ASSESSMENT REPORT

1991 GEOLOGICAL EXPLORATION PROGRAM on the JANINE 3 CLAIM

SKEENA MINING DIVISION

LOCATED

9 KM WEST OF MTN ANDREAS VOGT BRITISH COLUMBIA

CENTRED ON

LATITUDE: 55 55'00" NORTH LONGITUDE: 129 50'30" WEST

NTS 103P/13

OWNER

BOND GOLD CANADA INC.

OPERATOR

BOND GOLD CANADA INC.

REPORT BY

ADRIAN D. BRAY KATHARINE F. BULL TONI K. HINDERMAN

GEOLOGICAL BRANCH ASSESSMENT REPORT

DATE: 07/12/91

21,943
SUMMARY

1991 EXPLORATION PROGRAM
ON THE JANINE 3 CLAIM

Several mountaineering reconnaissance-style geological traverses were conducted on Bond Gold Canada Inc.'s Janine 3 claim between August 5th and August 14th, 1991. The program consisted of 1:10,000 geological mapping.

The one claim, 500 hectare property is located on the eastern flank of the Coast Mountains, approximately 9 kilometres west of Mtn Andreas Vogt, which is twenty-two kilometres east-southeast of the port town of Stewart. The claim is situated within Stikinia Terrane, within rocks of the Lower Jurassic Hazelton Group. The Hazelton strata has been intruded by a felsic dyke, most likely of Tertiary age, and a pluton of undetermined age.

It is recommended that detailed mapping and sampling be conducted at the contact area between the felsic to intermediate pluton and the andesitic pyroclastics. Uranium-lead age dating could be carried out in order to establish the date of the intrusion.
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1.0 INTRODUCTION

The Janine 3 claim is located at the eastern flank of the Coast Mountains, approximately twelve kilometres east-southeast of Stewart, British Columbia (Figure 91-01). The nearest paved road is Highway # 37A, twelve kilometres to the north-northwest. Access to the property was gained by helicopter from Bond Gold Canada Inc.'s Red Mountain camp, approximately six and a half kilometres to the south-southwest.

The Janine 3 claim is centred on latitude 55 55'00" North and longitude 129 50'30" West. Approximately 65% of the claim is covered by the Cambria Ice Field. Elevation ranges from 1500 to 2000 metres above sea level. Regionally, western hemlock is the dominant tree while Sitka spruce, amabilis fir and black cotton wood are common subdominants. Common shrubs along valley bottoms include mountain alder, willows, red-osier dogwood, red elderberry, raspberry, devils' club, mountain maple and thimbleberry. Mountain alder is a widespread pioneer species on avalanche slopes and recently deglaciated terrain. The subalpine mountain hemlock zone occurs from about 900 to 1350 metre levels. Alpine vegetation occurs intermittently between 1350 and 1600 metre levels, giving way to bare rock at higher elevations. Wildlife consists of mountain goats, grizzly and black bears, wolverines, wolves, marmots, martens and ptarmigans.
The area has a coastal climate regime. Snowfall is heavy due to high elevations, northern latitude and proximity to the ocean. In the Stewart area mean annual snowfall ranges from 520 centimetres at sea level and 1500 centimetres at 460 metres elevation (Bear Pass) up to 2250 centimetres at an elevation of 915 metres (Tide Lake Flats).

A reconnaissance-style geological mapping program on the Janine 3 claim was conducted by Dihedral Exploration for Bond Gold Canada Inc. between August 5th and August 14th, 1991. There is no previous record of work known for these claim groups.
1.1 PROPERTY STATUS

The 20 unit Janine 3 claim, 100% owned by Bond Gold Canada Inc., is located within the Skeena Mining Division of British Columbia. Figures 91-02 (in pocket) and 91-02A show the location and disposition of the claim. Relevant claim information is summarized in the following table.

