WHITEWATER GROUP: SOIL GEOCHEMISTRY
SLOCAN MINING DIVISION
WHITEWATER 1, 2 and 3 (31 units)
82K/3E
50° 05' N, 117° 08' W

Owner/Operator
Amoco Canada Petroleum Company Ltd.
Mining Division
656 - 409 Granville Street
Vancouver, B.C.
V6C 1T2

Report written by:
Paul Brown
October 30, 1979
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INTRODUCTION

The WHITEWATER 1, 2 and 3 claims consist of 31 contiguous units which are situated in the Whitewater Creek area, approximately 4 km. north of the old mining town of Retallack, B.C.. The southern portion of the WHITEWATER claim group is accessible by a logging road up the Whitewater Creek Valley, while the central portions of the claim group is accessible by a hiking trail extending off this logging road. Relief on the claim group is 1300 m., requiring helicopter support for setting up and servicing a field camp located in the western portion of the claim group.

Amoco Canada Petroleum Company Ltd., Mining Division, is the owner and operator of the WHITEWATER 1, 2 and 3 claims.

The central portion of the claim group is underlain by serpentinised ultramafics of Triassic or Permian age. These ultramafics form a narrow belt trending NW-SE, and is flanked on both sides by chloritized meta-volcanics, of the Kaslo Group. The majority of the claim group is underlain by these Kaolo Group metavolcanics except the southwest corner where the rocks are Slocan Group black argillites of Triassic age.
Geochemical soil sampling has indicated the presence of anomalous concentrations of gold on all three WHITEWATER Claims.

**WHITEWATER CLAIM GROUP**

<table>
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<th>Claim</th>
<th>Units</th>
<th>Tag No.</th>
<th>Date Staked</th>
<th>Anniversary Date</th>
<th>Record No.</th>
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<tr>
<td>WHITEWATER 3</td>
<td>6</td>
<td>51606</td>
<td>Aug. 16, 1979</td>
<td>Aug. 28, 1980</td>
<td>1405</td>
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The majority of the WHITEWATER 1, 2 and 3 claims are underlain by Kaslo Group metavolcanics of Permian and/or Triassic age. These metavolcanics consist mainly of fine grained, dark green flows and/or tuffs of andesitic composition. Interbedded with these volcanics are lenses of clastic sediments, which appear to be of a composition similar to that of the volcanics. These sediments tend to strike east-west and dip very steeply to the south. The principal alteration, chlorite, is found throughout the andesites and metasediments and is strongest adjacent to contacts.

Near the stratigraphic middle of the meta-andesite sequence is a NW-SE trending belt of strongly serpentinized ultramafics. These ultramafic flows, which are occasionally pillowed, vary in width from 300 m to 600 m and has a strike length of approximately 14 km.

Within the sediments and volcanics on the northeast side of the ultramafics are a number of narrow easterly trending and steeply dipping dikes. These light grey to brown quartz and feldspar rich dikes are of alaskite to quartz monzonite composition.
Occurring within the chloritized meta-andesites adjacent to the contacts with the ultramafics are a number of quartz veins, which are generally small and of limited extent, with a few exceptions. These veins have a NW-SE trend and usually steeply dipping. Veins are generally barren however occasionally they contain minor amounts of Py and are also believed to be the source of gold found in a soil geochem survey over portions of WHITEWATER 1 and 2 claims. An old gold showing located in the south central portion of WHITEWATER 2 is associated with two 30 cm Cp and Py bearing quartz veins. These veins trend 150° and dip 85° NE, and appear to be restricted in potential size.

Significant amounts of Ni have been reported within the ultramafics themselves however not within the confines of the WHITEWATER Claims.
SOIL GEOCHEMISTRY

During the period August 15th and August 17th to August 20th, 1979, 20 man days were spent collecting soil samples on a grid covering portions of WHITEWATER 1, 2 and 3 claims (see location map page 3). An area of approximately 150 hectares was covered. Grid lines are at 200 m separation and samples were collected every 30 m. A number of lines on a pre-existing grid were extended and soil samples were taken on these lines every 50 m when possible.

Soil samples were collected from depths of 10 cm to 20 cm with a mattock and stored in Kraft paper bags. The B horizon was sampled when present otherwise the C horizon was sampled.

The minum 80 mesh fraction of all samples was analyzed for Au, Ag and Cu by Min-En Laboratories of North Vancouver.

The results indicate the presence of several anomalous concentrations of gold, the largest of which occurs between lines 13+00E and 19+00E. All gold values within the anomalous
zone are greater than 75 ppb with the highest being 1850 ppb on L15+00E at 2+40N. Several smaller anomalous zones are located directly downslope of the most prominent zone and are probably downslope migration of gold in soils.

