc Geochem Results</td>
<td>1:  5,000</td>
</tr>
<tr>
<td>FIGURE 8</td>
<td>Copper Geochem Results</td>
<td>1:  5,000</td>
</tr>
<tr>
<td>FIGURE 9</td>
<td>Arsenic Results</td>
<td>1:  5,000</td>
</tr>
<tr>
<td>FIGURE 10</td>
<td>Silver Geochem Results</td>
<td>1:  5,000</td>
</tr>
<tr>
<td>FIGURE 11</td>
<td>Compilation Results</td>
<td>1:  5,000</td>
</tr>
</tbody>
</table>
INTRODUCTION

In June and July 1984, an exploration program of geophysical and geochemical surveys were carried out on the JOLLY 4 mineral claim.

The purpose of the program was through a recce survey to locate direct, indirect or associated minerals or zones that could relate to Camp McKinney type gold mineralization.

PROPERTY

The property consists of one claim of 20 units. Particulars are as follows:

<table>
<thead>
<tr>
<th>Claim Name</th>
<th>Record No.</th>
<th>Expiry Date*</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOLLY 4</td>
<td>3837</td>
<td>August 10, 1987</td>
</tr>
</tbody>
</table>

* Pending approval of 3 years assessment work applied July 31, 1984 for which this report forms a part thereof.
LOCATION AND ACCESS

The claim is located 30 km east of Osoyoos and seven km northwest of Rock Creek within NTS map sheet 82E 3E in central southern British Columbia.

Access is via the No. 3 southern provincial highway which is within eight km south of the claim. The Camp McKinney road north from the highway is along Johnstone Creek adjacent to the west of the claim. Secondary roads extend on to the property.

PHYSIOGRAPHY AND CLIMATE

The property is within the Okanagan Highlands with elevations on the claim up to 1,000 meters along Johnstone Creek from 500 meters at the northwest corner.

The general climate of the area includes mild winters with a snow free period of up to ten months.

WATER AND POWER

Johnstone Creek, the main waterway of the area parallels the western sector. Ed James Creek crosses the northern boundary of the property.

Diesel-electric power would initially be required for exploration and development. A major transmission line is four km to the north with a natural gas pipeline passing within four km to south.
HISTORY

The history of the immediate area centers around the placer deposits of McKinney Creek and the mines at Camp McKinney, nine km west.

Camp McKinney was one of the early lode gold camps of British Columbia with one property, the Cariboo, producing over $1,000,000 in gold largely between 1894 and 1903. A number of other properties were developed but none of these produced important amounts of ore.

Claims within Camp McKinney were periodically worked from 1903 to 1962 when gold-silver ore was shipped to the Trail Smelter, and thereafter. Exploration work has been carried out on properties within the local and general area in the 1983 exploration season with reported encouraging results.

The writer is not aware of any exploration previous to the exploration program reported on herein on the JOLLY 4 claim other than that carried out by PARK RESOURCES in June and July of 1984.

GEOLOGY AND MINERALIZATION

The general geology of the area is of predominantly the Permain Anarchist Group overlain by minor localized areas of the Cenozoic Kettle River Formation and to a greater extent, and the youngest rocks of the area, the Phoenix volcanic group. The Cretaceous Nelson Plutonic Rocks intrude the Anarchist group as stocks or plugs which are also overlain by the Kettle River and Phoenix groups.

The Anarchist group in the Camp McKinney area consists very largely of highly metamorphosed sedimentary rocks but includes also altered greenstones and possibly altered intrusive rocks. The sedimentary members of the group are the altered equivalents of quartzite, slate and limestone, micaceous quartzites, mica schists, and crystalline limestone. The sheared greenstones possibly represent both intrusive and extrusive types.
A second group of rocks within the Anarchist series are light grey, granitic rocks, quite generally gneissic, the outcrops of which have in some cases a slightly rusty appearance. Quartz and microline predominate with orthoclase and albitic-oligoclase generally present. The granitic rocks are intrusive into the schists of the Anarchist series.