TABLE 1
PROPERTY STATUS SUMMARY

<table>
<thead>
<tr>
<th>CLAIM NAME</th>
<th>RECORD NO.</th>
<th>UNITS/HECTARES</th>
<th>RECORD DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANINE 3</td>
<td>7877</td>
<td>20/500</td>
<td>08/09/89</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>20 units/500 ha</td>
<td></td>
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</table>
2.0 REGIONAL GEOLOGY AND MINERALIZATION

GEOMOGY

The Janine 3 claim is situated at the eastern margin of a broad, north-northwest trending volcano-plutonic belt composed of the Upper Triassic Stuhini Group and the Upper Triassic to Lower-Middle Jurassic Hazelton Group. This belt has been termed the "Stewart Complex" by Grove (1986) and forms part of the Stikinia Terrane. The Stikinia Terrane together with the Cache Creek and Quesnel Terranes constitute the Intermontane Superterrane which is believed to have accreted to North America in Middle Jurassic time (Monger et al., 1982). To the west, the Stewart Complex is bordered by the Coast Plutonic Complex. Sedimentary rocks of the Middle to Upper Jurassic Bowser Lake Group overlay the complex in the east.

The Jurassic stratigraphy was established by Grove (1986) during regional mapping between 1964 and 1968. Formational subdivisions have been and are in the process of being modified and refined as a result of recent work being undertaken in the Stewart, Sulphurets, and Iskut areas by the Geological Survey Branch of the BCMEMPR (Alldrick 1984, 1985, 1989), the Geological Survey of Canada (Anderson 1989, Anderson and Thorkelson 1990) and the Mineral Deposits Research Unit at the University of British Columbia. A sedimentological, stratigraphic, and structural framework is slowly emerging for this area.
The Hazelton Group represents an evolving (alkalic/calc-alkalic) island arc complex, capped by a thick succession of turbidites (Bowser Lake Group). Grove (1986) subdivided the Hazelton Group into four litho-stratigraphic units (time intervals defined by Alldrick 1987): the Upper Triassic to Lower Jurassic (Norian to Pliensbachian) Unuk River Formation, the Middle Jurassic Betty Creek (Pliensbachian to Toarcian) and Salmon River (Toarcian to Bajocian) Formations, and the Middle to Upper Jurassic (Bathonian to Oxfordian- Kimmeridigian) Nass Formation. Alldrick assigned formational status (Mt.Dilworth Formation) to a Toarcian rhyolite unit (Monitor Rhyolite) overlying the Betty Creek Formation. Rocks of the Salmon River Formation are transitional between the mostly volcanic Hazelton Group and the wholly sedimentary Bowser Lake Group and are presently treated either as the uppermost formation of the former or the basal formation of the latter (Anderson and Thorkelson 1990). The Nass Formation has now been assigned to the Bowser Lake Group.

The Unuk River Formation, a thick sequence of andesitic flows and tuffs with minor interbedded sedimentary rocks, host several major gold deposits in the Stewart area. The unit is unconformably overlain by heterogeneous maroon to green, epiclastic volcanic conglomerates, breccias, greywackes and finer grained clastic rocks of the Betty Creek Formation. Felsic tuffs and tuff breccias characterize the Mt.Dilworth Formation. This formation represents
the climactic and penultimate volcanic event of the Hazelton Group volcanism and forms an important regional marker horizon. The overlying Salmon River Formation has been subdivided in the Iskut area into an Upper Lower Jurassic and a Lower Middle Jurassic member (Anderson and Thorkelson 1990). The Upper member has been further subdivided into three north trending facies belts: the eastern Troy Ridge facies (starved basin), the medial Eskay Creek facies (back-arc basin), and the western Snippaker Mountain facies (volcanic arc).

Sediments of the Bowser Lake Group rest conformably on the Hazelton Group rocks. They include shales, argillites, silt- and mudstones, greywackes and conglomerates. The contact between the Bowser Lake Group and the Hazelton Group passes between Strohn Creek in the north and White River in the south. The contact appears to be a thrust zone with Bowser Lake Group sediment "slices" occurring within and overlying the Hazelton Group pyroclastic rocks to the west.

Two main intrusive episodes occur in the Stewart area: a Lower Jurassic suite of dioritic to granodioritic porphyries (Texas Creek Suite) that are comagmatic with extrusive rocks of the Hazelton Group and an Upper Cretaceous to Early Tertiary intrusive complex (Coast Plutonic Complex and satellite intrusions). The Early Jurassic suite is characterized by the occurrence of coarse hornblende, orthoclase and plagioclase phenocrysts and locally
potassium feldspar megacrysts. The Eocene Hyder quartz-monzonite, comprising a main batholith, several smaller plugs, and a widespread dyke phase, represents the Coast Plutonic Complex.