The strongest soil anomaly is underlain by chloritized meta-andesites which are host to infrequent "visable" quartz veins, and adjacent to the contact with ultramafic rocks.

Several other weaker but significant concentrations of gold in soils are found within the claim group and are probably related to quartz veins in chloritized mafic volcanics.
EVALUATION OF WORK

Soil Sampling: A total of 368 soil samples were collected. 233 samples on WHITEWATER 1. 135 samples on WHITEWATER 2 and 3.

Claim: WHITEWATER 1, 2 and 3

Work Conducted: Grid soil Sampling.

Dates Conducted: August 15th, 17th, 18th, 19th and 20th.

Salaries: Paul Brown 5 man-days @ $52.90 = $264.50
David Stevenson 5 man-days @ $39.62 = $198.10
Keith Thompson 5 man-days @ $37.96 = $189.80
Lauchlan Currie 5 man-days @ $31.48 = $157.40

Sub-Total $809.80

Meals: 20 man-days at $12.00/man-day $240.00

Transportation: Helicopter 4.9 hrs. at $380.90/hr. $1866.41

TOTAL $2916.21
Assay Charges: Soil samples taken on WHITEWATER 1, 2 and 3. 368 samples analyzed for Au, Ag and Cu at $6.65/sample .................. $2472.20

Credit to WHITEWATER 1, 2 and 3 Claims:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tr>
<td>Work done</td>
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<tr>
<td>Assay charges</td>
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<tr>
<td>Cost of report preparation</td>
<td>300.00</td>
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<td><strong>TOTAL</strong></td>
<td><strong>$5688.41</strong></td>
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APPORTIONMENT OF EXPENSES

WHITEWATER 1, WHITEWATER 2 and WHITEWATER 3 Claims:

Total number of samples WHITEWATER 1, 2 and 3 = 368
Total number of samples WHITEWATER 1 = 233
Total number of samples WHITEWATER 2 and 3 = 135

WHITEWATER 1: 233/368 x $5,688.41 = $3,601.63
WHITEWATER 2 and 3: 135/368 x $5,688.41 = $2,086.78
APPENDIX 1

FEE SCHEDULE

Geochemical analyses were done by:

Min-En Laboratories Ltd.
705 West 15th Street
North Vancouver, B.C.
V7M 1T2

Geochemical analyses:

Au, Ag and Cu $6.15
Sample preparation $0.50

Total $6.65
MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
Corner 15th Street and Bewicke
705 WEST 15th STREET
NORTH VANCOUVER, B.C.
CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURE FOR GOLD GEOCHEMICAL ANALYSIS.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pre-treated with HNO₃ and HClO₄ mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

At this stage of the procedure copper, silver and zinc can be analysed from suitable aliquote by Atomic Absorption Spectrophotometric procedure.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 5 ppb.
ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURES FOR: Cu, Mo, Cd, Pb, Mn, Ni, Ag, Zn

Samples are processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO₃ and HClO₄ mixture.

After cooling the samples are diluted to standard volume. The solutions are analysed by Atomic Absorption Spectrophotometers.

Copper, Lead, Zinc, Silver, Cadmium, Cobalt, Nickel and Manganese are analysed using the CH₂H₂-Air Flame combination but the Molybdenum determination is carried out by CH₂N₂O gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

Background corrections for Pb, Ag, Cd upon request are completed.
APPENDIX III

NAMES AND ADDRESSES OF PERSONS CONDUCTING WORK

Paul Brown       1504-2170 Sherobee Road
                 Mississauga, Ontario
                 L5A 3P8

David Stevenson  74 Warren Avenue
                 Riverview, New Brunswick
                 E1B 3M3

Keith Thompson   36 New Street S.E.
                 Calgary, Alberta
                 T2G 3X9

Lauchlan Currie  1114 Talon Avenue S.W.
                 Calgary, Alberta
                 T2T 1G7
APPENDIX IV

COST PER HOUR FOR HELICOPTER, 1979

Bell 206B, casual basis, Okanagan Helicopters, Nelson, B.C.

Casual rate $350.00/hour
Fuel and oil cost $ 30.90/hour

Total $380.90/hour
APPENDIX V

QUALIFICATIONS OF PAUL BROWN

B.Sc. Geology, Memorial University of Newfoundland, 1974

Continuously employed in the mineral exploration industry since graduation and with Amoco Canada Petroleum Company Ltd. since April 1975.

Member of the Geological Association of Canada and the Canadian Institute of Mining and Metallurgy.

Paul Brown, B. Sc.

Toronto, Ontario

October 30, 1979