GEOPHYSICAL REPORT
on
VANCOUVER, RIGHT HOOK
and THOROUGHFARE
June to August, 1981
Claim Sheet
Latitude 63°40' N
Longitude 137°05' W
Submitted in fulfillment of the Yukon Mining Act as representation of work on the aforementioned leases as of this date for the recording year of 1981.

D. W. Litchfield, Eng.
Mining Consultant
September 30th, 1981
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<th>Page</th>
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INTRODUCTION

In July of 1981 property assessment work was undertaken on Vancouver Creek, Right Hook Creek, and Thoroughfare Creek placer leases.

The purpose of the assessment work was to prospect and plan for future development of the claims. Work included identifying location posts, cutting lines and undertaking Geophysical research for the following claim holders:

<table>
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<th>Prospecting Lease</th>
<th>Owner</th>
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<tbody>
<tr>
<td>5302</td>
<td>Vera Asp</td>
</tr>
<tr>
<td>5303</td>
<td>Charlene McGinty</td>
</tr>
<tr>
<td>5304</td>
<td>Annabelle McGinty</td>
</tr>
<tr>
<td>5305</td>
<td>Nancy Blanchard</td>
</tr>
<tr>
<td>5306</td>
<td>Larry McGinty</td>
</tr>
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</table>

The leases are in the McQuesten Map Sheet area 115 P, and are located at latitude 63° 40' north and longitude 137° 05' west. At the confluence of the creeks, the valley bottom elevation is between 1800 and 1900 feet, sloping gently down to the McQuesten River on a grade of approximately 1.8%. The valleys of the creeks are flat-bottomed with steeply rising sides. There was no evidence of glacial activity in the lower creek-valleys. Reference to the Yukon Land and Resource Inventory Map dealing with Quaternary Geoscience Activity indicates the majority of the glacial activity was limited to the upper reaches of the watersheds of Vancouver, Right Hook, and Thoroughfare Creeks.

II GEOLOGY

The Vancouver Creek properties are located slightly west of the Tintina Trench, an area of tectonic activity that has resulted in extensive folding, faulting, and fracturing. The Tintina Trench cuts across the Yukon Plateau, an area of stability that had been eroded to only slight relief. Widespread uplift then occurred causing a stream rejuvenation which increased the head and the erosive power of the streams. The result of the downcutting was valleys with sides rising sharply up from the valley floor which then became more gradual in relief on the intervening ridges.
VANCOUVER CREEK Site Plan

Key
- Post Location
- Geophysical Site
- Geology Traverse
The Vancouver Creek area is composed of 5 different map units defined by Bostock in the McQuesten Map Sheet on Geology. The predominant map unit is from the Yukon Group and consists of mica schist, micaceous quartzite, phyllite, and limestone. This unit is interrupted by intrusive rocks of granite, granodiorite, and quartz monzonite. The other three map units are depositional sedimentary, consisting of stream deposits, alluvium, and surficial deposits of till. The oldest of these materials (late tertiary) is the 'White Channel' gravel which lies directly on granite bedrock, consisting of white vein-quartz and quartzite with some foreign black and gray chert. Dark and originally iron-bearing rocks such as the schist have had their iron content leached out. The 'White Channel' gravels are overlain by a brown or rust brown gravel containing tough foreign rocks such as chert, diorite, quartzite, and greenstone. Overlying the tertiary sands and gravels are deposits of glacial till and post-glacial stream and alluvial deposits.

The intervening ridges between Vancouver, Right Hook, and Thoroughfare Creeks are composed largely of the Yukon schist, quartzite, and phyllite. Sands and gravels derived from this rock are quite micaceous. The ridges between the valleys contain some small local intrusions of granite and granodiorite with the exception of Vancouver Creek whose headwaters flow through a massive intrusion. This was evident in the stream float of respective creeks. Large rounded boulders of granite float were much more in evidence in Vancouver Creek than in the others.

Glacial till and stream deposits of late tertiary are found only on the ridges between the creeks, except for the upper reaches of Thoroughfare Creek where glaciation reached the valley bottom and till was deposited.

Also found on Thoroughfare are tertiary gravels containing the 'White Channel' and overlying tertiary brown gravels. Where
II GEOLOGY (Continued)

these gravels are not exposed and till is not present, material on the valley bottom consists of stream deposits and alluvium.