Middle Cretaceous regional metamorphism (Alldrick et al. 1987) is predominantly of the lower greenschist facies. This metamorphic event seems to be related to west-vergent compression and concomitant crustal thickening at the Intermontane - Insular superterrane boundary (Rubin et al 1990). Biotite hornfels zones are associated with a majority of the quartz monzonite and granodiorite stocks.

MINERALIZATION

The Stewart Complex is the setting for the Stewart (Silbak-Premier, Big Missouri), Iskut (Snip, Johnny Mountain, Eskay Creek), Sulphurets, and Kitsault (Alice Arm) gold/silver mining camps. Mesothermal to epithermal, depth-persistent gold-silver veins form one of the most significant types of economic gold deposits. There is a spatial as well as temporal association of this gold mineralization with Lower Jurassic calc-alkaline intrusions and volcanic centres. These intrusions are often characterized by 1-2 cm-sized potassium feldspar megacrysts and correspond to the top of the Unuk River Formation.

The most prominent example of this type of deposit is the historic Silbak-Premier gold-silver mine which has produced 56,600 kg gold
and 1,281,400 kg silver in the time from 1918 to 1976. Current open pit reserves are 5.9 million tonnes grading 2.16 g Au/t and 80.23 g Ag/t (Randall 1988). The ore is hosted by Unuk River Formation andesites and comagmatic Texas Creek porphyritic dacite sills and dikes. The ore bodies comprise a series of en echelon lenses which are developed over a strike length of 1,800 metres and through a vertical range of 600 metres (Grove 1986, McDonald 1988). The mineralization is controlled by northwesterly and northeasterly trending structures and their intersections, but also occur locally concordant with andesitic flows and breccias. Two main vein types occur: silica-rich, low-sulphide precious metal veins and sulphide-rich base metal veins. The precious metal veins are more prominent in the upper level of the deposit and contain polybasite, pyrargyrite, argentiferous tetrahedrite, native silver, electrum, and argentite. Pyrite, sphalerite, chalcopyrite and galena combined are generally less than 5%. The base metal veins crosscut the precious metal veins and increase in abundance with depth. They contain 25 to 45% combined pyrite, sphalerite, chalcopyrite and galena with minor amounts of pyrrhotite, argentiferous tetrahedrite, native silver, electrum and arsenopyrite. Quartz is the main gangue material, with lesser amounts of calcite, barite, and some adularia being present. The mineralization is associated with strong silicification, feldspathization, and pyritization. A temperature range of 250 to 260 degrees C has been determined for the deposition of the precious and base metals (McDonald 1990).
Middle Eocene silver-lead-zinc veins are characterized by high silver to gold ratios and by spatial association with molybdenum and/or tungsten occurrences. They are structurally controlled and lie within north-, northwest-, and east-trending faults. This mineralization is less significant in economic terms.

Porphyry molybdenum deposits are associated with the Tertiary Alice Arm Intrusions, a belt of quartz-monzonite intrusions parallel to the eastern margin of the Coast Plutonic Complex. An example of this type of deposits is the B.C. Molybdenum Mine at Lime Creek.
The Janine 3 claim is underlain by Early Jurassic Hazelton Group volcanic and sedimentary rocks which have been intruded by a dyke, most likely of Tertiary age, and a pluton of undetermined age. The volcanics and sediments strike north-northwest to north-northeast with steep dips to the west-southwest and north-northwest. All rock names are based on field observations rather than on bulk rock analyses. The rocks are named in accordance to definitions presented by Fisher and Schmincke in their book "Pyroclastic Rocks", 1984.