Another group of rocks within the Anarchist series consists of weathed basic intrusives which can in local areas be represented as serpentine with considerable pyrite development in association with shear zones.

Feldspar porphyry "dykes" are also common in the area. The rock is described as a "pale pink to flesh colored, fine grained rock with granitic texture. Quartz is fairly common and feldspar, shreds of biotite, hornblende, small individuals of apatite and some iron ore make up the balance of the rock".

The Kettle River formation consists of acidic tuff and local basins of conglomerate, shales and sandstones. In the conglomerate the roundstones consist for the most part of rocks of the underlying formations exposed in the vicinity. In some areas a little rhyolite is interbedded with acidic tuff and sandstone. In other areas, small plugs of porphyritic thiolite with quartz phenocrysts apparently mark the vents from which some of the acidic tuff was emitted.

The Phoenix volcanic group overlies the Kettle River formation with apparent unconformity, for in many places it lies directly upon older formations. It consists mainly of andesitic and trachytic lavas, but locally contains interbedded sediments. In some areas siltstones are exposed in the group and west of Midway tuffs and shales are well exposed in road and railway cuts.

The gold bearing mineral zones at Camp McKinney are mainly of quartz veins occurring in the schists of the Anarchist series and in general paralleling the strike and dip of the schistosity. The quartz veins are mineralized with pyrite accompanied by galena and zinc blende and carry in places good values in gold. With only pyrite in the veins, the gold values are low.
South of Camp McKinney, gold mineralization is associated with shear zones within volcanic rocks with little or no quartz. The zones are "from 3 to 4 feet wide" and are impregnated with considerable amounts of ankeritic carbonates. Abundant pyrite is disseminated throughout the rock in the vicinity of the shear zones.

Placer gold has been derived from the creeks in the Camp McKinney area - the more significant ones being McKinney and Rock Creeks.

The JOLLY 4 claim as indicated from Map-1981 (Figure 2) Kettle River Geology is underlain by the Anarchist Group of rocks. The Kettle River volcanics are indicated to outcrop locally in the property.

The northerly extension of the Johnstone Creek indicates a major north-south structure covered by the western portion of the claim.

There is no known mineralization on the JOLLY 4 mineral claim other than that indicated by the 1984 geochemical survey.

GEOCHEMICAL PROCEDURE

1. Survey Procedure

A grid system of east-west lines at 150 meter intervals was established covering the southwestern and southern portion of the property (Figure 2).

Samples were picked up at 50 meter intervals along the grid lines. Samples were selected from the B horizon of the brown to brownish gray sandy-loam forest soil at a depth of commonly 30 centimeters. The soil was placed in a brown wet-strength paper bag with the grid coordinates marked thereon. A total of 198 samples were analysed. Ten line km of survey was completed.

2. Testing Procedure

All samples were tested by Acme Laboratories of Vancouver, B.C. The testing procedure is first to thoroughly dry the sample. (The samples were not sifted.) Then .500 grams of material is digested with 3 ml. of 3:1:3 HCL to HNO3 to H2O at 90 deg. more or less for one hour. The sample is diluted to 10 mls. with water. The samples were then analyzed by atomic absorption for five metals - copper, zinc, silver, lead and arsenic.
3. Treatment of Data

In assessing the data results, the background, sub-anomalous and anomalous values were determined utilizing a pocket calculator with a mean and standard deviation readout.

The sub-anomalous threshold value, which is a value not considered anomalous, but an indicator of potential mineralization, is taken as one standard deviation from the mean background value. The anomalous values or the prime indicator values are taken at two standard deviations from the mean background values.