III SURVEY EQUIPMENT

Equipment used for assessment on the property included an ER-2 Conductance-Resistivity Meter. Information was obtainable on subsurface sand and gravel deposits as well as indications of bedrock. The electrodes used on the Vancouver Creek assessment project had a maximum separation of 20 feet. The strigraphic variation at a constant depth of 10 feet below surface was therefore derived.

IV SITE EVALUATION

Site #1

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<th>length of traverse</th>
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<tbody>
<tr>
<td>width of traverse</td>
<td>n/a</td>
</tr>
</tbody>
</table>

The values of ohm/feet recorded along this traverse would seem to indicate a uniform sequence of stream deposits within the top ten foot strata that was surveyed. The traverse follows the general course of the valley on a narrow strip of flat land before the sharp increase in slope. Higher values found at 101 and 104 may indicate a significantly coarser type of stream deposit, perhaps gravel. Until correlative trenching. However, actual identification of the sub-strata type in conjunction with resistivity values is speculative.

Sites #2 - #4

<table>
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<th>length of traverse</th>
<th>approx. 480'</th>
</tr>
</thead>
<tbody>
<tr>
<td>width of traverse</td>
<td>60'-180'</td>
</tr>
</tbody>
</table>

At Sites #2 - #4, a north-south axis was established along a flat area of land parallel to the hillside. Values in ohm/feet
Sites #2 - #4 (Continued)

along this axis were found to be relatively high, indicating the possibility of broken bedrock at the base of the steep slope. Medium to low values were recorded in a region 240 feet long and 180 feet wide, bounded by Thoroughfare Creek, Vancouver Creek, and the hillside (see site map 2 - 4 p.). Minor trenching at this location indicated a definite profile of stream deposits, chiefly sand and silt. Fine gravel deposits were also located but in small amounts.

Site #5

length of traverse....240'
width of traverse.....120'

Readings at Site #5 seem to indicate a different pattern than was experienced in the previous sites. High readings were found almost everywhere except for mid-range values nearer the streams. The area traversed was flat, rising gently along the north-south axis. To the east, sharply rising slope is evident. The extremely high readings may indicate the presence of broken bedrock. Stream deposits appear to be limited to a narrow corridor adjacent to the channels.

Site #6

length of traverse....240'
width of traverse.....120'

The readings at Site #6 were in a low to medium range (110 - 399 ohm/feet). This would seem to indicate a uniform type of deposit, possibly of stream origin. Trenching at this site would aid in the definite identification of strata type indicating the economic viability of placer mining at this locale.
Site #7

length of traverse....360'
width of traverse....120'

The axis of this traverse follows the general orientation of the valley. A steep hillside is located on one side of the valley and the stream on the other. Most of the readings found here were mid-range to high. The lower values were received near the stream and the higher values toward the hillside. Similar to earlier surveys, this might indicate the presence of broken bedrock at the base of the slope and alluvial materials and associated deposits adjacent to the stream.

Site #8

length of traverse....420'
width of traverse.....60' - 180'

The lower values usually associated with stream deposits were also found on the easter 180 feet of the east-west axis on this site. High values predominate in other areas, again indicating the possibility of finding broken bedrock. An area of lower values was also found along the hillside being oriented in the north-easterly part of that site.

Site #9

length of traverse....420'
width of traverse.....180' - 240'

In this area, signs of frequent flooding were found in the form of intermittent streams. The streams ran parallel being oriented in a northeast-southwesterly direction. A large sandbar is also present on Vancouver Creek, measuring 180 feet in length and 30 feet in width.

Readings found in this area were almost all in the low to medium range with the exception of a well defined pocket of high values (see site plan 9, p. 4). The medium to low values may indicate
Site #9 (Continued)

the predominance of stream deposits. The expanse of the area would seem to warrant the further investigation of depth and therefore volume of stream deposits located here. Seismic sounding or trenching is strongly recommended for this site.

Site #10

length of traverse....480'
width of traverse.....180' - 240'

In this region, extremely high values were found except in a narrow corridor alongside the stream. It can be assumed that the lower readings indicated deposits and that broken bedrock is dominant in the remainder of this large survey area. The presence, however, of surface water within the muskeg may have influenced the readings on the equipment and trenching or drilling is recommended in order to prove or disprove these findings.

NOTE: Headings of Maps & Charts

It should be noted that the following maps and charts are labelled as Vancouver Creek. It is meant that the sites evaluated were on or in the vicinity of Vancouver Creek, including its tributaries of Right Hook and Thoroughfare Creeks.