**Volcanic Rocks:** The volcanic rocks in the map area do not contain mappable marker beds. As a result, the distinction between individual units is sometimes difficult. The pyroclastic rocks outcrop in the central to northeastern portion of the claim, and are described as follows:

**vapg** - green andesitic pyroclastics. The vapg unit includes agglomerate (volcanic clasts > 64 mm), lapilli (clasts 2-64 mm), and coarse to fine ash tuff, crystal tuffs, and a subordinate percentage of green volcanic flows and maroon pyroclastics and flows. The agglomerates contain rounded to subangular volcanic clasts, most of which are of intermediate composition. A subordinate percentage of the clasts may be non-volcanic. Tuffs are often difficult to distinguish from very fine-grained flows, but competency of crystals is the determining factor. Crystals other than plagioclase, whether euhedral or subhedral to anhedral, are rare.
Sedimentary Rocks: Sedimentary rocks occur on the south-central portion of the claim, and are described as follows:

**ssw** - siltstone and wacke. Thinly-bedded, dark gray to black siltstone and minor fine-grained gray to pale-green wacke. These rocks are turbidite-derived, although the Bouma sequences have not been defined.

Plutonic Rocks: Two plutonic rock types are recognized on the claim, and are described as follows:

**Tid** - felsic to intermediate dyke of probable Tertiary age. The dyke, striking 012 degrees with a dip of 70 degrees to the west-northwest, occurs within the sedimentary rocks.

**ip** - a felsic to intermediate pluton of undetermined age is located on the northeastern-most portion of the claim.
4.0 CONCLUSIONS AND RECOMMENDATIONS

The 1991 exploration program on the Janine 3 claim consisted of 1:10,000 geological mapping. It is recommended that detailed mapping and sampling be conducted at the contact area between the felsic to intermediate pluton and the andesitic pyroclastics.

Uranium-lead age dating could be carried out in order to establish if the intrusion is part of the Early Jurassic suite, metallogenically the most favourable for precious metal deposits in the Stewart area, or part of the Tertiary suite, generally silver and base metal-rich.
### 5.0 COST STATEMENT

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<td>Aircraft- rotary wing</td>
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<td><strong>Total</strong></td>
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</table>
6.0 CERTIFICATE OF QUALIFICATIONS

I, Adrian Dana Bray, of 1041 Comox St. Apt. 31, Vancouver B.C., do hereby certify that:

1. I have studied Geology at Acadia University in Wolfville, Nova Scotia and have received a Bachelor of Sciences degree with Honours in Geology in October of 1986.

2. I am an associate member in good standing of the Geological Association of Canada.

3. I have continuously practised my profession since graduation in Nova Scotia, Ontario, Quebec and British Columbia.

4. I am employed by Bond Gold Canada Inc.

5. The statements in this report are based on office compilation on the Janine 3 claims. The field work was conducted from August 5th to August 14, 1991. I have personally conducted or supervised the work described in this report.

Dated at Vancouver this 7th day of December, 1991.

ADRIAN D. BRAY
CERTIFICATE OF QUALIFICATIONS

I, Katharine F. Bull of PO Box 81418, Fairbanks, Alaska, do hereby certify that:

1. I have received a Bachelor of Science degree in geology from the University of Washington of Seattle, Washington in 1984, and a Master of Science degree from University of Alaska in Fairbanks, Alaska in 1988.

2. I am a member in good standing of the Alaska Miners Association and of the Association of Women Science.

3. I have continuously practiced my profession since 1981, in Alaska, Arizona, British Columbia and Greenland.

4. I am a partner of Dihedral Exploration of PO Box 110918, Anchorage, Alaska.

5. The statements in this report are based on field work on claims at intervals during the period from July 31 to September 9, 1991.

Dated at Vancouver this 3rd day of December, 1991.

Katharine F. Bull
CERTIFICATE OF QUALIFICATIONS

I, Toni K. Hinderman, of 3401 West 64th Avenue, Apt. 6, Anchorage, Alaska, do hereby certify that:

1. I have received a Bachelor of Arts degree in geology from Dartmouth College in Hanover, New Hampshire in 1966 and a Master of Science degree from Stanford University in Stanford, California in 1968.

2. I am a member in good standing of the Society of Mining and Exploration of The American Institute of Mining and Metallurgy, of the Alaska Miners Association, and of the Northwest Mining Association.

3. I have continuously practiced my profession since honorable discharge from the U. S. Army in 1969.

4. I am a partner of Alaska Earth Sciences of 11341 Olive Lane, Anchorage, Alaska.

5. The statements in this report are based on field work on claims at intervals during the period from July 31 to September 9, 1991.

Dated at Vancouver this 3rd day of December, 1991.

[Signature]

Toni K. Hinderman
7.0 REFERENCES


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