The results of the data treatment were as follows:

<table>
<thead>
<tr>
<th></th>
<th>Cu</th>
<th>Ag</th>
<th>Pb</th>
<th>Zn</th>
<th>As</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean background value</td>
<td>20</td>
<td>.14</td>
<td>8</td>
<td>49</td>
<td>4</td>
</tr>
<tr>
<td>Sub-Anomalous</td>
<td>38</td>
<td>.21</td>
<td>12</td>
<td>81</td>
<td>7</td>
</tr>
<tr>
<td>Anomalous threshold value</td>
<td>56</td>
<td>.10</td>
<td>16</td>
<td>113</td>
<td>10</td>
</tr>
</tbody>
</table>

All values are in parts per million.

**GEOPHYSICAL SURVEY**

**VLF-EM SURVEY**

A sabre Model 27 VLF-EM Receiver instrument manufactured by Sabre Electronics of Vancouver was utilized in the VLF-EM survey.

The VLF-EM Receiver measures the amount of distortion produced in a primary transmitted magnetic field - in this case Seattle at a frequency of 24.6 Khz - and a secondary magnetic field which may be induced by a conductive mass such as a sulphide body. The VLF-EM unit - due to its relatively high frequency - can detect low conductive zones such as fault or shear zones, carbonized sediments or lithological contacts.

The major disadvantage of the VLF method, however is that the high frequency results in a multitude of anomalies from unwanted sources such as swamp edges, creek and topographical highs.

The raw field data was utilized in plotting the VLF-EM results. The grid system of the geochemical survey was used for the geophysical survey with readings taken at 25 meter intervals.
MAGNETOMETER SURVEY

The magnetometer survey was carried out utilizing a Model G-10 fluxgate magnetometer manufactured by Geotronics Instruments of Vancouver.

All rocks contain some magnetite from very small fractions of a percent up to several percent, and even several tens of percent in the case of magnetic iron deposits. The distribution of magnetite or certain characteristics of its magnetic properties may be used in exploration or mapped for other purposes.

The anomalies from naturally occurring rocks and minerals are due chiefly from the presence of the most common magnetic mineral magnetite or of related minerals including limenite and pyrrhotite (with sulfide mineralization).

Magnetic anomalies in the earth's magnetic field are caused by two different kinds of magnetism: induced and remanent. Induced magnetization refers to the action of the field on the material wherein the ambient field is enhanced and the material itself acts as a magnet.

The proportion of magnetism is related to the magnetic susceptibility of the material. Typically, more basic igneous rocks have a higher susceptibility than the acid igneous rock; the latter in turn have a higher susceptibility than sedimentary rocks.

The remanent magnetization is often the predominant magnetization (relative to the induced magnetization) in many igneous rocks. The remanent mineralization is important in geological mapping.

Magnetic minerals may also occur in association with sulphide zones or may be decomposed through the action of dynamic or thermal metamorphism. Thus the survey results could indicate lithology structure, alteration patterns and most significantly, mineral zones in a favorable geological environment.

From the field data, an average determined value of 53,400 gammas was subtracted from each reading and the results were contoured on 100 gamma intervals.
RESULT OF THE 1984 EXPLORATION PROGRAM

The results of the geochemical and geophysical surveys completed by PARK RESOURCES INC. delineated a number of prime correlative anomalous areas which warrant secondary or detailed exploration.

Area A centered at 1800E 100N is of anomalous correlative copper-zinc-arsenic values with a northeasterly trending one grid line VLF-EM anomaly within 200 meters west. The VLF-EM zone trends toward the northward projection of the geochem anomaly which is open to the north and east.

Area B at 1300E 800N is of a two grid line zinc anomalous zone with a one station correlative arsenic-lead-copper anomalous zone. The anomalous area is at the west end of a grid line thus is open ended.

Area C from 0N to 650N and centered at 400E is comprised predominantly of magnetometer highs and lows extending across up to four grid lines and open to the northeast. The 650 meter long and 250 meter wide zone is bounded on the east and locally on the west by a VLF-EM anomaly.