Please see claim map for actual location.
The electrical conductivity/resistivity method of subsurface investigation can be used for various types of work. Although the system has many limitations, the key to its success is based on its operation and, more importantly, on interpretation of the data. Electrical resistivity surveys can be used for horizontal profiles and vertical sounding. It is particularly useful for prospecting and delineating boundaries of sand and gravel deposits and identifying bedrock contacts.

The fundamental property of material is its resistance, which is independent of volume but relative to the shape and size of the specimen. Conversely, the conductance of any specimen is the reciprocal of its resistance. In practice, the volume of material through which a current passes is proportional to the distance between test electrodes; the current being transformed into hemispherical equipotential surfaces. The fundamental equation for resistivity on a four probe system is as follows:

\[ p = \frac{211V}{I} \left( \frac{1}{r_1-r_2} - \frac{1}{r_3-r_4} \right) \]

There are two basic probe configurations used in this work. Schlumberger and Wenner are most often used with adaptations for the Barnes Layer and the More cumulative method of interpretation. The Wenner configuration is the most commonly used conductance/resistivity variability of lateral formations and detection of subsurface bedrock materials having depths to 60 feet. Readings in ohm/feet or ohm/metres are recorded and charted on one or two cycle log graphs. By using various methods of correlation and interpretation, results may indicate material variables as well as depths to unconformable intersections. Resistivity values used in conjunction with seismograph readings will indicate absolute values as well as positive identification of materials, their orientation and underlying bedrock characteristics.
OBSERVATIONS

Data interpretation on Vancouver, Right Hook and Thoroughfare Creeks was found to be difficult. An abundance of water and/or perma-frost caused many technical problems, thereby producing unreliable information. To this end, one would be reluctant to indicate absolute values on the data. Fortunately, field crews recorded pertinent data related to the local structural geology which, when correlated to information from the several hand-dug trenches, gave a data base for some evaluation of resistivity readings.

Information correlated from test sites indicates that variable deposits of alluvial gravels and sands are situated in relatively narrow strips between adjacent broken bedrock slopes; depths vary as to location. Instrument readings indicate the deposits are relatively shallow being underlain by either fractured bedrock or perma-frost. Referring to the site plans, resistivity readings (re-indexed for interpretation) indicate the presence of some sands and gravels with a predominance of broken bedrock.

Absolute values and structural components cannot, however, be determined at this time. It will be necessary to perform complimentary seismic work or drilling in the next season to confirm present data.
VANCOUVER CREEK
STRATIGRAPHIC VARIABILITY
Site 2-4

50 ohm intervals
Scale 1" = 75 m.
VANCOUVER CREEK
STRATIGRAPHIC VARIABILITY

Site 6

50 ohm intervals
Scale 1" = 75 m.
VANCOUVER CREEK
STRATIGRAPHIC VARIABILITY
Site 10

50 ohm intervals
Scale 1" = 75 m.
VANCOUVER CREEK
CONDUCTIVITY TESTS
Site 10
FROM SEPTEMBER 1974 TO DECEMBER 1977:
President and Principal Consultant of D.W. Litchfield &
Prime Contractor for Olin Corporation on the Emery Ridge
Phosphate Project driving exploration adits, trenching sample
taking, beneficiation studies, mapping environmental analysis
and baseline data studies, geological and structural mapping,
and transportation studies. All government reports and regu-
lation studies and requirements were met and successfully
completed.

FROM DECEMBER 1976 TO OCTOBER 1977:
Principal and President of Orex, Inc. Responsible charge of
mining and operations contract to develop the Seven Throughs
Mining District and to explore the Four Generations and
Mardis Properties in Nevada.

FROM OCTOBER 1977 TO JULY 1978:
Exploration of the Silver Mountain Project for Olin Corporation.
Included access road development, drill sites, camp and
facilities construction, mapping and survey geological and
structural mapping, drilling and sample taking, assays and
evaluation reports.

FROM JULY 1978 TO DECEMBER 1979:
Evaluation and testing of a large gold-silver project near
Coches, Nevada for Paymaster Corporation. The first phase
includes drilling, trenching, development stripping, and
assay testing of the deposit and the second phase, during
the third and fourth years included building a mill and prepara-
tion for the mining of 10,000,000.
Mr. Litchfield is now the principal designer and is the
Chief Executive Officer of the Contractor.

FROM DECEMBER 1979 TO MAY 1980:
Design and construction supervision for a placer gold test
plant at Tonopah, Nevada.