Only local geochemical anomalies occur within the main zone however an adjacent correlative anomalous silver-arsenic zone occurs in the southwest and southeast. Other anomalous areas such as the two central lead anomalous zones extending across three grid line should be examined for the causitive source.
CONCLUSIONS

The localized geochemical and geophysical surveys carried out by PARK RESOURCES INC. were successful in delineating potentially economic mineral bearing zones.

The northeasterly trending zones could reflect volcanic, volcanic-sedimentary or fractured zones where controls to mineralization may occur.

Anomalous area C with the magnetometer highs and lows and bordered by VLF-EM anomalies is significant in this respect.

RECOMMENDATIONS

It is recommended that the initial stage of the exploration program as set out in the writer's report of August 27, 1984 be carried out.

The work would include detailed geochemical and geophysical surveys over anomalous areas and additional recce surveys over the balance of the property.

Respectfully submitted,

Laurence Sookochoff, P.Eng.
Consulting Geologist

September 13, 1984
Vancouver, B.C.
BIBLIOGRAPHY


ELEVATOROSKI, E.A. - Gold Mines of the World, Minobras, Dana Point, California 1981

FRANKLIN, J.M. - ET AL - Volcanic-Associated Massive Sulphide Deposits, Economic Geology, Seventy-fifth Anniversary Volum 1905-1908


McNAUGHTON - Greenwood - Phoenix Area, British Columbia, G.S.C. Paper 45-20 Canada Dept. of Mines, Ottawa 1945


Golden Hemlo Resources Ltd. - Interim Exploration Report on the High Mineral Claim dated June 20, 1983


Quillo Resources Ltd. - Interim Exploration Report on the High II Mineral Claim dated December 28, 1983


CERTIFICATE

I, Laurence Sookchoff, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geologist with offices at 311-409 Granville Street, Vancouver, B.C., V6C 1T2.

I further certify that:

1. I am a graduate of the University of British Columbia (1966) and hold a B.Sc. degree in Geology.

2. I have been practiseing my profession for the past eighteen years.

3. I am registered with the Association of Professional Engineers of British Columbia.

4. The information for this report was obtained from sources as cited under bibliography and from a property examination carried out on May 20, 1984 and from supervision of the 1984 exploration program.

5. I have no direct, indirect or contingent interest in the property described herein or in the securities of PARK RESOURCES INC. nor do I expect to receive any,

Laurence Sookchoff, P.Eng.
Consulting Geologist

September 13, 1984
Vancouver, B.C.
The fieldwork of the geophysical and geochemical surveys were carried out on the JOLLY 4 Mineral Claim, Greenwood M.D., B.C. from June 12, 1984 - July 19, 1984 to the value of the following:

Fieldwork: M. Klein, A. Kabatoff -
June 12, 1984 - July 19, 1984 - 10 man days $175 $1,750

Vehicle Rental:
5 days $65 plus gas, mileage $610

Assaying:
198 samples $8.00 $1,584

Field Supplies:
$265

Room and Board:
5 days $60/day/man $650

Data Compilation, Draughting, Printing:
$1,350

Supervision:
L. Sookochoff, P.Eng. 2 days $400/day $800

Associated Expenses:
$198

Report and associated costs:
$1,260

$8,460
LEGEND

- POSITIVE CONTOUR AT 100 FT INTERVAL
- CONTOUR AT 500 X 500
- NEGATIVE CONTOUR AT -500 FT INTERVAL
LEGEND

POSITIVE CONTOUR AT 5' INTERVAL.

NEGATIVE CONTOUR AT 5' INTERVAL.

POSITIVE CONTOUR AT 5' INTERVAL.

CONTOUR 0'

NEGATIVE CONTOUR AT 5' INTERVAL.

LEGEND

ANOMALOUS VALUE

SUB ANOMALOUS VALUE

BACKGROUND VALUE

ANOMALOUS VALUE

7 ppm

BACKGROUND VALUE

4 ppm

GEOLICAL BRANCH
PARK RESOURCES LTD.
Greenwood M.IO

Figure 9

ARSENIC GEOCHEMISTRY