FROM MAY 1980 TO SEPTEMBER 1980:
Responsible charge of exploration and evaluation of the Minerva
Mine at Atlanta, Ohio for Jack Wolfs of Ohio, Ohio. Included
trenching mapping and underground development and site design
and construction.

FROM SEPTEMBER 1980 TO JULY 1981:
Responsible charge of design of cyanide plant for gold and
the design and building of an open pit for Wild Cat Levee Ltd.
Including trenching, bench design, plant designs and construc-
tion. Well location and drilling and tailings pond design
and construction.

FROM OCTOBER 1980 TO DECEMBER 1980:
Also provided engineering services relating to the explora-
tion at Wilson Creek, Ontario, Y. M. C. A. in Red Lake and
mining in the Cobalt district.
FROM SEPTEMBER 1965 TO JUNE 1966:

FROM JUNE 1966 TO OCTOBER 1966:
Graduation from Utah State University with a B.S. in Civil Engineering. Project Engineer, Weyerhaeuser Construction Co., Kennecott Copper Co., Garfield, Utah. Design and installation of acid lines and various engineering works.

FROM OCTOBER 1966 TO APRIL 1968:
Estimating Engineer and Trouble Shooter. S.S. Mullen, Inc. Salt Lake City, Utah. Responsible charge of estimating of costs, bidding, design of operational plans, mining engineering, equipment utilization and new project planning. Responsible charge of engineering, problem solving, on-going projects.

FROM APRIL 1968 TO JUNE 1969:
Mining Consultant and Engineer. Client, Brush Beryllium Co. Delta, Utah. Responsible charge of all engineering and design of the reefside Open Pit Mine. Project engineer for contract to recover overburden. Design and engineering of mining plan and stockpile placement.

FROM JUNE 1969 TO OCTOBER 1970:
Mining Consultant, Mines, Inc., Salt Lake City, Utah. Mine evaluation and planning for numerous clients in Utah, Arizona, California, Idaho and Montana and Mexico, for Strip Copper, Inc., El Chorro Mine, NY, Mexico, Continental Gold and Silver, California and Mexico.

FROM OCTOBER 1970 TO SEPTEMBER 1971:
Mineral Consulting for Continental Dynamics, ROWAN W. Williams and Brush Beryllium Co.

FROM SEPTEMBER 1971 TO JULY 1972:
Mining Consultant and Engineer, client, Brush Workman, Inc. (Brush Beryllium), Delta, Utah. Design and project engineering of Mine Chalk North Pit. Responsible charge of all engineering design and project engineering in the completion of this project.

FROM JULY 1972 TO SEPTEMBER 1972:
Mining Consultant, client, Consolidated Radial Ind. Evaluation of gold placer and copper properties in Colorado and Utah, coal, salt, mining of asphalt and the ability reports.

FROM SEPTEMBER 1972 TO MARCH 1973:
Mine Engineer and General Manager, 1082 cations Mining Co. Lovelock, Nevada. Responsible charge for mining and process planning and operation of gold placer propagation.

FROM MARCH 1973 TO PRESENT:
Consulting Engineer in mining operation on a research and evaluation of application in Nevada, Utah and Idaho, and testing and application of new process.
The geophysical work completed gives us target areas to do seismic surveys and trenching to evaluate specific areas. It is shown by these surveys that a reasonable, economic, pre-disturbance evaluation of material strata and locations should be a useful tool in placer evaluation studies.
The geophysical work on Vancouver, Right Hook and Thoroughfare Creek claim was done in two phases by Eagles Nest Mining, exploration division, while acting on behalf of the aforementioned owners.

**PHASE I**  June 1981
Director: D. Litchfield  
Crew: T. Lowe, G. Hulse, S. Lowe

**EXPENSES**

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**PHASE II**  July - August 1981
Director: D. Litchfield  
Coordinator: I. H. Norie  
Geotechnical Crew: M. Beidler, D. Braam

**EXPENSES**

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VII REFERENCES

1. Bostok, Geol. Survey of Canada Map 1143A McQueston 1:250,000
2. Yukon Land & Resource Inventory Atlas
3. N.T.S., McQueston Map Sheet 115 P/11, 1:50,000
DOUGLAS W. LEIGHTFELD
220 South 200 East, Suite 300
Salt Lake City, Utah 84111
(801) 531-6326

PERSONAL INFORMATION

Age: 49 Years
Birth Date: September 11, 1932
Marital Status: Married, 4 Children

AREAS OF EXPERTISE


FROM 1943 TO MAY 1950:
Equipment operator, chainman, redman, instrument man and first order surveyor at Coleman Collieries and for Southern Road and Irrigation Corporation Co. Ltd., Alberta, Canada. (Father worked in family business.)

FROM MAY 1950 TO SEPTEMBER 1950:
Caretaker at Banff National Park Service. Waterton Lakes National Park, Alberta, Canada.

SEPTEMBER 1950 TO NOVEMBER 1952:
Creston City Saints Missionary. Creston, British Columbia.

FROM NOVEMBER 1952 TO OCTOBER 1954:
Public relations officer. Assiniboine National Park, Manitoba, Canada. Directed public relations work, lectures, films, guided tours (Winter Ski Patrol and Racing).

FROM OCTOBER 1954 TO MAY 1957:
Civil Chief, Production Assistant, Coal, Department of Public Works, James Colden Highways Division, Chief, Alberta. Preliminary survey, construction design, survey and supervision. Responsible charge of work with regard to all phases of engineering in their projects. Consequently, under the supervision of a manager offered in charge of ten projects. Completed total projects from preliminary location to finished paving.

FROM JULY 1957 TO MAY 1958:
Location engineer, Department of Public Works, Highways Division, chief, Alberta. Site location of road, and high resistance to north to northeast, worked closely with survey parties.
FROM MAY 1958 TO JUNE 1960:
Project Engineer, Square M Construction and Coleman Collieries Ltd. Alberta, Canada. Responsible charge of all engineering on roadway, bridges, open pit mining, and construction of an oil refinery. Troubleshooter on the numerous projects of the company.

FROM JUNE 1960 TO SEPTEMBER 1960:
Project Engineer, W.C. Wells Construction Co., Lethbridge, Alberta, Canada. Responsible charge of engineering on 20 miles of roadway reconstruction.

FROM SEPTEMBER 1960 TO JUNE 1961:
Utah State University, Logan, Utah. Laboratory Assistant and Instrument Repairman at Utah State University. Instruction and field practice supervision of survey students and the care and repair of all instruments and survey equipment. Also assisted Professor Timpany on land surveys and private consulting work. (Part time)

FROM JUNE 1961 TO AUGUST 1961:
Part Chief, Dam Construction, Inc. Flaming Gorge Dam, Utah. Responsible charge of block location crew.

FROM AUGUST 1961 TO DECEMBER 1961:
Shift Superintendent, J.H. Beckman Construction Co. at Logan, Utah. Charge of heavy construction crew, building Interstate 80 section near Church Falls.

FROM JANUARY 1962 TO JULY 1961:
Laboratory Assistant at Utah State University. Same work as in 1960. (Part time)

FROM JULY 1961 TO DECEMBER 1963:
Project Engineer and Superintendent, Langelie & Son Construction Co., Logan, Utah. Responsible charge of estimating, bidding and project engineering and supervision on roads, quarry, airport and dam projects.

FROM DECEMBER 1963 TO APRIL 1964:
Survey and Design Assistant, Again & Soner, Inc. Logan, Utah. Responsible for land surveys and design of subdivisions and engineering works.

FROM APRIL 1964 TO NOVEMBER 1964:

FROM NOVEMBER 1964 TO APRIL 1965:
Surveyor and Draftsman, J.H. Beckman, Inc. Logan, Utah. Field supervision and land surveys.

FROM APRIL 1965 TO PRESENT:
FROM FEBRUARY 1981 TO DECEMBER 1981:

Responsible charge of exploration, development and plant design and operation for Eagles Nest Mining Ltd. on projects at Atlin B.C., Canada, Mayo Lake, Yukon Territories, and Barlow Creek, Yukon Territories and of exploration on Dip Creek, Rude Creek, Quartz Creek, Grayling Creek, Vancouver Creek, Casino Creek, Isaac Creek and others in Yukon Territories and Footman and Bighorn Creek in B.C. Continuing to design and evaluate data from the summer field work.
REFERENCES:

Olin Corporation - Stamford, Connecticut
Robert Grill (203) 356-3083

Olin Corporation - Houston, Texas
Richard A. Smith (Chief Geologist) (713) 682-1363

Bingham Collar - Salt Lake City, Utah
Leland J. Davis (Chief Geologist) (301) 467-5441